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**FEDERALISM AND THE GROWTH OF GOVERNMENT
REVISITED**

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DISCUSSION PAPER 91.05
April 1991

DEPARTMENT OF ECONOMICS

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This paper reexamines the issue of decentralization and government growth using Canadian data. In addition, and more importantly, it examines the issue raised by Brennan and Buchanan but largely ignored in the literature: collusion among governments to circumvent the discipline of competitive federalism. Just as participants in a conventional market will seek to moderate competitive pressures through attempts to establish a cartel, so will component governments in a federal constitution collude for the same purpose. Evidence reported indicates a positive correlation between collusion and total Canadian government size as well as the size of each separate level of government.

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FEDERALISM AND THE GROWTH OF GOVERNMENT REVISITED

1. Introduction

Recent research in public economics has been testing for a relationship in federal states between the decentralization of governments and the total and individual size of government shares in GNP. According to one view, economic theory offers no unambiguous empirical predictions. Provided there is a competitive political environment at each government level, the rivalry between political parties will result in an outcome that conforms approximately to the preferences of the citizens, as interpreted in the conventional median-voter model. Under this scenario, it is not certain what differences might be caused by more decentralization (Oates, 1985). To determine any difference we would have to possess considerable knowledge about the distribution of tastes and the location of the populace.

It has been hypothesized, nevertheless, that increased decentralization could result in a higher level of government expenditure. Quoting the economic historian John Wallis, Oates (1985, p. 749) suggests that "since individuals have more control over public decisions at the local than at the state or national level, they will wish to empower the public sector with a wider range of functions and responsibility where these activities are carried out at more localized levels of government."

Such a proposition, which we shall refer to as the Decentralization I Hypothesis or the Oates/Wallis Hypothesis, certainly appears plausible and worthy of testing. Before

proceeding, however, we offer two comments.

First, the implication in the Oates/Wallis Hypothesis that citizens have less control over national decisions conflicts with our first paragraph's picture of an equally competitive political environment at this level and other levels of government. The reduction in public control at the national level, that is, implies imperfectly competitive or monopoly elements in the federal political process wherein the wishes of the median voter are not fully respected. Second, the implication of the Oates/Wallis hypothesis is that some public functions are transferable from higher to lower level government. In turn, this appears to imply a reduction of federal government expenditure following decentralization. We shall bear this latter implication in mind in our empirical work.

Another line of economic inquiry switches attention from competition in the political process at each separate government level to competition between different governments and levels of government (Brennan and Buchanan, 1980). This implies, of course, that governments are supplying at least some services that are substitutable between them. The less centralized the federation, according to this approach, the greater the degree or intensity of competition between component governments and the smaller the share of aggregate government expenditure in the GNP, ceteris paribus. We shall refer to this type of argument as the Decentralization II Hypothesis.

In his empirical study of forty-four countries including the

United States, Oates (1985) finds no support for the Decentralization II Hypothesis. Nelson (1986) finds no support for the same proposition for the state and local sector of the United States. Nelson (1987) finds that greater 'fragmentation' at the state and local level is associated with lower levels of public spending. Zax (1989) finds that both greater decentralization and greater fragmentation at the county level of government contributes to smaller government. Joulfaian and Marlow (1990) present additional findings that decentralization and fragmentation contribute to smaller government size. In a study using time-series data for the United States, Marlow (1988) finds an inverse relationship between decentralization and government size.

The above research has focused on the Decentralization II Hypothesis that is based on the premise that decentralization (and fragmentation) automatically implies competition. The two need not go hand in hand, however. Even if there is a move towards greater decentralization, other things may be happening simultaneously. Decentralization may be occurring, for instance, at the same time as component governments of the federal state are colluding to establish a cartel among themselves, an event that dampens the competitive influence of decentralization and pushes in the direction of budget expansion. Brennan and Buchanan noted that "[P]ossibilities for collusion among separate governmental units ... must be included in the 'other things equal'" (1980, p. 185).

This Brennan and Buchanan argument will be referred to below as the Collusion Hypothesis. It can be further elaborated as

follows: Just as participants in a conventional market will seek every opportunity to moderate competitive pressures through attempts to establish a cartel, so will component governments in a federal constitution be induced to try to collude for the same purpose. In the absence of Collusion and under a system of free competition, each separate government will have incentives to cut 'tax prices' in order to attract population and resources from other parts of the federation, ceteris paribus. One way of hindering this process is to try to establish a uniform 'tax price' system across all jurisdictions, the higher level of government being the logical body to administer the cartel agreement.

In return for an appropriate share of the additional revenue, the central government would act as an enforcer of the agreement between governments, doling out financial penalties to those jurisdictions which attempted to breach the agreement. Appropriate "fiscal effort" would become an important criterion for determining the share of total revenue that went to each lower-level government: If some state/province levied a low rate of tax in relation to some instrument over which it retained jurisdiction, other states would need to be able to penalize it by means of its grant appropriation by central government.⁴

Brennan and Buchanan draw out the further implication that the extra revenues generated by forming a cartel will be shared on a roughly equal basis because any one state/province taken separately "can effectively break the cartel by remitting taxes and attempting to attract extra residents/taxpayers thereby."⁵ It follows that small states/provinces will obtain larger per capita shares than large states/provinces.

Brennan and Buchanan's conclusion amounts to an invitation to conduct empirical work on the Collusion Hypothesis: "There are,

then, clear empirical implications here that could be tested to determine the extent to which this explanation of revenue sharing and the structure of grants is an acceptable one."³

Considering the historical presence of revenue sharing in the U.S. during Marlow's (1988) data period, the Collusion Hypothesis suggests that his empirical findings supporting the Decentralization II Hypothesis could have been stronger. The Dates and Nelson studies are incomplete for the same reason. If they had included a test for collusion, their results might have been quite different. Meanwhile, the subsequent papers by Forbes and Zampelli (1989), Zax (1989) also continue to ignore the important Brennan and Buchanan caveat about potential collusion.

The purpose of this paper is to test Hypothesis I and II and also the Collusion Hypothesis using Canadian data. We shall go further than Marlow (1988) and examine the impact that collusive actions among central and lower-level governments have on total government size. The evidence presented indicates that in Canada collusive behavior among governments has been present and in a way consistent with the Brennan and Buchanan monopoly government hypothesis.

Section 2 contains a summary of Canadian statistics and institutional structure that are relevant to our three hypotheses. Section 3 reports our empirical results. Section 4 presents our main conclusions.

2. A Description of Canadian Data and Institutional Background

The size of government in Canada as a percentage of GNP (TGOV) increased 60 percent from 1958 to 1987 (see Figure 1). Total government expenditures equalled 28.2 percent of GNP in 1958 and was 44.8 percent of GNP in 1987. The most dramatic growth was registered by the provincial governments. Their share of GNP (PGOV) tripled, growing from 5.7 percent to 17.7 percent. The federal government increased its share in GNP (FGOV) from 17.6 percent to 23.0 percent. Local governments' share of GNP (LGOV) declined slightly from 4.9 percent to 4.1 percent.

The extent of fiscal decentralization increased over the period 1958-87 (see Figure 2). Provincial and local government expenditures as a share of total government expenditures (DEC) increased by approximately 30 percent, from 37.8 percent in 1958 to 48.7 percent in 1987. Federal grants-in-aid as a percentage of total provincial and local receipts (TGRT) fluctuated considerably over the thirty-year period. By 1987, however, grants accounted for the same share of receipts as they did in 1958.

We have seen that the Buchanan/Brennan Collusion Hypothesis predicts two events: 1) a federal government initiated move towards uniformity in 'tax prices' across states or provinces; 2) an equal sharing among governments of the extra revenues generated. We shall argue that the phenomenon of 'tax price fixing' in Canada can be seen in terms of it's federal government's gradual takeover of the process of tax collection on behalf of lower level governments. This takeover has been accompanied by the acceptance by provinces

of a uniform tax base and a common pattern of progressivity. The phenomenon of the trend towards equal sharing of revenues across provinces, meanwhile, is explicitly recognized in the equalization program that has been taking shape since the late 1940s and finally enshrined in Canada's Constitution Act of 1982.⁴ Some salient details of these recent historical trends towards tax uniformity and equalization are presented next.

One early element of equalization appeared in connection with a 50 percent cost-sharing arrangement which, by the 1950s, had been worked out in the area of old-age pensions. This arrangement was superseded in 1952 when the federal government assumed full responsibility. The increased equalization in this change arose from the fact that "all citizens, even the residents of poor provinces, now had equal access to the transferred services."⁵

It was the Royal Commission on Dominion-Provincial Relations (the Rowell-Sirois Commission), appointed in 1937 that advised the federal government to take over old-age pensions (and unemployment relief). But this same body also recommended that income and corporation tax be administered by the federal government for reasons of efficiency and 'tax harmonization'. Finally it urged 'national adjustment grants' to the poorest provinces so that they could provide public services of average quality "without placing an undue tax burden on their citizens". Such national adjustment grants of course implied a further move towards equalization payments. The Commission's rationale included the complaint that "Canadian citizens in some provinces are required to contribute a

much larger portion of their incomes to the government of the province than those in other provinces".⁶ Such references to the Commission's philosophy is relevant because its reasoning still pervades the fiscal-federal scene.

The emergence of the Second World War led to the provinces 'renting' to Ottawa the personal and corporate income tax bases. Each province received the revenues generated within its boundaries. After the war the federal government expressed its desire to continue its control of the income taxes. Agreements were reached in 1947 resulting in federal grants to the provinces of between \$12.75 and \$15.00 and calculated on a population basis. Provision was made also for the option of minimum annual payments, and this was designed specifically for the low income Province of Prince Edward Island. After 1947 increases in payments were based on population growth. The fact that grants were paid to provinces on a per capita basis rather than on income tax revenues collected within its borders obviously had some levelling effect.

The tax rental agreements were modified to some extent in 1952 and then lasted until 1957, the year in which a formal equalization program was inaugurated.

1957 Equalization Arrangement

In and after 1957 provinces could continue to 'rent' the three standard taxes (personal, corporate income taxes and succession duties) to the federal government. The rental payment consisted of (a) 10 percent of the personal income taxes collected in the province, (b) 9 percent of the corporate profits taxes and (c) 50

percent of the federal succession duties. This was a move away from the previous population-related transfers which, as previously observed, had produced some equalizing effect. The element of equalization was restored, however, via another route. The federal government agreed to pay each province an amount calculated to bring its level of per capita yield from the three standard taxes up to some "average yield". At first this target benchmark was determined by the yield in the two wealthiest provinces (Ontario and British Columbia). In later years this was modified to a more representative average.

Further Adjustments 1958-61

After the 1958 tax year the provincial share of personal income tax was lifted from 10 to 13 percent. Additional assistance provided to Newfoundland in 1957-58 (\$6.6 million) was increased to \$8 million by 1961-62. Moreover, Atlantic Provinces Adjustment (flat lump sum) Grants of \$25 million were enacted, ostensibly because of the low fiscal capacity in these areas. The grants were very significant to the recipient provinces, increasing their net revenues up to 25 percent over 1957-58.

In 1958 the federal government introduced a conditional hospital insurance grant scheme such that provinces spending less than the per capita national average received more than 50 percent of their total costs (and vice versa).

1962: Income Tax Structure

In 1962 it was officially recognized via "tax collection agreements" that provinces were allowed to levy their own income

taxes and have them collected free of charge by the federal government. But certain conditions applied. Although the provinces could set their own tax rates they had to accept the federal structure of taxes i.e. the same pattern of progressivity. The provinces also had to accept the federal definition of taxable income. The federal government agreed to abate 16 percent of its basic personal income tax and 9 percent of the corporate tax to the provinces. The abatement of personal income tax was increased several times between 1962 and 1966 and reached 24 percentage points in 1966. Thus the provinces enjoyed a 24 percent reduction in the federal government's taxes, so making room for them to tax this share. All of the provinces except Quebec joined the tax collection agreements for personal income taxes. It should be noted that provinces were free to enact higher income tax rates than those implied by the new (24%) tax room and some of them did. Equalization was thus not yet fully implemented.

1967 Equalization

In 1967 legislation was passed aimed at "the best equalization arrangements for the period 1967-72". The formula adopted took into account all provincial revenues, and aimed at bringing the revenue yield in all provinces up to the national average yield. Average provincial tax rates were applied to a comprehensive index of fiscal capacity in each province. Sixteen tax sources entered the formula in the 1967 version of the program. By 1981-82, however, the number of relevant tax sources had increased to 30. The rationale for the introduction of the representative tax

system' of equalization seemed clearly connected with the Rowell-Sirois philosophy (see Footnote 3).

In 1968 the federal government introduced a plan of sharing the costs of provincial medicare. It offered to grant 50 percent of the total of provincial expenditures, but to pay out its share on an equal per capita basis. This again implied a strong equalization process.

The 1970s and 80s

As far as equalization is concerned one of the most significant developments in the 1970s was that the proportion of property taxes levied for school purposes was incorporated in the equalization program 1973-74. Under the fiscal arrangements of 1982-87 a new formula brought provincial revenues per capita up to the average per capita level of five provinces, Ontario, Quebec, Manitoba, Saskatchewan and British Columbia. Coverage was extended to include municipal revenues and 100 percent of resource revenues. The growth of equalization payments after 1983, however, was constrained by the rate of G.N.P. growth.

Much of the 1970s period was occupied with attempts to protect the equalization program after oil prices rose at the beginning of the decade. During this period the federal government had to make increased payments to recipient provinces. One reason for the adoption of the five province standard for the averaging benchmarks was that it omitted oil and gas revenues (Alberta not being included in the five key provinces). The result was that the level of equalization was lowered.

The second large federal grant program is called the Established Programs Financing (EPF). It relates primarily to post-secondary education and health provision. The EPF system involves both "tax transfers" (some reduction of federal taxes) to provinces and grants. In 1977 federal transfers for post-secondary education and health were consolidated. Their magnitude, moreover, was disconnected from actual provincial expenditures in these fields. The basis for the transfer became the average national per-capita grants paid for these programs in 1975-76, times a three year moving average of per-capita GNP growth.

In effect the EPF transfer is unconditional. But the main point for our purposes is that "while not so obviously redistributive as equalization, the combination of general revenue financing and equal per-capita payments means that the E.P.F. grant is also redistributive in favor of poor provinces".⁷

This review of events appears descriptively to be in line with conditions for the Buchanan/Brennan Collusion Hypothesis: The move to 'tax-price fixing' has appeared by way of central tax collection while the equal sharing of collusion benefits is evident in the emergent equalization program that has been outlined.

It can, of course, be argued that we face two competing hypotheses that explain the same events. The first is the Collusion Hypothesis (as previously outlined). The second is the proposition that governments sincerely undertake equalization policies for reasons of equity promotion. Since the latter hypothesis assumes a benevolent despot model of government, it will

appear less plausible to economists who assume individual self-interest to apply to politicians no less than to others.

Fortunately, we can go further than choosing between the propositions on the basis of simple plausibility. The Collusion Hypothesis predicts two more events than does its rival. It predicts first that the expenditure of government as a whole will increase relative to GNP, and second that each individual level of government will likewise increase. If our empirical tests reveal such growth of government in total and/or separately, we shall have reason to give greater weight to the Collusion hypothesis.

3. Empirical Testing

The Brennan/Buchanan Collusion Hypothesis is stated in terms of a government cartel. Since a member of a cartel would withdraw if he did not realize some distinct gains, our first test is of the following proposition: As the degree of collusion increases, the size of each separate level of government will increase relative to GNP. To test this hypothesis, the following six equations were estimated.

$$FGOV_t = a_0 + a_1 DEC_t + a_2 TGRT_t + e_t \quad (1.1)$$

$$FGOV_t = a_0 + a_1 DEC_t + a_2 TGRT_t + a_3 X_t + e_t \quad (1.2)$$

$$PGOV_t = b_0 + b_1 DEC_t + b_2 TGRT_t + u_t \quad (2.1)$$

$$PGOV_t = b_0 + b_1 DEC_t + b_2 TGRT_t + b_3 X_t + u_t \quad (2.2)$$

$$LGOV_t = c_0 + c_1 DEC_t + c_2 TGRT_t + h_t \quad (3.1)$$

$$LGOV_t = c_0 + c_1 DEC_t + c_2 TGRT_t + c_3 X_t + h_t \quad (3.2)$$

where

$FGOV_t$ = federal government expenditures as a share of GNP in time t

$PGOV_t$ = provincial government expenditures as a share of GNP in time t

$LGOV_t$ = local government expenditures as a share of GNP in time t

DEC_t = provincial and local government expenditures as a share of total government expenditures in time t

$TGRT_t$ = a measure of collusion among governments

e_t, u_t, h_t = random disturbance terms

The control variables included are the same as Marlow's: per capita disposable income (in 1982 dollars), Y , and population (in millions), P . All data are for the period 1958-87 and are obtained from The National Finances (annual).⁸

Since collusion among governments in a federal system is hypothesized to operate through a system of intergovernmental grants, our measure of collusion employed is correspondingly

defined as federal grants-in-aid as a share of total provincial and local government receipts, TGRT.⁹ It is postulated that as the level of collusion increases, the share of grants-in-aid in total receipts will increase.

Intergovernmental grants are made by both the federal government and the provincial governments. The overwhelming majority of federal grants was made to the provincial governments and the overwhelming majority of provincial grants was made to the local governments. The dollar magnitude of grants passing up the federal hierarchy was minimal. TGRT, therefore, represents a measure of 'net' intergovernmental transfers received -- grants to local governments plus the difference between federal and provincial grants.

Our findings are reported in Table 1. All equations except (3.2) were subject to serial correlation and the reported results have been corrected for first-degree serial correlation.

The first thing to note is that the growth of collusion, measured again as the share of federal grants-in-aid in total provincial and local government receipts, leads to growth in the size of all three levels of government relative to GNP (after including the control variables). The coefficients for TGRT are positive and significant at the 95 percent level in all equations except (3.1). These results are consistent with our hypothesis that if government represents a cartel, then all members of that cartel must receive some benefits from their membership.

The second important factor that should be noted is that the

coefficients for DEC are negative and significant in the federal government equations and positive and significant in the provincial and local government equations. These results are, at least in one sense, consistent with the Decentralization I Hypothesis (the Oates/Wallis hypothesis) that, with respect to lower level governments, decentralization may actually lead to more public expenditure. The reported results suggest, in other words, that as greater power passes down to governments closer to the citizenry, the citizenry is more willing to grant those governments a broader range of powers.

As previously explained, however, if the Oates/Wallis mechanism were the only one operating, we would expect a reduction in the size of the federal and provincial governments as some of their services are being transferred to the local governments. The fact that our results show an expansion in provincial and local governments and a reduction in the federal government as a result of greater decentralization, coupled with an expansion in all governments as a result of increased intergovernmental transfers, therefore, suggests simultaneous support for both the Collusion Hypothesis and the Oates/Wallis Hypothesis.

Our second test of the Collusion Hypothesis is to replicate Marlow's (1988) analysis of the impact of decentralization on aggregate government size, but with the addition of our collusion variable. To test this hypothesis the following equations were estimated:

$$TGOV_t = d_0 + d_1 DEC_t + d_2 TGRT_t + d_3 X_t + z_t \quad (4.1)$$

$$TGOV*_t = d*_0 + d*_1 DEC*_t + d*_2 TGRT*_t + d*_3 X*_t + z*_t \quad (4.2)$$

where

$TGOV_t$ = total governmental expenditures as a share of GNP in time t

$TGOV*_t$ = annual growth rate of $TGOV_t$

$DEC*_t$ = annual growth rate of DEC_t

$TGRT*_t$ = annual growth rate of $TGRT_t$

$X*_t$ = annual growth rate of X_t , and

$z_t, z*_t$ = random disturbance terms.

Table 2 reports estimates of equations (4.1) and (4.2) both with and without the control variables. Estimates for equation (4.1) have been corrected for first-degree serial correlation.

The evidence reported in Table 2 is consistent with Marlow's findings in the sense that the fiscal decentralization variable (DEC) is inversely correlated with government size. The evidence suggests that in the aggregate, increased decentralization decreases the size of the federal government more than it increases the size of the provincial and local governments. This result is significant at the 95 percent level for equation (4.1) but only at the 90 percent level for equation (4.2).

The coefficient of TGRT is positive, as hypothesized. It is significant at the 95 percent level for all regressions except (4.2) with the control variables included. The positive

correlation is consistent therefore with the Brennan and Buchanan hypothesis that governments will collude to moderate the discipline of competitive federalism, with the collusion taking the form of intergovernmental grants. This evidence, along with that presented for our first test, consequently offers support for the monopoly of cartel government assumption and the Collusion Hypothesis.

The positive coefficient of TGRT is also consistent with published empirical evidence by Gramlich (1977), for instance, which suggests that $d_2 > 0$. Grossman (1989) also argues that $d_2 > 0$ on the basis of an interest group theory of governments. At the grantor government level, the burden of financing grants is likely to fall disproportionately on increased taxation, since the burden can be borne by broad-based taxes with the cost per taxpayer being relatively low. At the recipient government level, grants are more likely to be used to increase expenditures favored by interest groups with high benefits per member than to reduce general tax levels with low benefits per taxpayer. Grossman reports strong empirical evidence in support of this hypothesis.

Our review of events in Section 2 presented a picture of fairly steady growth of equalization throughout our period with some slowing down after 1972. Some may argue, however, that the situation is best described via discrete steps in the form of several distinct legislative acts. At first sight one certainly receives the impression that the following years were important turning points:

1958: This was the year when the first equalization payments

(under the 1957 legislation) were received. Also received for the first time were the Atlantic Provinces Adjustments Grants which increased their net revenues by 25 percent over the previous financial year. As well, the federal government introduced the 'equalizing' hospital insurance scheme.

1963: All participating provinces had accepted the same (federal) definition of taxable income and the same pattern of progressivity under the legislation of the previous year.

1968: Sixteen tax sources were now (under the 1967 legislation) used as an index of fiscal capacity. Also the medicare cost sharing plan was in its first year of operation.

In light of these events, two tests were performed to determine the stability of parameters across time. For the first test, two variables, D1 (equal to TGRT if the year is 1963 or later, zero otherwise) and D2 (equal to TGRT if the year is 1968 or later, zero otherwise), were included in the regression equations to test the stability of the coefficient on TGRT. The second test was a Chow test of coefficients' stability using 1968 to break the data into two sets. For both tests, in all regression equations, the null hypothesis of stable parameters was not rejected.

4. Conclusion

This paper has examined the effect of decentralization and collusion on the share of total Canadian government expenditures in GNP. The reported results offer support for the use of Brennan and Buchanan's monopoly government assumptions in public sector modelling. Our empirical evidence indicates an inverse correlation between fiscal decentralization and the total share of Canadian government in GNP. This finding is similar to that of Marlow (1988), who uses U.S. data. On a disaggregated level, it is the federal government's share in GNP which declines. The shares of the provincial and local governments actually increase with decentralization.

Tests of the Collusion Hypothesis, where collusion is measured as the share of federal grants in total provincial and local government receipts, have the expected positive sign. Increased grants-in-aid are positively correlated with total Canadian government size as well as with the size of each separate level of government. That is to say each government appears to increase in size when the degree of collusion increases.

Fiscal decentralization by itself may not be a strong enough constraint on the behavior of revenue-maximizing governments since it may be substantially offset by simultaneous collusive agreements among all governments. In other words, the discipline of competitive federalism can be weakened by tax collusion among the separate governmental units. This tax collusion may take the form of transfers of taxing powers to the central government coupled

with implicit or explicit 'revenue-sharing' agreements taking the form of intergovernmental transfers.

Our findings are particularly interesting in current circumstances since, faced with a large budget deficit, the Canadian Federal Government has announced (1989) a further reduction in future growth of federal grants to be less than the growth in the economy¹⁰. In terms of this paper, this implies a steadily declining level of collusion. Other things equal, such decline predicts a reduction of the share of total Canadian government expenditures in GNP in the near future.

Table 1. Effect of Decentralization and Collusion on the Size of Individual Governments

Var.	Fed. Govt.		Prov. Govt.		Loc. Govt.	
	(1.1)	(1.2)	(2.1)	(2.2)	(3.1)	(3.2)
DEC	-2.24*	-3.12*	2.97*	2.27*	1.14	1.95*
	(2.95)	(7.10)	(2.96)	(4.59)	(1.23)	(5.32)
TGRT	2.14*	1.62*	2.33*	1.88*	0.79*	1.51*
	(2.65)	(2.47)	(2.20)	(2.44)	(0.70)	(2.42)
Y	---	-0.00003	---	-0.000004	---	-0.00005*
	---	(0.90)	---	(0.11)	---	(2.08)
P	---	0.02	---	0.05	---	-0.07
	---	(0.74)	---	(1.29)	---	(1.56)
TIME	---	0.02#	---	0.02	---	0.02
	---	(1.96)	---	(1.69)	---	(1.28)
CON.	-0.76#	-2.32*	-3.83*	-6.19*	-3.67*	-3.50*
	(1.72)	(7.40)	(6.41)	(17.24)	(7.16)	(13.01)
\bar{R}^2	0.94	0.97	0.98	0.99	0.70	0.86
RHO	0.98	0.55	0.98	0.49	0.88	---
D.W.	---	---	---	---	---	2.31

absolute value of t-statistic in parentheses.

* - significant at the 95 percent level, two-tailed test.

- significant at the 90 percent level, two-tailed test.

Table 2. Effect of Decentralization and Collusion on the Overall Size of Government

Variable	(4.1)		(4.2)	
	DEC	-0.065 (0.07)	-1.334* (2.27)	-0.308 (1.22)
TGRT	2.649* (2.50)	1.896* (2.18)	0.270* (2.66)	0.132 (1.04)
Y	---	-0.00004 (1.02)	---	-0.392 (1.30)
P	---	0.027 (0.66)	---	0.164 (0.31)
TIME	---	0.034# (2.04)	---	-0.117 (1.17)
CONSTANT	-0.984# (1.70)	-2.968* (7.12)	1.815* (2.94)	11.520 (1.39)
R ²	0.953	0.972	0.255	0.267
RHO	0.979	0.556	---	---
D.W.	---	---	1.865	1.986

absolute value of t-statistics in parentheses.

* - significant at the 95 percent level, two-tailed test.

- significant at the 90 percent level, two-tailed test.

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FOOTNOTES

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1. Brennan and Buchanan (1980) p. 182.
2. Ibid.
3. Ibid.
4. The Collusion Hypothesis argues that local governments will find it in their interest to collude. Maintenance of the cartel may require a rough equality in the distribution of extra revenues. This does not deny the fact that once the cartel is formed governments will have an incentive to jockey for a greater share even at the risk of bringing down the cartel. Imposition of equalization programs may represent attempts by the governments to limit such jockeying; a recognition that the gains to be had from competing are more than outweighed by the potential losses if the cartel should fail.
5. Courchene, Thomas J. (1984), Equalization Payments, Ontario Economic Council, p. 98.
6. Report of the Commission on Dominion-Provincial Relations, Government of Canada, Ottawa (1939), Book II, 79.
7. Musgrave, Musgrave and Bird. (1987), Public Finance in Theory and Practice, McGraw Hill Ryerson, p. 512.
8. This was the longest period for which complete and consistent data were available. Marlow's study covered the period 1946-85.
9. Grants, in the aggregate, are assumed to be fungible (see McGuire; 1978, 1979).
10. Restraints on the growth of 'transfers to other levels of government' were introduced at the end of 1984. The latest announced policy is that of further tightening. See Department of Finance (1989).

Figure 1: Size of Government, 1958-87

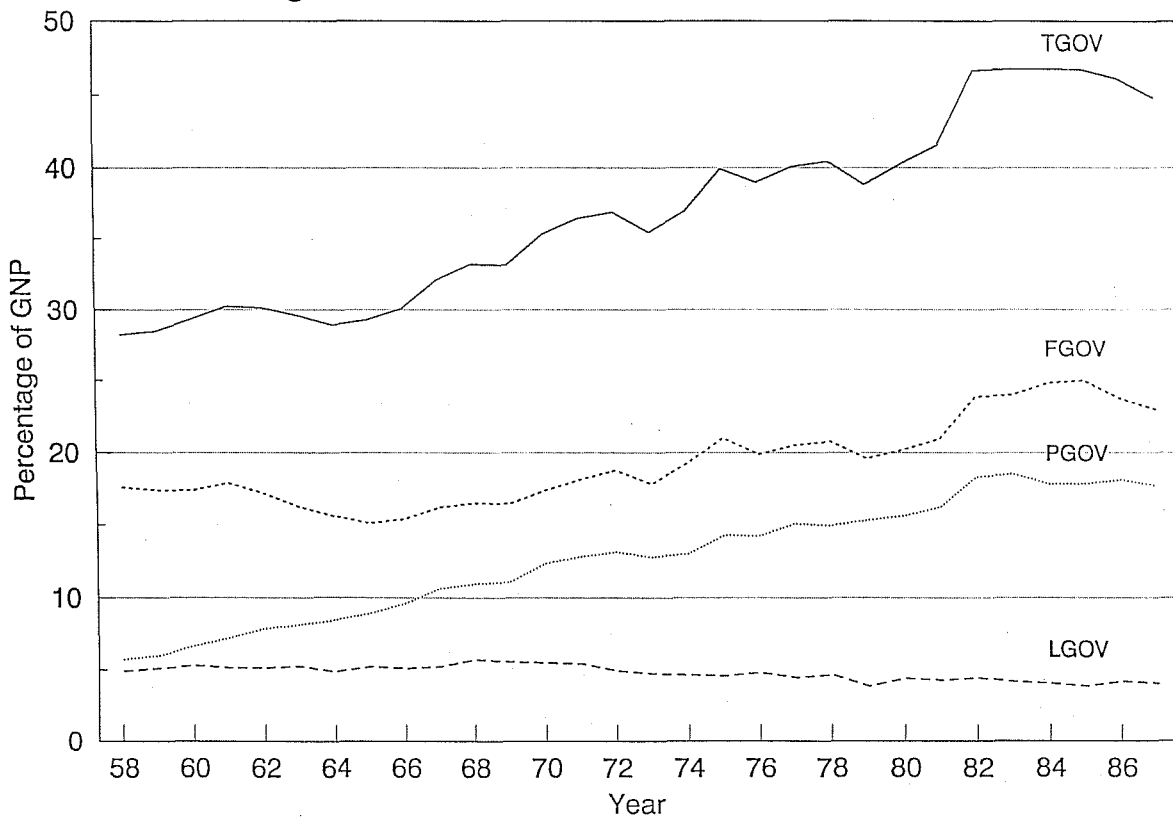
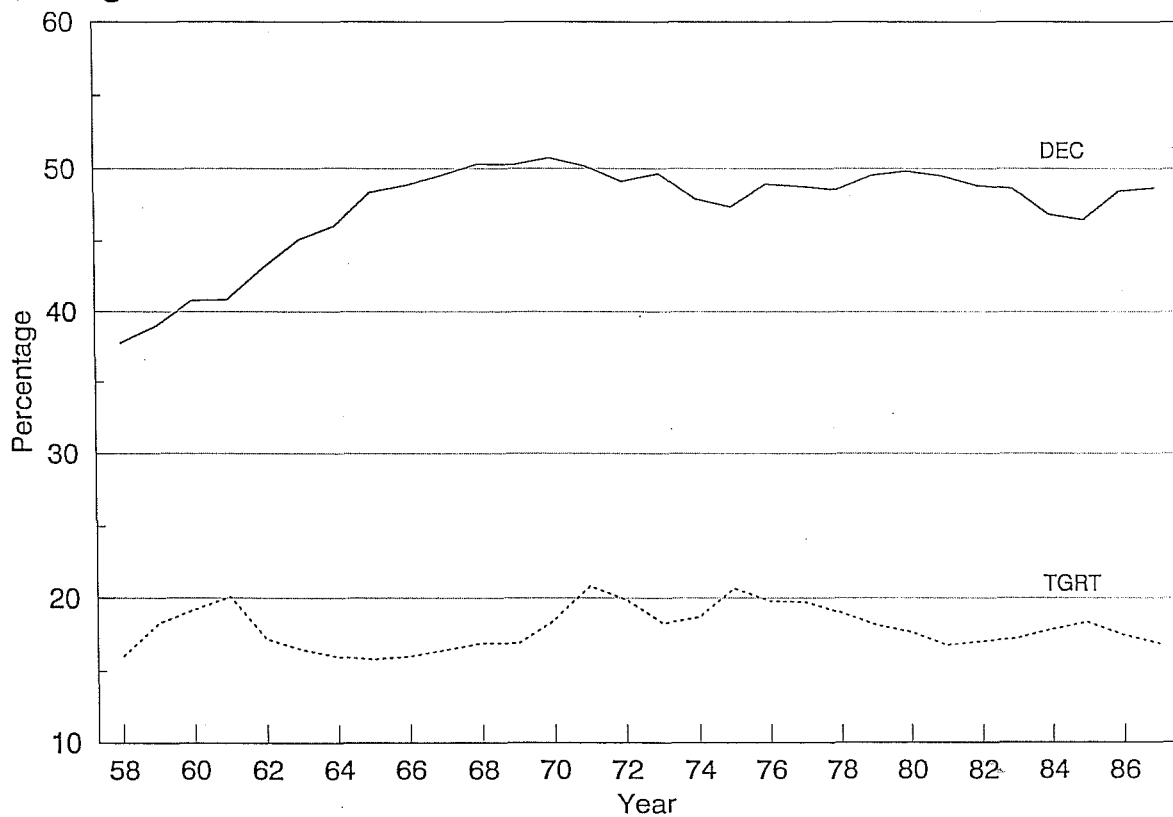


Figure 2: Decentralization and Federal Grants-in-Aid, 1958-87



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