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FEDERAL ASSISTANCE AND LOCAL  
SERVICES IN THE UNITED STATES:  
THE EVOLUTION OF A  
NEW FEDERALIST FISCAL ORDER

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ABSTRACT

The federalist fiscal structure of the United States has been evolving steadily towards the centralization of the financing of government services and transfers. Revenues are raised centrally and then transferred, via grants-in-aid, to state and local governments. This paper seeks to explain this movement towards centralized financing. Two alternative hypotheses are examined. The first--that aid is allocated to correct market or political failures in the local public economy or to equalize the provision of meritorious local public goods--generally fails to account for the distribution of federal aid over the past thirty years. The second hypothesis--that aid is allocated to ease the fiscal pressure in the state-local sector when, and only when, it is in the political interests of Congressional representatives to do so--is supported by the recent data. Our current system of federal grants to state and local governments is a logical outcome of a Congressional budget process that rewards the centralized financing and the localized provision of public good and services.

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## Federal Assistance and Local Services in the United States:

### The Evolution of a New Federalist Fiscal Order

by

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From its beginnings, the fiscal system of the United States has been committed to the principle that multiple layers of government is the preferred structure for the financing and provision of government services. The U.S. Constitution through the Tenth Amendment expressly protects the rights of states to pursue their own fiscal agendas provided those agendas do not conflict with clearly legislated federal objectives or constitutionally protected individual rights.<sup>1</sup> Most state constitutions through charters for the creation of local governments offer similar protections for the fiscal activities of cities, counties, and special districts.<sup>2</sup> While the rules for defining the domains of fiscal decisions are reasonably clear, the exact contents of these domains are not. Our federalist fiscal structure is an evolving structure, changing in response to the demands upon it for the provision of public goods. This paper will examine the most recent phase of this evolutionary process: the recent centralization in the financing of the state and local provision of public services.<sup>3</sup>

Tables 1-3 reveal the basic trends. Three central facts stand out. First, total federal, state, and local government spending has been increasing steadily over this century, both in real dollars and as a percent of national income (Table 1). The major components of this growth are federal outlays for defense (growing at 3.61% per annum since 1902), government direct transfers to persons (growing at 6.65% per annum), and governments' direct provision of goods and services (growing at 2.70% per annum). Second, state and local governments are the main producers of non-defense, non-transfer public goods

Table 1: The Growth of All Government Spending  
Federal plus State plus Local Government Spending on:\*

Year	Total (% of Personal Income) (1)	Defense (2)	Transfers to Persons (3)	Goods and Services (4)
1902	\$195.49 (7.74%)	\$23.87	\$3.10	\$103.30
1913	272.22 (9.04%)	31.62	3.20	137.50
1922	369.18 (12.78%)	46.71	5.70	209.00
1932	560.09 (22.14%)	44.54	17.40	397.30
1940	830.28 (24.31%)	66.19	70.10	420.40
1950	1405.78 (28.70%)	290.22	176.50	412.00
1960	1651.31 (34.67%)	569.94	217.20	542.10
1970	1834.62 (37.82%)	498.72	405.60	809.40
1980	2057.02 (37.78%)	346.09	702.70	958.90
1985	2223.12 (39.13%)	459.90	662.89	953.01
Annual Rate of Growth, 1902 to 1985	2.96%	3.61%	6.65%	2.70%

Notes for Table 1

\*1972 dollars per capita.

Sources: All government spending data for the period 1902 to 1970 are from Bureau of Census 1975, Historical Statistics of the United States, Series Y605-637, Y682-709; Data for the year 1980 are from Bureau of Economic Analysis, 1984, National Income and Product Accounts (NIPA), 1929-82, Tables 3.2 and 3.1; Data for the year 1985 are from Bureau of Economic Analysis, Survey of Current Business, July, 1986, Tables 3.2 and 3.3.

The price deflator for government goods and services, for defense spending, and for total government spending is the implicit price deflator for all government. Sources are the Bureau of Census, 1975, Historical Statistics for the period 1932-1970, Series E1-22; the Bureau of Economic Analysis, 1984, NIPA, 1929-1982, Table 7.6, for 1980; and the Bureau of Economic Analysis, Survey of Current Business, July, 1986, Table 7.6, for 1985. For the period 1902-1932, the GNP price deflator for government services was assumed to have the same rate of change as the "all items" CPI, from Historical Statistics, p. 211.

The price deflator for transfers to persons was the implicit GNP price deflator, available from Historical Statistics for 1902-1970, Series E1-22, from the NIPA for 1980, Table 7.6, and from the Survey of Current Business, July, 1986, Table 7.6, for 1985.

Table 2: Federal and State-Local Governments' Provision  
of Non-Defense Public Goods and Services

Year	Total (1)	Federal (2)	State-Local (3)	(State-Local's % of Total)
1902	\$103.30	\$29.96	\$73.34	(71%)
1913	137.50	35.89	101.61	(74%)
1922	209.00	73.15	135.85	(65%)
1932	397.30	139.05	258.25	(65%)
1940	420.40	130.32	290.08	(69%)
1950	412.00	45.32	366.68	(81%)
1960	542.10	86.19	455.91	(84%)
1970	809.40	121.41	687.99	(85%)
1980	958.90	160.14	798.76	(83%)
1985	953.01	159.95	793.06	(83%)
Annual Rate of Growth	2.70%	2.03%	2.89%	

Notes:

\*1972 dollars per capita.

Sources: Expenditure data for 1902-1970 are from the Bureau of Census, 1975, Historical Statistics of the United States, Series Y605, Y682-709; for 1980 from the Bureau of Economic Analysis, 1984, National Income and Product Accounts, Tables 3.2 and 3.3; for 1985, Bureau of Economic Analysis, Survey of Current Business, July 1986, Tables 3.2 and 3.3.

The price deflator is the implicit price deflator for all government; see Table 1 for references.

Table 3: Financing State and Local Government\*

Year	State Governments				Local Governments				Federal + State Aid as % of Total Revenue
	Total Revenue (1)	Own Revenue (2)	Federal Aid (3)	Federal Aid as % of Total Revenue (4)	Total Revenue (5)	Own Revenue (6)	Federal Aid (7)	State Aid (8)	
1902	\$15.00	\$14.76	\$ .24	1.6%	\$106.81	\$99.81	\$ .50	\$6.50	6.5%
1913	21.25	20.91	.34	1.6%	146.30	137.63	.54	8.13	5.9%
1922	61.90	57.01	4.89	7.9%	180.98	166.03	.42	14.53	8.3%
1932	77.83	70.67	7.16	9.2%	286.75	245.88	.50	40.37	14.3%
1940	105.13	89.15	15.98	15.2%	305.39	220.35	12.24	72.80	27.8%
1950	189.01	150.83	38.18	20.2%	300.90	205.82	4.53	90.55	31.6%
1960	262.03	201.24	60.79	23.2%	384.19	266.63	6.90	110.76	30.6%
1970	431.77	324.69	107.08	24.8%	471.91	299.72	15.19	157.00	36.5%
1980	535.90	392.28	143.62	26.8%	560.36	313.45	50.95	195.96	44.1%
1985	626.22	472.09	154.13	24.6%	607.09	370.41	37.23	199.44	38.9%

Notes:

\*1972 dollars per capita.

Sources: All Aid and revenue data for the three period 1902-1970 are from Bureau of Census, 1975, Historical Statistics of the United States, pp. 1129-1132. Data for the period 1971-1985 are from various issues of Bureau of Census, Governmental Finances, published annually. The price deflator is the implicit price deflator for all government; see Table 1 for references.

(Table 2). Finally, there is a decided trend towards the centralized financing of these state and local services (Table 3). At both the state and local levels the trend is to move the revenue decision upward to a higher level of government. Note however, that at the same time we have centralized the financing of state and local services the spending and production decisions have remained at the state and local level. While financing has become centralized, provision decisions have remained localized.

The move of our fiscal system towards the centralized financing of local services is not a new phenomenon. The federal government has always provided aid to the states, and states have always given fiscal assistance to their localities.<sup>4</sup> What is new--at least since 1960--is the dollar volume of such assistance and its rapid growth. The story behind this important change is both economic and political. Economic in that fundamental demographic and economic changes have acted to increase the demand for state and local services in this period. Political in that local officials have argued, and Congress has eventually agreed, that it would be politically advantageous to finance this expansion via federal grants-in-aid. Growing economic pressure for local services and the political attractiveness of centralized financing are the root causes of our new federalist fiscal order.

## **II. The Evolving Structure of Federal Assistance**

Historically, the federal government has always supported state and local governments: federal aid is not a new idea. The early land grants to states for purposes of education, railway expansion, and public infra-structure development were sizeable, often constituting 20% or more of the land area of the recipient state.<sup>5</sup> Dollar grants appeared for the first time as a significant transfer to states with the passage of the Federal Aid Road Act of

1916 and the approval of the Smith-Hughes Act of 1917.<sup>6</sup> The 1930's marked the next major expansion of federal assistance for state and local governments. The largest single source of these new monies were a variety of federal public relief programs and the first federal program for unemployment relief.<sup>7</sup> Each of these new relief programs contained (sometimes implicit) matching provisions which rewarded states with more assistance as they spent more on public welfare.

Yet each of these two previous periods of aid expansion pale in comparison to the growth in federal assistance for state and local governments from 1960-1980. During this period real federal aid to the states has more than doubled in dollar amounts and by 1980 had become almost 27% of all state revenues (see Table 3, columns 3 and 4). Just as importantly, direct federal to local assistance--virtually non-existent before 1960--became a major source of local government dollars accounting for just under 14% of all local revenues by 1980. The 1960-1980 aid explosion had an important impact on the federal budget as well. Federal assistance to state and local governments amounted to only 10.5% of all federal non-defense spending and 6.96% of all federal spending on goods and services in 1950, but by 1980 those percentages had risen to 19.75% of all non-defense spending and 31.72% of all federal goods and service spending.<sup>8</sup> By 1980 all levels of government in our federalist fiscal system had an important stake in the structure of federal aid for state and local governments.

What has caused this fundamental transformation of our fiscal system? We might well hope that it was done by design and for a compelling public purpose, and, indeed, there are good reasons for federal assistance to the state and local sector. Four separate arguments for intergovernmental grants-in-aid have been offered in the literature, three of which make the case for

assistance from the perspective of economic efficiency and one of which argues for governmental aid to insure increased economic equity.

First, to achieve efficiency, grants-in-aid may be necessary to induce state and local governments to provide the appropriate level of a national public good; national public infra-structures or a minimum level of public education to insure a literate citizenry are examples. Such goods may be financed and produced by the central government or they may be financed centrally and then (via aid) produced by the state or local government. Second, federal government grants to local governments may be necessary to encourage the efficient level of local public goods when those goods display a significant level of spillovers--positive or negative--beyond the boundaries of the local political jurisdiction. Third, grants-in-aid can be used to induce a ruling political coalition (e.g., the median voter or a protected agenda-setter) to expand or contract its preferred level of a locally provided public good to more closely approximate that level required to achieve within-community allocative efficiency. Finally, federal aid to state and local units can be used to insure a more equitable distribution of economic resources. While most economists agree that income redistribution across households should be a federal function, redistributive grants can still be used to insure a more equitable distribution of meritorious, or ethically "primary," local public goods. Education is the leading example of such a commodity, and recent court decisions in California, New Jersey, and New York have embraced this argument and have explicitly required their states to redesign their school aid formulae to encourage a more equitable provision of this public good. Each of these efficiency and equity arguments offers a potentially compelling case for federal to state-local grants.<sup>9</sup> If national needs, spillovers, political inefficiencies, or local service inequities have

grown over the past thirty years, then so too should the level of federal to state-local aid.

It is instructive, therefore, to examine the actual distribution of federal grants against the standards implied by these typical public finance arguments for federal assistance. Does the distribution of federal aid conform to the dictates of the normative theory for fiscal assistance?<sup>10</sup> Table 4 attempts to answer this question for each of the major categories of federal-to-state and federal-to-local grants-in-aid.

The results in Table 4 show the correlation of the level of aid in each of five benchmark years to variables which might reasonably approximate an efficiency or equity argument for federal assistance. Each regression includes at least one variable which might plausibly be argued to proxy for each of the three efficiency arguments; the efficiency variables (denoted by the vector  $\underline{X}$ ) will differ across aid categories as the efficiency rationale differs. Further, two variables--income per capita in the state (denoted as  $Y$ ) and the coefficient of variation in family income within the state (denoted by  $CVY$ )--are included to test for the presence of an equity rationale for federal aid. Equalizing aid should be negatively related to average state income and positively related to the coefficient of variation of income within the state.<sup>11</sup> Each aid regression is of the general form:

$$(1) \quad AID = \left\{ e^{\beta \underline{X} + \sigma CVY} \right\} Y^\epsilon e^u,$$

where  $\beta$ ,  $\sigma$ , and  $\epsilon$  are coefficients to be estimated, and  $u$  is a randomly distributed error term.

The resulting regression coefficients will measure the separate influences of the efficiency arguments--via the  $\underline{X}$  variables--and the equity rationale--via  $CVY$  and  $Y$ --on the distribution of federal aid across states,

Table 4: Federal Aid to State-Local Governments: 1950-1984†

(1) Federal Aid to States: In(Education)

	Mean	Coeff. of Variation	National Purpose %ΔHS	Spillovers %OutM	Within Government Allocative Efficiency			Equity		Own Spending	R <sup>2</sup>
					\$OLD	PuKids	PrKids	CVY	InY		
1952	\$3.40	.507	.632 (1.217) [-.28*]	(n.a.)	-2.137 (4.893) [-.55*]	.016* (.003) [.76*]	(n.a.)	.441 (.306) [.22]	.486 (.478) [-.45*]	-	.612
1962	\$6.16	.589	3.301 (2.447) [.24]	(n.a.)	-3.059 (5.713) [.02]	.008* (.004) [.29*]	(n.a.)	-.067 (.593) [-.16]	.019 (.802) [-.02]	-	.462
1972	\$28.55	.325	-1.712* (.912) [-.39*]	.564 (1.027) [.28*]	-.643 (2.787) [-.30*]	.005 (.004) [.54*]	-.005 (.004) [-.56*]	.181 (.213) [.18]	-.985* (.429) [-.62*]	-	.620
1977	\$28.16	.268	-1.293 (.94) [-.33*]	2.44 (1.068*) [.19]	-1.77 (2.811) [-.22]	.004 (.004) [.44*]	-.005 (.004) [-.48*]	.035 (.224) [.13]	-.958* (.479) [-.54*]	-	.441
1984	\$22.92	.221	-.601 (.438) [-.27*]	-1.26 (1.097) [-.05]	-3.350* (1.917) [-.29*]	.001 (.003) [.43*]	.002 (.004) [-.22]	.455 (.303) [-.20]	-1.082* (.355) [-.54*]	-	.426

Table 4: Federal Aid to State-Local Governments: 1950-1984†

(2) Federal Aid to States: ln(Highways)

	Mean	Coeff. of Variation	National Purpose		Spillovers \$Metro	Within Government Allocative Efficiency %OutM	Equity		ln(Hwy)	R <sup>2</sup>
			MPay	VAMin			CVY	lnY		
1952	\$6.14	.803	(n.a.)	(n.a.)	-2.867* (.850) [-.33*]	(n.a.)	.072 (.422) [.03]	1.239* (.675) [.02]	.479* (.185)	.415
1962	\$26.41	.707	.000 (.001) [.07]	-.000 (.001) [.42*]	-.569* (.202) [-.65*]	(n.a.)	-.799* (.260) [-.20]	.169 (.263) [-.14]	1.023* (.119)	.852
1972	\$30.44	.652	-.0006* (.0003) [.41*]	-.0002 (.00014) [.52*]	-.185 (.276) [-.54*]	5.667* (1.172) [.67*]	.028 (.304) [.05]	-.492 (.487) [-.35*]	.696* (.120)	.854
1977	\$24.89	.617	-.0001 (.001) [.16]	.000 (.000) [.52*]	-.209 (.339) [-.58*]	3.291* (1.467) [.64*]	.077 (.356) [.13]	-.113 (.642) [-.25*]	.634* (.126)	.773
1984	\$20.86	.491	-.001 (.001) [.03]	-.000 (.000) [.52*]	-.329 (.363) [-.62*]	2.459 (2.103) [.51*]	-.043 (.650) [.11]	-.218 (.687) [-.34*]	.539* (.179)	.548

Table 4: Federal Aid to State-Local Governments: 1950-1984†

(3) Federal Aid to States: ln(Welfare)

	Mean	Coeff. of Variation	National Purpose %ZHS	Spillovers %Pov	Within Government Allocative Efficiency %Blk	Equity		ln(Wel)	R <sup>2</sup>
						CVY	lnY		
1952	\$11.14	.492	-.439 (.572) [-.21]	(n.a.)	.268 (.316) [.10]	.097 (.152) [-.06]	-.469* (.154) [-.28*]	.837* (.049)	.893
1962	\$17.24	.498	1.735* (.774) [-.40*]	3.051* (.660) [.53*]	-.879* (.287) [.30*]	-.402* (.204) [.02]	.407 (.320) [-.46*]	.848* (.045)	.937
1972	\$45.05	.373	-1.284 (1.027) [-.21]	-1.469 (1.105) [.14]	.369 (.640) [.20]	.164 (.213) [.29*]	-.846* (.482) [.03]	.729* (.064)	.788
1977	\$45.90	.339	-.689 (1.325) [-.01]	1.079 (2.285) [.01]	-.005 (.696) [-.07]	.301 (.261) [.21]	-.907 (.614) [-.05]	.490* (.063)	.620
1984	\$49.70	.362	-2.725* (.896) [-.15]	-1.475 (2.448) [.03]	-.193 (.582) [.03]	.935* (.453) [.17]	-1.138* (.567) [.12]	.490* (.061)	.656



Table 4: Federal Aid to State-Local Governments: 1950-1984†

(1) Federal Aid to Local: ln(All Categorical)

	Mean	Coeff. of Variation	National Purpose			Spillovers	Within Government Allocative Efficiency	Equity		Own Spending	R <sup>2</sup>
			%Urb	%DeH	Age			CVY	lnY		
1957	\$2.69	.793	5.370* (1.249) [.08]	3.187* (1.405) [-.12]	-.004 (.003) [-.21]	-13.927* (2.706) [-.43*]	(n.a.)	-.157 (.606) [-.12]	.673 (1.017) [.02]	-	.498
1962	\$5.22	.517	1.209 (.975) [.15]	-1.309 (2.279) [-.18]	-.001 (.002) [-.27*]	-6.435* (2.712) [-.34*]	(n.a.)	.951 (.781) [-.05]	-.324 (1.203) [.12]	-	.242
1972	\$16.59	.374	1.921* (.483) [.34*]	2.185 (1.679) [-.11]	-.000 (.000) [-.14]	-2.592 (1.933) [-.16]	.949 (1.719) [.17]	.942* (.390) [.06]	-.175 (.827) [.16]	-	.392
1977	\$28.63	.348	1.654* (.419) [.52*]	-.726 (1.366) [-.31*]	.001 (.001) [-.16]	-1.285 (1.624) [.21]	-2.312 (1.529) [-.22]	.438 (.334) [-.14]	-.801 (.695) [.29*]	-	.424
1984	\$24.04	.289	.415 (.383) [.39*]	-3.919 (4.451) [-.32*]	.001 (.001) [.07]	-1.306 (1.322) [-.13]	-1.659 (1.440) [-.08]	.535 (.463) [.26*]	.047 (.561) [.31*]	-	.223

(2) Federal Aid to Local: ln(Revenue-Sharing)

	Mean	Coeff. of Variation	National Purpose			Spillovers	Within Government Allocative Efficiency			Equity		Own Spending	R <sup>2</sup>
			TElas	%OutM	PDen		VAMin	S/LExp	CVY	lnY			
1974	\$15.12	.198	-.109 (.072) [.09]	-2.027* (.633) [-.13]	-.064 (.110) [-.16]	-.000 (.000) [.12]	.0011* (.0002) [.07]	.257* (.38) [.31*]	-1.426* (.272) [-.41*]	-	.522		
1977	\$12.24	.152	-.006 (.046) [.30*]	-2.179* (.415) [-.32*]	-.022 (.069) [-.02]	.000 (.000) [-.02]	.0008* (.0002) [.17]	.239* (.089) [.39*]	-1.201* (.181) [-.43*]	-	.644		
1984	\$7.17	.155	.029 (.061) [.19]	-1.553* (.601) [-.08]	.158 (.097) [-.05]	.000 (.000) [.28*]	.0006* (.0002) [.37*]	.354 (.215) [.07]	-1.014* (.198) [-.38*]	-	.537		

Notes for Table 4

†The Table reports the mean (in 1972 dollars per capita) and coefficient of variation of federal aid to states and local governments as well as the regression coefficients, standard errors (within parentheses), and zero-order correlation coefficients (within brackets) for the effect of each variable on the corresponding level of aid spending within states for the reported year.

\*An asterisk (\*) indicates statistical significance at the .1 level or higher against the null hypothesis that the regression coefficient or zero-order correlation coefficient is equal to zero.

(n.a.) indicates data were not available to test the hypothesis for this fiscal year.

### Key for Table 4

#### National Purpose

%≥HS:	Percent adults over 25 with four or more years of high school in the state.
MPay:	Military payroll per capita in the state.
VAMin:	Value-added in mining per capita in the state.
PDen:	Population density, population per square mile in the state.
TElas:	Elasticity of state and local taxes with respect to income.
%Urb:	Percent of state population living in urban areas.
%DetH:	Percent of housing deteriorated in the state.
Age:	Years since statehood.

#### Spillovers

%OutM:	Percent of state residents who have left the state within the past year.
%Pov:	Percent of households below poverty level in the state.
NHouse:	New housing starts per capita within the state.
GDen:	Number of local governments per square mile in the state.

#### Within Government Allocative Efficiency

%OLD:	Percent population over 65 in the state.
PuKids:	Public school children per capita in the state.
PrKids:	Private school children per capita in the state.
%OutM:	Percent of state residents who have left the state within the past year.
%Blk:	Percent of state residents who are black.
GDen:	Number of local governments per square mile in the state.
YGrow:	Annual rate of growth in state income in previous 4 years.
PDen:	Population density, population per square mile in the state.
SLExp:	State and local expenditures per capita in the state.

#### Equity

CVY:	Coefficient of variation of real state income per family.
lnY:	log of real state income per capita.

#### Own Spending

ln(Hwy):	log of real state own expenditures on highways.
ln(Wel):	log of real state own expenditures on welfare.

for each aid category in each sample year. In effect, these estimates of the AID equation describe the de facto aid formulae which allocate federal aid dollars to state and local governments within each aid category. Each year's sample includes the forty-eight mainland states. Estimation is by ordinary least squares. To minimize problems of simultaneity, all X variables, CVY, and Y are measured so as to pre-date the year in which AID is given. Table 4 also reports the simple correlations of AID with each efficiency and equity proxy as well as the means and the coefficients of variation of AID itself for each aid category for each of the five sample years.

Two results are immediately apparent from Table 4. First, the historical growth in total real aid per capita observed in Tables 1-3 is also observed for each of the individual aid categories specified in Table 4: federal-to-state education aid has grown nearly seven-fold over the last three decades, welfare aid by a factor of five, "other" federal-to-state aid shows a six-time increase, and federal-to-local government categorical aid has increased by almost an order of ten. Only federal-to-state highway aid seems to have moderated its growth path, declining from a peak of \$30.44 per capita in 1972 (a five factor increase from its 1952 level of \$6.14 per capita) to \$20.86 per capita by 1984. But that fall was more than offset by the introduction of federal general revenue sharing. Second, and just as important, such assistance is becoming more equally distributed across the forty-eight mainland states receiving aid. Table 4 reports the coefficient of variation in the distribution of aid across states for each aid category for each of the five sample years, and without exception the coefficient of variation of aid declines through time. At the same time that federal aid is growing, it is also becoming more equally distributed across states.

Is there an economic or public purpose logic to this growth and distribution of federal grants-in-aid? Table 4 reports both the simple, zero-order correlations of the state characteristics with AID (within [.]) and the partial regression coefficients of the characteristics and AID (with standard errors within (.)). The resulting regression equations are a summary of the federal government's de facto aid formula and a direct test of how well the efficiency and equity arguments do in describing the actual distribution of aid. In the case of federal welfare and highway aid--both open-ended matching grants where the level of AID increases with state-local spending--the log of spending on the aided service is also included in the regressions as a characteristic which determines the log of AID. Thus, for these aid programs, the state characteristics other than own spending describe the implicit matching rate.<sup>12</sup> A variable key for Table 4 defines the list of explanatory variables used in each aid equation.

How descriptive of federal aid is the national purpose argument? The results are mixed at best. In the case of federal aid for education, the variable thought to measure a possible national purpose for educational aid is the percent of adults over the age of 25 with four or more years of high school education (%>HS). States with a low percent of educated adults might be allocated more federal education aid to promote the national objective of an educated citizenry. If so, the variable %>HS ought to have a significant and negative regression coefficient. The simple correlations are often significantly negative; however, the partial regression correlations are not. Federal education aid seems to find the less educated states on average, but not on the margin. For highway assistance, the often stated national purpose is the development of an efficient interstate transportation system for times of national emergencies, e.g., wars. To test this hypothesis the

level of military payrolls within the state and the value-added from mining (the need for natural resource deployment) are included to explain highway assistance. A positive relationship is expected, but it is observed for only the simple correlations. For welfare assistance to states, %HS is again used to proxy for a national purpose, the argument here being that in states with less educated adults, income transfers can substitute for human capital and perhaps minimize the anti-social consequences often associated with abject poverty. The regression coefficients and simple correlations should be negative; they are, but only rarely significantly so. "Other" federal-to-state assistance is primarily for state infra-structures such as sewers, dams, and hospital beds. To insure that all states have such an infra-structure even when it may not be feasible to provide it competitively, the federal government might offer national assistance. If so, aid ought to go to the more rural states, measured here by the state's population density. A negative relationship is expected, but never observed. Direct federal aid to local governments is also primarily for infra-structures and one might invoke a "save the cities" argument in the spirit of Jane Jacobs (1961) as a possible national purpose rationale for such assistance. Three variables are used to measure the possible importance and status of a state's urban environment: percent of the population who live in urban areas, the percent of housing which is listed as deteriorated, and the age of the state measured since its date of statehood. There is some evidence that urban states get more federal-to-local government assistance, but it is not the older states and it is not those states with deteriorated housing stocks. Again, the evidence for the economic argument is mixed at best. Finally, general revenue sharing aid (GRS) was first introduced under the banner of correcting the micro-economic and macro-economic consequences of stagnant state and local tax bases. If

this is the purpose of GRS, then aid ought to be allocated to those states with the least income responsive tax structures, measured here by the elasticity of state and local revenues with respect to state income. The GRS regression coefficients and the simple correlations do not show the expected negative relationship between GRS and the elasticity of the tax structure. On balance, the national purpose arguments do not support the observed structure of federal assistance.

The spillover rationale is no more compelling as a basis for federal aid. As an increasing percentage of a state's population outmigrates (measured by %OutM in Table 4) one can argue that across state spillovers from education, health care, and state and local services generally may increase. Thus, states may tend to under-provide such services when beneficiaries are planning to leave; grants can correct the resulting inefficiency. We should therefore observe more federal education aid and more general revenue-sharing assistance to states with higher rates of out-migration; we do not. Within state spillovers or congestion problems resulting from increased metropolitanization may also be a problem, particularly in transportation. Increased highway aid might correct this problem. But again the observed distribution of aid is in the wrong direction; as the percent of the state's population living in metropolitan areas increases, federal highway aid per capita in fact declines. To minimize the adverse spillover effects of low income households re-locating to find higher welfare payments, welfare matching aid should be allocated to the states where the poor now reside. The matching rate for welfare aid ought to increase with the percent of the state's population below poverty; surprisingly perhaps, except for 1962, it does not. Federal assistance for states in the category "other" is primarily infra-structure aid; such assistance might best be allocated to those high

growth states where environmental spillovers might be most worrisome. The variable NHouse--new housing per square mile in the state--shows there is no such relationship. In the same spirit, federal aid to local governments should be allocated to those states with many local governments per square mile (GDen) so as to overcome the propensity of a highly decentralized fiscal system to ignore across community spillovers. In fact, federal categorical assistance to local governments is allocated to states with less decentralized fiscal structures. On balance, the spillover rationale for aid does little to help us understand the actual distribution of federal assistance.

The final efficiency argument for federal aid would use grants-in-aid to correct for a perceived failure of the local political process to equate the community's marginal public benefits (i.e.,  $\Sigma$ MRS) to the marginal costs of producing the local public good (MC); see, for example, Barlow (1971). Such problems can arise for a variety of reasons. Collective inaction by the larger majority may allow a better organized minority to dictate the local outcomes--for example, a tax-conscious coalition of elderly residents and private school parents might be able to influence local school boards to hold spending below the majority's preferred outcome. Federal education aid might then be given to those states and school districts where these coalitions are most influential and where the perceived need for public education is the strongest. From the results in Table 4, however, we see federal education aid is not so allocated; states with relatively more elderly (%Old) and more private school enrollments (PrKids) get less aid on average and on the margin.

In other political settings, minorities may not be able to organize. Federal aid might then be used to induce the controlling majority to be more responsive to the needs of the weakened minority. For example, previous research on welfare allocations (e.g., Orr (1968)) has shown blacks are often

discriminated against in the distribution of transfers. Thus, more federal welfare assistance might be allocated to states whose population has a larger percentage of black residents, all else equal. Table 4 shows that there is no such pattern.

The mobility of voters often creates special problems for the politically efficient allocation of state and local public goods. Infra-structure allocations--highways, sewers, sanitation facilities, dams--might well be under-provided in those states and localities from which households are most likely to relocate, under the rationale of consume now and let-the-new-residents-pay later. Federal aid can be used to offset such a beggar-thy-neighbor strategy, with more aid allocated for infra-structure development in those states with the highest rates of out-migration (%OutM); see, for example, Inman and Albright (1987). Table 4 does show such an allocation pattern for highway aid and "other" federal to state aid but not for federal to local categorical aid. Two other variables which measure the need for infra-structures aid--income growth (YGrow) and the number of local governments per square mile (GDen)--always show an insignificant or an unexpected negative relationship.

Finally, the new theory of efficient inter-regional grants (see Boadway and Flatters (1982)) suggests how aid can be used to correct another problem of resident mobility--the propensity of individuals to respond to the average gains from re-location while ignoring the marginal effects such moves may have on overall regional welfare. The result may be inefficiently congested public goods facilities in some communities and under-utilization in others, or over-populated regional labor markets in some areas and under-populated labor markets elsewhere. To correct for these inefficient relocations, aid should be given: 1) to those regions which have lower natural resource rents per

capita to help equalize average rents, and then given average rents, 2) to those regions which have fewer people so as to induce labor in-migration from the other regions and 3) to those regions which provide relatively more of still uncongested public goods.<sup>13</sup> To test this hypothesis, revenue-sharing aid was regressed on value-added in mining in a state (to approximate for natural resource rents), on the state's population density, and on the level of state-local spending. Revenue-sharing aid is positively related to state and local spending as expected but not significantly related to value-added in mining or to population density. The evidence is weak at best for this efficiency rationale for general revenue-sharing.

It seems safe to conclude, therefore, that if one is to find a compelling public purpose logic to the present structure of federal aid to state and local governments, it will have to be on the grounds of economic equity not economic efficiency. In fact, Table 4 does show an equalizing intent to federal assistance, particularly for achieving across state equity. While aid is occasionally allocated more heavily to states with larger within state income variations (CVY, to achieve within state service or tax equity), federal aid is almost always inversely related to the level of state income. Education aid, highway aid and federal "other" aid in the 1950's and 1960's are the only exceptions. By 1972, almost all federal aid is equalizing.

With this observed equity bias to federal aid, we need to ask the next question: How well does such aid do in equalizing across state variations in the distribution of meritorious state-local public goods? Are the aid programs' equalizing intentions realized? Table 5 provides evidence on this point. For each aid category, the marginal effect of another dollar of state income on spending is calculated based upon demand studies for state-local public goods (column 1). In all cases, as residents' incomes rise, states and

Table 5: The Fiscal Equity Performance of Federal Aid, 1952-1984

Federal Aid to:	State-Local "Merit" Good	Spending Effects of \$1 of Income: (1)	Spending Effects of \$1 of Aid: (2)	Change in Aid with \$1 of Income: (3)	Spending Effects of Income via Aid: (4)	Total Effect of \$1 of Income: (5)
<u>STATES</u>						
1) Education						
1952		.023	.865	+.001	+.001	.024
1962	Education	.023	.865	+.000	+.000	.023
1972		.023	.865	-.007	-.006	.017
1984		.023	.865	-.005	-.004	.019
2) Highways						
1952		.019	1.17	+.003	+.004	.023
1962		.019	1.17	+.002	+.002	.021
1972	Infra-Structures	.019	1.17	-.004	-.005	.014
1984		.019	1.17	-.001	-.001	.018
3) Welfare						
1952		.008	1.35	-.002	-.003	.005
1962	Welfare	.008	1.35	+.003	+.004	.012
1972		.008	1.35	-.010	-.014	-.006
1984		.008	1.35	-.013	-.017	-.009
4) "Other"						
1952		.019	1.17	+.001	+.001	.020
1962		.019	1.17	+.000	+.000	.019
1972	Infra-Structures	.019	1.17	-.006	-.007	.012
1984		.019	1.17	-.007	-.008	.011
5) Revenue-Sharing						
1974	Infra-Structures	.023	.865	-.004	-.003 <sup>4</sup>	.020
1984		.023	.865	(n.a.)	(n.a.)	(n.a.)
<u>LOCALS</u>						
1) Categorical						
1957		.019	1.17	+.001	+.001	.020
1962		.019	1.17	-.001	-.001	.018
1972	Infra-Structures	.019	1.17	+.000	+.000	.019
1984		.019	1.17	+.000	+.000	.019
2) Revenue Sharing						
1974	Infra-Structures	.023	.865	-.006	-.005	.018
1984		.023	.865	-.002	-.002	.021

Notes for Table 5

- Column 1: The spending effects of \$1 of additional state income are from estimates contained in Craig-Inman (1982, Tables 1 and 2) for education; Craig-Inman (1986, p. 207) for infra-structures; and Craig-Inman (1986, Table 7.1) for welfare.
- Column 2: The spending effects of \$1 of additional federal aid are from estimates contained in Craig-Inman (1982, Table 3) for education; Craig-Inman (1986, Table 7.2) for infra-structures, and Craig-Inman (1986, Table 7.2) for welfare. The fact that the marginal effect of \$1 of aid is greater than \$1.00 for highway and welfare aid is due to the matching provisions implicit in such assistance.
- Column 3: Calculated from the elasticity estimates ( $\hat{\epsilon}$ ) in Table 4, where  $dAID/dY = (\hat{\epsilon}) \cdot (AID/Y)$ . Calculations for 1972 use the 1972 estimates of  $\hat{\epsilon}$  and the 1972 (AID/Y) ratio; calculations for 1984 use the 1984 estimates of  $\hat{\epsilon}$  and the 1984 (AID/Y) ratio.
- Column 4: Column (2)  $\times$  Column (3).
- Column 5: Column (1) + Column (4).
- The notation (n.a.) for State Revenue-Sharing in 1984 reflects the absence of such assistance in that year.

localities spend more on state and local public services. But so too do states and localities which receive more federal aid; see column 2. If the poorer income states receive more federal aid then perhaps the increase in federal aid more than offsets the propensity of lower income states to spend less on state and local services. Column 3 of Table 5 shows the effects of \$1 of additional income on the receipt of federal aid; a negative coefficient indicates equalizing federal assistance. Column 4 of Table 5 predicts the effects on spending of this additional amount of federal aid. If this equity-based federal aid does neutralize the expenditure effects of private income, then the total effect of a dollar more of income--equal to the own spending effect (column 1) plus the aid offset effect (column 4)--should be zero; see column 5.<sup>14</sup> If there is more than a full offset to the spending effects of income--Arrow (1971) provides some arguments why this might be desired--then the total effects of income plus aid should be negative in column 5. In only one case does federal aid fully neutralize the pro-spending effects of state income; that case is welfare spending since 1972. For the other aid programs and "merit" goods considered here--education and public infra-structures--federal aid is sometimes equalizing but never so equalizing so as to neutralize the original effects of income. At best, the current federal aid structure reduces 25% of the income generated inequities in state-local spending on education or infra-structures; compare the differences between columns 1 and 5 in Table 5. While federal aid is a useful step toward state-local fiscal equity, Table 5 suggests it would be hard to rationalize the present aid system as a grant structure designed solely to promote fairness.

The final impression left by this dissection of contemporary federal grants to state and local governments is that the actual pattern of federal aid does not map closely the usual economic or public purpose arguments

advanced for such assistance. Perhaps this conclusion is not surprising.<sup>15</sup> But if it is not good public policy reasoning which describes the recent major increase in federal aid for the state and local sector, what does? Section III argues that the answer is to be found not in the logic of normative economics but in the workings of behavioral politics.

### III. The Political Economy of Federal Grants

The pressure to use government to redistribute economic resources is endemic to stable democratic societies. Coalitions inevitably form around these institutions with the power to tax and transfer incomes, and in stable democracies that institution is government.<sup>16</sup> Federal grants-in-aid are a prime vehicle for such redistributions. It is my hypothesis, to be tested here, that the most recent growth of federal assistance to state and local governments can be best explained as an exercise in redistributive politics.

The argument proceeds in two steps. First, with the growth of the urban public economy following World War II there emerged a new and substantial demand for state and local public services. The process of suburbanization and the baby boom of the 1950's and early 1960's created the need for more schooling and more public infra-structures, historically the concerns of the state and local sectors. Further, suburbanization created unique fiscal difficulties for our older central cities placing additional pressure on the state and local fisc. The net result was a growing demand for public services from the state and local sector. Second, as demand increased it was natural to look for new sources of income. The state and local sector was no different, and the representatives of that sector--the mayors, the governors, and other locally elected officials--turned to the only source they could: Washington. Washington responded, but not immediately. It took an important

shift in institutional structure before additional aid started flowing to the state and local sector. That institutional shift was the decentralization of Congressional decision-making over the period 1969-1972. By 1975, our new federalist fiscal structure was firmly in place. It was built by a growing demand for local services and by a decentralized Congressional fiscal process which had discovered the political advantages of redistributive, centralized financing.

#### A. The Growing Demand for State and Local Services

Tables 2 and 3 reveal the growth in resources allocated by the state and local public sector over this century. The trend has been steadily upward. From 1902 to 1950 the real (1972 dollars) level of state and local government own revenues grew at an annual rate of 2.23%, from \$115 per capita in 1902 (= \$14.76 + \$99.81) to \$357 per capita (\$150.83 + \$205.82) by 1950; see Table 3. Since 1950, growth has continued at even a faster rate; own real revenues of the state local sector have increased at an annual rate of 2.50%, rising from \$357 to \$842 dollars per capita (= \$472.09 + \$370.41) by 1985. Federal aid has also grown dramatically over this period, from \$43 per capita (= \$38.18 + \$4.53) in 1950 to \$191 per capita (= \$154.13 + \$37.23) by 1985 for an annual rate of growth of 4.26%. The joint effect has been to increase total revenues to the state-local sector by 2.70% per year since 1950, from \$400 per capita (= \$357 + \$43) to \$1033 per capita (= \$842 + \$191).

The driving force behind this growth in revenues has been the increasing demand by residents for services from the state and local sector. Equation (2) describes this growth in demand for state and local activities for the period 1948-1985. Specified as a demand relationship, total state-local government spending per capita (= state-local government expenditures on goods

and transfers plus the annual fiscal surplus,  $E + S$ , measured in 1972 dollars) is seen to depend positively on last year's real income ( $Y_{-1}$ ), the previous year's exogenous (non-matching) real federal aid per capita ( $Z_{-1}$  = total federal aid minus welfare and highways aid), the level of new housing starts per capita ( $NHouse_{-1}$ ), the number of school-age children per capita ( $Kids_{-1}$ ), and the crime rate ( $Crime_{-1}$ ) in the previous year. Expenditures are also inversely related to the net price of state-local spending, defined here as 1 minus the average federal matching rate for the previous year ( $= \bar{m} = (\text{welfare aid} + \text{highway aid})/E_{-1}$ ) multiplied by 1 minus the average effective federal tax rate of the median income taxpayer,  $(1 - \tau)$ , to allow for the federal deductibility of state and local taxes.<sup>17</sup>

$$\begin{aligned}
 (2) \quad \ln(E + S) = & 1.619 + .243 \ln(Y)_{-1} + .039 \ln(Z)_{-1} \\
 & (.395)^* \quad (.067)^* \quad (.017)^* \\
 & - .421 \ln\{(1 - \bar{m})(1 - \tau)\}_{-1} + .042 \ln(NHouse)_{-1} \\
 & \quad (.176)^* \quad \quad (.017)^* \\
 & + .145 \ln(Kids)_{-1} + .186 \ln(Crime)_{-1} \\
 & \quad (.049)^* \quad \quad (.022)^* \\
 \\
 \bar{R}^2 = & .996 \qquad \qquad \qquad D.W. = 1.98
 \end{aligned}$$

(Standard errors of coefficient estimates are within parentheses; an \* indicates the coefficient is statistically different from 0 at least the .1 level of significance.)

While the growth in real income has been an important determinant of the growth in state and local spending since 1948, the central causes behind the increase are to be found in the demographic and structural changes which re-shaped the local public economy. Estimates of the relative contribution of each demand variable to the growth in state-local spending reveals that the

baby-boom (measured by the increase in school-aged children per capita), the added difficulties of urban living (measured by the growth in the crime rate) and the growth in personal income were the prime forces behind the growth in state-local spending during the period 1948-1970. Since 1970 income and urban needs have remained important determinants of spending growth, but the baby-boom has disappeared as a driving force and has been replaced in relative importance by the increase in federal grants-in-aid.<sup>18</sup> The end result of these local fiscal dynamics has been a rising state-local tax rate (= own state-local revenues/income) and a growing number of state and local public employees per capita.<sup>19</sup> The demand for state and local services has been rising but at a rate faster than a simple--and politically, accommodating--income effect might justify. Further, those with the most direct vested interest in satisfying these rising demands--state and local public employees--have been growing too. In such instances, it is always easiest for political leaders to look elsewhere for financial support to ease the growing fiscal pressure. Elected officials from the state and local sector have proved themselves to be no different. Washington was the obvious place to turn.

#### B. Congressional Decentralization and the Growth of Federal Grants

Congress as an institution for fiscal policy underwent a major transformation in structure from 1969 to 1972, evolving from a legislative body dominated by a few major decision-makers with firm control over fiscal affairs to a largely decentralized forum of individual deal-makers each required to maximize their own net gain from legislative decisions. A variety of factors contributed to this transition: the declining influence of political parties, the increasing sophistication of voters and their

willingness to vote off the party line to favor their own interests, and Congressional re-districting favoring suburban and urban interests to balance the previous rural influence in Congress.<sup>20</sup> For each of these reasons, the Congressional leadership found itself less and less able to dictate fiscal allocations, and more and more pressured to be responsive to the demands of all the members.<sup>21</sup> These demands were often couched in very simple terms: bring home "the bacon." In this new political environment, to get anything approved often meant approval for everything.

The consequences of this changing Congressional structure for fiscal policy--and more specifically for federal grants funding--can be specified more formally in a model of representative decision-making within alternative legislative structures. An elected representative to Congress is assumed to derive political benefits from the provision of federal government project dollars to his or her constituents (denoted by  $x$ , paid for example by federal aid), where the level of benefits enjoyed will depend on a set of exogenous characteristics of the constituents (denoted by the vector  $\underline{P}$ ):  $B = B(x; \underline{P})$ . The representative bears a political cost, however, whenever dollars flow from the district to support federal expenditures elsewhere. Those dollars will typically be paid as federal taxes ( $T$ ) and are assumed to equal the representative's district's ( $s$ 's) share (denoted as  $\phi_s$ ) of all taxes needed to support all project dollars allocated to all of  $N$  districts:

$$T_s = \phi_s \sum_{i=1}^N x_i = T(x_s; \phi_s, \sum_{i \neq s}^N x_i).$$

The representative's net political benefits

(NPB) from the allocation of federal dollars financed by taxes is therefore:

$$(3) \quad \text{NPB} = B(x_s; \underline{P}) - T(x_s; \phi_s, \sum_{i \neq s}^N x_i).$$

The representative is assumed to lobby for a preferred level of  $x_s$  for the

district and to support any legislative coalition which can deliver on that preferred allocation.

Exactly what that preferred allocation will be, however, depends fundamentally on how Congress conducts its budgetary business. Three alternative legislative regimes--and the effects of each on a representative's preferred budget--can be specified. The first, called the fully decentralized regime, assumes that each legislator selects the district's preferred project size  $x_s$  under the assumption that marginal changes in  $x_s$  will have no implications for the level of spending preferred by other legislators. Each legislator then submits their preferred budget--denoted  $x_s^*(D)$  for the decentralized regime--and all representatives vote to simply approve each other's preferred  $x_s^*(D)$ 's, where each individual  $x_s^*(D)$  is specified from (3) by:

$$\partial \text{NPB} / \partial x_s = 0 ,$$

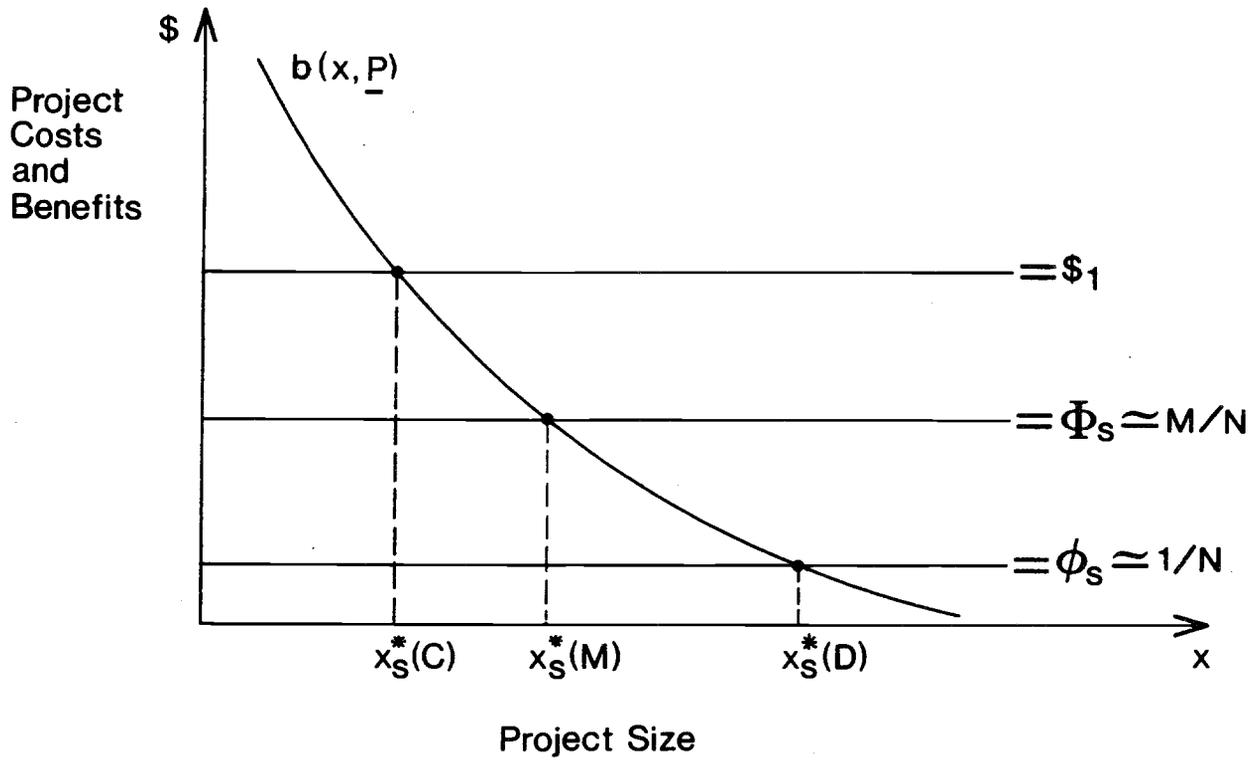
or alternatively as:

$$\partial B / \partial x_s = b(x_s, P) = \phi_s = \partial T / \partial x_s ,$$

where  $\phi_s$  is the district's share of the national taxes in the decentralized legislative regime. Figure 1 illustrates the preferred district project size under the decentralized legislative regime in the very simple case where  $\phi_s$  equals  $1/N$ --that is, when each of the  $N$  legislative districts contributes an average amount to national taxes.<sup>22</sup> Since each district pays only a small fraction ( $\approx 1/N$ ) of its own project's costs, the incentive is to prefer a much larger project than if the district were responsible for the full marginal costs of the added project spending ( $= \$1$ ):  $x_s^*(D) > x_s^*(C)$  in Figure 1. The fiscal behavior of such decentralized legislatures is typically called "pork-barrel" budgeting.

FIGURE 1

PROJECT ALLOCATIONS UNDER ALTERNATIVE LEGISLATIVE REGIMES



- C = Cooperative Legislative Regime
- M = Majority-Rule Legislative Regime
- D = Decentralized Legislative Regime

The second legislative regime, called a majority-controlled legislature, limits pork-barrel spending to some extent. Here a single political party or majority coalition has sufficient control to insure passage of a budget without granting the excluded minority any unwanted favors. Only those legislators in good-standing within the majority are certain to have their districts preferred projects included within the budget. In addition, the dominant majority is run by a strong leadership capable of setting majority policy and enforcing that policy on coalition members; in effect, the leadership selects each district's preferred project size based upon the district's revealed NPB schedule. The district's allocation is again set so as to maximize NPB, but now subject to the leadership's realization that each district's project's costs will spillover onto taxpayers from other districts within the majority coalition. (Project costs which fall on taxpayers represented by the minorities are ignored by the majority leadership.) The preferred district project is again defined by maximizing (3):

$$\partial \text{NPB} / \partial x_s = 0$$

but now:

$$\partial B / \partial x_s = b(x_s, \underline{P}) = \phi_s = dT/dx_s ,$$

defines the optimal project size, where  $\phi_s (= dT/dx_s)$  is the relevant marginal tax cost of a new project dollar and allows for the spillover effects of spending across districts within the majority coalition. In the simple case in which all districts pay equal taxes,  $\phi_s$  will equal  $M/N$  or the percent of majority member districts (of size  $M$ ) in the full legislature (of size  $N$ ).<sup>23</sup> The size of each project in a majority member district declines from what it might have been in a fully decentralized legislature because of the partial

internalization of project costs achieved by strong majority coalition leadership; see Figure 1 where  $x_S^*(M) < x_S^*(D)$  because  $\phi_S > \phi_S$ .<sup>24</sup>

The final legislative regime, called a cooperative legislature, employs a single political leader, representing a coalition of the whole, to set each district's allocation for  $x_S$ . The cooperative regime fully internalizes all fiscal spillovers which result from centralized financing. In this regime, each district receives that project size which equates the marginal political benefits of  $x_S$  to the full marginal costs of  $x_S$ :  $b(x, \underline{p}) = 1$ . The resulting project size in each district is  $x_S^*(C)$  in Figure 1;  $x_S^*(C)$  is each legislator's preferred budget if he or she can be certain that all other legislators will cooperate. To achieve the fully cooperative budget, the political leader of the coalition of the whole must be capable of punishing those individual legislators who seek to deviate from this allocation by free-riding on the system of centralized financing and setting their own  $x_S > x_S^*(C)$ . Such punishment might entail branding the renegade a "budget-buster" and then working for his defeat in the next legislative election. Only when the leader has sufficient resources--financial or otherwise--to make this punishment credible can the fully cooperative allocation be sustained.

The size of the total project budget (denoted G) will be equal to the sum of all district allocations and can be specified for each of these three legislative regimes. In the case of the fully decentralized legislature, each district receives its preferred project of size  $x_S^*(D)$ ; the total budget will

therefore equal  $G(D) = \sum_{s=1}^N x_S^*(D)$ . In the case of the fully cooperative regime

each district receives its cooperative allocation  $x_S^*(C)$ ; the final budget is

therefore  $G(C) = \sum_{s=1}^N x_S^*(C)$ . For the majority rule regime the overall project

budget will equal the sum of all majority members projects--  $\sum_{s \in M} x_S^*(M)$ , where M

is the size of the majority--plus any project spending allocated by the majority to minority districts. Allocations to the minority for projects of type x need not be zero. But any minority spending which does occur will only occur if it improves the welfare of the majority. This may well be the case if there are policies of interest to the fiscal majority which demand the cooperation of a minority for approval--e.g., judicial appointments or treaty approvals which need 2/3's majorities. Cooperation can be purchased by granting the minority a level of spending on projects of type x. The most cost effective bribe is that which maximizes the political surplus to a minority member without imposing political costs on the majority. This will be a project of size  $x^*(C)$ , the allocation of which maximizes the political surplus available in trade to the majority coalition. If we assume such trades do in fact occur, then the budget for expenditure on projects of type x will be the sum of all projects given to majority members plus the sum of all projects supplied to minority members or  $G(M) = \sum_{s=M} x_s^*(M) + \sum_{s=(N-M)} x_s^*(C)$ .

Together the three legislative regimes define three alternative budgets for project spending. Specified in increasing order of total outlays they are:

$$G(C) = \sum_{s=1}^N x_s^*(C),$$

$$(4) \quad G(M) = \sum_{s=1}^N x_s^*(C) + \sum_{s=M} \{x_s^*(M) - x_s^*(C)\}, \text{ and}$$

$$G(D) = \sum_{s=1}^N x_s^*(C) + \sum_{s=M} \{x_s^*(M) - x_s^*(C)\}$$

$$+ \sum_{s=M} \{x_s^*(D) - x_s^*(M)\} + \sum_{s=(N-M)} \{x_s^*(D) - x_s^*(C)\} .$$

As characterized above, the recent transformation of Congressional decision-making in the early 1970's marks a shift from majority-controlled fiscal politics to fiscal allocations based upon fully decentralized budgeting. No longer are budgets packaged in a dictatorial fashion by the majority's chosen chairmen of the Ways and Means, Finance, and Appropriations Committees. In the new Congress, it has been argued, budgets emerge from the process of give and take in the numerous subcommittees and caucuses of the House and Senate. The behavioral implications of such a change are threefold: 1) the aggregate level of project spending should expand from G(M) to G(D); 2) spending across Congressional districts and the states should become more equalized as previous minority districts receive more project support; and 3) the absolute number of legislated projects and programs should expand to accommodate the specific needs of each legislative district. Federal grants to state and local governments provides one case study in which to look for these consequences of the Congressional transformation. At least on the surface the evidence is supportive. First, the aggregate level of federal grants to state and local governments showed a noticeable upturn around 1970, particularly in federal aid paid directly to local governments; see Table 3. Second, the overall distribution of aid has become more equal across states as measured by the decline in the coefficient of variation in the distribution of aid; see Table 4. Further, 1972 seems to stand as a key turning point in this downward trend.<sup>25</sup> Finally, the simple number of aid programs passed by Congress increased dramatically in the late 1960's and the early 1970's, rising from 160 programs in 1962 to 412 by 1976.<sup>26</sup> It seems clear that the structure of Congressional decision-making has had an important influence on the level and structure of our grants system.

We can make these observations more precise and estimate quantitatively the influence of Congressional structure on the level of federal support for the state-local sector. The three regime legislative model specified in eq. (4) can also be written in "nested" form as:

$$(5) \quad G = \sum_{s=1}^N x_S^*(C) + \mu \sum_{s \in M} \{x_S^*(M) - x_S^*(C)\} + \delta \sum_{s=1}^N \{x_S^*(D) - x_S^*(C)\} ,$$

where the dummy variable  $\mu = 1$  if the legislature is majority-rule and 0 otherwise and the dummy variable  $\delta = 1$  if the legislature is decentralized and 0 otherwise. The default regime ( $\mu = \delta = 0$ ) is the fully cooperative model of budgeting. Estimation of equation (5) requires a specification of  $x_S^*(C)$  and the increments  $\{x_S^*(M) - x_S^*(C)\}$  and  $\{x_S^*(D) - x_S^*(C)\}$ . Each can be defined from knowledge of the marginal political benefit schedule and from district tax shares under the fully cooperative ( $= 1$ ), the majority rule ( $= \phi_S$ ), and the decentralized ( $= \phi_S$ ) legislative regimes; see Figure 1.

The marginal political benefit schedule for grants in aid,  $(x, \underline{P})$ , is assumed to depend upon the demand for state-local public goods within the district. The political benefits from grants is expected to increase with the effective burden of state and local own revenues on income ( $R/Y$ ), new housing starts in the district ( $NHouse$ ), the number of school-age children ( $Kids$ ), the crime rate in the district ( $Crime$ ), and the number of state-local employees per capita. The tax burden represents fiscal pressure on the state-local sector while housing starts, school-age children, and the crime rate each indicate a special need which might engender added assistance. State-local employees per capita ( $SLEmp$ ) measure the size of the most likely organized lobby which can express these needs in Washington.<sup>27</sup> Together the variables

(R/Y), NHouse, Kids, Crime, and SLEmp define the vector  $\underline{P}$  of  $b(x, \underline{P})$ . The marginal benefits of grants are assumed to increase with each variable.

District tax shares under the majority rule and the decentralized legislative regimes are assumed to equal  $M/N (= \phi_S)$  and  $1/N (= \phi_S)$  respectively, where  $M/N$  is the percent of the legislature in the majority coalition and  $N$  is the total size of the legislature. For this analysis, the majority coalition's share is taken to be the percent of the House of Representatives controlled by the dominant party, whether Republican or Democrat. While these measures of tax shares are not precisely correct for each district,<sup>28</sup> the degree of error in this approximation is likely to be small, and certainly of second order importance when defining the relevant increments,  $\{x_S^*(M) - x_S^*(C)\}$  and  $\{x_S^*(D) - x_S^*(C)\}$ .

Assuming that the marginal benefit schedule is a linear function of the vector  $\underline{P}$  ( $= R/Y, NHouse, Kids, Crime, SLEmp$ ), then  $x_S^*(C)$ ,  $x_S^*(M)$ , and  $x_S^*(D)$  will also be linear functions of  $\underline{P}$  and their corresponding tax shares-- $1, M/N$ , and  $1/N$  respectively.<sup>29</sup> Assuming further that the political benefit schedules are structurally identical across districts except for variations in  $\underline{P}$  and that elected representatives define all benefits and costs in per capita ( $\approx$  per vote) units, then the aggregate spending equation in (5) can be re-specified in per capita units as:

$$(6) \quad g = x^*(1, \bar{\underline{P}}) + \overline{\Delta x}(M) \{ \mu \cdot (M/N) \} + \overline{\Delta x}(D) \{ \delta \} + v ,$$

where  $g$  is federal aid per capita,  $x^*(1, \bar{\underline{P}})$  is the per capita demand for aid when the district tax share is 1 and when the elements of  $\underline{P}$  assume their national average values ( $= x^*(1, \bar{\underline{P}}) = x_S^*(C; \bar{\underline{P}})$ ),  $\overline{\Delta x}(M)$  is the average increase in per capita grants spending in districts within the majority coalition as the legislative regime shifts from cooperative to majority-rule, and  $\overline{\Delta x}(D)$  is

the average increase in per capita grants spending in all districts as the legislative regime shifts from a cooperative to a decentralized structure.<sup>30</sup> With the addition of an assumed additive error term (denoted as  $v$  in (6)), eq. (6) becomes the basis for an econometric analysis of recent federal grants spending.

Parameter estimates from eq. (6) will define the coefficients of the linear political benefit schedule as well as the marginal effects of any Congressional regime shifts, from cooperative to majority rule ( $\bar{\Delta x}(M)$ ) or from cooperative to fully decentralized ( $\bar{\Delta x}(D)$ ). From the coefficient estimates of  $\bar{\Delta x}(M)$  and  $\bar{\Delta x}(D)$  we can also estimate the effects on grants spending of the shift from a majority rule to a decentralized Congress. It is necessary, however, to specify a priori the periods which define the alternative legislative regimes (i.e.,  $\mu$  and  $\delta$ ). Congressional scholars generally describe the period from 1948-1968 as an example of strong party leadership in fiscal affairs; see Fenno (1966) and Manley (1970). The period from 1972 to today is generally characterized by decentralized legislative decision-making; see Shepsle and Weingast (1984). The years 1969-1972 marked the period of transition; see Ornstein (1975). For this analysis, the majority rule dummy variable  $\mu$  is assigned a value of 1 for the years 1948-71, and a value of 0 otherwise. The decentralized legislative regime is represented by a value of  $\delta$  equal to 1 for the years 1972 onward; for all previous years  $\delta = 0$ . To minimize problems of simultaneity all elements of the vector  $\bar{P}$  are lagged one year. Estimation of eq. (6) also allows for the possibility of first-order serial correlation in the additive error terms (represented by  $\rho$ , the correlation coefficient between  $v_t$  and  $v_{t-1}$ ). Estimation is based upon data for the period 1948-1985. Results are reported in Table 6.

Table 6: The Political Economy of Federal Aid

Model	Constituent Demand					Congress		Reagan		Root MSE	$\bar{R}^2$	
	Intercept	(R/Y) <sub>-1</sub>	NHouse <sub>-1</sub>	Kids <sub>-1</sub>	Crime <sub>-1</sub>	SLEmp <sub>-1</sub>	$\mu$ (M/N)	$\delta$	Year			p
Total Aid												
6a.	-313.33 (81.27)*	286.07 (133.12)*	.003 (.001)*	.608 (.196)*	.052 (.002)	4.826 (1.217)*				.43 (.12)*	8.27	.932
6b.	-332.73 (85.04)*	304.50 (128.53)*	.001 (.001)	.464 (.203)*	-.005 (.004)	6.158 (1.354)*	51.56 (44.44)	61.42 (31.13)*		.43 (.12)*	7.88	.938
6c.	-213.59 (65.96)*	185.28 (99.43)*	.000 (.001)	.063 (.198)	-.004 (.004)	6.346 (1.184)*	45.41 (33.31)	59.01 (23.18)*		.21 (.19)	6.38	.988
1982									-28.69 (7.87)*			
1983									-32.40 (8.56)*			
1984									-34.48 (8.24)*			
1985									-43.03 (8.97)*			
Total Aid Less GRS and Welfare												
6d.	-130.86 (81.58)	54.63 (125.09)	-.001 (.001)	.074 (.265)	-.001 (.005)	3.579 (1.573)*	40.57 (28.97)	69.53 (41.76)*		.02 (.20)	8.73	.965
1982									-33.74 (11.15)*			
1983									-35.34 (11.25)*			
1984									-38.31 (10.71)*			
1985									-43.48 (11.70)*			

\*An (\*) indicates the coefficient is significantly different from 0 at the .1 level or better.

The initial specification in eq. (6a) assumes that Congress has been uniformly responsive to constituent demands over the period 1948-1985; the specification in eq. (6b) tests for the additional effects of Congressional structure on aid spending. In both specifications the individual coefficients measuring the political benefits of aid--vector  $\underline{P}$ --show that federal aid increases as the fiscal burden of state-local finance increases, as the number of school aged children increases, and as state-local employees per capita rise. The crime rate and new housing starts are never significant, at least beyond their influence on fiscal pressure,  $(R/Y)_{-1}$ ; see eq. (2) above. What is particularly impressive is the statistically significant and quantitatively important role that state-local public employees play in the determination of federal aid; Congressional spending is quite responsive to the growing size of this interest group. The elasticity of aid with respect to  $(SLEmp)_{-1}$  is 2.16, more than twice the elasticities of aid with respect to  $(R/Y)_{-1}$  ( $= .51$ ),  $NHouse_{-1}$  ( $= .07$ ), or  $Kids_{-1}$  ( $= .86$ ).

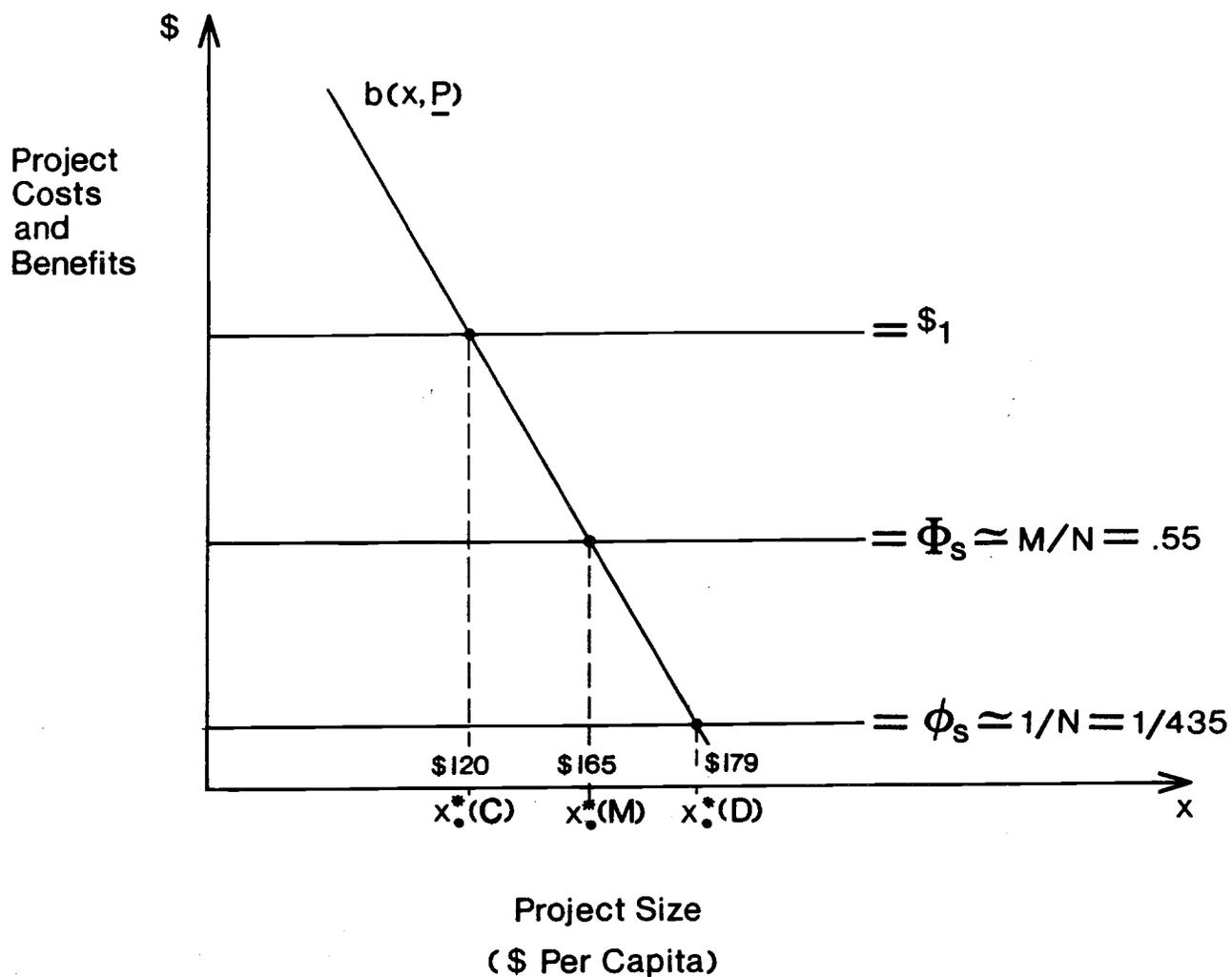
As important as constituent demand and interest group representation has been to the recent growth in federal aid, so too has been the structural shifts in Congressional fiscal politics; see eqs. (6b) and (6c). Eq. (6b) is the basic specification of the budget model; eq. (6c) extends that specification to test for a "Reagan-Stockman" effect on aid spending. An F test for the joint significance of the two Congressional variables-- $\mu(M/N)$  and  $\delta$ --rejects the null hypothesis of no effect at the 10% level of significance in both equations. Further, the Congressional structure variables influence federal aid as predicted. The coefficients on  $\mu(M/N)$ -- $\overline{\Delta x(M)} = \$51.46$  in eq. (6b) and  $\$45.41$  in eq. (6c)--measure the average increase in per capita aid in a majority rule district as Congress moves from a fully cooperative to a majority rule regime. The coefficients on  $\delta$ -- $\overline{\Delta x(D)} = \$61.42$  in eq. (6b) and

\$59.01 in eq. (6c)--measure the average increase in the preferred level of aid spending in every district as Congress shifts from the cooperative to the decentralized regime.

Figure 2 illustrates the effects of these Congressional structures on federal grants spending, based upon the econometric estimates of  $\overline{\Delta x}(M)$  and  $\overline{\Delta x}(D)$  from eq. (6c) and actual federal aid expenditures for calendar 1974, one of the first aid budgets to be decided by the newly decentralized Congress. Total grants spending in 1974 in an average Congressional district equalled \$179 per capita, an estimate of  $x^*(D)$  for that year. The estimate of  $\overline{\Delta x}(D) = \$59/\text{capita}$  from eq. (6c) implies the level of the cooperative budget in the average district would have been \$120/capita ( $= x^*(C) = x^*(D) - \overline{\Delta x}(D)$ ). The estimate of  $\overline{\Delta x}(M)$  from eq. (6c) implies that the average district's majority-rule budget--if a member of the majority--would have exceeded its cooperative budget by  $\approx \$45/\text{capita}$ ; therefore the majority-rule budget for a majority coalition district would have been \$165/capita ( $= x^*(M) = x^*(C) + \overline{\Delta x}(M)$ ). Together these estimates imply that the shift from majority-rule to decentralized fiscal politics increased the size of the federal grants budget in an average majority coalition district by \$14/capita. The real dollar gains from decentralization accrue to those districts previously excluded from the majority coalition. In 1974, the Democrats controlled 55% of the House seats and, for this analysis, are assumed to constitute the majority coalition. Under decentralized budgeting, the remaining 45% of Congressional districts now move along side the original majority to capture  $x^*(D)$  as well. As assumed under the model's original specification, these minority districts would have received initially only  $x^*(C)$  from the majority. The effect of the decentralization of budgetary politics is to therefore allocate an additional \$59/capita in federal aid

FIGURE 2

1974 AID ALLOCATIONS UNDER ALTERNATIVE CONGRESSIONAL REGIMES



(=  $\overline{\Delta x}(D) = x^*(D) - x^*(C)$ ) to the average minority district. Overall, the econometric model predicts that under decentralized budgeting grants-in-aid spending rose by an average of \$34/capita (=  $.55 \times \$14 + .45 \times \$59$ ), or by 24%, over what it might have been Congress remained a strong majority-rule fiscal institution (=  $\$145 = .55 \times x^*(M) + .45x^*(C) = .55 \times \$165 + .45 \times \$120$ ).

This trend towards increased aid spending continued throughout the 1970's and into 1981, but the period 1982 to 1985 showed another significant break in the pattern. Now the trend turned downward; see eq. (6c). The explanation lies in the Reagan-Stockman budgets of those years.<sup>31</sup> As fashioned by David Stockman, the 1982-1985 Reagan budgets were an effort to internalize the fiscal externalities created under decentralized Congressional budgeting and to move, if possible, towards the cooperative allocation,  $x^*(C)$ , based upon a coalition of the whole. The strategy was to join across-the-board spending cuts with a general reduction in taxes--just what the cooperative budget would require.<sup>32</sup> Reagan provided the leadership--and the political arm-twisting--needed to guide such budgets through a Congress committed to decentralized fiscal politics.<sup>33</sup> For each of the first four Reagan budget years--represented by a year dummy variable in eq. (6c)--real aid spending was reduced from what it might have been had full decentralized Congressional budgeting prevailed. Aggregate aid spending was reduced initially by \$28 per capita in 1982 and finally by \$43 per capita in 1985, a 15% to 22% reduction when compared to the 1981 aid expenditures of \$194 per capita, the last pre-Reagan budget. The Reagan budgets appear to have returned us to just about where we would have been in total aid financing had Congress remained under firm majority-rule leadership.

This analysis of the budgetary effects of Congressional reform is compounded however by one important fact. While 1972 was the operative date

of transition to decentralized fiscal politics within Congress, it also marks the date of passage of a major new aid program, the State and Local Fiscal Assistance Act of 1972. Also known as General Revenue-Sharing (GRS), this program infused into the state and local public sector an average of \$22 per capita in new grants; see Table 4. Given the coincidence of GRS funding and the emergence of decentralized budgeting, it could well be that the results in eqs. (6b) and (6c)--which have been attributed to the new structure of fiscal politics--are in fact due to the passage of GRS. A "clean" test of the structural reform hypothesis would re-estimate eqs. (6b) and (6c) using all aid other than GRS assistance as the dependent variable. A further refinement of the analysis should also be considered. As large formula grants tied to state and local spending, federal welfare aid via AFDC and Medicaid grants may also obscure the true effects of reforms in Congressional structures. A preferred test for the effects of reform might omit these grants from the dependent variable as well. What will remain are all the many small grant programs which provide assistance to the state-local sector for education, health care, and public infra-structures--programs which together still totalled \$125 per capita or more in grants in the 1970's. Equation (6d) provides this refined test and re-estimates the structural aid model using as the dependent variable total aid less GRS and welfare grants. The results are nearly identical to those achieved earlier, and, if anything, are slightly stronger.<sup>34</sup> The basic conclusion remains in force: the new, decentralized structure of Congressional fiscal politics has been an important stimulus to the level of federal grants spending.

#### IV. Conclusion

From its inception, the U.S. public economy has been committed to the principle of fiscal decentralization. Appropriately designed, such a system

can make a significant contribution to the twin goals of economic efficiency and economic equity. A potentially important part of that structure are intergovernmental grants-in-aid. This paper has examined the recent evolution of our federal grants system from two perspectives. First, can the present system of federal assistance to state and local governments be rationalized by the usual normative economic arguments for efficiency and equity in the provision of local public services: Does such aid provide national public goods, or internalize externalities across jurisdictions, or overcome internal failings of local fiscal choice, or insure a more equitable provision of meritorious public goods? Second, if not, then what does explain the structure of our federal aid system?

Against the usual efficiency arguments for aid, there is little evidence in the present structure of federal assistance that current aid is motivated from that perspective. There is more evidence to support an equity foundation for federal grants, at least to equalize the across state distribution of meritorious public services. Yet with the possible exception of welfare aid, such assistance has had only a marginal effect on the final distribution of state-local public goods. If we are to rationalize the present structure of federal grants, therefore, it would appear that we should look to arguments other than those based on achieving economic efficiency or equity.

An alternative rationale, based upon a model of redistributive politics, was advanced and tested for the period 1948-85. The observed growth in federal grants-in-aid over this period proved consistent with the underlying structure of this model. Aid has grown with increasing fiscal pressure on the state and local sector. The baby boom, the process of suburbanization, and the emergence of the fiscally troubled central city have all contributed to the demand for federal assistance. Congress has been responsive to these

demands; particularly so, following the institutional reforms of 1969-1972. Those reforms have opened the process of Congressional budgeting to decentralized negotiations and deal-making. When coupled with a national tax system which shares the costs of local expenditures across all legislative districts, the result is a budgeting process for federal grants which is potentially biased towards over-spending. The empirical results presented here (see Figure 2) suggest that the present Congressionally determined aid budgets may be inflated by as much as \$34 per person, or 24%, over what they might have been had strong majority-rule leadership remained in force, and they may be as much as \$59 per capita, or 50%, larger than what all legislators might prefer were they capable of achieving a fully cooperative fiscal allocation.

What can be done to control this apparently excessive aid spending? Short of a constitutional amendment to limit grants spending, there is a really only one solution: stronger and more effective fiscal leadership in Congress. The Reagan-Stockman budgets of 1982-1985 revealed the potential influence such leadership can have on spending, but the resulting cuts seem to have been a unique, and perhaps short-lived, event. Attempts to institutionalize such reductions via Reagan's New Federalism reforms never received serious consideration by Congress; the passage in the winter of 1987, over Reagan's veto, of new highway and clean water grants only underscore the point.<sup>35</sup> The basic message of this analysis is clear: as long as Congressional budgeting remains a decentralized fiscal process, the incentives to finance centrally, and to spend locally, will remain as well. Our current system of federal grants to state and local governments is just one logical outcome of this process.

FOOTNOTES

\*Professor of Finance, Economics, and Public Management, University of Pennsylvania, and Research Associate, National Bureau of Economic Research. The ideas in this paper were originally presented in a series of classes given at the University of Pennsylvania Law School in a jointly taught research seminar with Professor Michael Fitts, sponsored by the Law School's Institute of Law and Economics. An initial draft of the paper was given to the NBER conference on Fiscal Federalism; the comments of my discussant, Tom Romer, and other participants at the Conference were most helpful in preparing this current version. Finally, I wish to thank the NBER and the Mellon Foundation (through the PARSS grant to the University of Pennsylvania) for financial support and Mr. David Albright who provided his usual high level of research assistance.

<sup>1</sup>While the Tenth Amendment is clear on the point that the states are to retain some policy role within our fiscal system, exactly what that role is to be is not exactly specified by the Constitution. The Supreme Court has found it difficult to draw the lines of responsibility without this guidance; see National League of Cities v. Usery and then the recent Supreme Court opinion in Garcia v. San Antonio Metropolitan Transit Authority.

<sup>2</sup>See, for example, Michelman and Sandalow (1970, chapter 2).

<sup>3</sup>The early phases of the evolution of federal relations with the state and local sector are described in Scheiber (1966) and in Beer (1973).

<sup>4</sup>For the history of federal support for state and local governments, see Gates (1968), Bitterman (1938), and more recently Wallis (1984) and Wright (1974). For analysis of state aid for local services, see Craig and Inman (1986).

<sup>5</sup>See Gates (1968, Appendix C, p. 804).

<sup>6</sup>See Bitterman (1938) for the history of these early aid programs.

<sup>7</sup>See Wallis (1984).

<sup>8</sup>In 1950 the federal government spent \$403.89 per capita (1972 dollars) on non-defense goods and services and on transfers to households and governments. Federal aid to state-local governments in 1950 was \$42.72 per capita (see Table 3) or 10.5% of this total. Non-defense spending on just goods and services totaled \$265 per capita in 1950; federal aid other than welfare aid totaled \$18.43 per capita (Tables 3 and 5) or 6.96% (= \$18.43/\$265) of all federal spending on non-defense goods and services. By 1980, total federal aid had become \$194.57 per capita or 19.75% of the \$985 per capita of all federal non-defense spending in 1980. Federal aid other than welfare aid was \$126 per capita in 1980 which was 31.72% of all federal non-defense, non-transfer expenditures in 1980 (= \$126/\$397).

<sup>9</sup>For good introductions to the efficiency theory of grants-in-aid, see Oates (1972) and Boadway and Flatters (1982). For a discussion of grants-in-aid to achieve public service equity, see Feldstein (1975), Inman (1978), and Inman and Rubinfeld (1979)

<sup>10</sup>Political scientists have raised this same question, but in slightly different terms, asking: Do grants-in-aid provide significant "general benefits, those collective goods that people value because they believe everyone profits, including themselves?" See Arnold (1981, p. 253).

<sup>11</sup>Since local service levels are determined in part by local income levels, a large variation in personal income within a state (high CVY) is likely to imply a large variation in the distribution of local services. Federal aid can provide additional resources which may--state politics permitting--be allocated towards narrowing public service inequities.

<sup>12</sup>For services supported by matching aid, total aid will be defined by  $AID = m(\underline{X}, CVY, Y) \cdot (\text{Own Spending})$ , where  $m(\underline{X}, CVY, Y)$  defines the program's matching rate.

<sup>13</sup>See Boadway and Flatters (1982), particularly at p. 627.

<sup>14</sup>Feldstein (1975) interprets the school finance court decisions in these terms.

<sup>15</sup>This result has been noted as well for earlier periods in the history of federal assistance for state-local governments; see Wright (1974) for a discussion of federal grants during the depression period, and Monypenny (1960) for an analysis of federal aid in the 1950's.

<sup>16</sup>Olson (1982) and North (1986) develop their theories of government economic performance around this idea.

<sup>17</sup>Information on the actual levels of deductions for state and local taxes are available from Statistics of Income, Department of the Treasury, Internal Revenue Services, but only for the years 1972-1985. The ratio of actual deductions to the level of actual state and local taxes is an estimate of the average rate of deductibility implicit in the federal tax code. A comparison of this ratio for the available years with the average effective tax rate of the median income voter for the same years shows the two series to be very close.

<sup>18</sup>Estimates of the relative contribution of each demand variable to the growth in total state-local spending were calculated using the estimated elasticities from eq. (2) above multiplied by the percentage changes in each demand variable for the time periods 1948-1970, 1970-1980, and 1980-1985. Annual growth rates in state-local spending due to these changes were then calculated and compared to the actual annual rate of growth in state-local spending. For the period 1948-70, the actual rate of growth in  $(E + S)$  was

2.64% per year. Had only real income increased, the growth rate would have been only .66% per year. The increase in aid and the fall in the tax price (the federal subsidies) by themselves would have increased (E + S) by .49% per year. The increase in school-aged children (.22% per year) and the crime rate (1.30% per year) were the major contributors to the growth in (E + S) for the periods 1948-1970. For the period 1970-80, (E + S) grew at a rate of 2.19% per year. Income growth alone would have increased (E + S) by .33% per year, the crime rate alone would have increased (E + S) by 2.34% and federal aid alone would have increased (E + S) by .36% per year. The fall off in housing starts and the baby bust from 1970 onward were negative influences on (E + S). Since 1980, the decline in real aid, the fall in the crime rate, and the fall in school-aged children have all acted to reduce (E + S) while the growth in real income has increased (E + S); the net effect has been to hold real (E + S) constant over the past six years.

<sup>19</sup>The ratio of state and local own revenues to state-local residential income has risen from .151 in 1950 to .167 in 1960, remained stable at that rate to 1980, and then rose again to .183 by 1985. The number of state-local employees per 1000 residents has grown steadily from 26 per 1000 in 1950 to 58 per 1000 by 1980, but then fallen slightly to 57 per 1000 by 1985.

<sup>20</sup>On the declining influence of political parties, see Burnham (1975) and Sundquist (1973). On the new independence of the American voter, see Nie, Verba and Petrocik (1979). On the effects of Congressional re-districting on Congressional policy-making, see McCubbins and Schwartz (1987).

<sup>21</sup>The classic presentation of the argument is now in Florina (1977).

<sup>22</sup>A district's share of tax-financed expenditures on projects of type x will be  $\phi_s = T_s / \Sigma x_i$ , or as  $\Sigma x_i = \Sigma T_i$ , then  $\phi_s = T_s / \Sigma T_i$ . If all districts contribute an average amount to national taxes ( $= \bar{T}$ ), then  $\phi_s = \bar{T} / N \cdot \bar{T} = 1/N$ .

<sup>23</sup>While an individual district tax share of new expenditures on projects of type  $x$  will be  $\phi_s = T_s / \Sigma x_i = T_s / \Sigma T_i$ , a coalition's tax share of such expenditures, inclusive of all coalition members taxes, will be  $\phi_s = \Sigma_{s \in M} T_s / \Sigma x_i$ , or as  $\Sigma x_i = \Sigma T_i$ ,  $\phi_s = \Sigma_{s \in M} T_s / \Sigma T_i$ . If all districts contribute an average amount ( $= \bar{T}$ ) to national taxes, then  $\phi_s = M \cdot \bar{T} / N \cdot \bar{T} = M/N$ .

<sup>24</sup>The fact that  $x^*(M)$  is less than  $x^*(D)$  does not mean that districts in the majority coalition are worse off than they would be as members of a decentralized legislature. In fact, it is easy to see from Figure 1 that they are better off. They save the inefficiency associated with the over-provision of  $x$  under decentralization (the approximate triangle from  $x^*(C)$  to  $x^*(D)$  above  $b(x, \underline{p})$  but below the full marginal cost line at \$1) and they receive a tax subsidy from the minority coalitions of  $(1 - M/N) \cdot x^*(M)$ . Further, to the extent the majority can extract a fiscal transfer from the minority through the provision of  $x_s = x^*(C)$  to the minority, then they benefit again. This result is simply an example of the general principle that it is always best to be in a majority coalition of minimum size in a redistribution game, if you are in any coalition at all. The problem for any individual legislator is, of course, knowing if he or she will be in the majority coalition. Redistribution games are very unstable, and legislators may be in winning majority one moment and out the next. When legislators are at all uncertain as to whether they will be in or out of the winning coalition, they may prefer a legislative structure which gives them a smaller, but more certain net political benefit. This preference for a lower, but more certain pay-off in legislative re-distribution games has been offered as a rationale for the currently decentralized nature of Congressional fiscal politics; see initially Weingast (1979) and more recently Niou and Ordeshook (1985) and Epple and Riordan (1986).

<sup>25</sup>The bias towards equal aid spending across all districts in a decentralized Congressional setting is discussed in Arnold (1981), particularly at pp. 265-279.

<sup>26</sup>See ACIR (1978) for a summary of the growth in aid programs.

<sup>27</sup>Perhaps the most prominent of the state-local employee associations is the National Education Association (NEA), a teacher union which played an important role in the Presidential election of Jimmy Carter. They were rewarded with the establishment of the Office of Education as a new Cabinet level Department. Elected state-local officials have also organized as lobby groups in Washington, and perhaps more than any other organizations were responsible for the passage of General Revenue Sharing; see Beer (1976).

<sup>28</sup>To be so, all districts must pay the same amount in federal taxes; see fn. 23 above.

<sup>29</sup>A linear marginal benefit schedule of the form  $b(x, \underline{p}) = \alpha_0 - \alpha_1 x_s + \sum \beta_i P_{is}$  defines a linear demand curve for  $x$  when  $b(x, \underline{p})$  is set equal to the marginal tax cost of  $x$  under the alternative legislative regimes. For the fully cooperative regime,  $b(x, \underline{p}) = 1$  defines  $x_s^*(C)$  as  $x_s^*(C) = (\alpha_0/\alpha_1) - (1/\alpha_1) + \sum (\beta_i/\alpha_1) P_{is}$ ; for the majority rule regime:  $x_s^*(M) = (\alpha_0/\alpha_1) - (1/\alpha_1)\phi_s + \sum (\beta_i/\alpha_1) P_{is}$ ; and for the decentralized regime:  $x_s^*(D) = (\alpha_0/\alpha_1) - (1/\alpha_1)\phi_s + \sum \beta_i/\alpha_1 P_{is}$ .

<sup>30</sup>More formally, the specification in eq. (6) implies  $\overline{\Delta x}(D) =$

$$\sum_{s=1}^N \overline{\Delta x}_s(D) (\text{Pop}_s / \sum \text{Pop}_s) \text{ and } \overline{\Delta x}(M) = \sum_{s \in M} \overline{\Delta x}_s(M) (\text{Pop}_s / \sum_{s \in M} \text{Pop}_s) (\overline{\text{Pop}}^M / \overline{\text{Pop}}^N),$$

where  $\overline{\Delta x}_s(D) = x_s^*(D) - x_s^*(C)$ ,  $\overline{\Delta x}_s(M) = x_s^*(M) - x_s^*(C)$ ,  $\text{Pop}_s$  is the population in district  $s$ , and  $\overline{\text{Pop}}^M$  and  $\overline{\text{Pop}}^N$  are average population sizes for majority districts and all districts respectively. For most purposes it seems reasonable to assume  $(\overline{\text{Pop}}^M / \overline{\text{Pop}}^N) \approx 1$ ; thus  $\overline{\Delta x}(M)$  is an estimate of the average increase in per capita aid in majority coalition districts.

<sup>31</sup>Aid spending in calendar year 1982 was defined largely by the budget for fiscal year 1982, ending on September 30, 1982. The FY 1982 budget was approved during the calendar year 1981 and reflects the policies of the first year of the Reagan administration.

<sup>32</sup>The Reagan-Stockman budget strategy is well described in Stockman (1986), particularly Chapter 5.

<sup>33</sup>The important role of the President in the passage of the Reagan budgets is described in Stockman (1986), particularly Chapter 6.

<sup>34</sup>The results for a regression of total aid minus only GRS funding are similar to those in eqs. (6c) and (6d), though the estimates for the Congressional coefficients are not as precise as those for eqs. (6c) and (6d). While it is reassuring that all these alternative specifications give the same conclusion, there are good reasons to embrace eq. (6c) using total aid expenditures as the preferred specification. Beer's (1976) review of the passage of GRS makes clear that it was largely decentralized Congressional fiscal politics which defined the aid formula and the levels of assistance. Stockman's discussion of the attempts to trim welfare and Medicaid assistance show the same incentives dominate these programs as well; see Stockman (1986) at the index references for AFDC and Medicaid and at p. 442, particularly.

<sup>35</sup>For a discussion of the political fate of the New Federalism, see the National Journal (1982). In the Appendix to his book on Reagan budget policies, Stockman reviews the final record of his efforts to trim the federal aid budget and concludes that while some progress has been made, it may not be permanent: "(e)very big program and every piddling program that marched out of the Cutting Room dead or bleeding in February, 1981 lived to tell about it." And both Republicans and Democrats in Congress were on the "first-aid team." Stockman (1986, p. 442). The recent veto over-rides suggests a revival may be coming.

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