The size of government

> Politicians are the same all over. They promise to build a bridge even where there is no river.
>
> Nikita Khruschev

Much attention in both lay and academic discourse has been given to the question of the proper size of government and the reasons for its growth. Public choice, the economic analysis of political institutions, would seem to be the natural tool for answering these questions, and it has frequently been employed in this task. A review of these efforts follows.

21.1   The facts

That government has grown, and grown dramatically in recent years, cannot be questioned. Total government expenditure in the United States in 1999 as a percentage of GNP was 28.3 percent, up from 23 percent in 1949 and 10 percent in 1929 (see Table 21.1). Moreover, this growth is confined neither to this century nor to the United States. Federal government expenditures as a percentage of national income in the United States were only 1.4 percent of national income in 1799. They rose to double that figure by the end of the nineteenth century, but were still only 3 percent of the GNP in 1929. Starting in the 1930s, however, federal expenditures took off, rising sevenfold as a percentage of the GNP over the next 70 years.

The government sector has also grown outside of the United States with this growth beginning at least as far back as the nineteenth century. Table 21.2 presents figures from Tanzi and Schuknecht (2000) for 16 countries in addition to the United States. As can be readily seen, the size of the public sector increased substantially in several countries like Austria, France, and Germany, between roughly 1870 and the start of World War I. Between the beginning and the end of this war there was a further overall expansion of the public sector, largely reflecting military outlays. But government sectors *did not* fall back to their pre-war levels. In 1937, the size of the government sector was larger than in 1913 for 13 of the countries for which a comparison is possible.[1]

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[1] In one of the seminal contributions to the growth-of-government literature, Peacock and Wiseman (1961) hypothesized the existence of a ratchet effect of wars. Once the government sector expands due to a war, it does not fall back to its original level. Despite the support for this hypothesis apparent in Table 21.2, it has not stood up to more rigorous econometric testing (Henrekson, 1990).

Table 21.1. *Government expenditure in relation to national income and GDP in the United States, 1799–1999*

Year	(1) Total federal expenditures in millions of dollars	(2) Total federal expenditures as percentage of national income	(3) Total federal expenditures as percentage of GDP	(4) Federal, state, and local expenditures	(5) Federal, state, and local expenditures as percentage of GDP	(6) Federal, state, and local consumption expenditures in billions of dollars	(7) Government transfer payments in billion dollars	(8) Total government consumption plus transfers in billions of dollars (6) + (7)	(9) Total government consumption plus transfers as percentage of GDP
1799	10	1.4							
1809	10	1.1							
1819	21	2.4							
1829	15	1.6							
1839	27	1.6							
1849	42	1.7							
1859	66	1.5							
1869	316	4.6	5.0						
1879	267	3.7	3.2						
1889	309	2.9	2.6						
1899	563		3.4						
1909	694		2.3						
1919	12.402		16.7						
1929	3.100		3.0	10.3	10.0				
1939	8.800		11.7	17.6	19.4				
1949	38.800		16.2	59.3	23.0				
1959	92.100			131.0	26.8	112.5	24.7	137.2	27.0
1969	183.600			286.8	30.4	224.6	60.6	285.2	28.9
1979	503.500			750.8	31.1	503.5	230.2	733.7	28.6
1989						1100.2	529.6	1629.8	29.7
1999						1634.4	998.1	2632.5	28.3

Sources: Figures for columns 2 and 3 are from Kendrick (1955, pp. 10–12). Figures for columns 4–9 are from United States, *Economic Report of the President*, 1985, 1989, Tables B-1, B-72, and B-79, and 2001 Tables B1 and B83.

Table 21.2. *Growth of general government expenditure, 1870–1996 (percent of GDP)*

| | About 1870 | Pre–Post–World War I | | Pre–Post–World War II | | | | |
		1913	1920	1937	1960	1980	1990	1996
General government for all years								
Australia	18.3	16.5	19.3	14.8	21.2	34.1	34.9	35.9
Austria	10.5	17.0	14.7	20.6	35.7	48.1	38.6	51.6
Canada	–	–	16.7	25.0	28.6	38.8	46.0	44.7
France	12.6	17.0	27.6	29.0	34.6	46.1	49.8	55.0
Germany	10.0	14.8	25.0	34.1	32.4	47.9	45.1	49.1
Italy	13.7	17.1	30.1	31.1	30.1	42.1	53.4	52.7
Ireland	–	–	18.8	25.5	28.0	48.9	41.2	42.0
Japan	8.8	8.3	14.8	25.4	17.5	32.0	31.3	35.9
New Zealand	–	–	24.6	25.3	26.9	38.1	41.3	34.7
Norway	5.9	9.3	16.0	11.8	29.9	43.8	54.9	49.2
Sweden	5.7	10.4	10.9	16.5	31.0	60.1	59.1	64.2
Switzerland	16.5	14.0	17.0	24.1	17.2	32.8	33.5	39.4
United Kingdom	9.4	12.7	26.2	30.0	32.2	43.0	39.9	43.0
United States	7.3	7.5	12.1	19.7	27.0	31.4	32.8	32.4
Average	10.8	13.1	19.6	23.8	28.0	41.9	43.0	45.0
Central government for 1870–1937, general government thereafter								
Belgium	–	13.8	22.1	21.8	30.3	57.8	54.3	52.9
Netherlands	9.1	9.0	13.5	19.0	33.7	55.8	54.1	49.3
Spain	–	11.0	8.3	13.2	18.8	32.2	42.0	43.7
Average	9.1	11.3	14.6	18.0	27.6	48.6	50.1	48.6
Total average	**10.7**	**12.7**	**18.7**	**22.8**	**27.9**	**43.1**	**44.8**	**45.6**

Source: Tanzi and Schuknecht (2000, Table 1.1).

The big acceleration in the growth of the public sector began, however, around 1960. Where its average size grew by 22 percent over the roughly 20 years between 1937 and 1960, this average grew by 54 percent over the next 20 years. *None* of the 17 countries in Table 21.2 had a smaller government sector in 1980 than in 1960. Moreover, in several cases the growth was quite spectacular. In Belgium, Japan, Sweden, and Switzerland, the government sector was nearly twice as large in 1980 as in 1960.

After 1980 this spectacular growth came to a halt. The average size of the public sector in the 17 countries was only 6 percent larger in 1996 as in 1980, and in two of them it was actually smaller in 1996 than in 1980 (Belgium and the Netherlands).

It is also worth noting that the figures in Table 21.2 tend to *understate* the fiscal impact of government in each country by failing to report their *tax expenditures*. By tax expenditures we mean transfers to different groups that take the form tax deductions or credits rather than budgetary transfers. To see what is involved, consider the following simple example. Let countries A and B each have a gross national

income of 100. Each imposes a tax on income of 50 percent. This tax raises 50 in tax revenue in *A*, which the government allocates as follows:

Country A	Official	Full
Government consumption	20	20
Transfers to pensioners	20	20
Transfers to children	10	10
Spending	50	50
Tax revenue	50	50

The government's consumption expenditures include defense, education, and the like, and make up 40 percent of both the tax revenue and the spending of the government. Another 40 percent takes the form of cash transfers to people on pensions, and the remaining 20 percent is cash transfers to people with children below a certain age. Total tax revenue equals 50 and this equals total government spending defined to include both government consumption and cash transfers.

Now consider country *B*. It also levies a 50 percent tax on all incomes, but it allows those with children to make deductions before paying their taxes that amount to 10. Its governmental consumption and transfers to pensioners are exactly the same as in country *A*. *B*'s allocations are as follows:

Country B	Official	Full
Government consumption	20	20
Transfers to pensioners	20	20
Transfers to children		10
Spending	40	50
Tax revenue	40	50

Because *B* chooses to subsidize those with children by granting their families tax breaks rather than by first collecting the funds in taxes and transferring the money back to these families, as it does with the pensioners, the amount of tax revenue officially raised and spent in *B* appears to be less than in *A*. But clearly, the fiscal impact of the state is identical in both countries. In both *A* and *B*, the state has command over 50 percent of national income, and in both it allocates these funds identically among government consumption, and transfers to children and pensioners. The fact that in the one case the allocation is in the form of transfers of collected tax revenues, while in the other it is in the form of uncollected taxes, is immaterial as far as the determination of who gets what. The size of the public sector in both countries should be judged to be the same, and the most appropriate figure is obvioulsy 50 percent.

To calculate the full scale of the government sector, one must add to the expenditures and transfers that governments actually make, the implicit expenditures

Table 21.3. *Official and full tax, transfer, and expenditures as a percentage of GNP for 22 OECD countries, 1992*

Country	T^0	T	T_{MAX}	Year[a]	R^0	R	R_{MAX}	Year[a]	S^0	S	S_{MAX}	Year[a]
Australia	24	46	51	(1985)	30	52	58	(1985)	36	58	64	(1985)
Austria	41	59	61	(1983)	44	61	63	(1984)	50	68	71	(1986)
Belgium	34	63	73	(1984)	46	74	78	(1985)	54	82	92	(1984)
Canada	32	53	54	(1982)	38	60	61	(1991)	45	67	71	(1991)
Denmark	44	63	71	(1982)	51	71	77	(1986)	55	74	82	(1982)
Finland	60	70	70	(1992)	49	59	66	(1988)	66	76	76	(1992)
France	39	56	58	(1986)	44	61	63	(1986)	49	66	68	(1986)
Germany	40	54	56	(1982)	43	57	60	(1985)	48	62	64	(1982)
Ireland	33	52	71	(1983)	41	61	67	(1985)	45	65	86	(1985)
Italy	36	54	58	(1987)	43	62	62	(1992)	55	73	73	(1992)
Japan	26	40	43	(1986)	29	43	45	(1986)	31	45	50	(1986)
Luxembourg	45	69	69	(1992)	36	59	59	(1984)	47	71	71	(1992)
Netherlands	42	51	67	(1983)	47	56	65	(1983)	53	62	79	(1983)
New Zealand	36	41	60	(1975)	37	43	55	(1976)	44	49	67	(1975)
Norway	43	53	68	(1988)	48	58	72	(1986)	48	58	75	(1979)
Portugal	27	35	47	(1985)	38	47	51	(1988)	41	50	64	(1985)
Spain	32	47	50	(1990)	36	51	53	(1989)	42	56	58	(1990)
Sweden	42	49	75	(1980)	52	59	74	(1976)	56	63	84	(1982)
Switzerland	28	42	44	(1984)	31	45	48	(1986)	32	46	48	(1984)
Turkey	23	46	50	(1985)	23	46	47	(1985)	30	53	55	(1985)
United Kingdom	28	40	55	(1975)	35	47	56	(1975)	40	52	67	(1975)
United States	19	28	37	(1978)	29	38	47	(1978)	34	42	49	(1978)

Notes: T^0, R^0, S^0 = Official Transfers, Tax Revenue, and Spending; T, R, S = Full Transfers, Tax Revenue, and Spending; T_{MAX}, R_{MAX}, S_{MAX} = Maximum Full Transfers, Tax Revenue, and Spending.
[a] Year in which maximum occurred.
Source: Hansson and Stuart (forthcoming, Tables 1 and 3).

that they make via tax reductions. Table 21.3 presents a set of estimates of this type made by Hansson and Stuart (forthcoming) for 1992. Table 21.3 presents both the official transfers (T^0), tax revenue (R^0), and spending (S^0) for each country, and the comparable *full* levels of transfers, T, revenue, R, and spending, S. The table also lists the peak value for each full figure and the year in which it occurred. As can easily be seen, the official budgetary figures understate the fiscal impact of governments to a considerable degree. Although transfers appear to constitute only 19 percent of the GNP in the United States in 1992 when one looks at the money passed through the government, transfers accounted for 28 percent of the GNP when one adds in the money allocated by the government to different groups through tax breaks, and total spending rises to some 42 percent of the GNP. More or less, the rankings remain the same, with Japan, Switzerland, and the United States having the three smallest government sectors. Only they and New Zealand had full government spending figures in 1992 that accounted for less than 50 percent of the GNP. Australia and Turkey, which seem to have relatively small government sectors when one looks at the official figures, wind up with government

spending of more than 50 percent of the GNP once their tax expenditures are added.

The upper echelons of government activity remain about the same except that Belgium and Luxembourg now join the high-spending elite. Sweden, on the other hand, drops into tenth place with full government spending amounting to *only* 63 percent of the GNP in 1992, barely three-fourths of the 82 percent of GNP that Belgium's full government spending accounted for in that year. Belgium also takes the prize for the largest amount of full government spending between 1972 and 1992 – 92 percent in 1984.

The full-impact figures in Table 21.3 reveal a decline in outlays and transfers from an earlier peak for several countries other than Belgium. These figures, along with those in Tables 21.1 and 21.2, suggest the following four questions: What caused the increase in the relative size of government over the past two centuries? What caused the growth of government to accelerate after World War II? What has caused the size of government, as measured by its full fiscal impact, to stop growing and in some cases to decline in the last few years? What explains the large disparities in the sizes of the government sectors across the developing countries? This chapter examines some of the answers that have been given to these questions.

21.2   Explanations for the size and growth of government

The same explanations that have been given for why government exists should, logically, explain why it attains a given size in one country and not in another, or why it starts to grow at a more rapid rate at a particular time. Thus, in reviewing the hypothesized causes for the size and growth of government, one is essentially reviewing the explanations for the existence of government. If each explanation is represented as a variable or a variable set, then differences in size and rates of growth must be explained by differences in these variables.

21.2.1   *The government as provider of public goods and eliminator of externalities*

The traditional explanation for why governments exist is to provide public goods and eliminate or alleviate externalities. Let us assume that this is the only function governments perform. Each citizen can then be posited to have a demand for the public goods, which is a function of the individual's income, the relative price of public to private goods, and perhaps other taste variables. If it is assumed that voting takes place using majority rule, that citizens vote directly on the government expenditure issue, and that the only issue to be decided is the level of government expenditures, then one can apply the median voter theorem and write government expenditures as a function of the characteristics of the median voter.[2] Letting X be a composite of private goods and G the composite of public goods (with P_x

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[2]   See Barr and Davis (1966), Davis and Haines (1966), Borcherding and Deacon (1972), Bergstrom and Goodman (1973), and Deacon (1977a,b).

and P_g being their respective prices), Y_m the income of the median voter, and Z a vector of taste parameters, then one can write a government expenditure equation in logarithms for the median voter:

$$\ln G = a + \alpha \ln P_g + \beta \ln Y_m + \gamma \ln Z + \mu. \tag{21.1}$$

An explanation for the relative growth of government can be obtained from (21.1) if any of the following conditions are met:

- The demand for public goods is inelastic $(-1 < \alpha < 0)$, and P_g has risen relative to P_x.
- The demand for public goods is elastic $(-1 > \alpha)$, and P_g has fallen relative to P_x.
- Because Y_m has been increasing over time, if changes in Y_m are to explain growing G relative to X, β must be greater than unity.
- Some taste variable could change in the appropriate way, given the sign of γ.[3]

21.2.1.1 *"Taste variables"*. Let us start with the last possibility. In Chapter 3 we described how government redistribution policies can be a form of insurance that benefits all citizens and thus has the property of a public good ex ante, even though ex post these insurance programs constitute a form of redistribution. Rodrik (1998) has recently presented empirical support for this explanation for the growth of government. Rodrik focuses upon the risks to individual incomes that arise in open economies, whose export and import prices can vary dramatically producing large shifts in incomes and employment. Column 1 of Table 21.4 presents one of his regression results for a sample of 97 developed and developing countries. OPEN is a measure of the openness of the economy (exports + imports divided by GDP). TTRISK measures the terms of trade risk (the variance in export prices/import prices). The dependent variable is government consumption (administrative expenditures, police, national defense, health, education, and so forth). Open economies with high terms of trade risk had significantly larger government consumption. Although OPEN and TTRISK had positive effects on government consumption when entered separately, both of their coefficients turn negative when the interaction term between them is added to the equation. It is the joint presence of a highly open economy and high terms of trade risk that leads to higher government consumption expenditures.

One might expect government programs to offset the risks of operating in an open economy to take the form of unemployment compensation and other "social insurance" programs. Rodrik (p. 1019) argues that many developing countries lack the administrative capacity to manage such programs, and thus simply expand employment in the more stable public sector to reduce employment risk. Columns 2 through 5 in Table 21.4 present evidence consistent with this interpretation. The interaction term, OPEN·TTRISK, is positively and significantly related to social security and welfare

[3] For discussion of these possibilities relative to the growth of government issue, see Borcherding (1977a, 1985), Buchanan (1977), and Bennett and Johnson (1980b, pp. 59–67).

Table 21.4. *Trade risk and government size*

Dependent variable as a percentage of GDP	Developed + developing countries Government consumption 1990–2	Sample OECD countries		Developed + developing countries	
		Social security + welfare 1985	Government consumption 1985	Social security + welfare 1985	Government consumption 1985
Independent variable	(1)	(2)	(3)	(4)	(5)
OPEN	−0.003	−0.170*	−0.005	−0.018	−0.002
	(0.002)	(0.043)	(0.010)	(0.013)	(0.003)
TTRISK	−3.053*	−134.09*	−9.371***	−16.484*	−2.953**
	(1.087)	(22.15)	(5.198)	(5.665)	(1.391)
OPEN·TTRIKS	0.053*	1.869*	0.069	0.183***	0.48**
	(0.017)	(0.431)	(0.101)	(0.096)	(0.023)
Observations	97	19	19	68	68
$\bar{R}^2$	0.438	0.75	0.35	0.48	0.50

Notes: Equations in columns 1, 4, and 5 omit other control variables. Independent variables for column 1 are averages over 1980–9, for columns 2–5 over 1975–84.
Standard errors in parentheses.
* Significant at the 99 percent level
** Significant at the 95 percent level
*** Significant at the 90 percent level.
Source: Rodrik (1998, Tables 4 and 6).

payments in a subsample of rich OECD countries; government consumption is *not* significantly related to this variable for these countries. In the somewhat reduced full sample, both social security/welfare expenditures and government consumption are positively and significantly related to the openness/terms-of-trade-risk interaction term.

Rodrik's empirical results are impressive.[4] I doubt, however, if many European economic historians would accept Rodrik's hypothesis as *the major* explanation for the growth of government in Europe. The redistributive/insurance programs that one associates with the welfare state have their origins in the "class struggles" of nineteenth century Europe, and seem better explained as an effort to "insure" workers against the risks of unemployment and poverty in an industrial society. Similarly, the major welfare programs in the United States were introduced during the Great Depression in response to the collapse of the domestic economy (which albeit was worsened by the simultaneous collapse in world trade). An interpretation of Rodrik's findings that would be consistent with these events would be that *once*

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[4] For related empirical work that is consistent with that of Rodrik, see Cameron (1978), Saunders and Klau (1985), and Rice (1986). Katsimi (1998) develops a model that assumes greater employment volatility in the private sector than in the public sector to explain voter preferences for a larger public sector, and offers time series evidence for Greece that fits this model.

the basic institutions of the welfare state were in place, greater exposure to the risks of foreign trade would lead to greater expansion of this sector.[5]

A second plausible candidate for a "taste" variable in the public goods demand equation is population density. The very definitions of public goods and externalities connote geographic proximity. The smoke from a factory harms more individuals in a densely populated community than in a population thinly dispersed around the factory. A park is easier to reach and probably of more utility in a densely populated community than in a rural area. Increasing urbanization has occurred throughout the last century in every developed country and has been taking place for well over a century in most. Urbanization or population density is an obvious choice for a Z variable with a predicted positive sign on its γ. It is surprising, therefore, to find so little empirical support for this hypothesis.[6] No other "taste" variable has garnered both compelling a priori and empirical support.

21.2.1.2 *Income.* For increases in income to explain increases in the relative size of government, the income elasticity of demand for government services must be greater than one. Although some estimates of β meet this criterion,[7] a greater number do not, and very few estimates of β are significantly greater than one.[8]

Existing studies all estimate β using data from state and local government jurisdictions.[9] Most redistribution takes place at the national level, however, and

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[5] One might question why the employment risks of international trade (Rodrik), or the private sector more generally (Katsimi), lead workers to seek protection in the "political marketplace," with its high costs of collective action, rather than in the labor market, where each worker can act alone. If the employment risks of the private sector are large relative to the public sector, why do more workers not simply seek employment in the public sector? As the supply of workers to the public sector increases, public sector wages should fall relative to the private sector. Given that the demand for the services of the public sector appears to be price inelastic (see following discussion), this change in relative wages should, ceteris paribus, *reduce* the relative size of the public sector.

[6] See Borcherding (1977a, 1985), Deacon (1977b), and Holsey and Borcherding (1997), and for a critique of this literature, Oates (1988a). Most work in estimating equation (21.1) has been at the local governmental unit level, and many problems in public goods and externalities may be resolved at higher levels of governmental aggregation. But Mueller and Murrell (1985) did not find a positive relationship between government expenditures and urbanization across countries, and Rodrik (1998, Table 1, p. 1003) found a *negative* one.

[7] Deacon (1977b) has noted that in most studies park and recreation expenditures appear to be income-elastic.

[8] There is good reason to believe that existing estimates of the income elasticity of demand for G, based on state and local cross-sectional data, are biased downward. Most studies assume that the cost of providing government services is the same across communities. But a given level of safety may be provided more cheaply in a wealthy community than in a poor one. Thus the price of safety is lower in wealthy communities and, given that the price elasticity of this service is less than unity, wealthy communities will consume less, other things being equal. With the price of government services held constant across all communities, this wealth-price effect is shifted to the income elasticity, biasing it downward (Hamilton, 1983). Schwab and Zampelli (1987) observed a jump in β from near zero to unity when this income-price relationship was properly estimated. But in terms of accounting for the long-run growth of government, this adjustment merely shifts some of the explanation of government growth, using equation (21.1), from the price term to the income term. The Hamilton-Schwab-Zampelli critique implies that the growth of income should, other things being equal, bring down the cost of providing government services, thus partly offsetting the Baumol effect on price discussed in the next subsection. The total effect of changes in income on expenditures measured by Schwab and Zampelli was roughly zero.

[9] Mueller and Murrell (1986) estimated government size relative to GDP at the national level. Although always positive and often significant, the coefficients on income in their equations were too small to provide much of an explanation of the growth of government. Rodrik (1998) found a consistently negative and sometimes significant relationship between GDP per capita and government consumption as a percent of GDP.

redistribution has been one of the most rapidly growing components of federal expenditures. Estimates of β based on state and local government data may not be reasonable approximations of the income elasticity of redistibution expenditures at the national level. However, estimates of the income elasticity of charity contributions also tend to lie below unity, suggesting that this adjustment would not account for the growth of government (Clotfelter, 1985, ch. 2).

21.2.1.3 *The Baumol effect.* The remaining candidate for explaining government growth is the price elasticity of demand. Most estimates of α suggest that it is significantly greater than -1 and thus imply a relative growth in government if there has been a relative increase in its price. Baumol (1967a) has argued that we might expect a relative increase in the price of government-provided "goods," given that many of them (education, police protection) are services. Because productivity increases come largely from technological change, and this in turn is typically embodied in capital equipment, there is less potential for productivity advances in service sectors such as the government.

Although the argument has intuitive plausibility, it is not clear how far it can be pushed. The military services are quite capital-intensive today and spend vast sums on productivity-enhancing research and development. Similarly, computers, xerography, and other innovations have brought productivity increases in many white-collar jobs. Thus it is not apparent a priori that productivity increases in government could not keep pace with those in the private sector, at least with those in the private service sector. But it appears that they have not. A fair consensus exists among studies of government productivity that suggests that government productivity lags private sector productivity and may in fact be zero or negative.[10] As Buchanan (1977, pp. 8–9) has noted, lagging productivity in the government sector may be more symptomatic of why government growth is a "problem" than the cause of it.

Whatever the cause of the relative rise in the price of government-provided goods, this rise does appear to account for some of the growth of government. Estimates of significant "Baumol effects" have been obtained for the United States (Tussing and Henning, 1974; Berry and Lowery, 1984; and Ferris and West, 1996), Switzerland (Pommerehne and Schneider, 1982), Sweden (Henrekson, 1988), and Austria (Neck and Schneider, 1988). Lybeck (1986, ch. 5) finds support for the Baumol effect in his pooled, cross-sectional time-series analysis of 12 OECD countries, as well as in 9 of the 12 individual countries examined: Australia, Austria, Belgium, Canada, Federal Republic of Germany (weak), Italy, the Netherlands, Norway, and the United Kingdom. The effect was not found in France, Sweden, or the United States (my judgment, according to results for supply equations explaining government expenditures *excluding* transfers).

Although Ferris and West (1996) found evidence of the Baumol effect, it did not account for all of the increase in the costs of government services relative to private goods between 1959 and 1984 in the United States – only two-thirds. One-third of

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[10] See in particular Fuchs (1968), Gollop and Jorgenson (1980), Ross and Burkhead (1974, ch. 6), and the discussion in Pommerehne and Schneider (1982, pp. 312–13).

the increase in the relative costs of government services was due to increases in wages in the public sector relative to the private sector. Here we have an example of the "dead hand of monopoly" working in the public sector. The monopoly or near-monopoly government has in the provision of some public services, like education and health care, to pass on cost increases to citizen/consumers and encourages monopoly/public sector unions to demand higher wages. Ferris and West (1996) cite evidence of larger increases in teacher salaries in unionized school districts than in nonunionized districts. Their work underscores the point made earlier: all of the relative increase in the cost of the public services cannot be assumed to be exogenously determined.

Assuming now that significant Baumol effects exist, the next question is how much of the growth of government can they explain? Some parts of the government budget (for example, pure transfers and interest payments) are difficult to think of as "goods" whose prices rise relative to private goods. The budget component for which Baumol's effect seems most appropriate is perhaps what the OECD characterizes as "final consumption" – that is, the goods and services actually absorbed by government. Final consumption expenditures for the OECD countries from 1960 through 1995 are presented in Table 21.5. All but one country – the United States – saw their government consumption expenditures rise as a percent of GDP over this period. Estimates of the relative increase in the cost of government services due to the Baumol effect cluster around 1.5 percent per year.[11] Over the 1960 to 1995 period, a 1.5 percent annual increase compounds to a 68.4 percent increase in the cost of government services relative to private goods. Assuming a price elasticity of demand for government services of -0.5,[12] the Baumol effect should have resulted in a 29.8 percent relative increase in final consumption expenditures. Twenty of the 25 countries in Table 21.5 experienced higher percentage increases in government consumption than this figure (see last column). Eight had an increase that was more than double this figure. Thus, the Baumol effect seems capable of explaining the full increase in final government consumption expenditures for only a handful of OECD countries, although it probably explains a part of the increase for all.[13]

21.2.2   *The government as redistributor of income and wealth*

The government giveth and it taketh away.

Several writers have criticized the view that government exists to provide public goods and alleviate externalities, arguing that this is essentially a normative description of government – a theory of what government ought to do – not a description of what it actually does. These writers argue that a positive theory of government must analyze the redistributive nature of its activity. Aranson and Ordeshook (1981)

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[11] See Holsey and Borcherding (1997, p. 568) for discussion and references.

[12] This figure seems reasonable from the studies surveyed by Borcherding (1977a, p. 49; 1985, pp. 364–5).

[13] A large component of the fall in government consumption in the United States between 1960 and 1995 came in defense expenditures. In the context of equation (21.1) this fall must be interpreted as a shift in the government's demand schedule for defense due to a change of "tastes" brought about by the end of the cold war, rather than as a repudiation of the Baumol effect. In other components of U.S. government consumption – like education (Ferris and West, 1996) – the Baumol effect seems alive and well.

Table 21.5. *Government final consumption expenditure as a percentage of GDP, 1960–95*

Country	1960	1968	1974	1985	1990	1995	Percentage increase
United States	16.6	18.5	17.6	17.8	17.6	15.8	−4.8
Japan	8.0	7.4	9.1	9.6	9.0	9.8	22.5
Germany	13.7	15.9	19.8	20.5	19.4	19.5	42.3
France	14.2	14.8	15.4	19.4	18.0	19.3	35.9
Italy	12.3	13.9	14.0	16.7	17.6	16.3	32.5
United Kingdom	16.4	18.0	20.5	21.1	20.6	21.3	29.9
Canada	13.4	16.9	18.1	20.1	20.3	19.6	46.3
Average of above countries	14.9	16.2	16.4	17.1	16.6	16.0	
Australia	11.1	14.1	15.6	18.5	17.2	17.3	55.9
Austria	13.1	14.9	15.9	19.3	18.6	20.2	54.2
Belgium	12.4	13.6	14.7	17.0	14.1	14.8	19.4
Denmark	13.3	18.6	23.4	25.3	25.3	25.2	89.5
Finland	11.9	15.3	15.2	20.2	21.1	21.9	84.0
Greece	8.3	9.1	9.8	14.4	15.3	14.1	69.9
Iceland	10.4	12.9	15.9	17.5	19.2	20.8	100.0
Ireland	11.9	12.8	16.5	17.8	14.8	14.7	23.5
Luxembourg	8.3	10.2	9.7	13.3	13.4	13.1	57.8
Mexico	5.7	6.9	8.3	9.0	8.4	10.4	82.5
Netherlands	12.2	14.4	15.7	15.8	14.5	14.3	17.2
New Zealand	10.5	13.0	14.7	16.2	17.0	14.3	36.2
Norway	12.4	16.0	17.7	18.2	20.8	21.1	70.2
Portugal	9.7	12.1	13.0	14.3	15.7	18.1	86.6
Spain	8.4	9.1	9.9	14.7	15.6	16.6	97.6
Sweden	16.1	20.8	23.5	27.9	27.4	25.8	60.2
Switzerland	9.6	11.3	12.7	14.5	14.6	15.0	56.2
Turkey	7.6	9.0	10.2	8.9	11.0	10.8	42.1
Average of above countries	10.4	12.2	13.4	15.4	15.2	15.6	
Total EU 15	13.7	15.2	16.8	19.0	18.5	18.7	
Total OECD	14.2	15.5	15.8	16.8	16.3	15.9	

Source: OECD Economic Outlook: Historical Statistics, 1960–1995, p. 70.

pressed the point most forcefully, emphasizing that all government expenditures have a redistributive component. Roads must be built in this location or that. Construction contracts are given to one set of firms, to the loss of all others. As Aranson and Ordeshook view it, to understand what government is and why it grows, one must analyze its redistributive activities.

21.2.2.1 *The Meltzer and Richard model.* Meltzer and Richard (1978, 1981, 1983) have presented perhaps the simplest and yet most elegant public choice analysis of the growth of government. Their model presumes that all government activity consists of redistribution. This redistribution occurs by means of per capita lump-sum grants of r, financed from a proportional tax of t levied on all earned income. If $\bar{y}$ is mean per capita income, a balanced government budget implies

$$r = t\bar{y}. \tag{21.2}$$

An individual's utility depends on his consumption, c, and leisure, l. Letting n be the fraction of total time worked, we have the identities

$$l = 1 - n \qquad (21.3)$$
$$c = (1 - t)y + r. \qquad (21.4)$$

Meltzer and Richard assumed that income depends on an ability or productivity factor x, which is randomly distributed across the population. Given the hours one works, n, one's income is higher, the higher one's x factor:

$$y = nx. \qquad (21.5)$$

Given t and r, an individual's only choice is how much to work, n. Maximizing $U(c, l)$ with respect to n, given (21.3)–(21.5), one gets, as a first-order condition,

$$U_c(1 - t)x = U_l \qquad (21.6)$$

or

$$\frac{U_l}{U_c} = (1 - t)x. \qquad (21.7)$$

The marginal rate of substitution between leisure and consumption is equated to the net-of-tax marginal product of an individual's time. From (21.7) one can obtain the number of hours an individual works. For the specific case of a Stone-Geary utility function, $U = \ln(c + \gamma) + a \ln(l + \lambda)$, one obtains for optimal n

$$n = \frac{(1 - t)(1 + \lambda)x - a(r + \gamma)}{(1 - t)(1 + a)x}. \qquad (21.8)$$

The denominator of (21.8) must be postive, but with small enough x the numerator can be negative. Obviously n cannot be negative; thus there is a critical level of ability, x_o, at which optimal $n = 0$; we can derive from (21.8) that

$$x_o = \frac{a(r + \gamma)}{(1 - t)(1 + \lambda)}. \qquad (21.9)$$

Although r and t are exogenous from the point of view of the individual, they are endogenous to the political system. Substituting (21.8) back into the individual's utility function demonstrates that the individual's utility ultimately depends on r and t. When choosing r and t, the rational voter considers this and takes into account the relationship between r and t given by (21.2). Now $\partial \bar{y} / \partial t < 0$. Mean income falls as the tax rate rises because of the negative incentive effects of higher taxes on effort.[14] Thus r is a function of t, rising at a diminishing rate until $-d\bar{y}/dt = \bar{y}/t$ and then falling (see Figure 21.1). Voters who work have positively sloped indifference curves such as U^1 and U^2 ($U^2 > U^1$), since higher taxes lower utility and

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[14] Note that as t rises more individuals choose not to work:

$$\partial x_o / \partial t = a(r + \gamma)/(1 + \lambda)(1 - t)^2 > 0.$$
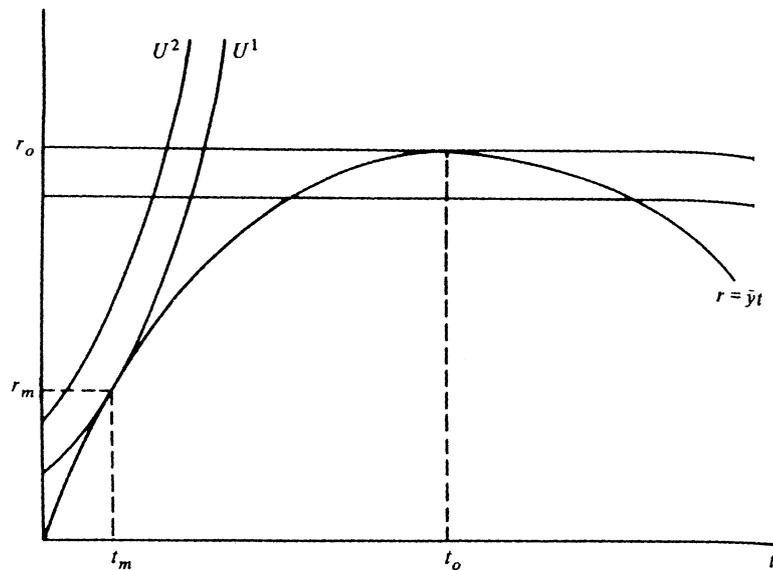
Figure 21.1. The optimal choice of t.

increased subsidies raise it. Voters who do not work do not have their utilities affected by changes in t. Their indifference curves are horizontal straight lines such as U^3 and U^4, with $U^4 > U^3$. Each rational voter recognizes that $r = \bar{y}t$ constitutes the opportunity set in choosing t (or r). Each voter chooses the $t - r$ combination along the $r = \bar{y}t$ curve that maximizes her utility. Voters who do not work all choose the t_0 that maximizes the lump-sum transfer. The voter with $x > x_0$ favors a lower t than t_0. If all voters have the same utility function and differ only in their ability factors, x, voters with higher x have steeper utility functions and favor a lower t. The voters are in essence confronted with a one-dimensional choice, with t uniquely defining r. A variant on the median voter theorem, first proved by Roberts (1977), can be used to establish the existence of an equilibrium under majority rule. If U^1 and U^2 are indifference curves for the median voter, then $t_m - r_m$ is the optimal tax-subsidy combination.

21.2.2.2 *Additional redistribution–growth-of-government hypotheses.* Three additional hypotheses linking government size to redistribution must be mentioned. Most closely related to Meltzer and Richard's hypothesis is that of Cusack (1997). Left-of-center governments are assumed to favor more redistribution and larger budgets than right-of-center governments. Pooled cross-section/time-series regressions for 15 (16) OECD countries for the period 1955–89 (1961–89) confirm this prediction. Of course this hypothesis cannot explain the secular *growth* in government without an auxiliary hypothesis that parties' (voters') ideological positions have shifted leftward over time.

Instead of viewing redistribution as simply involuntary taking from the rich by the poor, Kristov, Lindert, and McClelland (1992) see redistribution as a function of the *social affinity* between different groups in the income distribution. Their hypothesis

comes closer to the Pareto-optimal and insurance motives for redistribution. They also rely on the median voter model, and hypothesize that the middle class has a closer affinity to the upper class, the smaller is the gap between the upper and middle classes' incomes, and thus that the scale of government redistribution is positively related to this gap. Similarly, the middle class has a closer affinity to the poor, the smaller the gap is between the lowest and middle classes' incomes, and thus that the scale of government redistribution is negatively related to the size of this gap. They also argue that there will be less social affinity with the poor, and thus less income redistribution, the faster income is growing. Kristov, Lindert, and McClelland (1992) predict a relationship between the shape of the income distribution and the amount of redistribtion, but it is not the same relationship predicted by Meltzer and Richard.

Peltzman (1980) has presented yet another explanation for the growth of government that depends on the shape of the distribution of income. Peltzman's explanation, however, does not make use of the median voter theorem. A form of representative government is envisaged in which candidates compete for votes by promising to redistribute income toward groups of voters that agree to join the candidate's coalition of supporters. Peltzman reasoned that the more equal the distribution of income among the potential supporters of a candidate, the more bargaining strength they would have. Thus the candidate must promise a greater amount of redistribution, the more equal is the initial distribution of income among voters. Peltzman pointed to the spread of education as an important factor, increasing the equality of pretransfer incomes and thus leading to a growth in the size of government. Peltzman's hypothesis depends on increasing equality of income among potential coalition members to drive the growth of government, whereas Meltzer and Richard's rests on increasing inequality of the income distribution across enfranchised voters.

21.2.2.3 *Some logical/empirical difficulties with the redistribution–growth-of-government hypothesis.* Both the Meltzer-Richard and Peltzman papers discussed the role of government as if government were exclusively engaged in redistribution. Aranson and Ordeshook (1981), Brunner (1978), and Lindbeck (1985) also placed primary emphasis on government's redistributive activities. But if redistribution is the primary activity of government, then some additional logical arguments are missing to explain the growth in government to the sizes now observed in different countries. Alternatively, government activity is not exclusively redistributive.

Government has grown to far greater size than is necessary just to achieve redistribution. If one group or a coalition of groups can make use of the democratic machinery of government to achieve a greater share of the pie, then one would think that the group or coalition ought to be able to do so in such a way as not to use up such a large fraction of the pie in bringing about the redistribution. The number of programs and people making up government seems much larger than necessary just to achieve redistribution.

Meltzer and Richard, Peltzman, and to some extent Kristov, Lindert, and McClelland (1992) assume that all redistribution is from rich to poor.[15] But this

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[15] Peltzman (1980) backs away from this assumption at the end of his paper, however (pp. 285–7).

characterization of government redistribution does not fit the facts. As we saw in Chapter 3, recipients of governmental transfers are located across the distribution of income, with the upper quintile in some countries receiving more transfers than the lowest quintile.[16] Indeed, if all government activity can be characterized as some form of redistribution, its most salient feature is probably the lack of a uni-directional flow (Aranson and Ordeshook, 1981; Brunner, 1978).

The multidimensional character of government redistribution makes it difficult to rationalize *all* government activity as *purely* redistributionally motivated. If all government programs simply take from one group and give to another, and if all citizens participate at both ends of the redistributional process, who gains from the process? Why do not citizens simply abolish the government and save the tremendous deadweight losses from zero-sum redistribution? Either there must be some clear gainers from the redistributional process, who are in a position to sustain and enlarge their gains, or all government activity is not purely redistributional in character. If the former possibility explains the growth of government, who are those gaining from government and how do they achieve their goals within the rules of a democratic process? If some significant proportion of government activity is not purely redistributional, but, say, is directed at providing public goods, then one again has a logical problem in explaining government growth as a result of redistributional struggles. Once it is admitted that a large component of government expenditure is to provide public goods, then all redistributional objectives can be achieved simply by changing the tax shares of individuals or groups of individuals.[17] One typically does not have to spend money on, or give money to, a group to give that group greater command over private goods.

An assumption of both the Meltzer-Richard and Peltzman models is that the beneficiaries of government growth support government growth. In the Meltzer-Richard model, all voters with incomes below the median favor increased government transfers. Yet, survey evidence indicates that obvious beneficiaries of government growth, such as public employees and welfare recipients, do not have significantly different preferences for tax limitation proposals from other voters (Courant, Gramlich, and Rubinfeld, 1981; Gramlich and Rubinfeld, 1982b).

21.2.2.4 *Direct empirical tests of the redistribution–government-size hypothesis.* One piece of evidence that Meltzer and Richard cite in support of their thesis is the increasing expansion of the voting franchise over the past two centuries. Justman and Gradstein (1999) have developed a model of voter participation and government redistribution policies that fits the Meltzer and Richard hypothesis

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[16] Fratianni and Spinelli (1982) emphasize the increasing importance of special programs to help business in their discussion of the growth of government in Italy.

[17] See Mueller and Murrell (1985). Of course those groups that pay no taxes to finance the public goods portion of the budget can be subsidized further only by an expenditure or transfer program, but not enough groups such as this exist to account for current government activity in most countries. One might object that tax cuts cannot always be designed to benefit specific groups, but the number of tax loopholes and the complexity of tax-loophole legislation belie this point.

Hettich and Winer (1988, 1999) analyze the effect of political pressure to achieve redistribution on tax structure.

and also can account for Kuznets' (1955) famous inverted-U relationship between income inequality and the per capita income of a country. This inverted-U pattern fits the historical record of Great Britain quite well.[18] Justman and Gradstein argue that the income of the median voter was *above* the mean in Great Britain at the beginning of the nineteenth century, as only a sixth or so of the population was eligible to vote. Redistribution policy at that time was *regressive* and led to an increase in income inequality. The increase in average income that occurred throughout the nineteenth century resulted in a continual extension of the franchise to a larger fraction of the population until the median voter's income was *below* the mean, and governmental redistribution policies became progressive.

Husted and Kenny (1997), Abrams and Settle (1999), and Lott and Kenny (1998) also offer explanations for the growth of government that rely on changes in the franchise and voter participation that bring poorer-than-average citizens to the polls and thus increase the demand for government services. Husted and Kenny emphasize the impact of the elimination of the poll tax and literacy tests in the South, while Abrams and Settle and Lott and Kenny focus upon the extension of suffrage to women in Switzerland and the United States.

A logical difficulty with the Meltzer-Richard-Justman-Gradstein-Abrams-Settle-Lott-Kenny hypotheses is that by extending the franchise to larger and larger fractions of the population over the nineteenth and twentieth centuries, the median voter made himself worse and worse off.[19] Why, for example, did he (there were no she voters in Great Britain in the nineteenth century), as represented in Parliament, vote for the "watershed . . . Second Reform Act of 1867 which enfranchised higher-skilled labor, in consequence of which the new median voting family earned less than the average family income, and had a vested interest in redistribution, [which] signalled the beginning of a dramatic shift in the redistributive bias of economic policy that culminated in the foundation of the modern welfare state after the turn of the century"? One possible answer is that the median voter of 1867 feared that the alternative to the slow erosion of his position within the democratic process was a dramatic reversal of his fortunes through more revolutionary channels. Similarly, the median *male* voter in each of the developed democratic countries over the course of the nineteenth and early twentieth centuries may have grown weary of seeing his wife and other female relatives protesting on the streets and complaining at home, and eventually opted for short-run peace of mind over long-run economic advantage and voted to give women the right to vote. Not all democratic history can be captured by a model that assumes that the preferences of a narrowly selfish median voter dictate political outcomes.

A more direct and rigorous test of the Meltzer-Richard hypothesis is to test its prediction of a positive relationship between the ratio of mean to median income

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[18] It also fits that of a few other countries (see e.g., Lindert and Williamson, 1985), but in general subsequent research has not been kind to the "Kuznets' hypothesis" (see Anand and Kanbur, 1993; Deininger and Squire, 1996).

[19] This logical difficulty does not arise with the Husted-Kenney argument insofar as it hinges on the abolition of the poll tax and literacy tests in the southern United States, and these changes were forced upon the southern states by the federal courts.

Table 21.6. *A. Estimates of the Meltzer–Richard model using U.S.*
time series data, 1937–40, 1946–76

Dependent variable	Independent variables		
	$\ln(\bar{y}/y_{m-1})$	$1/y_m$	R^2
$\ln t(1 - F)$	0.57	−1,081	0.80
	9.1	5.0	
$\ln t_2(1 - F)$	0.48	28.3	0.73
	9.2	0.16	
$\ln t_3(1 - F)$	0.67	−3,461	0.79
	5.5	8.1	

B. Estimates of the Meltzer–Richard model using pooled state
data, 1979–91

Dependent variable	Independent variables		
	$\ln(\bar{y}/y_{m-1})$	$1/y_m$	R^2
$\ln t(1 - F)$	−0.05	9,879	0.93
	5.77	11.96	
$\ln t_2(1 - F)$	−0.007	4,290	0.91
	0.52	3.43	
$\ln t_3(1 - F)$	−0.076	12,175	0.92
	6.91	12.32	

Notes: $\bar{y}$-mean income; y_m-median income; F = dependency rate; t_2 = public provision of private goods; t_3 = income transfers; $t = t_2 + t_3$; t-statistics under coefficients.

Sources: Part A: Meltzer and Richard (1983, Table 1).
        Part B: Gouveia and Masia (1998, Table 4).

$\bar{y}/y_m$ and government size. Meltzer and Richard (1983) test this hypothesis using time-series data for the United States from 1938 to 1976. The empirical realization of their model involves regressing various measures of government transfers as a percentage of GDP adjusted for the dependency ratio, F, the fraction of the population that does not pay taxes, onto $\bar{y}/y_m$ and $1/y_m$. This equation is a linear approximation to the complicated expression for transfers that one derives from their model. The three transfer measures are

t_2 = public provision of private goods

t_3 = pure transfers

$t = t_2 + t_3$.

The term containing $\bar{y}/y_m$ should have a coefficient of 1.0. Its coefficient is <1, but positive and significant for all three definitions of transfers, offering some support for the Meltzer-Richard hypothesis (see Table 21.6, Part A).

The ratio $\bar{y}/y_m$ is essentially a measure of the skewness of the income distribution. As Tullock (1983) pointed out, this ratio has been virtually constant since World War II, yet it "explains" a significant fraction of the growth of government. Meltzer and Richard's test essentially amounts to regressing one long-run trend variable on

another. Any other long-run trend variable might yield a similarly high correlation. A better test of their hypothesis would involve pooled cross-section/time-series data that are not dominated by trends.

Gouveia and Masia (1998) have provided such a test using data for the 50 U.S. states over the 1979–91 period. These data are particularly well suited for testing the Meltzer-Richard hypothesis, because there were significant movements in the skewness of income distributions across the states over this period. Furthermore, by using data for political units within a single country, Gouveia and Masia eliminate many of the cultural and institutional heterogeneities that plague cross-national comparisons. Three of Gouveia and Masia's regressions are presented in Table 21.6, Part B. The $\bar{y}/y_m$ variable is of the wrong sign in all three, and is statistically insignificant in two. Although the skewness of the income distribution does not seem to be significantly related to redistribution across the 50 states, some support for a redistribution–government-size hypothesis is provided by positive and significant coefficients on $1/y_m$. Transfers increase as the income of the median voter falls, holding the skewness of the income distribution constant.

Kristov, Lindert, and McClelland (1992) also obtain negative, and in one case significant, coefficients on their proxy for the ratio of mean to median income in their pooled cross-section/time-series regressions using data on 13 OECD countries (1960–81). In contrast, both the gap between the upper and middle classes' incomes and the gap between the lowest and middle classes' incomes have the predicted positive and negative coefficients in an equation to explain transfers to the poor. Further support for their social affinity hypothesis is provided by the negative and significant coefficient on growth in this equation. Although Peltzman (1980) observed a negative relationship between the skewness of the income distribution and the extent of redistribution as his hypothesis predicts, Kristov, Lindert, and McClelland's results offer only mixed support for this explanation.

Despite the logical difficulties with the theories that explain government size as purely redistributionally driven, and the mixed or contradictory empirical support for particular theories, it is difficult to suppress the impression that an important component of the explanation for the growth of government lies in government's redistributional activities, so the growth has been substantial in the transfer component of government budgets, as Table 21.7 shows (see also discussion in Tanzi and Schuknecht, 2000, pp. 30–2). But these arguments and evidence make clear that the hypotheses put forward so far, which attempt to explain the growth of government in simple redistributional terms, are inadequate. Some additional elements are needed to complete the story. Two villains often mentioned as instrumental in the growth of government are interest groups and bureaucrats.

21.2.3 *Interest groups and the growth of government*

The pioneering public choice analysis of the question of government size might be regarded as Tullock's (1959) classic discussion of majority rule. Tullock presented an example in which a community of 100 farmers votes on proposals to repair access roads, each of which benefits only a few farmers. Using the majority rule, a winning coalition of 51 farmers is predicted, with a political outcome in which the only roads

Table 21.7. *Government expenditure on subsidies and transfers, 1870–95*
(percent of GDP)

	About 1870	1937	1960	1970	1980	1995
Canada	0.5	1.6	9.0	12.4	13.2	14.9
France	1.1	7.2	11.4	21.0	24.6	29.9
Germany	0.5	7.0	13.5	12.7	16.8	19.4
Japan	1.1	1.4	5.5	6.1	12.0	13.5
Norway	1.1	4.3	12.1	24.4	27.0	27.0
Spain	–	2.5	1.0	6.7	12.9	25.7
United Kingdom	2.2	10.3	9.2	15.3	20.2	23.6
United States	0.3	2.1	6.2	9.8	12.2	13.1
Average	0.9	4.5	8.5	13.6	17.4	20.9
Australia	–	–	6.6	10.5	16.7	19.0
Austria	–	–	17.0	16.6	22.4	24.5
Belgium	0.2	–	12.7	20.7	30.0	28.8
Ireland	–	–	–	18.8	26.9	24.8
Italy	–	–	14.1	17.9	26.0	29.3
Netherlands	0.3	–	11.5	29.0	38.5	35.9
New Zealand	0.2	–	–	11.5	20.8	12.9
Sweden	0.7	–	9.3	16.2	30.4	35.7
Switzerland	–	–	6.8	7.5	12.8	16.8
Average	–	–	11.1	16.5	24.9	25.3
Total average	1.1	4.5	9.7	15.1	21.4	23.2

Source: Tanzi and Schuknecht (2000, Table 2.4).

repaired are those that service these 51 farmers. Because these 51 farmers pay only 51 percent of the costs of repairing their roads, they vote to have them maintained at a higher level of repair than they would if they had to cover the full costs. Thus, majority rule might be said to lead to a level of government expenditures that is excessive, relative to the Pareto-optimal level that would occur under the unanimity rule, in one of two senses. First, more is spent repairing those roads than would be spent under the unanimity rule. Second, if the unanimity rule were in use, there would be no incentive to have the government (that is, the community to which the 100 farmers belong) repair the roads at all. Each small group of farmers could agree among themselves to repair their own roads. The repair of access roads would not be a public issue at all in the community of 100.[20]

Whereas Tullock's example of road repair nicely illustrates how government may become too large under majority rule, it also illustrates some of the troublesome questions raised earlier. If a coalition of 51 farmers can impose taxes on their neighbors without the neighbors receiving any benefits, why do the 51 not simply take the money as a cash transfer and repair the roads themselves at the optimal level, rather than make subobtimally large road repairs through the government?

In the previous chapter we examined how interest groups can and do influence legislation through their campaign contributions and lobbying efforts. Interest group influence on legislation concerning agricultural price supports, tariffs, price ceilings,

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[20] For two quite different models of the pork-barrel process that nevertheless imply inefficiently large budgets, see Weingast, Shepsle, and Johnsen (1981), and Schwartz (1994).

and regulations that reduce competition has been established. *None* of these government interventions directly affects the size of government as we have been discussing it in this chapter – expenditures or taxes over GDP – however.[21] An ideal measure of government size would include its regulatory impact on the economy, but so far no one has constructed such a measure.

If we confine our attention to the size of government as measured by expenditures and taxes, we obtain contradictory predictions. Some interest groups favor higher government expenditures (automobile and truck drivers want larger highway expenditures), but others favor lower expenditures (environmental groups oppose highway constuction). *Everyone* prefers to receive higher subsidies, but to pay lower taxes. Some interest groups are effective in obtaining each. Such efforts might simply shift tax burdens and subsidy benefits around without changing their overall magnitudes. The *net effect* of interest groups on the size of government cannot be determined a priori. It is an empirical question.

Casual observation suggests that pressure groups are successful in reducing their tax burdens. Until recently, oil production in Western Europe has been trivial relative to in the United States, and taxes on petroleum products in Western Europe have been dramatically higher. Tobacco-producing states have lower cigarette taxes than nonproducing states. Hunter and Nelson (1989) present evidence for Louisiana indicating that farmers and wealthy homeowners are able to lower their tax burdens.

Rice (1986) presented evidence suggesting that labor unions and other interest groups were able to induce governments to introduce programs to offset economic hardships, and that these programs helped to explain the growth of the government sectors in European countries between 1950 and 1980. Naert (1990) also found that from 1961 to 1984 Belgian labor unions were able to secure significant increases in certain budgetary items that benefitted their members, like social services and public health. Congleton and Bennet (1995), on the other hand, found that interest group influence on state highway expenditures was pretty much a wash. Truck drivers were able to exert a positive influence on these expenditures, but railroad workers were even more effective in bringing about reductions, as were members of the Sierra Club. Together interest group variables added little explanatory power to a standard, median voter model of highway expenditures.

Several studies have attempted to relate overall interest group strength to government size. North and Wallis (1982), for example, drew a parallel between the growth of government and the growth of white-collar and managerial employment in the private sector. Both were seen as a response to the greater transaction costs from organizing a market economy with increasing specialization (see also North, 1985): "Growing specialization also created a host of new interest groups" (North and Wallis, 1982, p. 340). The demands that these groups press on government are not simply for a redistributive handout, but are to alleviate the transaction costs these groups bear within an increasingly specialized society. Thus, the influence of interest groups on government activity is seen as having both an efficiency-enhancing dimension as well as a redistributive dimension. North and Wallis substantiated their

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[21] Of course, an agricultural price support program may lead to a larger Department of Agriculture, but these indirect effects on government size are not likely to be substantive.

argument with data showing that nondefense, nontransfer expenditures of government have grown faster than total government has grown since World War II, and almost as fast as transfers.

The transaction costs explanation for the growth of government is the most general. Our analysis in Chapter 2 revealed that the existence of externalities and public goods was not sufficient to warrant the creation of the state. Rather, the state emerged as the lowest transaction costs institution for providing public goods and eliminating externalities. Logically, therefore, increasing governmental efforts to reduce transaction costs are the best explanation for the growth in the state. But the very generality of the transaction costs notion makes it difficult to pinpoint more accurately the particular transaction costs that have to be reduced, and the budget items that will grow to accomplish this task. For example, all industrialized countries can make use of income taxation, yet this efficient source of revenue collection leads to vastly different government sizes in Japan and Switzerland compared with Sweden and Holland. Do the transaction costs of organizing interest groups differ greatly across countries?

Mueller and Murrell (1985, 1986) presented empirical evidence that interest groups affect the size of government. They described a political process in which parties supply interest groups with favors in exchange for the interest groups' support. When these favors take the form of goods targeted to specific interest groups, but with some spillovers for other groups, government grows larger. The number of organized interest groups in a country was shown to have a positive and significant effect on the relative size of the government sector in a cross-sectional sample of OECD countries for the year 1970.

Lybeck (1986, pp. 88–96) found that the relative size of government in Sweden varied over time with the relative fraction of employees who were members of interest groups. McCormick and Tollison (1981, pp. 45–9) found that the extent of economic regulation within a state varied directly with the number of trade associations registered in the state.

To explain the *growth* of government over time using one of these hypotheses, one must of course argue that interest groups' bargaining strength has grown over time, governments have become less cohesive over time, or some combination of the two.

The aforementioned studies do not provide evidence of these secular changes. Olson (1982) did discuss the conditions favoring the growth of interest groups, however, and Murrell (1984) presented evidence consistent with Olson's hypotheses concerning the causes of interest group formation. The stable economic and political environment in Western developed countries since World War II facilitated the growth in interest groups, according to Olson's thesis, and this growth in turn may help to explain the relatively poor macroeconomic performance of many European countries in the last quarter of the twentieth century. If the number of effective interest groups in developed countries has grown since World War II, then their growth could also help to explain the relative growth of government.[22] Government

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[22] Mueller and Murrell (1985, 1986) made allowance for interest groups and government size, both being endogenous variables.

growth and macroeconomic inefficiency would, in turn, be tied together. This interconnection is taken up in the next chapter.

21.2.4 *Bureaucracy and the growth of government*

Government programs do not come into existence merely because some interest group wants them and the legislature authorizes them. They must be "manufactured." More often than not, the supplier of a program is part of the government itself – a government bureau. Government may grow not only because increasing expenditures are demanded by citizens, interest groups, or legislators, but also because they are demanded by the bureaucracy supplying government programs. The government bureaucracies are an independent force, which possibly may lead to increasing government size.

In Chapter 16 we examined several hypotheses as to why bureaucrats might seek a larger budget and considered some evidence in a specific situation when the bureaucrats have the power to set the agenda where they do. Thus, the bureaucracy appears to be a plausible candidate as an independent source for the growth of government.

Nevertheless, some logical difficulties exist when applying the bureaucracy models to explain the size of government and its growth. The Niskanen (1971) model predicts a government budget as much as twice as large as that demanded by the bureau's sponsor. It is easy to see why a bureau would wish to charge a higher price for a given output. The extra revenue could be used to offer higher salaries, more leisure (because of a large staff), more perquisites (paid travel to conventions), and a whole host of amenities that might make a bureaucrat's life on and off the job more pleasant. But the power of the bureaucracy to obtain these benefits should not be exaggerated. Salary increases are very visible exercises of bureaucratic power; travel and other perquisites can often be easily monitored. A wise legislature should be capable of exercising some control over such budget items.

One way sometimes used to justify a larger salary is to expand the bureau's output, and then to demand higher salaries that allow for the expanded demands placed on the bureaucracy. Niskanen (1971, p. 38) postulated that a bureaucrat's "salary, perquisites of the office, public reputation, power [and] patronage" are all positively related to the size of the bureau. Niskanen uses this postulate to analyze the consequences of assuming that bureaucrats maximize the size of their budgets. Not surprisingly, the model implies larger budgets than are desired by the legislative demanders. Niskanen's analysis has become the theoretical underpinning for an important part of the literature on the growth of government.

The model of the budget-maximizing bureaucrat has a certain resonance with models of the corporation that assume that managers maximize the corporation's

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Wallis and Oates (1988) indirectly test the hypothesis linking the size of government to the growth of interest groups. Following Olson (1982), they assume stronger interest groups in old states. Following Mueller and Murrell, they assume bigger government sectors in states with stronger interest groups. Yet they find the government sectors to be larger in *younger* states, thus contradicting one of the links in the causal chain. Gray and Lowery's (1986) results suggest that it is the relationship between age of state and number of interest groups that breaks down.

size, its growth in size, or other size-related variables such as white-collar staff (Baumol, 1959; Marris, 1964; Williamson, 1964). The behavioral underpinning and empirical support for these models can to some extent be cited in support of the postulate of the budget-maximizing bureaucrat. But one must not be too quick to generalize.

The manager of a company with $10 billion in sales may be able to justify to the board of directors and stockholders a larger salary than she could if the company had sales of $1 billion and company size and managerial compensation are positively correlated. But the head of a bureau with a budget of $10 billion does not necessarily get paid more than the head of a bureau with a budget of $1 billion. Salaries across government bureaucracies tend to be much more uniform than are salaries across companies. Moreover, the top officers in bureaus are typically political appointees who stay at the bureau for four years at most. Thus expanding the size of the bureau, even if size and salary were positively related, would not be likely to benefit directly the bureaucrat who brought about the increase. If the growth of bureaus benefits the top members of the bureaucracy, it must in general be from the nonpecuniary dimensions of a bureaucrat's rewards that accompany a bureau's growth.

Even at middle levels, salaries do not differ much across bureaus. Undersecretaries earn the same regardless of which department they are in. But the chances for promotion in a rapidly growing bureau are certainly greater than in a shrinking one. Thus, middle-level bureaucrats do have a financial incentive to encourage the rapid expansion of their bureaus because it increases the likelihood of their promotion to a higher rank. Career bureaucrats are also likely to be with the bureau long enough to benefit directly from the expansion, unlike their short-term superiors.

Although this analysis provides a rationale for the promotion of growth in size by middle-level career bureaucrats, it greatly complicates the story of why these individuals are allowed to fulfill their goals to the loss of society. If the bureaucrats at the top of the bureau do not benefit from the growth in bureau size, why do they not curtail its growth? Are middle-level bureaucrats able to deceive both the legislative overseers of the bureau and their superiors within the bureau about the true quantities of the bureau's output and its unit costs?[23]

Bureaucrats and interest groups stand equally high on all lists of the causes of the growth of government, and much case study evidence is consistent with these hypotheses. For example, Miller's (1981, ch. 3) study of city incorporations in Los Angeles County reveals both city and county bureaucrats to be driven by the goal of expanding the size and scope of their jurisdictions, and resisting attempts to contract them.

In much the same spirit Johnson and Libecap (1991) argue government workers have more to gain from voting, and that this explains why participation rates are higher for government employees than for citizens who are dependent on the private sector for their employment. They interpret higher turnouts by state and local employees relative to federal employee participation rates as further evidence

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[23] For further critical discussion of the hypothesis linking the size of government to the bureaucracy, see Musgrave (1981, pp. 91–5).

consistent with this hypothesis, because the probability of government workers being decisive is greater in state and local elections than it is in federal elections, owing to the smaller sizes of the electorates at state and local levels. Johnson and Libecap were not able to show, however, that state and local government employees were able to convert their voting power to their personal advantage. Federal employees earn *higher* salaries than their compatriots at lower levels of government despite the latter's higher participation rates.

Several studies have tested the hypothesis that the *voting* power of bureaucrats in and of itself leads to larger government budgets. The bigger the government is, the larger the fraction of voters who work for it and, if they perceive their interests advanced by increasing government size, the more votes there are for this outcome. Borcherding, Bush, and Spann (1977) were perhaps the first to test this hypothesis, and presented supporting evidence for the United States; Lowery and Berry (1983) and Berry and Lowery (1984) use U.S. data to contradict the hypothesis, however. Ferris and West (1996) use U.S. time-series data from 1959–89 to support the hypothesis, but when they expand the data series to 1949–89, they are unable to uncover a significant relationship between number of public employees and government size (Ferris and West, 1999).

Evidence from other countries is equally contradictory. Henrekson (1988) finds that public employment is positively related to local levels of government consumption expenditures in Sweden, but not to transfers. This result seems plausible, since bureaucrats are presumably more interested in increasing the money spent within government than the money passing through it. But Renaud and van Winden (1987b) come up with entirely opposite results for Holland. Neck and Schneider (1988) are not able to sustain the hypothesis on Austrian data, nor are Frey and Pommerehne (1987) able to find any measurable effect of bureaucrats' voting power in Swiss municipalities.

Santerre (1993) was able to discern an influence of bureaucrats on political outcomes in his investigation of Connecticut municipalities. But here the impact of government employees on the democratic process did not appear to be simply through their raw numbers, but through their active participation in town meetings. The number of public school employees was significantly related to the size of school budgets where town-meeting direct democracy prevalied, but not where representative government existed. Through active participation in town meetings bureaucrats appeared able to influence how other citizens voted, and thereby the outcomes of the process.

The bureaucracy models of Niskanen (1971), Romer and Rosenthal (1978, 1979b, 1982), and others are static. They explain why government might be larger than the legislature would prefer if it knew the unit costs of the outputs it thought it was buying, and why the level of outputs might be larger than the median voter's most preferred quantity. They do not directly explain why government grows.

Indirectly, however, they perhaps do offer an explanation. The bureaucracy's ability to expand the budget beyond the amount the legislature or citizens demand depends in part on its ability to misrepresent the true prices and quantities of publicly provided goods. The ability to misrepresent is likely to depend in turn on the size

and complexity of the budget itself. The bigger the bureaucracy, the more difficult it is for outsiders to monitor its activity, and the more insiders there are who are working to increase the size of the bureaucracy. Thus the growth of the bureaucracy is likely to depend on its absolute size.

To see this relationship, let us define G_t as the amount of publicly provided goods that the citizens or legislature truly demand. Let B_t be the total size of the budget. B_t is greater than G_t to the extent to which the bureaucracy is capable of forcing a greater flow of resources toward the bureaucracy than is demanded; that is,

$$B_t = \alpha_t G_t, \qquad \alpha_t \geq 1. \tag{21.10}$$

Now let

$$\alpha_t = e^{aB_t} \tag{21.11}$$

and let the amount of publicly provided goods demanded grow at a constant rate n equal to, say, the growth in national income:

$$G_t = ce^{nt}. \tag{21.12}$$

Then

$$B_t = ce^{aB_t}e^{nt}. \tag{21.13}$$

The growth in the budget, g, is then

$$g = \ln B_t - \ln B_{t-1} = a(B_t - B_{t-1}) + n. \tag{21.14}$$

The growth rate of the budget both exceeds the growth in national income, n, and increases with the absolute difference between this period's and last period's budget. Other functional forms for α_t will yield other relationships between g and B_t; as long as α_t increases with budget size, however, the growth in the size of the budget can be expected to increase with its absolute size.

The Niskanen-type models lead one naturally to think of bureaucrats exercising their power by expanding the *outputs* of their bureaus. Ferris and West (1996) show, however, that real government output in the United States has actually *fallen* since 1959. It is only the nominal size of the government that has expanded. Government bureaucrats have succeeded in increasing their salaries and budgets, while at the same time *reducing* their outputs. Direct evidence of this is found in the many studies that show that government bureaucracies have higher unit costs than private firms when they both supply comparable and measurable outputs, such as tons of garbage collected. Borcherding (1977, p. 62) describes this as "the Bureaucratic Rule of Two" – "removal of an activity from the private sector will double its unit costs of production."[24] If unit costs rise by this much when direct comparisons with private sector alternatives are possible, how much more are they inflated when the bureaucracy knows it cannot be subjected to a comparison with private market alternatives?

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[24] For summaries of the evidence, see Orzechowski (1977); Borcherding, Pommerehne, and Schneider (1982); and Chapter 16.

Additional evidence of the bureaucracy's ability to use its power over its monitors to increase its salaries is provided by Ferris and West (1999). Using time-series data for the United States from 1949 to 1989 they first confirm the Kau and Rubin (1981, 1999) hypothesis that falling costs of collecting taxes over this time leads to increases in government size. They then relate increases in government employee salaries to these cost decreases. Members of the government bureacracy were able to convert possible reductions in taxes or expansions in government outputs into increases in their own incomes.

21.2.5 *Fiscal illusion*

The hypothesis that bureaucratic power increases the size of government presumes that the bureaucracy can deceive the legislature about the true costs of supplying different levels of output. The fiscal illusion hypothesis presumes that the legislature can deceive the citizens about the true size of government.

The fiscal illusion explanation for government size assumes that citizens measure the size of government by the size of their tax bill. To bring about an increase in government size, for which the citizens are not willing to pay voluntarily, the legislative-executive entities must increase the citizens' tax burden in such a way that the citizens are unaware that they are paying more in taxes, or be willing to pay the price of citizen displeasure at the next election. If tax burdens can be disguised in this way, citizens have the illusion that the burden of government is smaller than it actually is, and government can grow beyond the levels citizens prefer.

The fiscal illusion hypothesis follows logically from the assumption that voters are rationally ignorant (Congleton, 2001). A renter pays no property tax directly. If she is a rationally ignorant voter, she may not gather enough information about the government's finances even to know that property taxes exist. Even if she knows that property taxes exist, she may not devote sufficient time and effort to determine the extent to which a tax on the owner of the property that she rents gets passed on to her. She might then vote for increased school budgets – to be financed out of increased property taxes – not realizing that she will be paying more in taxes.

Although this argument is reasonable enough, to develop it into a model for explaining the size of government one must make some specific assumptions about the kinds of tax burdens that can be disguised. Mill (1861) felt that direct taxes were more visible and, by implication, that excessive government growth would have to rely on indirect taxes. But the citizens of Boston had no illusions about the burden of the British tax on tea two centuries ago, and one can argue that employer withholding of income taxes, like bank collection of property taxes with mortgage payments, makes these forms of direct taxation less visible than some types of indirect taxation, such as liquor and cigarette taxes. The issue of what sources of revenue are less visible to citizens, as well as the magnitude of any fiscal illusion caused, must be regarded as largely empirical.

In his comprehensive survey of the empirical literature on fiscal illusion Oates (1988b) identifies five categories of fiscal illusion: (1) a tax burden is more difficult to judge the more complex the tax structure; (2) renters are less able to judge their share

of property taxes in the community than are homeowners; (3) built-in tax increases because of the progressivity of the tax structure are less clearly perceived than are legislated changes, making elastic tax structures more conducive to government growth than are inelastic structures; (4) the implicit future tax burdens inherent in the issuance of debt are more difficult to evaluate than are equivalent current taxes; (5) citizens do not treat lump-sum cash subsidies to their government as being as much theirs as they would a cash subsidy to themselves (the "flypaper" effect). Each of these hypotheses implies a relationship between the size or growth of government and the relevant fiscal illusion variable. Oates carefully examined the evidence in support of each and concluded "that although all five cases entail plausible illusion hypotheses, none of them have very compelling empirical support" (Oates, 1988b). I tend to agree with this conclusion for all of the five categories of fiscal illusion, save the last. The logic against a flypaper effect is compelling, but the empirical evidence refuses to give in to this logic. Grants from the central government do seem to be treated by lower levels of government as "gifts from heaven" and, so as not to offend the giver, tend "to stick where they land."[25]

Direct evidence of fiscal illusion has been obtained recently in experiments by Tyran and Sausgruber (2000). They designed a market experiment involving tax/transfer proposals. A tax could be leveled on either the buyers or the sellers with part of the tax revenue transferred to the buyers and the other part going to the sellers. The demand schedule was perfectly inelastic and so in both cases all of the tax fell on the buyers, and thus in both cases the buyers were better off rejecting the tax/transfer proposal. Most buyers correctly perceived that they would be made worse off by the proposal when the tax was levied on them and voted against it. A significant fraction voted for the tax/transfer proposal, however, when the tax was levied on the sellers. The way in which the tax part of the proposal was framed had a significant impact on how the participants in the experiments voted. Tyran and Sausgruber's findings have obvious implications for the likelihood of fiscal illusion existing for property taxes on rental property, employment taxes paid by employers, and so forth.

Mention should also be made of Peter Swann's finding of a strong relationship between the elasticity of the Australian tax system and the growth in the size of its government. Swann argues that essentially *all* of the relative growth of government in Australia since World War II can be explained by the disguised tax increases that occurred as a result of inflation, which shifted individuals into ever higher tax brackets and thus expanded the tax take of the state. Unfortunately for this version of the fiscal illusion hypothesis, Swann's impressive time series results for Australia – like Meltzer and Richard's (1983) time series results – have not been confirmed using pooled cross-sectional data in Flanders (Heyndels and Smolders, 1994) and the United States (Hunter and Scott, 1987; Greene and Hawley, 1991).

The lack of strong empirical support for the fiscal illusion hypothesis, despite its intuitive appeal, may be due to the rather vague way in which it has been defined and modeled in the literature. For example, it is not clear whether fiscal illusion is a

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[25] The empirical evidence regarding the flypaper effect is reviewed in Chapter 10.

kind of short-run myopia on the part of voters that allows for temporary increases in expenditures, or a permanent astigmatism indefinitely obscuring the true size of government. The latter is obviously a much stronger hypothesis. The tax revolts in both Europe and the United States in the 1970s, and Newt Gingrich's successful "contract with America" to reduce taxes and the deficit in the United States in the early 1990s, suggest that fiscal illusion may not permanently impair voters' vision. By the end of the twentieth century, the U.S. federal deficit had disappeared, and government's share of the GDP had stopped growing. Eventually, citizens may be able to recognize the true scale of Leviathan and rise up to chain it. (For further discussion of the fiscal illusion hypothesis, see Musgrave, 1981, pp. 98–104, and Oates, 1988b.)

21.2.6 *Tax elasticity*

Our last hypothesis about the growth of government is not so much about the motivation of those who bring about this growth, but about the means of their doing so. Kau and Rubin (1981, 1999), whose work has already been mentioned, assume that the supply of government services and transfers is provided by those who seek to maximize government size as in the Brennan and Buchanan (1980) Leviathan model or Niskanen's (1971) bureaucracy model. The chief constraint these budget maximizers face is a technical one – how can they extract the maximum amount of revenue from the population? Luckily for the budget maximizers, several economic and social developments over the last century have made their task much easier. The movement of workers from farms into factories makes it easier for the government to measure and tax their incomes; the movement of women from employment at home into employment in the marketplace allows government to measure and tax their incomes; the development of computers and other technological changes makes it easier for the government to monitor – and thus to tax – economic activity. In their most recent test of these propositions, Kau and Rubin (1999) found that variables measuring these developments accounted for two-thirds of the changes in government size in the United States over the period 1947–93. A measure of the ideology of members of Congress, included to account for changes in the *demand* for government, was insignificant. *All* of the changes in government that Kau and Rubin were able to explain were accounted for by their proxies for the government's ability to raise tax revenue.[26]

The importance of the elasticity of the tax system is also emphasized by Hansson and Stuart (forthcoming) in their expanation for why the size of the government sector has *declined* in several OECD countries from peaks attained during the 1980s. Hansson and Stuart argue that in these countries those in government overestimated the elasticity of tax revenue and raised taxes beyond the level at which they could be sustained indefinitely. Hence, they were forced to retreat. We discuss some factors that determine these limits to taxation in the next chapter.

[26] Kau and Rubin first presented evidence that these measures of tax elasticity could explain the intertemporal movements in government size in the United States in 1981 using a data set from 1929 through 1970. Additional support for the tax-elasticity side of their hypothesis is provided by Ferris and West (1996).

21.3   Conclusions

The six explanations of government size reviewed in this chapter stem from two quite different conceptualizations of the state. The first three hypotheses (the government as a provider of public goods and eliminator of externalities, the government as a redistributor of income and wealth, and interest groups as inducers of government growth) are essentially drawn from a *classical theory of the democratic* state (Pateman, 1970). Ultimate authority lies with the citizens. The state exists to carry out "the will of the people." State policies are reflections of the preferences of individual voters. In the public choice literature, the state often appears as simply a voting rule that transforms individual preferences into political outcomes. Most of the classic works on public choice – beginning with Arrow (1951), Downs (1957), Black (1958), and Buchanan and Tullock (1962) – are based on this citizen-over-state view of the polity, and it continues dominant in the most recent literature in the many works that employ the median voter model, probabilistic voting models, and the like.

The last three hypotheses reviewed here place the state above the citizens. It is the preferences of the state, or of the individuals in the government, that are decisive. Citizens' preferences and political institutions constitute at most (loose) constraints against which political leaders and bureaucrats pursue their own personal interests. Indeed, in the extreme version of this view of the state, the only binding constraint on it is its ability to extract tax revenue from the citizens. This state-rules-citizen view of politics underlies Puviani's (1903) work and characterizes that of Niskanen (1971) and Brennan and Buchanan (1980).

If either of these two conceptions of the state is fully accurate,[27] then the other must be rejected – and so, too, the set of hypotheses associated with it in this chapter. But both views might be correct to some degree. Government officials and bureaucrats may have some discretionary power to advance their own interests at the citizens' expense, but citizens' preferences, as registered through existing political institutions, may also constitute a consequential constraint. If so, then all six hypotheses may help to explain the size and growth of government. Certainly, the huge growth in the redistribution component of the state budgets seems likely to be explained by some combination of the hypotheses reviewed here: (1) insurance against the risks to incomes from living in highly developed and interdependent economies, (2) insurance against the risks to incomes from living in economies that are highly dependent on international trade, (3) involuntary redistribution from those above the median income to those below, and (4) involuntary redistribution from groups with weak political power to more powerful groups.

Several studies have tested for the relative strengths of demand and supply factors in explaining government growth. Henrekson (1988) found evidence of both the Baumol effect and the voting power of government bureaucrats in his time-series

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[27] Tanzi (1980) has discussed both of these conceptions of the state – as well as a third, the paternalistic state – in the context of the fiscal illusion issue.

analysis of Sweden. Although the fiscal illusion variables did not prove to be very robust, the supply side variables did have somewhat more explanatory power than the demand variables.

Ferris and West (1996) estimated demand and supply equations using time-series data for the United States. They also included a third equation to explain the level of government employment. Neither price nor income was significant in the demand equation with the latter result contradicting Wagner's law. The numbers of government employees and farm population were significant interest group "taste factors" in the demand equation. The Baumol cost effect was significant in the supply equation.

Lybeck (1986) estimated an integrated demand and supply of government model for 12 OECD countries. Demand factors appeared to dominate in Sweden and the United Kingdom; supply factors in Canada, France, and the United States; and both were of about equal importance in the remaining countries (Australia, Austria, Belgium, the Federal Republic of Germany, Italy, the Netherlands, and Norway). Impressive support for the Baumol effect was again found. Interest group strength, as measured by the number of interest groups in a time-series analysis of Sweden (Lybeck, 1986, pp. 58–82), and by the degree of unionization in a pooled cross-sectional time-series analysis of all 12 countries (pp. 96–106), was highly significant. The number of public employees, another interest group measure, proved significant in several countries. In the pooled regressions, population size (negatively related) and unemployment (positively related) were the remaining significant variables. The former appears in the demand side of the model and implies that government size declines relatively as population grows, as one would expect if government output resembles a pure public good. The unemployment rate appears in the supply side of the model, as hypothesized in political-business-cycle models. Other hypotheses (Wagner's law, redistribution, fiscal illusion) received very mixed support.

Pommerehne and Schneider (1982) incorporated both of the views of the state in their model. The demand for government for 48 Swiss municipalities that operate under direct (as opposed to representative) democracy was first estimated. The estimated coefficients from this equation were then used to simulate what the levels of government expenditure would be in the 62 Swiss municipalities that have representative democracy. They found that *all* of the individual spending categories are underestimated from the parameter estimates based on the direct democracies. The representative democracies spent 28 percent more than predicted by the expenditure equation estimated over the direct democracies. The use of a representative form of government changes the nature of the political outcomes substantially, making government considerably larger than it would be if citizens directly determined outcomes. Moreover, in those Swiss municipalities in which representative democracy exists, the size of government is smaller if the citizens have the right to call a referendum and thereby reverse a government decision. These results of Pommerehne and Schneider suggest rather strongly that the existence of a layer of representative government between the citizens and political outcomes expands the size of the public sector considerably. They would appear to support the

state-over-citizen view of government, and Pommerehne and Schneider (1982, pp. 319–22) interpret their results as indicating the importance of "the supply side of local services."

Santerre's (1989) study of Connecticut suburbs provides further support for the Pommerehne/Schneider results. Suburbs with representative democracy had *larger* budgets than those governed by direct town-meeting democracy, but actually spent *less* per pupil for schooling – the major component of the local budget. Farnham (1990), on the other hand, did not observe a better fit to the median voter model in small U.S. communities that used other instruments of direct democracy – the initiative, referenda, and recall.

It is also possible that the existence of representative democracy facilitates the attainment of private gains by interest groups. Both Peltzman (1980) and Mueller and Murrell (1985, 1986) have seen the growth of government as a by-product of the competition for votes between candidates and parties. Thus government growth (or size) in these models is dependent on the representative nature of the democratic process, although the models assume that citizens' preferences, as channeled by interest group representation, are the driving force behind government programs.

Work by Roubini and Sachs (1989), Cusack (1997), and Persson and Tabellini (1999, 2000b) suggests that it is not only the existence of representative democracy per se that affects the size of the government sector, but that the *structure* of the institutions of representative government is important. Roubini, Sachs, and Cusack argue that lack of government cohesion in multiparty or presidential systems leads to more logrolling and larger budgets. Persson and Tabellini make almost exactly the opposite predictions. They argue that the checks and balances that exist in a presidential system lead to more competition among the different branches of government and that this competition helps constrain the rent-seeking activities of those in government. They also predict smaller budgets in "majoritarian" (two-party) systems than in multiparty systems because the competition for votes in majoritarian systems focuses on the marginal districts rather than the entire nation, and thus politicians tend to make more targeted and in the aggregate smaller commitments in majoritarian systems. All three studies claim support for their hypotheses.

Although as almost always the theoretical underpinning for these models is more impressive than their empirical support, this recent work on the importance of electoral systems alongside Pommerehne and Schneider's earlier results demonstrates what may be regarded as the single most important message that public choice has to teach – the rules of the game *do* affect the outcomes of the game. Institutions matter. In Switzerland, the more direct the citizen's influence on political outcomes is, the smaller is the scale of government. Among the developed countries, citizens of Switzerland are able to exercise control over government more effectively than anywhere else. Only Switzerland makes much use of direct democracy and the referendum, and it has the strongest federalist system in the world. It also has the smallest public sector in Western Europe (see Table 21.2). The results of Pommerehne and Schneider as well as those of Santerre (1986, 1989) suggest that these facts are related.

Corroborative evidence that more direct citizen control effectively constrains government may be inferred from the many studies that have found that more federalized or decentralized government structures are associated with smaller or slower growing government sectors.[28] At the national level, the effects of federalism on government size are almost impossible to measure, since there are so few countries that fulfill the essential criteria for federalism – citizens are represented at each level of government and their representatives can decide both the expenditures and taxes at each respective level. In the so-called federalist states of Europe – like Austria and Germany – lower levels of government have limited authority to set their own tax rates, and thus citizens cannot put pressure on them to lower taxes. Only one country in Western Europe has a federalist structure in which citizens at each level can determine both expenditures and taxes – Switzerland – and it "happens" to have the smallest government sector in Western Europe. Worldwide, of the four developed countries with the smallest government sectors, three fulfill this criterion of federalism – Switzerland, the United States, and Australia (Table 21.2). Canada would appear to provide an important counterexample, as it too meets the criterion, but the disciplinary potential of federalism in Canada has been dramatically curtailed since World War II by a federally led program of introducing "tax uniformity" across the provinces. Grossman and West (1994) claim that this program was the product of collusion among the provincial governments, and provide evidence that it led to an increase in the size of the government sector in Canada since World War II.

Blankart (2000) recounts a similar story for Germany. The German regional governments have happily allowed the federal government to usurp their taxing authority over the last 50 years as this centralization of taxation has removed tax competition among them and thus increased the size of their budgets. Blankart argues that this centralization of tax authority accounts for the faster growth in the size of Germany's public sector relative to Switzerland's.[29] Consistent with the Canadian and German experiences, we find that the response of governments in the European Union to the "threat" of tax competition posed by the greater integration of their economies has been to press for the elimination of this competition through "tax harmonization" within the Union.

Thus we see that all of the institutions of democracy – electoral rules, institutions of direct democracy, and federalist institutions – seem to be important in determining the size of government. These institutions differ across countries, and their efficacy changes over time as the economic and political environment of a country change. The citizen's role in a representative democracy is more passive than in a direct democracy, and even this difference seems to lead to a significant fillip to government size. Today's citizen, confronted by expanded and more complex government structures at the local, state, and federal levels, must feel that he is more of a

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[28] See Cameron (1978), Saunders (1986), Schneider (1986), Nelson (1987), Zax (1989), Marlow (1988), Joulfaian and Marlow (1990), and Vaubel (1996). Here, as so often is the case, one can cite contradictory evidence (see again the discussion in Oates, 1988b).

[29] Joulfian and Marlow (1990) provide additional evidence of the effects of collusion using U.S. data.

passive spectator of the democractic process, as he watches a campaign commercial on television, than did the citizen of 150 years ago. How much of the growth of government in the intervening years can be explained by a slackening of the reins of government in citizens' hands, how much is a reflection of the preferences of citizens transmitted through the political process, and how much reflects merely the preferences of those within the government remains a somewhat open question.

Bibliographical notes

Holsey and Borcherding (1997) survey the public choice literature on the growth of government. Tanzi and Schuknecht (2000) provide a wealth of data on the size and composition of government expenditures and taxes in different countries from the end of the nineteenth century up to the present, and analyze the causes and consequences of these fiscal developments.