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Source: *The American Economic Review*, May, 1969, Vol. 59, No. 2, Papers and Proceedings of the Eighty-first Annual Meeting of the American Economic Association (May, 1969), pp. 479-487

Published by: American Economic Association

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STRATEGIC THEORY AND ITS APPLICATIONS

THE PRINCIPLE OF "FISCAL EQUIVALENCE": THE DIVISION OF RESPONSIBILITIES AMONG DIFFERENT LEVELS OF GOVERNMENT

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Though economic theory provides a good basis for decisions about which functions ought to be performed through free markets and which by collective or governmental action, it does not tell us what type of government or institution should perform those activities that require collective action. It does not tell us whether a function should be performed by a local, state, or central government, by an *ad hoc* authority or organization, by an international organization, or by some other type of institution. Neither does any other discipline have a theory which can be of general use here.

I

Perhaps in part because of the lack of a good general model, there is a wide range of thought (or ideology) on this subject. There are advocates of world government, of unitary national government, of federalism, of "states rights," of metropolitan government, and of maximum possible reliance on the level of government that is (physically) closest to the people. There have also been advocates of "functional" units of governments, which have responsibility for a particular function, occupation, or industry rather than a given geographical area. This point of view was characteristic of many guild socialists, syndicalists, pluralists, and believers in the corporate state, and is still part of the official ideology of the Gaullist movement. The debates on this subject have lately taken on a new twist as the "new left" has forsaken the "old left's" emphasis on cen-

tral planning and nationalization in favor of "participatory democracy," which appears to involve a degree of decentralization at least as great as the old right or classical liberals have advocated. The modern demands for what might be called "black power separatism" or separate governments in Negro ghettos have added yet another approach, which we shall give special attention here.

Just as opinions on this subject are diverse, so is the practice, even within the United States. There are now, by one count, about 80,000 governments in this country. The New York metropolitan region alone is supposed to have 1,400 governments. The typical citizen is not only under the jurisdiction of national, state, county, and city governments, but sometimes also subject to a metropolitan transport commission, a port authority, a sewage or sanitary district, a Soil Conservation District, a pollution control district, a school district, an airport commission, or a metropolitan planning commission or council of governments. Many of these institutions are functional governments or other authorities or organizations that have only a single purpose.¹ At the same time that the nation has this bewildering and overlapping network of local and functional governments, it also relies to a great extent upon the federal government, whose direct general expenditures exceed

¹ Some professions in some states are also governed by organizations that are ostensibly private, but nonetheless have the legal authority to regulate a particular profession.

those of all state and local governments put together.²

In some areas the federal government is over time playing a relatively larger role vis-à-vis state and local governments. The situation is, however, not simply or mainly one of federal activity supplanting decaying state and local governments. New local governments and functional authorities are being created, and since 1948 the federal government's share of total government expenditures (under any one of six alternative definitions) and of total government employees has declined, especially in relation to that of local governments.³

The network of grants or subsidies from higher levels of government to lower makes the situation even more complex. By one count, there are over 400 different federal grant-in-aid programs. Such grants are also becoming more important. Since 1957, federal grants-in-aid to state and local governments have been increasing at a compound rate of more than 14 percent per year.

The labyrinthian, overlapping network of state, local, and functional governments, dependent to an increasing degree on federal subsidies, is widely criticized. It is considered a waste of resources and an obstacle to intelligent planning and coherent public policy. However much their recommendations differ, all schools of thought seem to agree that the present pattern of governments is duplicative and unsatisfactory.

What principles ought to guide the development of a rational pattern of jurisdictional responsibility? Is a large-scale, centralized government a necessary condition of efficiency? Or a systematic reliance on

small, local governments with rational boundaries? Is there any general or theoretical case to be made for subsidies from central to subordinate governments?

II

There is one issue that must be settled before we can proceed, for if it is not understood, the search for an optimal pattern of jurisdictional responsibility may seem trivial. This issue has been raised by those writers who emphasize that free bargaining among the parties concerned can deal with externalities in a Pareto optimal way. They rightly point out that the parties affected by an externality will always have an incentive to continue bargaining until all mutually advantageous bargains have been struck, at which time no one can be made better off without someone else being made worse off, so that there is Pareto optimality.

Many of those who like to emphasize this sort of argument are careful not to press it to an extreme and are quick to bring in bargaining costs or other considerations that limit the applicability of their argument. In this they are wise, for the "bargaining will continue until Pareto optimality is achieved" assumption could prove the efficiency, not only of *laissez faire*, but of anarchy as well. If free bargaining would always lead to Pareto optimality, all desirable public goods could be provided through voluntary action. Since violence is never Pareto optimal (unless it be between a sadist and a masochist), anarchy would be peaceful. The distributional implications of an anarchic but Pareto optimal society would not be appealing,⁴ but then neither might those that free bargaining would lead to in a *laissez faire* economy.

What has just been said is not altogether frivolous, as is evident when we

² George F. Break, "Changing Roles of Different Levels of Government," Table 1, p. 3 (forthcoming).

³ Break, *op. cit.*; U.S. Department of Commerce, *Congress and the Nation*, p. 1393; and Robert A. Dahl, *Pluralist Democracy in the United States* (Rand McNally, 1967), p. 177.

⁴ Those who could coerce others would enjoy extortionate gains. The anarchy might also be unstable and could degenerate into tyranny.

think of the implications of the "bargaining brings Pareto optimality" assumption for our search for principles of governmental structure. If, for example, there were no central government, there would be no loss of efficiency under the assumption of utopian bargaining, since local governments could through bargaining make national arrangements to take care of any uniquely national problems. Similarly, ideal logrolling in the national legislature could deal optimally with any local problem even in the absence of local government.

Another reason why the probably frequent failure of bargaining must be emphasized here is that where problems of government are at issue, the number of interested parties often numbers in the thousands or even millions. These large numbers not only raise what might be called the "transactions" cost of bargaining but also pose an additional problem. A large group can bargain with others only if it is organized, so that it can have representatives. But such an organization is itself a public good to the group it would help, and won't exist unless it enjoys the power of coercion or has some other way of giving its members an incentive on an individual basis, to support the organization.⁵ Thus in many contexts where governmental action is at issue there may be no real possibility of a "bargaining" solution, since the groups among whom bargains could be struck aren't organized.

III

The subsequent analysis will be furthered by some special assumptions, many of which, as we shall see, can later be dropped. The first assumption is that the governments, authorities, and other institutions we consider produce only col-

lective or public goods, which are defined for this purpose as goods such that it is not feasible to exclude nonpurchasers from their consumption. A second assumption is that every collective good affects some clearly delineated group or area, which can be as large as the entire population of the earth, or as small as the population of the smallest community. A breakthrough in pure science could benefit the entire world, and a program to combat air pollution could help only a particular community. Both of these examples satisfy our assumption rather nicely, but some other governmental services that are sometimes called public goods would not fit this assumption well, and we shall later have to relax it. A third initial assumption is that there is no complementarity in production among different public goods, in the sense that a government that provides one collective good cannot therefore provide a second collective good at lower costs than a unifunctional government could have. This assumption is probably also unrealistic in certain cases and will later have to be relaxed.

The argument that will be developed with the aid of these and other assumptions would better be described as a "pre-model" than a "model," since its purpose is to set out a rudimentary and hopefully fundamental approach that should inspire the construction of elaborate and relatively realistic models based on less restrictive assumptions. There is perhaps some basis for the hope that this approach has promise in the fact that two other economists, Jerome Rothenberg and Gordon Tullock, have independently set out the essentials of arguments which, however different in some respects, in some ways parallel my own.⁶

⁵ This point is demonstrated in my *Logic of Collective Action* (Harvard Univ. Press, 1965).

⁶ See the forthcoming Universities-National Bureau of Economic Research volume on *The Economics of Public Output*, where Rothenberg, Tullock, and I discussed our approaches to this problem. See also my

The approach to be set out focuses on the problem of allocative efficiency rather than questions of stabilization and income redistribution, principally because stabilization and redistribution are obviously most appropriate to central governments. We ask here, "What are the necessary conditions for the allocative efficiency in the provision of collective goods?"

IV

In every case, one or more of the following three logically possible relationships between the "boundaries" of a collective good and the boundaries of the government that provides it will apply: (1) the collective good reaches beyond the boundaries of the government that provides it; (2) the collective good reaches only a part of the constituency that provides it; or (3) the boundaries of the collective good are the same as those of the jurisdiction that provides it.⁷

In the first type of situation, there is an obvious cause of inefficiency. The fact that the benefits of a given government's activity reach beyond its borders means that it provides an external economy, and when any maximizing unit provides an external economy, it tends to carry on its activity at a less than Pareto optimal level. In other words, situations of this kind leave a society with a smaller supply of the collective goods in question than would be optimal. There is some evidence that this actually happens in the case of military alliances, where one nation's military expenditures are an external economy to its allies, and in city-center govern-

ments which provide services to the whole of a metropolitan area.⁸

Now let us turn to the second possible type of situation, in which a collective good reaches only a subset of the population in a jurisdiction. Here there is what might be called an "internality," which normally has the same effect as the externality just described. To see this type of case in its most obvious form, suppose that the United States had a unitary government with no state or local jurisdictions. There would still be a need for local collective goods, such as air pollution controls in particular metropolitan areas.

In a situation of this type and a democratic political system with voting by majority rule, the provision of a collective good for a local area will hurt more people than it helps, even if Pareto optimality would have required that the collective good be provided. If the benefits are local and the taxes national, even a collective good which brings gains much greater than its costs will still create more losers than gainers. It is always possible to set up a special local taxing authority, but this will be at least a *de facto* government.

If all mutually advantageous bargains were struck, logrolling would insure that all collective goods that it was Pareto optimal to provide would be provided. But we have already argued that, especially where large groups of people are at issue, it will very often be the case that logrolling will not happen and that there will not be a Pareto optimal supply of public goods.⁹

discussion of papers on "Efficiency in the Government Sector," in *A.E.R.*, May, 1964, pp. 250-51, and Gordon Tullock's article on "Problems of Scale" (forthcoming in *Public Choice*).

⁷ Possibilities (1) and (2) could both hold at the same time. It will soon be clear that this is particularly likely to lead to inefficiency.

⁸ See Mancur Olson and Richard Zeckhauser, "An Economic Theory of Alliances," *Rev. of Econ. and Statis.*, Aug., 1966, pp. 266-79; and unpublished research on central city and suburban public expenditure patterns by Mr. Harvey Botwin, of Claremont College.

⁹ In the United States Congress, logrolling probably leads to a greater than optimal expenditure when projects of a pork barrel type are at issue. In

Even when logrolling does occur, there is a likelihood that it will not provide a Pareto optimal supply of public goods. This is because any sharing of the marginal costs of a bundle of Pareto optimal projects which is not exactly proportional to the sharing of the gains at the margin will lead to a less than Pareto optimal expenditure. This, in turn, is because, under any other sharing of the costs, some members or members of the coalition will be paying more than their share and will find that marginal costs to them come to exceed their marginal benefits before a Pareto optimal amount has been provided for the society. They will then have an incentive to hold back. (This point was evident long ago from Lindahl's theory of voluntary public exchange.)¹⁰

There is one special case in which benefit boundaries smaller than jurisdictional boundaries will not lead to less than a Pareto optimal level of public expenditure. If x percent of the voters in a constituency are required to vote affirmatively before a measure is declared passed and a

given collective good benefits more than x percent of the voters, there will presumably be a tendency for provision of a supra-optimal level of this good. This is because (as Gordon Tullock has shown) the minority that does not benefit from the good also pays taxes, and those who do enjoy it can vote for a level of provision that equates only their own tax burden at the margin with the total benefits of the collective good.

If there is this exception to the generalization that a failure of government boundaries to match the boundaries of collective goods leads to a less than Pareto optimal supply of collective goods, there is none to the rule that there are systematic forces which work against allocative efficiency in any situation where the boundaries of a government and a collective good it provides do not coincide. We must, then, argue provisionally (the argument will be modified somewhat later) that there is a need for a separate governmental institution for every collective good with a unique boundary, so that there can be a match between those who receive the benefits of a collective good and those who pay for it. This match we define as "fiscal equivalence."

Though it is much too early to make policy recommendations, it is already evident that both the "centralizing" and "decentralizing" ideologies are wrong, or at any event entail inefficiency. Only if there are several levels of government and a large number of governments can immense disparities between the boundaries of jurisdictions and the boundaries of collective goods be avoided. There is a case for every type of institution from the international organization to the smallest local government. It is a merit of the present approach that it can help explain the need for both centralized and decentralized government in the same framework.

most of these cases the projects are of a tangible, if not monumental, type, and a congressman is more likely to be identified in his district with such a project than with a general tax increase, which could not in any case usually be traced to any one package of local projects. The logrolled projects, moreover, normally fall under the jurisdiction of only one committee in each house, and this is often necessary for logrolling. The difficulty of logrolling across committee lines is illustrated by the fact that legislation which makes "sense" only if it applies only to a small number of areas, often can pass only after most congressional districts are made eligible for its direct benefits. If logrolling could readily occur with legislative proposals involving a number of committees, there would presumably be no such tendency. I am thankful to Charles Schultze for calling the difficulties of logrolling across committee lines to my attention.

¹⁰ If bargaining proceeds solely in all-or-nothing terms, and marginal increments are never considered separately, the situation becomes more complex. But there would presumably still be some tendency in the same direction.

It is also already evident that some of the complaints about the proliferation of governments and the overlapping boundaries of different types of governments need to be greeted with skepticism. Though there are undoubtedly some redundant governments and some that are too small to serve their purposes properly, there is also a need for new governments as well, including some small ones. The metropolitan transport commissions, the port authorities, the Soil Conservation Districts, the suburban towns, and the neighborhood school boards that have been created are in many cases probably a response to the forces described in this paper. The forces we have described presumably have meant not only that expenditures on some public problems were at a less than Pareto optimal level, but also that some public problems weren't dealt with at all. This, in turn, must have led to the creation of new authorities or governments.

V

Patterns of residential segregation, such as are analyzed in Thomas Schelling's paper at this session, can also justify additional governments, if (and only if) it is assumed that integrated housing areas are not now a feasible (or desirable) alternative. Since different racial and ethnic groups often have different cultural backgrounds and tastes, they may want different types of collective goods. In cases where the sense of ethnic identity is very strong or where there is antagonism among different social groups, this is particularly important. People may then care passionately, not only about the level of expenditures on policemen, teachers, and other public authorities, but also about whether there is a civilian police review board or courses in Afro-American history and even about the race or religion of public officials at every level. The characteristics of the collective goods may affect not only the subjective evaluation of the

services provided, but also their objective effects, as is evident whenever differences in language, accent, or social background impede communication between officials and citizens. The huge role of ethnic factors in American political history, especially at the level of city government, and the tense state of police-community relations in many Negro ghettos today, suggest that ethnic and religious factors can have a decisive impact on the nature of the collective goods that are demanded.

Though this question is much too complex to be settled here, it is clear that there is a case for a separate governmental institution for each ghetto, whenever group differences in taste for collective goods are important and the patterns of segregation in housing are not amenable to change. The collective goods then have relatively well-defined boundaries given by the boundaries of the ghetto, and governmental institutions which conform to these boundaries are a necessary condition for Pareto optimal provision of public services.

There is no assertion here that patterns of segregation in housing should or must be maintained, and no denial of the possible public interest in common arrangements for education and law enforcement which might ultimately lessen cultural and educational differences among ethnic and religious groups. Where education of children is at issue, the desire to satisfy consumer (parent?) preferences may be subordinated to a more general interest in the future strength and productivity of the nation. For these and other reasons, no general policy conclusion can be derived here. But the possibility of cases where matching boundaries of governments and ghettos are a necessary condition for fiscal equivalence and economic efficiency cannot be denied.¹¹

¹¹ I have elaborated this part of my argument considerably in response to the most helpful comment of Daniel Ellsberg.

VI

We have so far neglected economies and diseconomies of scale in the production of collective goods. We must now ask what influence the relationship of scale of government and production costs might have on the optimal mix of governmental institutions.

There will obviously be no modification of the principle of fiscal equivalence when the governmental unit with boundaries that match those of the collective good it provides happens to be of just the right size to produce the collective good at the lowest point on the average cost curve. Neither is there any objection to fiscal equivalence when a government whose boundaries are determined by this principle produces its collective good under conditions of decreasing cost. The fact that the collective good could be provided to a larger group at lower costs per person does not argue against fiscal equivalence because when there is such equivalence all of those who would benefit from the relevant collective good are already in the jurisdiction that provides it. A community building a levee for flood protection, for example, might wish it had more residents who could share the high fixed cost, but there could still be no social purpose in enlarging the boundaries of the government beyond the flood plain for which the levee has relevance.

The only case where the relationship between the costs of the collective good and the size of the clientele served would complicate the argument is that in which a government big enough to comprehend all of the benefits of its activity would have higher unit costs of production for the collective good than a smaller government. Here we have the only case where economies and diseconomies of scale in production play an independent role.

An example of this sort of situation might be education. Suppose it is true that a national school system would be so bureaucratic and cumbersome that it would

have higher costs per student educated than a system with thousands of independent school boards. Even granted this supposition, there still appears to be some case for federal government involvement in education, since some of the benefits of education spread throughout the land (and, with "brain drains," even abroad). If children in one locality get a poor education, this could make the national democracy ultimately work less well. If the children of that locality often migrate to another locality, this poor education becomes a problem for the recipient community. Thus each local school district finds that its educational expenditures provide an external economy to the rest of the nation, and it therefore will spend too little on education.

What does fiscal equivalence require when the desire to internalize externalities calls for central government provision, and diseconomies of large-scale operation call for local provision?

The necessary condition for Pareto optimality is then local governments of a size that minimize unit costs,¹² and central government grants to these local governments that are just large enough to compensate the local government for the external benefits of its expenditures. The grants to the local governments must involve the sharing of the marginal costs of each additional unit of service in the same proportion as the benefits of that additional unit are shared between the locality and the nation at large. If a local govern-

¹² Unit costs may be a function, among other things, of the spatial distribution of the population and the level of per capita income in each area, both of which may be affected in turn by the level of taxes and public services in different jurisdictions. A formulation as simple as that in the text is satisfactory only if the possible interdependence between decisions about government boundaries and the provision and financing of collective goods, on the one hand, and the spatial distribution of population and economic activity, on the other, is ignored. I am indebted to Robert Hartman for helpful discussions of these issues.

ment activity provides no benefits beyond its borders, it should get no federal subsidy (except for redistributive purposes, and this should be in the form of a lump-sum or block grant rather than one in which marginal costs are shared). If a local government produces something from which it gets no special benefit, the federal government should pay the full costs, as it does with other contractors who produce goods needed for national purposes.

There is, then, sometimes a case in principle for federal subsidies to state and local governments. In a period when improved transportation and communication and increased geographic mobility probably cause the external benefits of some local government activities to rise, we should not be surprised to see increasing federal subsidies to local governments. Nor should we assume that the great increases in subsidies of this type indicate that the local governments are obsolete: they could mean they are the most efficient purveyors of some types of collective goods.

VII

If some of the assumptions of the argument are relaxed, the situation becomes complicated. There is ultimately a need for an elaborate model that explores the implications of a wide variety of assumptions. But a rough idea of the effect of relaxing particular assumptions is easily gained.

It is clear that a relaxation of the assumption that there is no complementarity in the processes by which collective goods are produced tends to weaken the presumption that there should be a separate government for every collective good with a unique boundary. Some boundary discrepancies would be justified if collective goods could be provided more cheaply by

governments that provided two or more such goods.¹³

The assumption that the boundaries of a collective good are given also needs to be relaxed, if the full range of what are usually called "public goods" is to be considered. Some of the goods that governments characteristically provide are such that it is sometimes practical to exclude nonpurchasers from their consumption. These are usually goods which can be provided either by the private or the public sector. Fire-fighting is an example of such a good. Though a fire in one building can spread to another, thereby preventing exclusion, it is also true that a fire department can sometimes let a particular building burn down without loss to anyone but its owner. With partly (or wholly) private goods it is possible to change the boundaries within which the good is provided. A fire-fighting district, for example, can be given a wide variety of boundaries.

What normative precepts would be relevant in such cases? The assumptions would have to be spelled out in greater detail to give a fully satisfactory answer. Where a government supplies a wholly private good, the logic of the argument here would demand that the provision of the good be left to the private sector. Where there is a quasi-public good that can feasibly be provided to areas with diverse boundaries, there is a good case for having the boundaries of the jurisdiction determined by the consideration of production cost. The size of jurisdiction and its particular boundaries would be set in such a way as to minimize the total cost of producing the desired good. Such external benefits as then spilled beyond the boundaries so determined should be cov-

¹³ One way in which a multifunctional government may be able to cut costs is by reducing the need for legislators, officials, and elections, and saving voters the trouble of keeping informed about elected officials.

ered by subsidies from a higher or more inclusive level of government.

VIII

It is rarely appropriate to go directly from theory to policy. Reality is almost always too complex to permit policy recommendations derived solely from a single model, much less a premodel of the sort adumbrated here. The argument to the effect that governments that were either too small or too large would tend to provide a less than Pareto optimal supply of public goods might be countervailed, or even more than offset, by other considerations in any particular case. For example, as James Buchanan has shown, a progressive tax structure such that the median voter in a country pays less than the average rate of tax could lead to a more than optimal level of public expenditure. Countless other considerations might also be relevant in any given case.

Nonetheless, it seems highly likely that a great discrepancy between the boundaries of a collective good and those of the jurisdiction that provides it leads to problems of the kind described in this paper. This, in turn, argues that we can be reasonably certain that a broad array of governmental institutions is a necessary condition of Pareto optimal provision of collective goods, and that neither the extreme centralist nor the extreme decentralist position makes sense. It is also likely that many of the thousands of government and hundreds of intergovernmental subsidies that have been established in this country to deal with particular problems have in fact been needed, notwithstanding the complaints about the duplication and complexity in our system of government. The existing network of governments and subsidies has many serious faults, but is nonetheless probably better than most of the diverse arrangements that have been proposed to replace it.