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The Legislative Process and the Use of Indicators in Formula Allocations

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Formula grant programs transfer funds to state and local governments based on statistical indicators. These series are often created to monitor and report on conditions. At times, new indicators may be crafted to meet a legislative need, but statistical rather than accounting standards guide their construction. Using statistical indicators to distribute funds alters the requirements of relevance, accuracy, consistency and timeliness in ways that are not obvious from the perspective of standard statistical practice.

This article charts the relationship between the legislative process and use of statistical indicators in formulas in the United States. Although program goals may be broadly stated, legislators fashion specific provisions to aggregate support for passage. Enacting formulas is a difficult and complicated part of the legislative process and it frequently relies on precedent—using formula provisions that worked in the past. In the battle for resources, federal, state and local government agencies and private organizations advocate consideration of particular interests. Policy analysts and statisticians must provide indicators and formulas that generate support for enactment and funding while maintaining professional integrity.

Key words: Grants-in-aid; statistical indicators; legislation; appropriations; authorization; indicators; programs; goals; statistical policy; standards.

1. Politics, Statistics, and Funding Formulas

This article addresses the factors that shape how funding formulas use statistical series to allocate funds from the U.S. federal government to state and local governments. It discusses the effect of allocations on the control of government programs and considers how shifts in authority shape the decisions regarding formulas.

Legislatures authorize funding formulas. Their decisions set an agenda for using statistics to transfer responsibility for programs or establishing new ones. This article examines how democratic processes shape these formulas, which in turn alter both the legislative process and government programs. At the same time, formula allocations present statisticians with unique challenges. The article explores the forces leading to this situation and relates them to the American constitutional compromise.

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1.1. Stated goals and democratic processes

Because statistical formulas provide an apparently rational basis for allocations, it is easy to think of them as reflecting a process in which goals are defined, mechanisms crafted and results obtained. If this model were adequate to explain how and why formulas are used, the next step would be to judge their success based on the achievement of stated goals. We would ask:

- Did the funds go to the most needy part of the population?
- Did the transfers lead to the desired changes in their circumstances?
- Was education improved, were the most needed roads constructed, was poverty alleviated, and medical care provided most effectively?

But, these tests are too facile. In fact, laws that provide funds using formulas are crafted to serve many needs. Congress and the Administration work to achieve a balance of interests articulated by advocates and reflected in the votes of Representatives and Senators. In order to get agreement on any formula, Senators and Congressmen must find support among their colleagues who vote for the bill. They also must make sure that the President will not veto the bill. Thus, any funding formula represents a variety of interests articulated by the Congressional committees that wrote the bill; the members of the House and Senate who were not on the committees but take care that their constituents are protected in the legislation; and the Administration who must carry out the bill. In short, Congress balances competing legislative goals, decides how to fairly implement those goals, and draws on experts in its support agencies and the administration for help in developing a set of measures to implement Congressional decisions about how to equitably meet the goals. These experts are charged with finding statistical indicators and candidate formulas that will achieve goals defined by the Congress.

This article discusses the political process that shapes how funding formulas get written and the pressures that are brought to bear. It describes the different kinds of legislation that shape funding formulas and the process of adopting and implementing these mechanisms. It considers how these processes can result in formulas that might appear suboptimal to some but nevertheless respond to multiple constituencies so as to aggregate support for programs.

When advocates of formula programs look for support, they face the same tests facing those who work for all programs in a democracy. However, because formula based programs transfer resources to states and local governments, the calculus of support is transformed. Program delivery is shifted to state and local governments. Local government leaders often also become advocates for funding these programs.

2. The Historical Context

Formulas have a long history in the American political system. For example, the constitution specifies that Congress will apportion seats in the House of Representatives and members of the Electoral College to the states according to population, reserving at least one seat for each state. This means that the boundaries of a Congressional District cannot cross state lines. As a result, representatives from different states must have different numbers of constituents (U.S. Constitution, Article 1, 1787). From the inception, Congress

executed this responsibility by enacting formulas to balance the need to assign seats to states according to population yet not have them cross state boundaries.

Debates about these formulas date back to before the constitution was adopted and continued to receive congressional attention through the middle of the 20th century (Balinski and Young 1982). The census adjustment disputes refocused these debates starting in the 1970s and continuing to the present time (Anderson and Fienberg 1999). This early legislation created a precedent for using formulas to allocate resources among the states. To achieve agreed upon goals, Congress can state its decisions in terms of formulas based on statistical indicators. Reaching agreement on those decisions involves the aggregation of support to reach a sufficient number of votes to enact the legislation. Similar procedures are used by many states to provide funds to local governments.

2.1. The Federal system

The Federal system is designed to share governance among 56 entities (the Federal government, 50 states and five territories). In turn, the states frequently delegate authority to thousands of counties, cities, towns and other local governments. Initially, the states had more resources than the Federal government. The constitution provided for limited federal government.

This changed with improved transportation and communication. In the 20th century, the Federal government grew to command more resources. The constitution was amended to allow for an income tax. Starting in the 1930s, expanded federal domestic programs, the well-funded military and America's stature as a world power strengthened the importance of the Federal government. By the middle of the 20th century, grants-in-aid of states increased in importance. These used formulaic provisions to transfer resources from the increasingly well off Federal government to the now less prosperous states.

2.2. Effect

Unlike many other political measures that allocate scarce resources to competing constituencies, funding formulas transfer both resources *and* authority from one level of a government to another. States and local governments now have the responsibility for allocating resources to constituents. By and large, these formulas do not select the beneficiaries or set the amount of benefits they receive, but rather by allocating funds with a formula, the federal or state governments transfer the decisions regarding these matters to another governmental entity under more or less general guidelines. The formulas determine, for example, the amount of money to be dispersed to a school district for a specified purpose. The school district (under specified guidelines and with some controls) would then determine how to use the money for the benefit of students. In many cases, a receiving government would mix federal, state and local funds to support its activities. Thus, the ''ultimate consumer'' might not be able to distinguish the source of support for the activity.

Legislatively specified formulas contrast with other kinds of formula-based exchanges that determine the actual recipients and the benefits they will receive. For example, some health insurance programs (notably the Federal Employees Health Benefits Program) use statistical data about rates to establish the amounts of money that will be paid for

procedures performed by different classes of providers. In the FEHB PPO example, carriers use blended, usual and customary, or negotiated rates depending on the network status of providers. Usual and customary and blended rates are based on an analysis of claims paid to all providers in an area for a specific procedure. The Office of Personnel Management sets the percentile level for appropriate payments and the rules for negotiation, i.e., they cap payments at the amount charged by a set of providers, usually the 85th percentile. These types of formulas (established by negotiation between OPM and the carriers) set the actual rates of pay and the level of patient contribution.

In contrast, legislated formula allocations determine the amount of money transferred to states and local governments (or school districts) rather than the rules for transfer. Formula allocations are not specifically targeted to ultimate recipients but rather support programs under which they receive services or benefits. This means that formula allocations transfer administrative authority as well as funds, while other kinds of formulas only transfer funds.

Agencies also use formulas to allocate money to their regional and local offices and between bureaus or centers. Formulas are widely used in the federal budget process to allocate appropriated funds to different establishments within the federal government. For example, departments typically assess a ''tax'' on agency appropriations based on a formula to cover ''overhead.'' The General Services Administration uses formulas to determine the amount agencies pay as ''rent'' for their offices.

Formulas based on statistical indicators are also used for regulatory programs – such as the Voting Rights Act of 1965 as amended. That Act designates certain states and local areas for Federal scrutiny of voting procedures based on statistical indicators drawn from the census and voting patterns.

The democratic processes that forge funding formulas raise special challenges for the statisticians and analysts who generate the required statistical series, maintain the formulas and respond to current requirements. To sustain the integrity of statistical reports, they must adhere to rigorous principles governing data collection, compilation, reporting, and use (Martin, Straf, and Citro 2001). The authorities responsible for formula-based programs must respond to their constituencies and forge support amongst competing interests. They rely on the integrity of statistical indicators as a *modus vivendi* for dispute resolution. As such, they value indicators that can help them forge the compromises needed to further policy aims.

Different authorities in the Congress and Executive Branch bring various perspectives to bear when they draft formulas. They do not represent a monolithic set of interests, but rather aggregate support among competing interests. The coalitions they forge change from time to time. At each point, different interests favor indicators that reflect their specific concerns.

Statisticians and analysts respond to these requirements by offering a cafeteria of indicators that could be used in different formulas. Opposing interests may argue for the adoption of alternative indicators and diverse ways of combining them in order to achieve the distributions that they believe respond to their constituents' interests. With time, the conditions measured, actual results, and coalitions in support of programs change. Yet, the force of precedent may lead legislators and program administrators to be slow to change allocations. In fact, they frequently adopt provisions that hold constituents harmless from the changes that would occur if new data were used. At the same

time, those who represent constituencies where there has been change – such as increases or decreases in the relative share of national population – will advocate formula changes that reflect their interests.

Interested political leaders must balance three kinds of conflicts:

1. Between opposing constituencies;
2. Within their own constituencies; and
3. Between different programs that address specific problems.

They must also be aware that a precedent set for one program (which may favor them) could influence the outcome of another program (where it may hurt their interests). This makes it difficult to accurately calculate the effect of a particular change on the resources available to a constituency.

Decision makers in Congress expect statisticians to adhere to their own rigorous standards of accurate and complete reporting while recognizing that the methods used to combine indicators for funding formulas are often decided by additional policy considerations. In the words of one active participant in this process:

''Formula fights are difficult, in part, because they are arguments over what is equitable and over federal versus local resource allocation. For example, there are a number of ways to distribute federal highway funds. States rights advocates believe that a state should get back from the fund in proportion to what it put in – this is the donor versus recipient fight. On the other side of that argument are those who believe that the federal role is to smooth the distribution of resources. Rich states (those that pay more) should subsidize poor states (those that pay less). Still others argue that an equitable distribution of funds should take into account the cost of construction. It is far more expensive to build a mile of highway in the mountains of West Virginia, than in the Kansas plains. Statistics cannot answer those questions, they can only implement them once the debate has concluded'' (McMillen, 2002).

2.3. History

As the federal government of the United States grew during the past century, it increasingly relied on local and state authorities to run national programs (MacDonald 1940; Graves and Scholz 1944). We can view these increases from the perspective of the states or the federal government.

2.3.1. Proportion of state revenues.

Between 1902 and 1974 Federal fiscal assistance to state and local governments grew from 0.7% of state and local revenues to 21.3% (Dommel 1974, p. 19). It reached 27% in 1978 and began to decline in the 1980s (Kettl 1988, p. 54). According to the most recent Census of Governments it had declined to about 15% by the end of the 20th century.

2.3.2. Proportion of Federal expenditures

From 1988 to 1997, the proportion of federal money channeled to the states through formula grants grew from about 13% to more than 16% or from 115 billion USD to 230 billion USD (U.S. Bureau of the Census 1998, Table 11). While legislators used these mechanisms to transfer federally run programs to state and local control, they more

frequently drew on them to facilitate the introduction of new programs without the need for large federal bureaucracies.

This trend reflected the early American constitutional compromise according to which residual authority for unspecified governmental activity was ''reserved to the states'' (U.S. Constitution, Amendment 10, 1791). Trying to extend their influence without increasing the federal bureaucracy, policy makers in Congress and the Executive Branch transferred revenue to state and local entities using formulaic prescriptions. They wanted to limit the role of federal officials, assure the discretion of local entities and set common goals and standards of performance. At the same time, program designers sought to target resources to places where they were most needed (Palmer 1984).

As well, increasing block grants put the Federal Government in the position of collecting tax money from the public and transferring those funds to state governments. This allowed state governments to adopt programs without having to raise state taxes. In the words of one knowledgeable informant:

''One of the clever political tricks of revenue sharing was that it allowed states to spend money without raising taxes. Congress took the heat for collecting the taxes, and the states got to spend the money with almost no limitations. There is more here than just states rights versus federalism. It is also an issue of accountability'' (McMillen 2002).

Early on, many of these transfer formulas were based on process indicators, (such as the number of claims filed or miles of road built) tempered by population, but during and after the great depression, Congress relied more on the growing body of statistical indicators in an attempt to achieve appropriate treatment for areas with different needs and at the same time, target resources to match program goals (Harris 1936).

These allocations were often written into law, but also sometimes adopted by the officials responsible for administering federal programs. At the same time, these developments increased the importance of and demands upon statistical agencies that create and report indicators – now assigned to provide data for use in directing resources to competing state and local entities.

2.4. Statistical quality

As with many other science-based issues, the increased use of statistical data in formulas leads statisticians to re-examine the contribution that their discipline can make to improve the results (Committee on National Statistics 2001). To have an effect, they must address these issues in a way that facilitates the process as well as the content of formula allocation. The authorities who adopt formulas, see them as a convenient *modus vivendi* to reach and sustain agreements on programs (Committee on National Statistics 2001 p. 51 and Aaron 2001). They seek formulas that are based on precedents, consistent with their goals, and likely to facilitate coalitions to support enactment. Continuity is a key value.

Statisticians and policy analysts, on the other hand, focus on the statistical properties of formulas and the indicators that provide the data upon which they are based. However, because each funding formula embodies the decisions of a legislative coalition, compromises frequently limit the extent to which legislators can use statistical advice.

The next section examines the stated principles for these allocations compared to the actual forces shaping the design of formulas.

3. Aggregating Support for Formula Grant Programs

The stated rationale for formula programs presents an idealized and usually very general view of their programmatic goals. Starting from this perspective, analysts might judge the success of a program by asking if it meets these goals. In this view, formulas combine indicators to operationalize goals. The formula and its effect are periodically assessed and revised to reflect new circumstances.

A major problem with this conceptualization is that it does not match how Congress reaches agreement. Congress is a forum rather than a person. While we sometimes speak as if Congress had a will, congressional intent is a legal construct. It is a convention summarizing the decisions reached as a result of agreements among its members. In many cases, these are by widespread acclaim. But, more controversial and important decisions are built on changing coalitions.

3.1. Institutions

Institutions shape congressional action. They assign authority to the leadership and Committees. They also define expectations regarding the behavior of its members. These institutions grew from the constitutional framework that established the Congress.

The constitution gives Congress the authority to appropriate money and levy taxes. This authority vests in Congress the responsibility for approving specific expenditures or setting up programs under which monies are spent. Congress exercises these prerogatives through a complicated set of procedures involving an annual budget, authorization of government programs, and appropriation of money to support those programs (Schick 1980; Schick and LoStracco 2000).

3.2. Authorization and appropriations

The legislative process involves two kinds of spending laws – *authorizations* that set up programs and *appropriations* that provide funds for these programs.

Other kinds of legislation provide *regulations* (that do not actually distribute funds but do change the balance of resources available for groups through rules) and *taxes* that alter resource allocation by collecting money for government purposes.

Each of these four types of laws results in the allocation of resources to the advantage of some and the disadvantage of other constituencies. And each puts members in a position of having to balance the interests of their specific constituents against a broad national purpose.

3.3. Effect of authorizations and appropriations

Authorizing laws designate the amounts of money available for appropriation – although they might also provide that the amount is set at ''such sums'' as the appropriations law provides. However, no money is actually made available until the appropriations law is adopted. In the ordinary appropriations process, members frequently advocate for provisions allocating funds for programs designed to meet the needs of specific constituencies. Alternatively, they can fashion laws that provide these funds directly – usually by narrowly describing the entities that are eligible for support or by designating specific

projects for support. Congress includes funding formulas in *authorization* laws rather than in *appropriations*.

3.4. Members and their constituencies

By design, members of the House represent districts and senators represent states. Members are expected to represent the particular views and needs of their constituents. House districts are smaller than states and therefore generally House members represent more narrowly defined interests. By giving the House the role of initiating spending bills, the constitution shapes spending decisions as representation issues – where members reflect the perspectives of their very limited constituencies.

These constitutional prerogatives reflect the advocacy culture of our legal system and the competitive character of the economic system. They express democracy by forming coalitions among particular interests. Members are expected to represent the interests of their constituents both by supporting national programs and by mediating between the legitimate concerns (needs) of individuals or groups and the ''legal-rational'' allocation system embodied in national programs that award resources based on a definition of the national interest in supporting specific activities. They do this by translating individual concerns into national programs or by creating benefits targeted to meet specific needs.

3.5. Members mediate for constituents

Members also advocate for executive branch decisions on behalf of needy constituents. They assist them in filing applications, resolving disputes or obtaining other kinds of help. They serve an information function – finding where constituents should apply for help. They also intervene with bureaucrats on behalf of their constituents. This role provides an affective personal aspect to dealing with a rationally configured governmental structure. It is designed to help constituents articulate their needs and also to aggregate the support of constituents for members and the governmental system.

3.6. Forging coalitions

Proponents of new or continuing programs find that they need to aggregate enough support to have strong majorities in both houses of Congress, with the active participation and support of congressional leadership – including the Chairs, ranking members and other key members of congressional committees. They also need support from the executive branch. To do this, members focus on the effect of legislation rather than its broadly stated goals. Different members may support the same legislation yet disagree about its goals. Each serves the interests of their constituents by insuring that the effects of the legislation address their key interests, while at the same time agreeing to compromises.

To obtain enactment, proponents must craft a proposal that gains support for specific provisions without necessarily reaching agreement regarding the precise policy goals of the program. At the same time, they must state those provisions in terms that can be related to a broadly stated set of legislative goals. Thus, support comes from agreement on the specific provisions of the bill. Winning coalitions are based on a patchwork.

3.7. Implications for formulas

These decision processes flow directly from the institutional setting of the legislative process and a legislator's role as the representatives of their particular constituents (Fenno 1977; Rich 1989; Salisbury 1984). To be useful, statistical indicators should respond to the need for stable, consistent and detailed series as much as they embody the putative goals of broadly framed programs.

Legislators use formulas to express the results of political compromise. Formulas could be examined to assess their compliance with statistical criteria such as avoiding the effect of known data limitations and taking account of statistical uncertainty. They could also be judged by the extent to which they meet goals such as resource equalization, and insure that resources flow to the areas of greatest need and least capacity. However, the need to achieve adequate support for enactment leads to compromises. The result is that objective assessment of formula characteristics might not have as much impact on outcomes as the need to find the votes for enactment.

In addition to enacting broad outlines for grant formulas, Congress also sometimes specifies the actual data and formulas that should be used – enacting them into law to remove agency discretion. This can occur when the level of trust between Congress and an agency has eroded, or when members insist on protecting the interests of their constituents. At other times, Congress may enact a formula whose effect is only approximately known in order to avoid having to confront the effect of allocation decisions. But more commonly, members will not agree to legislation unless they have seen a reliable and impartial estimate of its effect on their constituents.

Although it might seem that once a program is enacted, Congress is out of the picture, in fact continued support is required for the program to be maintained. For example, each year Congress considers the federal budget and enacts appropriations laws. These provide vehicles that members can use to attempt to modify or even repeal programs they do not like.

4. Formula Grants and Distribution

Formula grants are distributive – they allocate resources to different groups and entities, but they are not the only distributive mechanism available. Distributive programs are distinguished from *re*-distributive programs in a fundamental respect – distributive programs are *perceived* as providing benefits to one group without taking benefits away from another group. The funds are seen as drawn from a large pool rather than taken from one group to be allocated to another (Lowi 1964, 1966). The goals of these kinds of programs are stated in terms of the needs served rather than the resources allocated. Once formulas are enacted, support is presumed to be included in the federal budget and appropriations. Thus, these programs appear to be removed from the ordinary justification and review conducted by Appropriations and Budget Committees. Yet, when these committees face unavoidable scarcity of resources, they can and often do revisit the decisions made in the authorizing legislation. This could include setting the appropriations at a lower level than authorized, the enactment of amendments holding jurisdictions ''harmless'' from changes in the value of the indicators used in formulas, or (rarely) enacting changes in the formulas themselves.

Congress actually uses a wide variety of mechanisms to support activities, projects and programs. At one end of this continuum, Congress might appropriate funds to support a program administered by an executive branch agency. This procedure gives agencies substantial discretion in funding decisions. At the other end, Congress could earmark appropriations for particular projects – such as to build a specific highway or fund a specified research institute. The range of options includes:

- Laws that give funds in a block for states to spend for broadly defined purposes (block grants)
- Those that direct funds to particular categories of state expenditure (categorical grants-in-aid)
- Laws that specify the projects to be supported (earmarks)
- Those that give executive branch agencies the job of selecting projects (program appropriations)

4.1. Block grants and categorical grants

Both block grants and categorical grants provide funds to states and local governments. Block grants differ from categorical grants in the degree of specification regarding the use of the money. Categorical grants are typically limited to a narrow set of activities – and formulas are based on indicators reflecting that concern. Block grants allow states or local governments wide discretion in spending the funds with formulas based on more general population series.

5. How Block and Formula Grants Change the System

Formula grants shift the authority for administering programs from Federal agencies to states and local governments. Constituents now receive benefits from states or local governments rather than federal agencies. However, members of Congress still must fashion coalitions to aggregate support for proposed legislation. This means that they must continue to balance the interests of particular constituents against the national interest. They can no longer directly represent constituents to Federal agencies and are restrained from crafting specific provisions to benefit particular constituents.

At the same time, formula allocations appear to change the balance of power between the Appropriations and Authorizing Committees.

While the authorizing legislation specifies formulas, the appropriators provide the funds for the entire program – theoretically without specifying who will receive the money. The authorizers use statistical indicators to implement the will of the coalitions that form to support the formula grant legislation. They rely on the indicators to specify how the funds will be distributed. This process involves actually examining the implications of alternative formulations to verify the amounts that will be distributed based on alternative formulas.

It might appear that the authority of the Appropriations Committees is reduced to specifying the amount of money available with little influence over how it is allocated or spent. However, during the annual appropriations process, the committees can attempt to amend the authorizing law. To maintain a program, members must forge coalitions

between the authorizers and appropriators. Supporters of the program advocate larger appropriations that will provide more resources. Many provisions may only become effective if the appropriators provide the funds – for example, the use of the most recent census data might be made contingent on an increase in funds so that no state suffers a dollar reduction. Frequently, authorizing committee members, support for these provisions and for the level of funding proposed is the key to enactment. Thus, in practice members of the authorizing and appropriating committees find that working together promotes agreement and support for the formula allocation program.

In theory, appropriators allocate funds among programs, leaving the details of how the program will be administrated to the authorizers and the administration. Authorizers design programs for the executive branch to administer and then oversee that administration. If the authorizers do not like what they see in the administration, they change the law. Appropriators are supposed to stay out of that process. Congressional rules actually prohibit changing the authorizing law on appropriations bills. But these rules are only invoked if a member objects. To achieve support for a given level of appropriation, Congress frequently ignores this rule and uses the ''money'' bills to rewrite authorizing language in appropriations bills.

The appropriations committees often get involved in the details of programs. For example, they might include provisions to hold jurisdictions harmless from the effect of introducing updated data in the formula law. Similarly, Congress often funds one part of a program and not another. On rare occasions they might rewrite the formula passed by the authorizers.

They can and do reach compromises regarding the implementation of specific provisions, including the addition of provisions that sometimes reverse changes made to formulas during the authorizing process.

It might appear that executive branch agencies are almost removed from the calculus. When implementing formulas, these agencies face uncertainty about the choice of indicators and unanticipated changes in available data. This happens when statistical agencies improve or change their data series. Statistical agency budgets are considered separately from those that support formula allocations. If data collection programs are changed or reduced, the data series might not be available to implement the formula. Sometimes, Congress enacts formula legislation that includes requirements that do not match the available data. In these instances, executive branch agencies must find the most reasonable solution.

This gives them some discretion, which restores a limited amount of their authority over the funds. If they are able to reach agreement with Congress on the appropriate steps to take (short of a change in the law) they may be able to have some influence over the result. At other times, Congress acts to instruct them regarding the changes required.

At the same time, formula grants reduce the role of members of Congress as advocates for administrative action. This happens because awards to states are governed by formula rather than decisions on individual projects – states frequently merge federal grant money with state money and administer programs as if they were funded from state money, subject only to the limited requirements of the formula grant legislation.

5.1. *Legislative implications*

Formula programs pass actual programmatic control to state and local governments. Constituents often cannot ''see'' their effect because resources reaching them are identified as coming from the states. However, members of Congress must find ways to fulfill their role as representatives of their particular constituencies in the absence of programs that provide funding directly. To do this, members advocate formulas that represent constituency interests. They routinely consult estimates that show the effect of alternative formulations on the funds distributed to different local governments. When such projections are not available, they might even resort to including specific allocations in place of a formula.

A commonly stated criterion for selecting formulas is ''equity.'' In effect, members justify their claims for resources favoring their constituents by making the case that it is for the greater good. But, this is a very general standard allowing great leeway to accommodate the need to build a coalition.

As one staffer argued,

> ''The problem is that what one person defines as equitable, another doesn't. Some believe that an equitable distribution of highway funds is based on contribution. Others believe that equity is based on miles built – every state should get an equitable share of highway miles. That means you have to take into account the cost of building a mile in the formula.''
>
> ''Once you determine how you are going to define equity, you still have to build a formula and pick indicators. That involves another set of decisions and tradeoffs. Sometimes these are done simultaneously. Other times it is an iterative process – Congress sets a goal; builds a formula; looks at the results; redefines goals and or formula; looks at results'' (McMillen 2002).

When indicators are updated, members advocate changes (either in the law, the indicators used, or the methods used to compile indicators) to set the balance right and restore the decisions of the legislative coalitions or forge new (hopefully more advantageous) coalitions.

When assessing formulas, the estimates of funds distributed are more important to members than the statistical attributes of indicators. This is in line with their role as advocates for the welfare of their constituents.

6. Drafting Formulas in Congress

6.1. *Institutional arrangements*

Congress relies on staff and analysts with specialized expertise to assist during the drafting of funds allocation formulas. Analysts and statisticians working in the congressional support agencies (in particular the General Accounting Office and the Congressional Research Service) provide an array of candidate indicators and formulas that members can use during the legislative process. Analysts working in executive branch agencies also participate in calculating the potential effect of congressional decisions. These analysts and statisticians bring an understanding of the statistical properties of

formulas, the strengths and weaknesses of statistical series and knowledge of modeling techniques to bear on calculations that show members the effect of alternative formulas.

Precedents are of central importance to this process. Regardless of the enhanced benefits that might be gained by changing formulas to improve their statistical characteristics, members generally start with procedures that have been previously used and gradually change them to facilitate the forging of a winning coalition. Formula procedures that were used for one program may find their way into the legislation for other programs – reflecting the view that if a formula has worked well it will likely continue to be acceptable.

Once a formula for a particular program has been enacted into law, it is likely that when it must be renewed, changes will be made along the margin rather than by implementing a complete revision. This happens for two reasons. First, because precedents are the ''coin of the realm'' in the legal culture that dominates Congress. After all, the main power of Congress grows out of its role in enacting laws. Most of the members are lawyers. In the law, precedents are a vital institution adopted to reduce transaction costs and believed to be fair. Second, because once a winning coalition has been formed around a particular formula, changes in the formula might require a renegotiation of the coalition. This is very costly in terms of congressional attention and time and could lead to the failure of the program.

6.2. Handling change

These agreements work well until the environment of a program changes. This could occur because conditions have changed and the statistical indicators now allocate funds in a way that does not serve the interests of the members of the enacting coalition. Alternatively, political conditions might have changed (for example, after an election) and the coalition may no longer be viable.

When change occurs, different members will work to further the interests of their constituents. For example, members who believe that their constituents would benefit from the introduction of updated indicators – or different ones – often try to use the appropriations process to change the formula. As the population of the Southern and Western states rapidly increased in the later part of the 20th century, members from those regions campaigned to require that funding formulas use the most current data. In 1976, they succeeded in inserting §183 of Title 13 in the United States Code. Title 13 is the law governing the activities of the U.S. Census Bureau, but §183 applies specifically to the use of census data in statistical indicators for funding formulas. This section provides that except where the law specifically required data from the decennial census to be used,

> ''. . . for the purpose of administering any law of the United States in which population or other population characteristics are used to determine the amount of benefit received by state, county, or local units of general purpose government, the Secretary shall transmit to the President for use by the appropriate departments and agencies of the executive branch the data most recently produced and published under this title.''

6.3. The hold harmless

Alternatively, members of the enacting coalition may seek to protect their interests from changes in statistical indicators by including a ''hold harmless'' clause in the law. These provisions sometimes insure that any changes in the formula and periodic changes in the data (such as occurs when a new census is reported) will only change the distribution of money over and above the amounts previously distributed. These kinds of provisions will mean that in a program that is declining, formula improvements could have no effect on the actual distribution of funds. Even in growing ones, the hold harmless will dampen the effect of such changes.

Congress draws upon a long tradition that when changes occur, they affect new or increased resources, but do not reallocate resources – i.e., the new resources are allocated in accordance with changed circumstances but no interest loses previously allocated resources. In other words, the shares may change, but the absolute amount allocated never goes down.

The oldest precedent for this is the way Congress handled the reapportionment of the House of Representatives and the Electoral College from 1800 to 1929. Prior to 1930, Congressional coalitions rewrote the apportionment formula after each census to achieve the balance of power in the House of Representatives that would reflect the will of the coalition – of course limited by the need to express this result in terms of the new census data. However, up to 1910 they also expanded the size of the House. Congress considered how best to ''hold harmless'' vested interests (mostly sitting members of the House) and facilitate agreement on the revised distribution of seats. Debates about the apportionment formula centered around alternative positions regarding the balance between allocating shares based on population and protecting states from the loss of seats (Balinski and Young 1982). This ended with the decision not to expand the size of the House after 1910 and immediately contributed to the failure of the apportionment process in 1920, and the adoption of automatic redistricting in 1930.

However, at that time Congress removed the requirement that districts within states should have approximately equal numbers of persons. (In effect, this still held members harmless from changes in the population of their districts.) After 1961, when the courts acted to require one person one vote, redistricting became redistributive, contributing to the increasingly partisan debate over census accuracy.

In drafting grants-in-aid formulas, Congress operates from the advantage of not having to decide the size of the pie and its slices at the same time. The method of allocating funds is specified in authorizing legislation while the appropriators continue to specify the funds available for distribution.

7. Implications for Developing and Using Statistical Series to Support Formula Allocation of Grants

7.1. Indicators as a modus vivendi for funds distribution

As we can see from the above, members use statistical indicators as a convention to embody and express legislative decisions. These decisions are the result of democratic

processes rather than an agreed upon set of goals or a scientific assessment of need. In democratic processes, decisions are frequently reached by agreeing not to focus on specific goals but on individual policies and allocations. (It is much easier to form a coalition if the members do not have to agree on goals – or only focus on the most general ones.) This means that arguments for improving the validity of indicators will stand only to the extent that they accommodate the need to embody the compromise reached by the legislative coalition.

7.2. Stability a key value

Legislators crave indicators that are relevant to the stated (and very broad) purposes of the legislation and at the same time *stable* over time. New data or improved information presents a problem for legislators. To the extent that formulas express decisions already made, new data forms the basis for a legislative challenge to the coalition that enacted the program.

A major reason for this is that the recipients of funds face great difficulties when these funds are reduced. On the other hand, those who stand to gain by updating formulas (such as representatives of areas where population is increasing) want formulas to reflect change. In effect, change is frequently accommodated by allowing changes in the distribution of new funds. When the amounts are larger than previously distributed, the ''new'' money is distributed based on updated procedures but the amount previously distributed (the ''old'' money) is frequently distributed based on the old formulas. This makes it easier to maintain support for programs, slows down change and puts a premium on new programs – because they can implement entirely new formulas.

However, it appears that when fashioning new formulas, analysts start with previously used ones and make incremental changes as well. New or opposing political forces seek to challenge decisions based on new data or critiques of currently used indicators. However, they need to form their own coalitions to be successful. Scientific discourse might provide justification for their initiatives, but they are not decisive.

7.3. How improved indicators can help

Members would argue that in view of these considerations, improvements in the statistical indicators used for formula allocation should focus on helping provide stable and predictable series. As well, they need an array of indicators they can use to fashion responses to shifting coalitions. Above all, members would stress that indicators should respond to congressional decisions regarding the appropriate balance between national and constituency needs. This expectation presents statistical agencies with special challenges: how can they maintain the integrity of their procedures yet provide indicators that are most useful for formula allocations? They must balance these needs against the main requirements of their office: to present indicators that paint an honest picture of national, state and local progress.

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