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**Options for Reforming the Medicaid  
Matching Formula**

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## SUMMARY

This paper systematically examines Medicaid's current matching formula and presents a number of options for revising it. The matching formula that determines a state's share for financing the Medicaid program has a number of weaknesses that may lead to inequitable treatment of states. As the size and importance of Medicaid has grown, problems with the formula have become more crucial. Medicaid comprises an important share of many state's budgets, and in recent years, has become the largest source of federal revenue for states. And although the role of Medicaid under national health reform is unclear, some reliance on shared federal/state financing is likely to continue, thus making the matching formula issues relevant to the broader health policy debate.

### OBJECTIVES AND PROBLEMS WITH THE CURRENT FORMULA

The Medicaid program was added to the legislation creating Medicare late in the process and little time was devoted to debate that would make legislative intent clear. Little specific attention was devoted to the incentives that the matching formula would create for states. Nonetheless, over the years, a number of objectives have been raised for the matching formula, including:

- Reducing program benefit disparities across states, while compensating states for differences in needs;
- Adjusting for differences in state fiscal capacity;
- Reducing the rate of increase in spending by inducing cost sensitivity on the part of states;
- Maintaining levels of spending during cyclical downturns.

Over time, these objectives have not always been well met by the matching formula, in part because it was not originally structured with these issues in mind. The current formula, termed the Federal Medical Assistance Percentage (FMAP) is as follows:

$$\text{state share} = \frac{(\text{state per capita personal income})^2}{(\text{national per capita personal income})^2} \times 45\%, \text{ where } (17\% \leq \text{state share} \leq 50\%)$$

This formula differentiates among states by providing a higher federal matching rate for states with lower per capita personal income as defined by the National Income and Product Accounts (NIPA). The federal government guarantees that it will pay at least 50 percent but not more than 83 percent of the costs of the Medicaid program in any state.

Given the complexity of the various objectives listed, this is a fairly limited formula. Of course, since many of these objectives are likely to conflict under any formula, it is not possible to devise a "perfect" replacement to the current one. Nonetheless, a number of the criticisms leveled at the formula merit further attention and suggest some possible directions for reform.

First, the formula can be criticized for the arbitrary nature of the squaring provision and the boundaries on the state's share. These requirements have little justification. The open-ended nature of the program also allows some innovations and flexibility, although that has been limited by program mandates in recent years.

Grant “fungibility” implies that federal government funds can effectively be used by states in many ways, only some of which might lead to increased spending on health care beyond what states would spend in the absence of a grant. This problem is inherent in the type of formula used. Mandating benefits constitutes a much more direct way to guide spending decisions, but a multi-rate matching formula could also be used to induce state programs to aggregate around certain desired spending levels (Gramlich 1982).

Another area of concern about the FMAP is the use of the **NIPA** personal income measure as the sole indicator of fiscal capacity. One disadvantage of this measure of personal income is that it captures income to unincorporated enterprises, including income to private non-profit organizations, private noninsured welfare funds, and private **trust** funds. These entities are generally not taxable and hence may bias the measure upward in certain states. Another problem with the state MPA measure is **that** it includes transfer payments to individuals. Therefore, double counting results since the measure includes both the program benefits and the tax dollars used to pay for the program (Social Security is **an** exception, however). **The** exact nature of the bias is complicated because of joint federal and state funding for these programs. In addition, the **NIPA** measure excludes significant sources of state revenue. The most prominent of these are states’ natural resources and residents’ realized capital gains. States may **vary** considerably in the level of these excluded resources. Moreover, the average per capita income measure does not **account** for distributional differences between states.

The use of this income measure also fails to capture differences in the cost of living across states. Failure to do so results in overstating fiscal capacity in high cost of living states. Further, the FMAP does not adjust for any differences in health care needs across states, nor does it adjust for differences between states in non-health related fiscal burdens that might affect a state’s ability to **finance a** sufficient Medicaid program. States with extraordinary needs are not given any additional consideration, likely leading to greater fiscal pressures and lower Medicaid spending than would be desirable.

Finally, the measure of personal income used reflects **a** three-year average with the most recent **data** being 21 months old -- **data** that makes the formula unresponsive to the problems facing **a** state during a recession. The current formula results in a system which cannot offset **state** revenue shortfalls during **difficult** economic times. It also leads to unnecessary federal funding increases during subsequent economic upturns, as the lagged formula recognizes the past recession.

The impacts of a recession can lead to larger numbers of Medicaid eligibles and adversely affect **a** state’s ability to raise revenue. Economic fluctuations may affect **all** states or economic changes may differentially affect **certain** states or regions at any one point in time. In such a situation, states often make temporary, but dramatic adjustments to reduce their spending on Medicaid that **may** not be desirable for the health of the eligible population or **the** long run stability of the program (Cohen 1987; **Holahan**, Bell, and Adler 1987).

## POSSIBLE ADJUSTMENTS AND **ADDITIONS** TO **THE** FORMULA

A broad **range** of strategies to reform the formula are possible, each of which has advantages and disadvantages. These options include: improving the measurement of state fiscal

capacity; adjusting the measure of **fiscal** capacity for inter-state cost of living differences; compensating for differences in the cost of health care across states; and including measures of health care needs and non-health care needs that might place a disproportionate burden on some **states** relative to others.

### Improved Measures of Fiscal Capacity

Modifying the NIPA measure. The least disruptive change to the formula would be to refine the **NIPA** measure to account for as many of the failings described above as possible. The measure could be adjusted to exclude some sources of non-taxable income and to eliminate the double counting from state and locally funded transfer payments. These adjustments would eliminate the overstatement of income that now exists and improve the **NIPA** measure. It would still, however, leave the problem of omitted taxable resources from natural resources and capital **gains**.

Adopting an Alternative Measure of Personal Income. Alternatives to the **NIPA measure** include using personal income as measured by the Current Population Survey (CPS). The measure provides **self-reported** income by a nationally representative sample of individuals. It could also be used to avoid the problem of incorporating nontaxable income and could be adjusted to eliminate the double counting problems that arise with some transfer payments. But it also does not capture some significant sources of fiscal capacity; for example, the CPS tends to underestimate income derived from capital, introducing some bias into the measure of income. Moreover, sample sizes for some states are quite small and may not be representative.

Other possible sources of income information are Internal Revenue Service data--drawn from a sample of income tax returns. The main problems here are confidentiality and the absence of information on those at the bottom of the income scale.

The Representative Tax System/Representative Revenue System. A more promising alternative is to move toward a broader measure of fiscal capacity such as the Representative Tax System (RTS) or the Representative Revenue System (RRS) developed by the Advisory Commission on Intergovernmental Relations (ACIR). These are indices of the relative **revenue-raising** abilities of states under a standard tax system (**ACIR 1990**).<sup>33</sup> In other words, if **all** state and local governments were compelled to institute a uniform tax system, **RTS/RRS** would measure the amount of revenue that each state could raise, relative to the national average. The indices capture the underlying economic differences between states that affect their relative abilities to finance public programs. They implicitly weight resources of a state by their "taxability" (i.e., some resources are more easily taxed than others -- **RTS/RRS** accounts for these differences). The measures capture the full spectrum of possible revenues.

Barro (1986) has recommended a number of useful adjustments to the **RTS/RRS** which are implementable with existing data. These included **defining** personal income more comprehensively, combining closely related tax bases, and incorporating an adjustment for federal-offset exportation of state taxes. This "adjusted" RTS measure provides a more

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<sup>33</sup>The RRS adds **three** non-tax revenue bases which **are** not included in the RTS.

comprehensive measure of fiscal capacity than the other alternatives, while also being feasible from an implementation standpoint.

### Cost of Living Adjustment and Adjustment for Costs of Health Care

Regardless of the measure of fiscal capacity chosen for use in the formula, **two issues** will be important to address. The first is an adjustment for inter-state differences in the cost of living. In the absence of an adjustment for cost of living differences, **two** states with equal average income and different costs of living **are** treated in the same manner, disadvantaging high cost of living states.

Similarly, a health-specific cost adjustor for states could be used to account for differences in the basic costs of providing health care services under Medicaid. States with unusually high costs of providing care may be at a disadvantage relative to other states with equivalent per capita needs, but effectively lower input costs of meeting such needs. The problem is exacerbated for states with both high costs of living and high health care costs.

The poor quality of state by state data make these adjustments more **difficult** to implement in the short run. Better surveys would need to be conducted to obtain more reliable estimates of differences across states both in regard to health **care** and more general costs of living.

### Measures of Need

Measures that Capture Health Care Needs. The formula for the Medicaid match might also focus on factors that affect the **need** for health care services in each state. For example, states with equal levels of fiscal capacity may have disproportionate numbers of poor persons eligible for services because of differences in the distribution of income. Such a state would be placed **at a** disadvantage in terms of its federal matching rate compared to a state with comparable average income but lower rates of poverty.

A number of indicators are possible to capture states' needs for larger programs. Poverty rates are one alternative; they are linked directly to some of the eligibility criteria for participation in Medicaid. These links have become more important over time, as programs for both the elderly and pregnant women and children have **been** tied to income relative to poverty rather than to individuals' participation in **specific** cash assistance programs.

**The** specific poverty rates used will also have **a** substantial impact on the accuracy of measurement. States with high levels of elderly in poverty do not necessarily also have high levels of children in poverty, for example. The incorporation of poverty rates of all (or any) types into the formula could have a large potential impact, particularly because of the impact such measures would have on large states -- California and New York, for example.

Other adjustors could also be used to capture specific health care needs; examples include the number of AIDS patients and the number of disabled individuals in each state. **Other** factors that might be indicators of special health needs are the rate of crime, affecting trauma care in a state, or drug abuse that affects not only trauma but also affects the incidence of low birthweight babies. Again, there may be problems with measurement or in deciding which specific problem

areas to include. These needs might also be dealt with as special supplements to Medicaid, rather than through a formula to adjust the matching rate.

Other Needs. States with unusually high **liability** for services in other **areas** (not related to health) may also have more difficulty in providing needed Medicaid services. A measure that **seeks to** capture such demands might also be used as a component in the formula. **The** ACIR has recently developed the Representative Expenditure measure to examine variations in public service needs across states (ACIR 1990b). This measure takes account of the legal requirements that states face (relative to other states) in providing services, the relative **prices** of inputs used to produce public services, and other factors that determine the relative scope of services provided (e.g., miles of highways to be maintained). Though promising as a way in which to adjust for competing demands on state budgets, this type of measure is in the development stage and would require further refinement.

## OTHER ISSUES

Two other issues relevant to the manner in which federal Medicaid funds are allocated across states could be treated as additional components to the formula or could possibly be addressed through a restructuring of the federal financing process. These concerns **are** the ability of the formula to respond to state economic fluctuations and the rash of “creative financing” strategies implemented by states.

### Cyclical Fluctuations

An automatic adjustment could **be** built in to the system which would allow states to receive additional federal revenues during downturns and would permit them to make plans accordingly. Ad hoc adjustments requiring legislation can often be implemented only after a fiscal emergency is past and thus might not prevent undesirable disruptions in the Medicaid program. Adjustments for short-term economic changes could be incorporated into the formula or can be structured as an additional contribution outside the formal matching calculation. If the adjustment occurs as an addition beyond the regular match, payments to a state could rise even if its own contributions were held constant or rose only slowly during a period of **financial** pressure.

Whatever adjustment might be **used would require a trigger measure that could be tracked** at least quarterly. The **most** feasible measure would be state unemployment rates. These rates **are** only an indirect measure of a state’s ability to pay, but they are regularly collected and well accepted as an indicator of low economic growth.

### “Creative Financing”

In **practice**, states have implicitly increased their federal **matching** shares through several manipulations of coverage definitions and financing schemes. For example, in recent years, states have shifted programs onto Medicaid that were previously funded by state-only programs. While this does not alter the match itself, it effectively raises the federal share of spending burdens since the state was fully funding the programs prior to the change.

More recently, states have become creative in their **financing** of the program, relying upon donations and provider taxes. For example, hospitals or other providers make donations or **pay** taxes to the state. **The** state then **increases** the hospital's reimbursement rates, and in the process, collects federal matching contribution on the higher expenditure: the provider taxes and donations are effectively passed back to the providers. In addition, the state can **increase** Medicaid **reimbursement** rates above Medicare's payment rates by making disproportionate sham payments to hospitals. These supplemental payments are ostensibly paid to allow hospitals serving large numbers of the poor to finance previously uncompensated care and to make up for traditionally low reimbursement levels. States can thus use these payments to provide **financial** relief to hospitals and to provide care to indigents. These approaches lower the amount of resources needed from state general revenues to **finance** a given level of Medicaid spending and, **in** effect, raise the state's federal match.

The Congress has sought to rein in the use of these creative **financing** mechanisms, but it has not totally eliminated them. Thus, even with the new restrictions, the level of Medicaid spending may be greater than the federal government may wish, and funds may be distributed according to aggressiveness or creativity rather than by need or fiscal capacity. Consequently, it may be necessary to consider other arrangements which limit the extent of federal obligations or which allocate federal funds in a more structured manner.

One option is some **form** of **capitation** payment or block grant that strictly limits the federal contribution. The formula could be based on some of the factors described previously. We know from the theory of grants -that this would reduce the incentives for states to expend their own resources. Underspensing on health care might result. Another alternative is **closed-**end matching grant in which the state spending is matched according at a single rate but only up to a maximum federal contribution. However, this strategy is likely to have the same problem **as** block grants at the high end of the expenditure range.

A third approach would combine a federal mandate that determines minimum state benefit packages with a multi-level matching rate structure. In this scenario, the federal government would **first** mandate coverage of a minimum set of services for all people meeting certain criteria and then calculate an expected budget for each state based upon this package and the specific needs/characteristics of each state. The matching rates would be inversely related to state fiscal capacity. In addition, the federal share would be higher in the low range of expenditures, decline somewhat around the budgeted amount of expenditures set for each state, and decline (perhaps to zero) at some level beyond the budgeted amount. States would have to agree (at minimum) to provide benefits and a federally specified level. The overall effect would be to establish a national minimum level of coverage while placing states at greater risk the more generous their programs became.

## CONCLUSION

This paper examines a broad range of options for changing the Medicaid matching formula. It discusses the various elements that could be included, particularly emphasizing moving toward a broader-based measure of fiscal capacity, adding cost of living and cost of health care adjustments, and adding a new component that would incorporate health care needs. We also focus on counter-cyclical adjustments that might be appropriate and structural changes to

better control the implicit federal share 'in light of the creative financing mechanisms employed by states.

If, however, major health care reform is passed this year, do all of these issues become moot points? For a number of reasons, we believe these issues **will** remain relevant. **First**, there is likely to be a residual Medicaid program left if the basic benefit package under national reform is not as generous **as** that found under Medicaid. For example, very low income persons will **still** need special services such as vision and dental care. Moreover, long term care may **remain** under the purview of a more narrow Medicaid program.

Further, most reform plans indicate that states will be required to share in the financing of a national plan; perhaps according to their spending under the current Medicaid program. The equity of the differential shares of the Medicaid program that states now bear should be an important part of that debate. Inappropriate financing burdens should not be frozen into a new national health care financing system.

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## INTRODUCTION

Medicaid is a program that provides payment for medical services for **categorically eligible low** income parents and children as well as for some acute and long term care services for the aged and disabled. The program is jointly financed by the states and the federal government. The share paid by each state varies according to a formula which calculates a “matching rate” based on state per capita income. Total spending by a state depends upon both this matching formula and the state’s decisions about the generosity of its own program.

As the Medicaid program has increased in size and importance to our health care system, financing issues surrounding this formula have become more crucial. Medicaid is cited as a financial burden by both federal and state policymakers. Changes in the matching formula could alter the share paid by one level of government relative to another, and hence are viewed as one way to reduce these burdens. Moreover, proposals to expand Medicaid to cover more people or more services also raise financing questions. The larger the program, the more significant are the constraints that shared responsibility places on each level of government.

**In** an effort to reduce the substantial variation in Medicaid programs across states, more of the benefits and coverage have been federally mandated, leading to less flexibility in terms of optional services. States complain that the federal government’s mandates have been a ploy to raise spending without having to fully finance that increase: part of the burdens are passed onto the states. Meanwhile, the federal government, for its part, worries that states’ decisions to cover more services commit the federal government to ever increasing liabilities. As an open-ended entitlement, states with high levels of need may choose to create a large Medicaid program. But at the same time, other high need states may still be unable to **finance** a sufficient program given their low revenue raising ability.

Medicaid expenditures continue ‘to grow as a percentage of state government budgets, crowding out spending on other types of programs since state legislators feel constrained in their ability to increase tax collections. States have discovered strategies for relieving some of their burden by shifting programs into Medicaid that were previously financed outside of that program and through creative **financing** schemes such as provider taxes and donations. These adjustments, in turn, further burden the federal budget

The policy problem is to develop a formula that (1) provides sufficient access for the poor to needed services, (2) controls growth in costs, and (3) requires states to bear a substantial share of the health care burden. Should the formula solely reflect differences in ability to pay or should it also incorporate cost of living, the cost of medical services, and health care needs of the low-income population? These and other questions will be addressed below.

This paper is organized in the following manner. **First**, the objectives of the Medicaid program and its matching formula are discussed. Particular attention is paid to whether the current program has fulfilled these objectives, and whether these objectives remain desirable. Second, we examine the economic theory behind matching grants as they are used to induce states to expend resources to achieve federal as well as their own objectives. Third, we examine specific problems with the current open-ended categorical matching grant **structure**, including the functional form of the matching formula itself, and the choice of the components included in the formula. The current program measures of ability to pay and the potential alternatives are **compared** and contrasted. **We** then consider additional components for the formula such as cost of living and cost of health services adjustments, as well as measures of poverty and other indicators of need. Next, issues concerning the implications of provider taxes and donations and the potential for cyclical adjustments to funding levels are discussed. The **final** section details

some specific options for reforming **the formula** and presents the implications of changing the formula for broader national health care financing reform.

### **Program Objectives**

Medicaid program objectives have suffered from a lack of clarity and a diversity of perspectives. Historically speaking, the legislative intent was ambiguous. And **policy** analysts, states, and the federal government continue to hold divergent views of the role of Medicaid in the health care/welfare system. Without a uniform understanding of its objectives, it should not, perhaps, be surprising that Medicaid has failed to fulfill the expectations of many different interests.

The Medicaid program emerged in 1965 legislation as an extension of the Kerr-Mills Act (Stevens and Stevens, 1974). Kerr-Mills, enacted in 1960, increased federal matching grants for medical vendor payments on behalf of welfare recipients covered under the existing old-age assistance program. In addition, it provided new support in the form of vendor payments on behalf of the elderly who were poor, but who were not receiving cash assistance -- the medically needy. The Kerr-Mills federal matching grants ranged from 50 to 80 percent of total payments. Administration and cost controls were left to the state governments.

Kerr-Mills was not envisioned as a **social insurance** mechanism, but as an expansion of the public welfare system, and in that vein, the program was administered by state public welfare departments as opposed to public health departments. The main concern seemed to be that medical expenses not overwhelm the **redistributive** goals of cash assistance programs, although this was also a period in which health expenditures constituted a much smaller share of spending by families than is currently true. Avoidance of basing the program on any philosophical notion of a right to comprehensive health services for the poor appears to have been critical in the program's political acceptability. It was not, then, thought of as a health insurance program.

The development of the Medicare program of social insurance for the elderly freed up state resources. Legislators adapted the framework of the Kerr-Mills program to cover the **non-**elderly population enrolled in cash assistance programs and the non-elderly “medically needy”, as well **as** continuing some coverage of the low income elderly for expenses not paid by Medicare. The hasty manner in which the Medicaid legislation was written and the lack of detailed review (relative to that afforded the Medicare program) led to adoption of not only the **Kerr-Mills open-**ended match financing framework, but also the problems already evidenced by the Kerr-Mills program.

Some of the pitfalls of Kerr-Mills mentioned by Stevens and Stevens ( 1974) which were **passed** on to the Medicaid program and which still plague the system today are:

- The tendency of states to move funds from other program budgets into the budget for programs receiving federal matching funds.
- The substantial disparities between programs in different states.
- The need of state legislators to balance state budgets outweighing their commitment to making decisions in the best interest of medical care for the programs’ beneficiaries.
- The inadequacy of expertise in some state bureaucracies in administration of major medical programs.

While much of the language that surrounded the implementation of Medicaid framed the program as comprising incremental extensions of previous programs, quite a bit of rhetoric also focused on the program as a vehicle to provide comprehensive care to the indigent and a movement toward equality in medical care. Given the lack of clarity regarding eligible populations and benefits and the ambiguity of goals, individual states and federal legislators used the program to pursue their differing agendas.

The matching formula suffers from equally unspecified objectives. The familiarity of the mechanism for medical vendor payments seemed to be the over-riding reason for its use, rather

than designing an allocation tool to achieve specific goals (Stevens and Stevens, 1974). There are, however, very significant redistributive ramifications resulting from the particular choice of the components and the functional form of the Federal Medical Assistance Percentage (**FMAP**). These effects are described in detail later.

Although the original intent is unclear, a number of objectives for the Medicaid program in general and the matching formula in particular have been associated with the program by various interested parties. In their 1983 report, the General Accounting **Office** identified three policy objectives for the program and the formula. They were:

- Reducing program benefit disparities across states:
- Adjusting the distribution of tax burden, accounting for state fiscal capacity;
- Reducing the rate of increase in Federal spending.

In their 1990 update of the 1983 report, GAO eliminated the control of program spending growth from their list of perceived objectives. In their 1991 report, the Office of the Inspector General of the Department of Health and Human Services cited one presumed objective--that the rate of federal assistance be based on a state's ability to share program costs as measured by state per capita income.' Other objectives that have been regarded as important by either legislators, administrators, or policy analysts include:

- Expanding coverage without the federal government bearing all the costs of doing so.
- Allowing for some state flexibility in benefits and eligibility.
- Inducing cost sensitivity on the part of states.
- Compensating for differences in states' health care needs.

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**'Detailed discussions of these reports on issues related to the Medicaid matching formula can be found in Appendix A.**

- Maintaining levels of health care spending during cyclical downturns in the economy of 8 given state.
- Encouraging state innovations in delivery of services.
- Making the matching rate relatively stable, changing only gradually in response to differences in relative state personal income.

Are these eight objectives still desirable? And how effective is **the current** matching formula in accomplishing these objectives?

State Program Disparities versus State Program Flexibility. Two of the objectives, the narrowing of program disparities and the allowance for state flexibility, often work against each other. Variation in program benefits and eligibility levels can result from two sources. First, they can differ because of state ability to pay, as indicated by some measure of fiscal capacity. In other words, a state with a greater level of taxable resources than another state can finance a more generous program than could a **state** with very limited taxable resources. Most would **agree** that variation purely due to differences in ability to pay is undesirable.

Alternatively, program characteristics can vary as a result of variations in both state needs and state attitudes. For example, a state with a substantial problem with low birthweight babies might choose to have an extensive **pre-natal** program that encompasses more beneficiaries than a population that has a much greater problem with the long-term care **needs** of the elderly. This type of flexibility seems to have always been viewed favorably. However, attitudes toward redistribution also differ across geographic areas. Individuals in one state might have a preference for more social programs than do those in another state. To the extent that we value **states'** ability to accommodate their preferences, this type of variation is beneficial.

By and large, however, it seems that legislative opinion has shifted towards the notion that substantial differences in **the** capacity of Medicaid programs to meet the basic needs of their populations are inappropriate, even if differences in preferences (not ability to pay) are at their

root. This is evidenced by the recent expansion of federally mandated benefits and eligibility levels. In addition, there is an often repeated concern that poorer southern states, by and large, do not have programs that approximate the generosity of other states, relative to their needs.

Adjustment for Differences in State Fiscal Capacity. Expansions of mandated programs are only appropriately implemented when variations in **fiscal** capacity are accurately taken into account. **The** current formula, based on the National Income and Product Accounts (**NIPA**) measure of personal income, fails to effectively capture **all** resources that can potentially contribute to state revenues. State tax revenue is not solely a function of personal income: it also results from corporate profits and natural resources, for example. And, these additional sources of state wealth are not always highly correlated with personal income. Consequently, exclusion of all but personal income as a measure of ability to pay can bias relative state ability to pay rankings. A more broadly defined alternative tax capacity **measure** may be in order.

Inducing an Expansion of Coverage without Full Federal Liability. From a theoretical standpoint, federal matching grants should be quite successful in increasing the total resources directed to a specific population group. States see the implementation of a matching program as a decrease in the price of the services provided through the program. In this way, states can afford to purchase more of the Medicaid services than they could in the absence of the grant.

Nonetheless, according to empirical estimates, categorical, open-ended matching grants do increase state and local spending, but perhaps by less than one might expect. **Gramlich** (1982) estimated the responsiveness of **public** discretionary spending to changes in different types of federal funding programs (block grants, categorical grants, and unconstrained grants). He found that an increase of \$1 in categorical grants (evaluated at the mean federal matching rate of .8) will induce a **38¢** increase in public spending by state and local governments. In other words, a dollar's worth of federal aid of this type transferred to a state does not increase the state's

spending on that program by \$1; state program spending only increases by **38¢** and state residents' tax liabilities **fall** by **62¢**. This program spending increase is fairly low, he purports, due to the ability and tendency of state and **local** governments to displace grant funds. States use incoming federal funds to decrease the tax burden on their taxpayers to a greater extent than they use federal funds to increase public spending. An open-ended formula may be unable to stimulate state funding to the degree desired.

Reducing the Rate of Federal Spending Increases: Inducing State Cost Sensitivity and Encouraging Innovation. One might question from an **equity** standpoint, why the federal government does not fully **finance** the Medicaid program, given disparities in financing capability across states. Redistributive objectives are, after **all**, most effectively achieved centrally. The jointly financed **nature** of Medicaid resulted in part from the desire to induce cost sensitivity into a program that appeared to be best administered at the state level due to variance in needs across states. State innovation into more efficient ways of delivering care was also desired. In addition, some state money was already being **allocated** to health programs, and the developers of the federal program did not want to substitute that financing with federal dollars, but wanted to supplement it and encourage further state spending.

In general, federal matching grant programs are limited by preset caps on federal funding. Some **also** establish **fixed** levels of total **federal** expenditures and use formulas to determine the share of the total financing that is **allowable** to each state; a separate matching formula then determines the actual transfer **of federal funds to** each state based upon its actual level of effort. These mechanisms allow federal **determination** of the rate of federal funding **increases. Only** two programs, Medicaid and AFDC, employ an **open-ended federal matching structure**.

From a theoretical standpoint, the sensitivity of states to Medicaid spending is decreased by the nature of **the** federal match. A state with a 60 percent federal match, for example, is **only**

liable for 40 percent of its own spending. The state is likely to be more price sensitive than when the entire program is funded by federal money, but substantially less sensitive than if all of its increased spending were not associated with significant increases in federal financing.

In reality, however, even the states' liabilities for their Medicaid programs have grown to the extent that they have become a threat to state budgets. Financial pressure on states may lessen the concern that they are not sensitive to Medicaid program growth. Many **states** have experimented with different forms of managed care and primary care case management.

On the other hand, strategies such as provider taxes and donations have allowed states to collect more federal funding without **necessitating** the use of more state general revenues. Because of these mechanisms, which serve as virtual "**pass-throughs**", concerns that **states** are insensitive to their program spending levels have resurfaced. Moreover, as other federal grants have been restricted, federal matching grants for Medicaid become the "lowest cost" mechanism for financing other state programs as well.

Although cost containment and spending growth is a very real concern to legislators, the current matching formula is not an effective tool for this purpose. Structural change in the financing system would be necessary in order to deal with these issues effectively. Such change might **take** the form of limits on federal funds which incorporate pre-determined rates of spending growth over time. Alternatively, careful federal control of the use of provider taxes and donations could also slow the rate of program growth.

An increase in federal spending should not automatically be viewed as a negative, however. Given the difficulties that many states have had in financing **sufficient** Medicaid programs without sacrificing other public programming, federal budget neutral strategies may prove too limiting. Though limiting growth rates is a high priority, equitable financing might

necessitate some type of broad based national strategies coupled with continued incentives for cost conscious spending on the **part** of states.

Commensurate for Differences in State Health Care Needs and in Other (Non-Health) State

~~Needs~~ the extent that state populations differ in their specific health care needs -- say, in the number of disabled in the population, or the **number** of HIV infected individuals -- it might be beneficial to have such demands on state resources be reflected in the **allocation** of federal funding. Or, a state with a large **frail** elderly population relative to other states might **find** that the demands for long term care services leave the state equipped with insufficient resources for responding to the acute care needs of their non-elderly Medicaid population.

Some might argue that the flexibility in benefits and eligibility levels remaining in the Medicaid program allow states to tailor their programs to the specific needs of their population. This may not be true, however, if extraordinary health needs in a fraction of the Medicaid population are not offset by a lesser need in the remaining population. An example can be found in states such as New York or California which have relatively large HIV positive populations. The disproportionate presence of this health problem does not imply any compensating differences in the needs of the rest of the states' Medicaid populations. Therefore, this extraordinary difference in the populations' health **profile** may mean that resources are not adequate for meeting all of the Medicaid eligibles' health needs.

In addition, extraordinary demands for public spending in non-health areas might translate into certain states **finding** it more difficult to finance the health needs of the Medicaid population. For example, a state with relatively heavy public financing burdens resulting from high crime rates and consequent high relative expenditures for police and correctional systems may have less public revenues remaining for health **care**. The **current** formula, using only state per **capita**

personal income as a measure, is not quipped to adjust funding **levels** according to **variations** in specific health care or other needs.

### Creating System Stability versus Compensating for Cyclical Downturns in a Given State.

The current formula uses average state income over 3 preceding **years**<sup>2</sup> to calculate the matching rate. In instances of state recessions, the need for public assistance programs is **likely** to increase, while the ability of a state's residents to raise the needed revenue may fall. Because of the lag time introduced by the 3 year formula, Medicaid **financing** is not responsive in the short run to recessions. During recessionary times that differentially impact upon specific regions or states, such short run insensitivity to economic changes might also lead to inappropriate allocations of federal funds, e.g., too little to states most adversely affected and too much to less affected states. And in times of general national recession, no mechanisms exist for increasing funding across the board to all states. On the other hand, the formula seems to have been intentionally designed to change slowly over time, allowing states to plan their expenditures accordingly. Changes in the formula (or perhaps temporary adjustments to the formula) would need to balance both these goals.

The matching formula could be changed or an ad hoc adjustment could be used to make it a more current **measure** of ability to pay. Some would question, however, the appropriateness of using a categorical matching grant program for this purpose. **If** the federal government is concerned with the differential effects of recessions on states' abilities to finance public programs, perhaps this is an issue that needs to be addressed in a broader way than through the Medicaid program itself. In addition, countercyclical adjustments would likely be disincentives for states to develop "rainy day funds," i.e., running budget surpluses in good economic times

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<sup>2</sup>The matching formula for year t uses the average of per capita personal income from federal fiscal years t-3, t-4, and t-5.

and spending that surplus down during ‘recessions. **At any rate**, it is clear from the lag time and **use** of multi-year averages that adjustments for cyclical changes were not part of the original intent of the system.

## THE STRUCTURE OF MECHANISMS FOR MEDICAID FUND ALLOCATION

**As** evidenced in the brief discussion of program objectives, the appropriateness of the components of the Medicaid **FMAP** have **been called into question**. **The advantages and disadvantages** of incorporating new components into the matching formula, as well as the functional form of the matching formula itself, will be discussed later. For now, we turn to the states to achieve federal expenditure objectives. For purposes of this discussion, we assume that the components of the current **FMAP** are the appropriate ‘ones to include. In this way we can isolate the redistributive implications of these choices in the structure of the funding mechanisms from the debate of appropriate measures of **fiscal** capacity and need.

### **A Theoretical Discussion of Federal Block and Matching Grants**

There are a number of different ways in which the federal government can achieve its expenditure objectives through financial contributions to state administered programs. Each approach has different effects on state spending behavior, and each will have different implications for the resulting program in one state **relative to the** others.

The response to any given federal spending objective depends on two basic **decision-**making processes at the state level. The **first determines** the levels of private spending versus public spending in a state. The second determines the levels of public spending on different goods and services (for our purposes, the amount of public funds spent on the Medicaid eligible population versus that spent for non-Medicaid services). **The tradeoffs** can be described similarly.

The public-private spending **tradeoff** is **illustrated** in Figure 1. In a given state, assume that total income is equal to amount “a”. If the state chose to spend **all** of its income on private goods and services, it would be able to purchase them in quantity  $Q_{priv,a}$ . Conversely, if total state income was spent on public goods and services, the state could purchase them in quantity  $Q_{pub,a}$ . The **state’s** budget line extends between these two points. The state is able to purchase any combination of public and private goods and services along this line. The state’s indifference curve,  $I$ , illustrates the preferences of the people of the state for different combinations of public and private spending<sup>3</sup>. The state maximizes its utility by choosing the combination of public and **private** spending where its highest indifference **curve**<sup>4</sup> is just tangent to its budget line. So in this case, the state will spend  $Q_{pub,1}$  on public goods and  $Q_{priv,1}$  on private goods.

If, however, the state’s budget were to grow (say during **an** economic upturn), the state’s budget line would move up and to the right to the line connecting points  $Q_{pub,a}$  and  $Q_{priv,a}$ . The **state** can now increase its utility by purchasing more of both public and private goods **than** it had before. Its new purchasing combination is  $Q_{priv,2}$  and  $Q_{pub,2}$ , the combination along the new budget line that is just tangent to the higher indifference curve,  $I$ . This increase in spending of both types is known as an “income effect”.

Given **that a state has made** an allocation decision between public **and** private spending, the state must also decide how to allocate the given amount of public spending between **various**

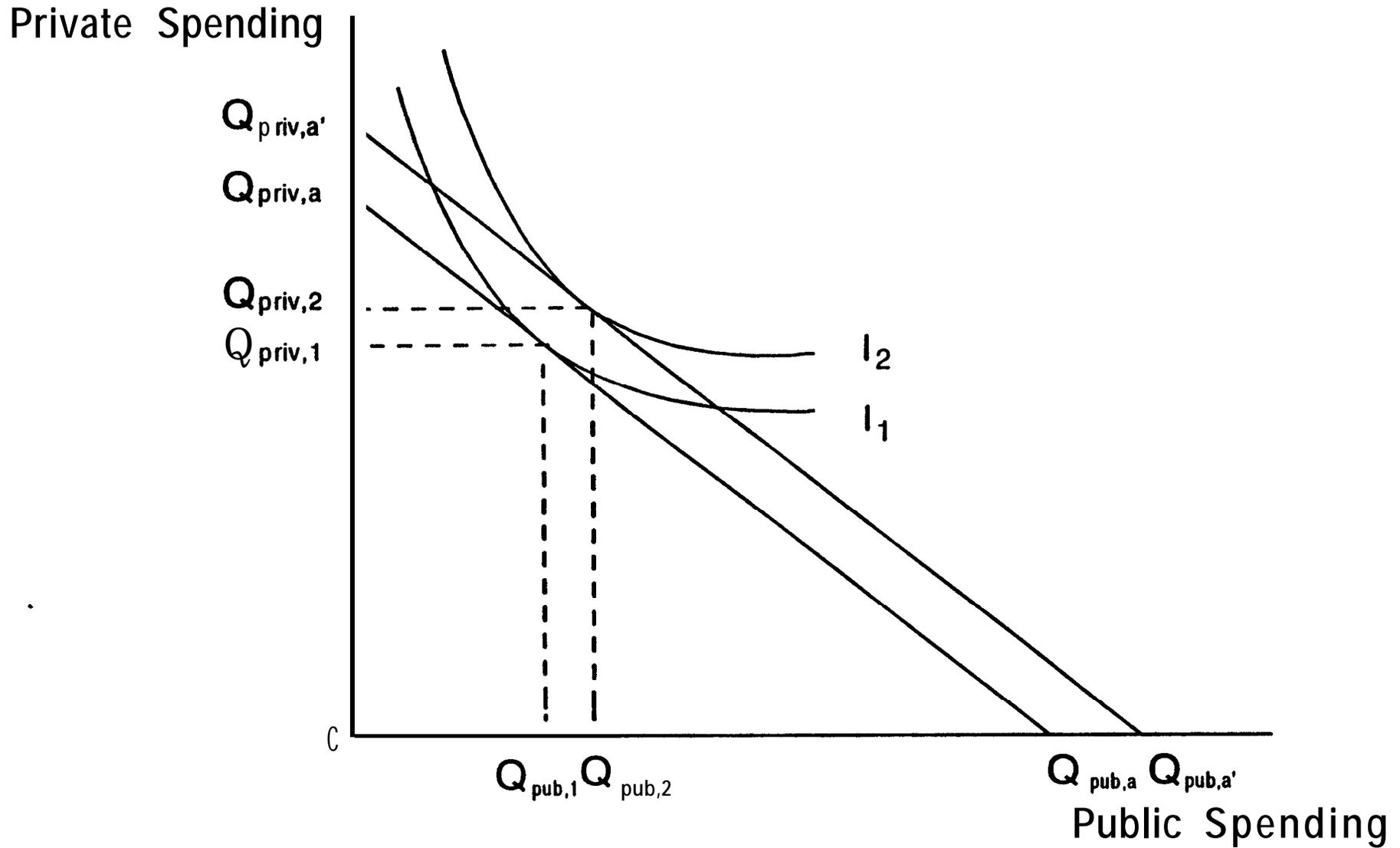
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<sup>3</sup>An indifference **curve** shows combinations of **different** goods (e.g., public goods versus private goods; or Medicaid versus non-Medicaid) to which the consumer (**here, the state**) is **indifferent**. For example, say a state is purchasing  $\$A$  of Medicaid services and  $\$B$  worth of **other** goods and services. If the state is just willing to give up  $x$  dollars in Medicaid services in order to **obtain** an increase of  $y$  dollars in other goods and services, we say the state is “**indifferent**” between those two combinations of consumption bundles (bundle 1 being  $\$A$  in Medicaid services **and**  $\$B$  in other goods and **services**, and bundle 2 being  $\$(A-x)$  in Medicaid services and  $\$(B+y)$  in other goods and services).

In order to **maximize** utility, the state will purchase the combination of Medicaid and non-Medicaid goods and services at the point on its indifference **curve** that is just tangent to its budget constraint

<sup>4</sup>Indifference **curves** increase in value as they move from the bottom left of **the** graph to the top right of the graph.

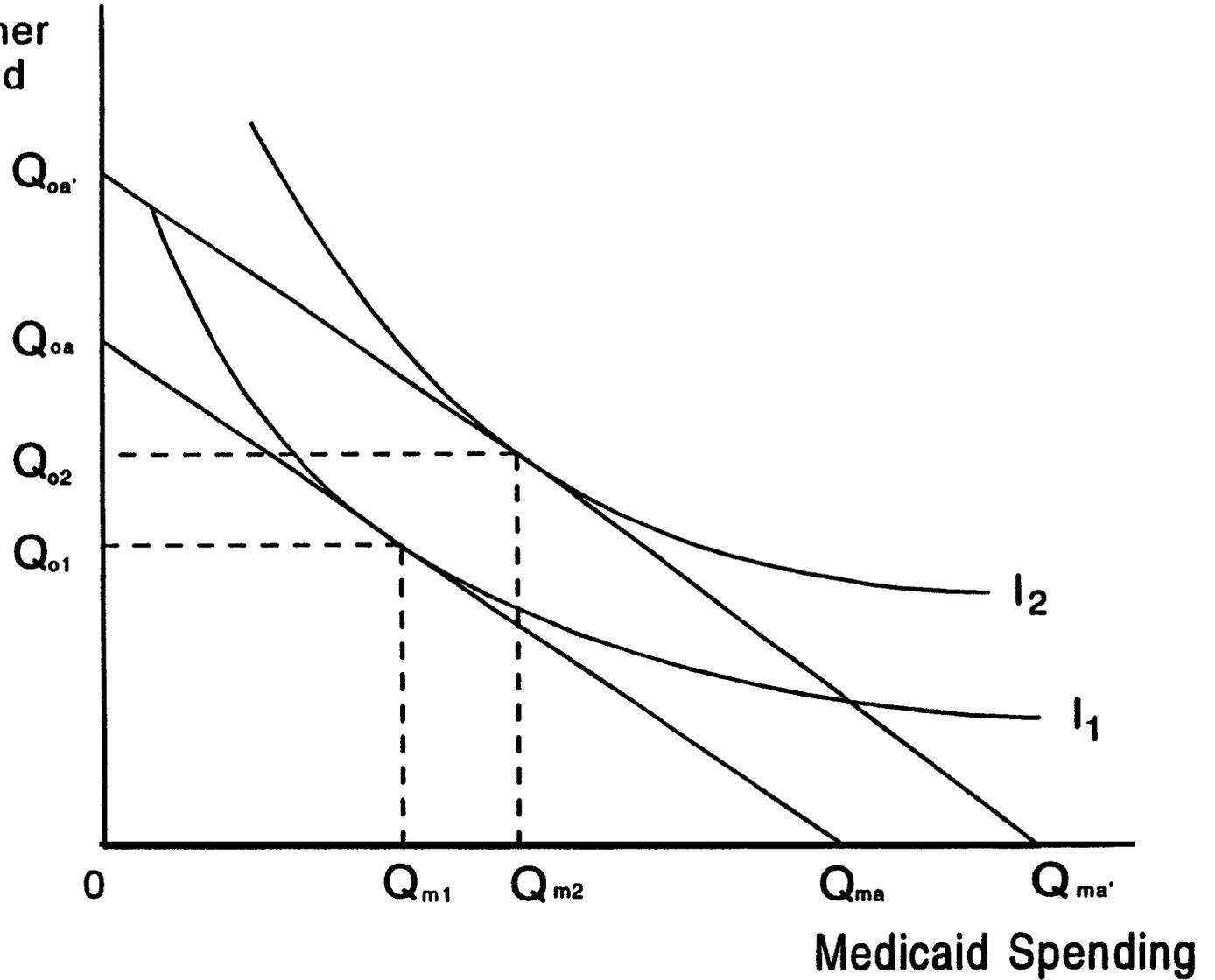
Figure 1



The Balance of Demand for Public versus Private Spending

Figure 2

Spending on Other  
Public Goods and  
Services



Unconstrained Grant

classic **economic** theory, and a hypothetical indifference curve for a **state** appears as  $I_1$  in the absence of the federal grant. The state then purchases  $Q_{n1}$  in non-Medicaid goods and services and  $Q_{m1}$  in Medicaid goods and services.

When the unconstrained grant is made, the budget constraint shifts out to the right to the line segment that connects points  $Q_{n2}$  and  $Q_{m2}$ , parallel to the original budget constraint. The state can now operate on a higher indifference **curve** ( $I_2$ ), and purchases  $Q_{m2}$  in Medicaid services and  $Q_{n2}$  in non-Medicaid goods and services. Levels of both Medicaid and non-Medicaid services are now likely to be greater than their previous levels. Prices are not distorted relative to each other: the grant serves to increase effective income for the state, and purchasing decisions can be made accordingly.

Depending on the shape of a state's indifference curves, however, state spending might not increase their spending by the full amount of the grant. A state may decide to decrease the tax burden on its population somewhat as well as increase spending slightly as a result of the grant. Such a behavior is known as "displacement" or "grant **fungibility**". A theoretical example is also shown under a different interpretation of Figure 1. With the unconstrained grant, total Medicaid spending and spending on other public programs increases to  $Q_{pub,2}$  as federal spending increases by the amount of the grant ( $Q_{pub,a} - Q_{pub,a}$ ). State spending can, therefore, be less than  $Q_{pub,1}$  (e.g.,  $Q_{pub,2} - (Q_{pub,a} - Q_{pub,a})$ ), depending on the shape of its indifference curves, i.e., on the relative **value** it places on private versus public goods. In the typical case, Medicaid/public spending increases by **less** than the size of the federal grant. Private spending can increase in this way because the state lowers state taxes after receiving the grant. Though the grant allows the state to purchase more public goods, it also allows the state to increase private spending by replacing general revenues with the federal grant funds. This type of displacement behavior can occur under any type of federal assistance to state administered programs.

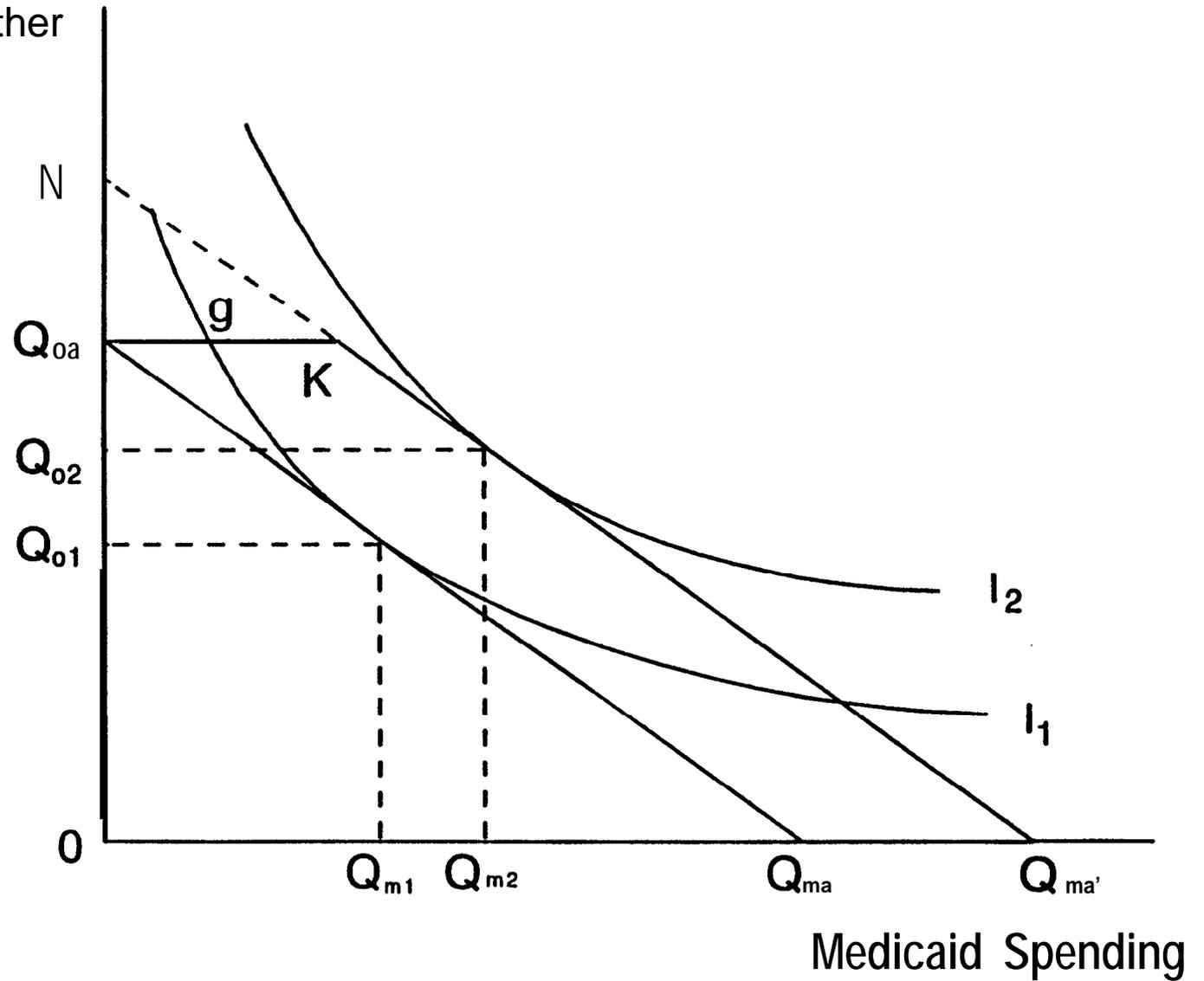
The next type of grant is the federal block grant. The federal government gives a pre-determined amount of funds to each state government that must be used for a specific use or program. If the block grant is less than or equal to spending in the absence of the grant, this acts as a pure income effect, as with the unconstrained grant. If, however, the grant exceeds the amount being spent on that program in the absence of the grant, then some distortions might result. Figure 3 illustrates the effect of a block grant equal to less than state spending in the absence of the grant. Again, prior to the grant, the state purchases  $Q_{m1}$  in Medicaid services and  $Q_{o1}$  in other public goods and services. After a Medicaid block grant of size  $g$  is made, the new budget constraint is  $Q_{o2}KQ_{m2}$ . The nature of the block grant (as opposed to the unconstrained grant) is that states can not make purchasing decisions in the segment NK range. A state with indifference curves as shown in Figure 3 would purchase a combination of goods and services somewhere along segment  $KQ_{m2}$  and would not be constrained in its behavior by the block grant.

But, it is possible that the state might end up purchasing more Medicaid services than it would have under an unconstrained grant. For example, in Figure 4,  $I_1$  is the relevant indifference curve in the absence of any grant. Under an unconstrained grant, (budget line  $NQ_{m1}$ ),  $I_1$  is the relevant indifference curve, with Medicaid services equal to  $Q_{m1}$ . Under a block grant of the same size, however, segment NK is no longer a part of the budget constraint, making  $I_2$  the relevant indifference curve.  $I_2$  represents a lower level of utility than does  $I_1$ , because the state would prefer to spend more on other goods and less on Medicaid. The state is still better off to participate, but it has been induced to spend more on Medicaid than it otherwise would.

The third type of state/federal cost sharing arrangement is the categorical matching grant. Under this arrangement, the federal government pays for a percentage of each state's program spending. This percentage is calculated separately for each state based upon a matching formula. Categorical matching grants can be open-ended (as is true for Medicaid and AFDC), or they can

Figure 3

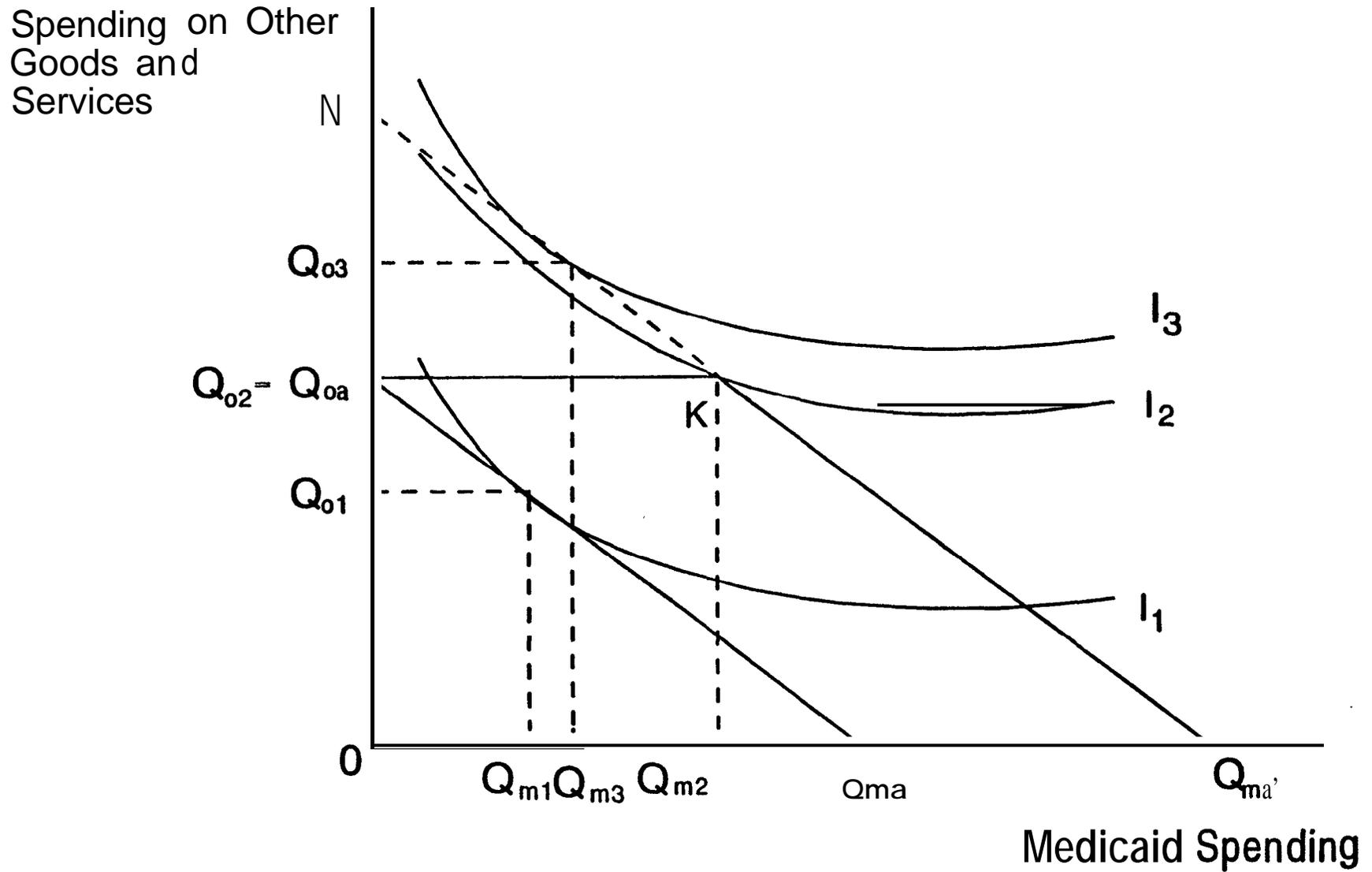
Spending on Other Goods and Services



## Block Grant

Grant is less than or equal to spending in the absence of the grant.

Figure 4

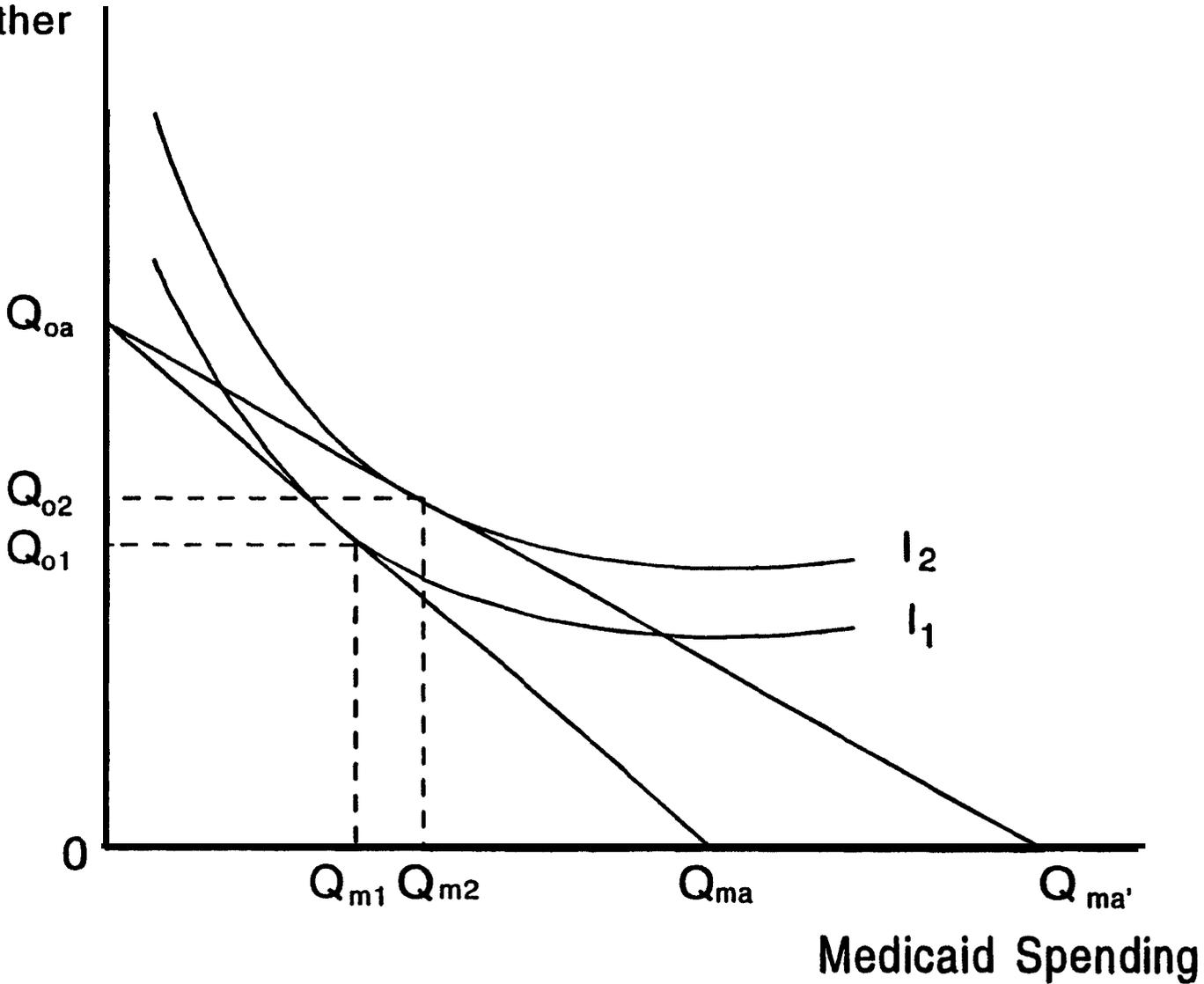


### Block Grant

Grant is greater than spending in absence of the grant.

Figure 5

Spending on Other Goods and Services



Open-Ended Categorical Matching Grant

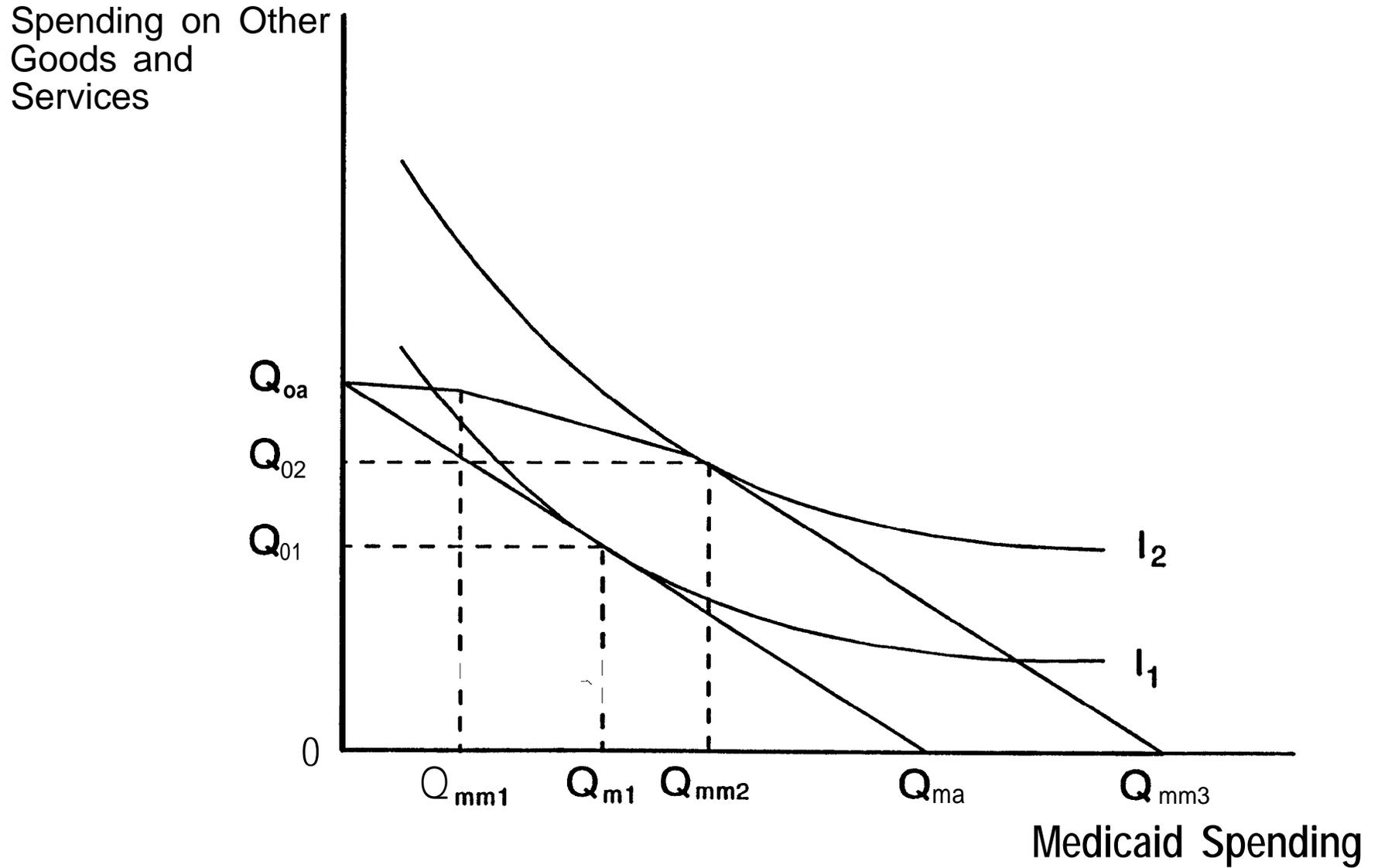
be capped at some level of federal or state spending. Caps of this kind are **generally calculated** separately for each state using another formula. In addition, categorical matching grants can have a single matching rate across the spending range, or the matching rate may vary at different levels of spending.

Figure 5 illustrates the open-ended single matching rate grant. **Again,  $Q_{oa}Q_{ma}$  represents** the state budget constraint prior to implementation of the matching program. The state purchases  $Q_{m1}$  in medical services and  $Q_{o1}$  in other goods and services. After implementation of the matching program, the given level of state revenue can buy more medical services for the Medicaid eligible population group -- in effect, the budget constraint swings out along the Medicaid services axis (the price of other state spending does not change). The new budget constraint is  $Q_{oa}Q_{ma}$ . The state can move to a higher indifference curve,  $I_2$ , for example. Under the new budget constraint, the state is likely to purchase more medical services than it did previously, and it may purchase more of the other goods and services as well. In this case two factors have changed. The **first** type of demand change, that resulting from a change in relative prices, is known as the substitution effect. The second type of demand change, that resulting from an increase in overall purchasing power, is the income effect (as described above).

Figure 6 illustrates the case of a multiple matching rate categorical grant. In this example, one matching rate applies for spending in the range of 0 to  $Q_{mm1}$ , another rate applies for states spending in the range of  $Q_{mm1}$  to  $Q_{mm2}$ , and a zero matching rate applies to states spending in the range of  $Q_{mm2}$  to  $Q_{mm3}$ . Closed-end matching grants are a special case of multiple matching rate grants. **In** the example illustrated in Figure 6, the matching rates decline with higher levels of spending, creating a convex budget **set**.

The different types of federal grants will have different effects on the income-generated disparities of benefits across states and on the non-income-generated disparities across states.

Figure 6



Multi-Rate Categorical Matching Grant

These two types of disparities are very separate issues, and reduction of benefit/program differences does **not** necessarily follow from eliminating income-generated differences (power equalization).

Due to the **fungible** nature of unconstrained grants and block grants, these mechanisms are likely to have very little effect on eliminating income-generated differences across states. That is, the benefits of such grants can be spread across all types of spending, and given that any grant will constitute a very small percentage of state income disparities, their impact in this area is likely to be small.

In terms of matching grants, however, Feldstein (1975) developed a model of wealth equalization in a discussion of public education **financing**. According to his constant elasticity log linear model, public spending on a specific good or service can be **defined** as:

$$\ln E_i = \beta_0 + \beta_1 \ln W_i + \beta_2 \ln P_i + \sum_{j=3}^K \beta_j \ln X_{j,i} + \epsilon_i$$

where  $E_i$  is spending on a program (Medicaid, for our purposes) in state  $i$ ,  $W_i$  is some measure of wealth in state  $i$ ,  $P_i$  is equal to the effective price of Medicaid to the state (i.e., one minus the matching rate), and  $X_{j,i}$  is a matrix of other variables affecting spending. The elasticity of expenditure with respect to wealth is therefore:

$$\alpha_1 = \beta_1 + \beta_2 \gamma_{pw} + \sum_{j=3}^K \beta_j \gamma_{x_j w}$$

Complete wealth neutrality would mean  $\alpha_1 = 0$ . Feldstein defines the  $X$ s in **terms** of his discussion of public spending on education. Some examples of “other” variables that are relevant for the Medicaid discussion are: state “tastes” for public spending in general and for Medicaid spending in particular, private market prices, provider attitudes toward the Medicaid’ population, the balance of state political power (e.g., providers and groups representing Medicaid eligibles),

competing state needs, the health profile of the state's eligibles, the number of physicians per capita, the distribution of physicians across the state, the number of hospital beds per capita, the number of nursing home beds per capita, and the demographic characteristics of the eligibles.

For ease of notation, we **define** the adjusted wealth elasticity as:

$$\beta_w = \beta_1 + \sum_{j=3}^k \beta_j \gamma_{x_j w}$$

and set  $\beta_2 = \beta_p$ . So  $a_1$  is equal to  $a_1 = \beta_w + \beta_p \gamma_{pw}$ . Feldstein explains that in order to achieve any degree of wealth neutrality, the following price formula can be used:

$$P_i = kW_i^{\gamma_{pw}}$$

Setting  $\gamma_{pw} = -\beta_w/\beta_p$  achieves complete wealth neutrality;  $a_1 = 0$ .

In order to eliminate the effect of wealth on public program spending, one must take into account the ways in which wealth affects expenditures indirectly through other variables (such as attitudes and market characteristics). Ignoring such interaction effects would lead to omitted variable bias in the estimation process, and could lead to setting matching rates which do not achieve the desired power equalization. The parameter  $k$  increases (or decreases) spending in all states by the factor  $k^{\beta_p}$ . The variable  $k$  can therefore be used by the federal government as a stimulation tool.

Achieving wealth neutrality necessitates an accurate measure of state wealth as well as estimates of  $\beta_w$  and  $\beta_p$ . After wealth neutrality is achieved, however, differences in spending that result from the non-income, non-price variables will persist. Some of these differences might be considered appropriate, and some may not. In order to allow for only some differences resulting from specific factors, such factors would have to be incorporated into the formula, or some

adjustment for those specific factors would have to be made outside of the **formula**. If benefit variation was considered to be inappropriate in general, however, two strategies should be considered.

The **first** and most obvious strategy *is to* federally mandate **benefit** and eligibility levels. The mandate tool is the most complete in achieving uniformity in state programs. The second strategy is to employ a multi-rate matching strategy. The matching rates could be chosen to induce state programs to aggregate around certain specified spending levels (Gramlich, 1982 and **Moffitt**, 1984). Such a strategy would reduce inter-state differences, though it would not eliminate them.

We turn now to a discussion of the functional form of the current matching formula, and analyze its implications for the interstate allocation of Medicaid resources.

### **The Functional Form of the Current Medicaid Matching Formula**

**The** current Medicaid program is an example of an open-ended, single rate, matching program. Its matching formula is used to establish the federal and state shares of funding for Medicaid and seven other programs. It differentiates among states by providing a higher federal matching rate for those states with lower state per capita personal income.

According to the formula, a state's share of program costs is:

$$\text{state share} = \frac{(\text{state per capita personal income})^2}{(\text{national per capita personal income})} \times 45\%, \text{ where } \left( 17\% \leq \text{state share} \leq 50\% \right)$$

That is, the federal government guarantees that it **will** pay at least 50 percent but not more than 83 percent of the costs of the Medicaid program in any state. The federal share rises for low income states. **Currently** (1993 FMAP), no state is at the top matching rate of 83 **percent**.

Mississippi is closest with 79.01 percent and **13** states are at 50 percent (See Table 1).

The formula thus measures a state's ability to pay by its relative level of per capita personal income. Per capita income used in calculating a state's matching rate in year  $t$  is calculated as the mean of the state's per capita income in federal fiscal years  $t-3$ ,  $t-4$ , and  $t-5$ . That is, the most recent income information used is 21 months old (the federal **fiscal** year begins in October of the previous **calendar year**); **the oldest information is 45 months old. The income measure used is based on the National Income and Product Accounts measure of per capita personal income.**

The functional form of the matching formula, the squaring of the income measure in particular, impacts substantially upon the relative status of the different states. Differences among states are amplified as a result of the squared term. In addition, a fixed change in state income per capita relative to the national income per capita will result in a smaller change in the FMAP for those states at the poorer end of the range than it will for states at the higher end of the range. **In other words, a small increase in income in a poor state will result in a smaller decrease in federal funding than will a similar increase in income in a richer state.**

For a moment, we disregard the boundaries imposed upon the state **FMAPs** in order to fully demonstrate the effect of the choice of the formula's functional form. Table 2, columns b and c show the effect of a **.05** increase in relative income (as measured by state per capita personal income divided by national per capita personal income) on the FMAP of states beginning with different levels of relative wealth. Say for example state A has relative wealth **equal to .65**. State **B**, on the other hand, has relative wealth of **.70**. Consequently, state A has an **FMAP .81** while state B's FMAP is **.78**, a difference of **.03**. For a contrasting example, assume that state C has relative wealth equal to 1.30 and a federal match of **.24**. State D has relative wealth equal to 1.35 and a federal match of **.18**, a difference of **.06**. The structure of the formula is such that the federal match falls more slowly for poor states than it does for wealthier states.

**TABLE 2**  
**Federal Medicaid Shares Under Alternative Functional Forms of the Matching Formula**

(a) Relative Wealth* <u>R</u>	(b) Federal Match = <u>1-.45(R<sup>2</sup>)</u>	(c) Change"	(d) Federal Match = <u>C1-.45(R)</u>	(e) Change"	(f) Federal Match = <u>C.45(1/R)</u>	(g) Change"	(h) Federal Match = <u>C1-.50(R<sup>2</sup>)</u>	(i) Change"
0.65	0.8099	n.a.		n.a.	0.6923	n.a.	0.7888	n.a.
0.70	<b>0.7795</b>	<b>(0.0304)</b>	0.6850	7 5 <b>(0.0225)</b>	0.6429	<b>(0.0495)</b>	0.7550	<b>(0.0337)</b>
0.75	0.7469	(0.0326)	0.6625	(0.0225)	0.6000	(0.0429)	0.7188	<b>(0.0363)</b>
0.80	0.7120	(0.0349)	0.6400	(0.0225)	0.5625	(0.0375)	0.6800	<b>(0.0388)</b>
0.85	0.6749	(0.0371)	0.6175	(0.0225)	0.5294	(0.0331)	0.6388	(0.0412)
0.90	0.6355	(0.0394)	0.5950	(0.0225)	0.5000	(0.0294)	0.5950	(0.0438)
0.95	0.5939	(0.0416)	0.5725	(0.0225)	0.4737	(0.0263)	0.5488	<b>(0.0462)</b>
1.00	0.5500	(0.0439)	0.5500	(0.0225)	0.4500	(0.0237)	0.5000	<b>(0.0488)</b>
1.05	0.5039	(0.0461)	0.5275	(0.0225)	0.4286	(0.0214)	0.4488	<b>(0.0513)</b>
1.10	0.4555	(0.0484)	0.5050	(0.0225)	0.4091	(0.0195)	0.3950	(0.0538)
1.15	0.4049	(0.0506)	0.4825	(0.0225)	0.3913	(0.0178)	0.3388	(0.0562)
1.20	0.3520	(0.0529)	0.4600	(0.0225)	0.3750	(0.0163)	0.2800	(0.0588)
1.25	0.2969	(0.0551)	0.4375	(0.0225)	0.3600	(0.0150)	0.2188	(0.0613)
1.30	0.2395	(0.0574)	0.4150	(0.0225)	0.3462	(0.0138)	0.1550	(0.0638)
1.35	0.1799	<b>(0.0596)</b>	0.3925	(0.0225)	0.3333	(0.0128)	0.0887	(0.0663)
1.40	0.1180	<b>(0.0619)</b>	0.3700	(0.0225)	0.3214	(0.0119)	0.0200	(0.0687)

\* State per capita personal income divided by national average per capita personal income.

\*\* The change in the federal match resulting from a 5 percent increase in relative per capita personal income.

In order to understand the **different** effects resulting from different matching formula functional forms, we have calculated federal matches that would result **from** modification of the formula. Table 2, columns d and e show the effect of removal of the squaring provision in the federal match. The resulting range of federal matches across states is considerably **smaller** (federal matches range from **.71** to **.37** as compared to a range of **.81** to **.12** under the current formula.) In addition, changes in the relative income **measure** affect states differently under **the** linear (non-squared) federal match than under the **current** (squared) formula. A difference in relative wealth of **.05** implies a difference in the federal match of the same amount (**.0225**) regardless of the relative wealth of the state. Low income states are penalized to the same extent **as** wealthy states **as** relative income increases, making this a less progressive formula than the current, squaring formula.

Table 2, columns f and g show the results of changing the federal match to a hyperbolic functional form ( $.45 \cdot (1/\text{relative wealth})$ ). In this case, the poorer states suffer a greater marginal decrease in their federal match as income rises than do the wealthier states. For example, a state with relative wealth of **.70** has a federal match of **.64**. A state with relative wealth equal to **.75** has a match of **.60**, a difference of **.04**. A state **with** relative wealth of 1.35 and a federal match of **.33** has only a **.01** difference in federal match from a state with relative wealth equal to 1.40. This matching formula functional form also results in a narrower range of federal matches than does the current formula.

The coefficient on relative income, C (**.45** in the current formula), sets the matching rate for the state with mean income. If state X has per capita income equal to the national average, then its matching rate is **equal** to  $1 - C$  ( $1 - .45 = .55$  in the current formula). What if we were to set the matching rate for the average **state** at **.50** ( $C = .50$ )? Columns h and i in Table 2 show the matching rates under this scenario for states of different relative per capita incomes. The

resulting federal matching rates are lower for all states than under the **current** formula. In addition, the marginal decrease in matching percentage as relative income rises is greater than is seen under the current formula.

The choice of 2 as the exponent used in the formula also seems to have been an arbitrary one. A higher exponent would increase the disparity between the effective marginal tax rate of poor and wealthy states even further. A lower exponent would decrease the disparity in effective tax rates relative to the squaring option. There is no rationale (economic or otherwise) for the number two. Other functional forms are available **as** well. A formula could, for instance, start with a measure of relative **fiscal** capacity and then add or subtract values, adjusting for other concerns (e.g., poverty rates or special health care needs).

Current upper and lower bounds on matching rates. Other characteristics of the formula's structure that affect the distribution of funds are the upper and lower bounds placed on matching rates. By legislative fiat, the federal matching rate cannot be lower than 50 percent and cannot exceed 83 percent. Under the 1993 matching rates (calculated using average per capita income across years 1988, 1989, and 1990), no state receives the maximum 83 percent federal contribution. Thirteen states, however, receive the minimum 50 percent share. Each of these 13 states would have received federal contributions of less than 50 percent if their shares as calculated by the formula were to actually be used. Table 3 shows the 13 states and the federal matching rates that would result from a strict use of the formula.

While a few of these states, namely Illinois, Delaware, Virginia, and Hawaii, have calculated **FMAPs** relatively close to 50 percent, there is quite a bit of departure from that amount among other states. The federal funding boost that these states receive from the 50 percent minimum is an explicit allocation towards less "needy" populations. The lower bound seems to have resulted from a concern that states might not participate in the Medicaid program

TABLE 3

Actual Federal Matching Rate Calculations  
for States Receiving the Minimum 50%  
Federal Match in 1993

State	Calculated Match
Connecticut	14.96%
New Jersey	19.73%
District of Columbia	30.07%
<b>Massachussetts</b>	32.32%
New York	37.02%
Maryland	30.30%
Alaska	40.55%
New Hampshire	41 .08%
California	44.09%
Illinois	46.72%
Delaware	47.06%
Virginia	49.40%
Hawaii	49.76%

under **lower** federal matching rates. It **is** worth **re-evaluating this concern**. The **50 percent lower bound is an arbitrary one**, and **given that all states do participate in the program** (and probably cannot afford not to), redistributive goals might **better be served by a lower minimum match**. (Caution is warranted, however. In **1992, when their federal matching rate was 53.59 percent**, the Colorado legislature passed a bill withdrawing **from Medicaid**; the bill was vetoed by the governor.)

The 83 percent upper bound is arbitrary as well, resulting from the desire to have the program at least **partially** funded by the states. Under the **current** formula, this is not a binding constraint, as no states have **FMAPs** calculated at or above 83 percent. Following reform of the formula, or at some time in which the upper bound might become binding, this issue should be re-examined in **terms** of its impact upon a state's ability to finance an adequate program.

As a side note, the upper and lower bounds also eliminate a great deal of the variation that results from a **particular** choice of functional form for the matching **formula**. In essence, it makes **the** choice of a particular exponent less important in terms of its relative impact upon state funding.

## THE COMPONENTS OF THE MEDICAID FORMULA

We now move our discussion from the functional **form** of the matching formula **to** the components or measures included in the formula itself. We begin our analysis with measures of ability to pay - examining the appropriateness of the current measure and evaluating alternatives.

We then move on to measures of state **need**. The current formula does not include any measures of **need**;<sup>6</sup> we consider the appropriateness of adding such measures to the **formula**.

### **Measures of Ability to Pay/Fiscal Capacity**

In describing alternative measures of ability to pay that might be used in the Medicaid formula to measure **relative** wealth, we will assess how the **alternatives** would **fulfill** the following objectives:

- comprehensiveness: Does the measure capture **all** of the sources of revenue available to a state?
- discrimination: Can the measure delineate the extent of different sources of revenue? This should be considered relative to both different types of taxable entities (e.g., personal income, natural resources) and taxable populations (i.e., state residents versus non-residents).
- availability: Is data for the measure currently being collected? If so, how frequently? If not, how difficult and/or costly would it be to collect such data?

**NIPA as the Per Capita Income Measure.** State personal income in the current formula is calculated using state specific data in conjunction with the National Income and Product Accounts (**NIPA**) national personal income measure (U.S. Department of Commerce, 1989). As such, it is not the measure of income that many people imagine when they think of personal income, but rather is derived from the aggregate measures used to create gross domestic product and other overall measures of the nation's economic output. This measure of personal income has particular advantages and disadvantages as a part of the formula, many of which stem from technical and definitional aspects of the **NIPA** measures.

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<sup>6</sup>The formula implicitly considers **need** to the extent that states with greater needs provide more **generous** programs. If a state spends more, the federal government contributes more as **well** due to the open-ended nature of the matching grant. Assuming that **need** is fully accounted for in this way, however, would necessitate the assumption that states with **greater health care** needs have the fiscal capacity and political will to increase the resources devoted to the Medicaid program in relation to their needs.

The definitions of NIPA and state personal income are virtually identical.<sup>7</sup> The values are calculated from estimates of the general categories listed below. (The specific components of each of these categories are listed in Appendix B.)

Wage & Salary Disbursements (by industry)  
Other Labor Income (by industry)  
Proprietors' Income of Persons with Capital Consumption Adjustments  
Personal Contributions for Social Insurance (entered with a negative sign)  
Rental Income of Persons with Capital Consumption Adjustments  
Personal Dividend Income  
Personal Interest Income  
Transfer Payments

Not all of the components of the measure are based on actual state-level data. A number of the payments in the state measure are calculated by allocating the national personal income measure across states according to the states' shares of a related economic series. For example, unemployment insurance reporting requirements provide uniform data on employment compensation by state. These data can be used to calculate each state's share of total national wages. These calculated shares are then applied to the NIPA total wage measure to estimate wages paid within each state.

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<sup>7</sup>One major difference between the state estimates and the national personal income estimate relates to the earnings of U.S. residents who are temporarily working abroad (U.S. Department of Commerce, 1989). These earnings are included in the national personal income estimates but are excluded from the state estimates. An adjustment to the national estimate is made in order that these earnings are subtracted from the national totals before they are used as controls for the state estimates.

Another point of difference between the national state estimates is in the handling of the following categories of workers:

- residents of the U.S. who work in adjacent countries
- individuals who work in the U.S. but who reside elsewhere
- U.S. residents employed by international organizations and by foreign embassies and consulates located in the U.S.

The national estimate includes all three of these types of income in the personal income category "rest of the world". However the state measure only includes the third category. In order to take this discrepancy into account, a residency adjustment is applied to the national personal income figures before they are used as "controls" for the individual state estimates.

This methodology **takes** advantage of state specific data while guaranteeing **that** the sum of the components of state personal incomes will be equal to the national totals for personal income **as** determined by **NIPA**. Given the different alternatives available for the measurement of the components of personal income, it is likely that the simple sum of state specific data would not equal the **NIPA** national totals. Use of the national totals as a “control” for the calculation of state personal income implicitly attributes more credibility to the **nationally** available figures than to the state specific figures.

A disadvantage of these state personal income measures is that income to unincorporated enterprises is captured in the personal income category. This measure includes income to private non-profit organizations, private noninsured welfare funds, and private trust funds. These inclusions might adversely **affect** the appropriateness of **NIPA** personal income as **a** measure of state welfare. Since these entities are generally not taxable, they serve to inflate the income measure but are not indicative of revenue raising capacity. An unusually high number of such organizations in **a** certain area might result in an upward bias of the income measure in that **area**.

Another problem with the state **NIPA** measure is that it includes transfer payments to individuals. Therefore, double counting results since the measure includes both the program benefits and the tax dollars used to pay for the program. Take for example, the Aid to Families with Dependent Children (AFDC) program. This program is jointly financed through state and federal government revenues. Personal income is measured in gross (pre-tax) dollars. Residents of **a** hypothetical state pay \$X dollars in taxes to support the AFDC program. These **are** dollars that have been counted in their wage and salary income. Each AFDC recipient in that state then receives **\$Y** in benefits from the AFDC program. These dollars are then counted again as transfer income going to the program beneficiaries. In this way, the state financed portion of AFDC benefits have been counted twice in total state personal income.

Further, this is a bias that does not equally affect all states. The exact nature of the bias is complicated because of joint federal and state funding for these programs. For example, a state with high levels of transfers might have more double counting if it finances a large share of its program with state revenues. However, if the state is very poor and the federal government heavily subsidizes those transfer benefits, a substantial portion of the benefits do constitute additional resources available to the state.<sup>8</sup> Although these transfers are not taxable income, additional state resources of this type might indicate that a state's resources in general are more taxable than would be true in a state with the same taxable income but with less intergovernmental transfers. It would be worth exploring the advantages and disadvantages of either excluding all transfers (intrastate and interstate) or excluding only intrastate transfers.

The NIPA measure also excludes significant sources of state revenue. The most prominent of these are states' natural resources and residents' realized capital gains. Again, states may vary considerably in the level of these excluded resources.

These problems with NIPA measures suggest that alternative measures, or at least adjustments to the NIPA measure itself, need to be considered.

Refining the NIPA Measure of Personal Income. A potentially helpful modification of the NIPA measure would be to exclude all non-taxable income from the personal income figure. Such an exclusion would remove the current bias against states with disproportionate shares of non-profit organizations. Since separate estimates are made of this category of income, its deletion from total personal income would not be difficult. A related issue is the inclusion of fringe benefits in the income measure. These benefits are currently included in the NIPA

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<sup>8</sup>An additional complication arises in states where health care costs -- and hence the level of medical transfers -- are higher than average. This is related to issues of inter-state cost of living differences, and is discussed in a later section of this work.

personal income measure. Since employer provided health care benefits are **currently exempt** from taxation, it would be appropriate to exclude that type of income from the relative wealth measure as well. The same is true for employer contributions to pension and welfare funds.’

Additionally, if it were possible to reduce state **NIPA** personal income by the amount of state and locally funded non-taxable transfer payments, then the double counting phenomenon could be avoided. (Alternatively, as discussed above, all non-taxable transfer payments could be excluded.) Since many transfer programs are jointly funded by both state and federal dollars, the actual program funding coming from state residents is not a straight-forward calculation. However, a reasonable approximation could be made. The state share of program financing is an amount that is clearly attributable to state residents and should be deleted from the transfer payment **amount**.<sup>10</sup>

It would also be appropriate to subtract some portion of the federal contribution since state residents help to finance that portion through their federal tax payments. One approach for accomplishing this would apply the percentage of federal income tax revenue coming from a state to the **total** amount of federal Medicaid spending. This amount would then be subtracted from state income. For example, in 1992, total federal Medicaid spending was \$67.4 billion. Given that 43.5 percent of federal discretionary spending is financed through personal income taxes, \$29.3 billion of Medicaid spending was financed through personal income taxes. Massachusetts residents paid 3.25 percent of personal income taxes in 1992, implying that \$952.2 million of

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<sup>9</sup>A consideration here, however, is **the extent to which the existence of these forms of non-taxable wealth contribute to fiscal well being. If a state has a great deal of non-taxable wealth, this might imply that the residents could more easily sustain a higher rate of taxation on their taxable wealth than could a state in which total wealth is more predominantly comprised of taxable resources.**

<sup>10</sup>**This task is complicated, however, by the rash of "creative" financing mechanisms currently being used by many states. For example, it would be inappropriate to subtract provider tax revenue when that money is simply returned to providers after it is used to calculate the federal contribution. The reason for this is that the providers experience no net financial change as a result of the tax process.**

federal Medicaid dollars were financed by personal income taxes on Massachusetts residents. Therefore, it would be appropriate to subtract \$952.2 million from Massachusetts' aggregate personal income in order to avoid double counting; This \$952 million subtraction is in addition to similar adjustments for other federally financed transfer programs and to the adjustments for state financed transfer programs.

Alternative Measures of State Per Capita Income. One alternative measure of state per capita personal income is the median income value for that state from the Current Population Survey (CPS). CPS income is self-reported income by a representative sample of individuals (U.S. Bureau of the Census, 1991). The CPS collects a great deal of detail on the type and source of income for each individual. Because of the level of detail in the data, it would be possible to address the double counting phenomenon by subtracting the income from various state financed transfer programs. Also, since the CPS focuses solely on individuals, it avoids the problem that NIPA has of including unincorporated business and non-profit organization income in state personal income. However, as with any single summary measure, be it mean or median, explicit calculations of tax liability are not possible.

Due to top-coding used to protect respondent confidentiality in the CPS, it is not possible to calculate actual sample means of income. Top-coding means that in 1989, an individual's earnings from a primary job were listed as being \$99,999 if that person's actual earnings were greater than or equal to that amount. There are two options for using CPS income, however. One could use median income as opposed to mean income. Or, a specific income distribution could be assumed, and that distribution could be used to impute the values in the right hand tail which exceed \$99,999. A separate measurement issue is that CPS substantially underestimates income from capital.

These two measures (mean and **median**) are quite different in non-normal (or “skewed”) distributions, such as is the case with income. For purposes of measuring tax capacity averages are likely to be more **relevant**. This is **true** since most taxes are levied on the full base, which is captured by the mean. Median income, which is a better measure of the representative individual or family in a state, might be a better indicator of a state’s need since it effectively gives **more** weight to lower income families.”

The power of CPS state estimates **could** be strengthened by using combined data from three consecutive years of the CPS. (The current Medicaid formula also uses a three-year average). Since 50 percent of the CPS **sample** changes each year, using three years of data doubles the sample number of independent observations in a state. Nonetheless, CPS is still a sample, and in low population states the actual number of persons sampled may be low enough to cause concern.” For example, in Vermont, the three year CPS unweighted count of individuals is 2,472; in Oregon, the number is 3,123.

Use of median CPS family income leads to different relative state rankings than does the use of the **NIPA** per capita personal income. States that are above the national mean on one measure may be below the national mean on the other. The differences in the relative income rankings of states has direct relevance for the distribution of Medicaid dollars. While 11 states had relative rankings that differed by less than 2 percent under both measures, the average difference was 7 **percent**.<sup>13</sup> The greatest ranking differences were found for Washington, DC

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“This might not necessarily be **true**, however, in states with wide dispersion of income.

<sup>13</sup>This is particularly true for analyses where specific subpopulations are the relevant interest. For example, if the number of minority children living below poverty was the statistic of interest, use of the CPS might be more **highly suspect**, since there are a relatively small number of these children captured in the sample.

<sup>13</sup>

$$\text{Average Difference} = \frac{1}{51} \sum_{i=1}^{51} |NIPA \text{ Index Value} - CPS \text{ Index Value}|$$

**TABLE 4**

**Relative State Values for Alternative Measure of Fiscal Capacity and Need**

State	State NIPA Personal Income Per Capita Relative to National Per Capita Income 1988	State CPS Median Family Income Relative to National Median Family Income 1988-90 Averages	Representative Tax System Index Value 1988	Share of State Population that is Not Poor Relative to National 1988-90 Averages (%)	Share of State Population that is Not Poor Children Relative to National 1988-90 Averages (%)	Share of State Population that is Not Elderly Below 150% of Poverty (%) Relative to National 1988-90 Averages
Mississippi	0.68	0.66	0.65	0.85	0.93	0.98
West Virginia	0.72	0.79	0.78	0.95	0.99	0.96
Utah	0.73	1.07	0.78	1.06	1.01	1.01
Arkansas	0.75	0.77	0.74	0.92	0.97	0.97
North Dakota	0.75	0.69	0.86	1.00	1.00	1.00
Louisiana	0.76	0.75	0.83	0.87	0.94	0.98
New Mexico	0.76	0.79	0.83	0.91	0.97	1.00
South Dakota	0.77	0.83	0.78	0.9%	1.00	0.98
Montana	0.77	0.82	0.85	0.96	0.98	0.99
Idaho	0.77	0.84	0.76	1.01	1.00	0.99
Kentucky	0.78	0.83	0.81	0.95	1.00	0.97
Alabama	0.79	0.77	0.76	0.91	0.97	0.98
South Carolina	0.79	0.94	0.79	0.96	0.99	0.98
Oklahoma	0.81	0.67	0.89	0.97	0.99	0.99
Wyoming	0.84	1.04	1.23	1.02	1.01	1.01
Tennessee	0.85	0.82	0.64	0.94	0.98	0.98
North Carolina	0.86	0.91	0.91	0.98	1.00	0.96
Texas	0.88	0.92	0.56	0.95	0.97	1.00
Arizona	0.89	0.98	0.99	0.99	0.99	1.00
Iowa	0.89	0.90	0.83	1.03	1.01	0.99
Indiana	0.90	0.91	0.87	1.00	1.00	0.99
Oregon	0.90	0.97	0.91	1.02	1.01	1.00
Maine	0.91	0.94	0.98	1.01	1.01	0.99
Nebraska	0.91	0.95	0.90	1.02	1.01	0.99
Georgia	0.92	0.95	0.94	0.96	0.99	0.96
Wisconsin	0.93	1.05	0.90	1.06	1.02	0.99
Ohio	0.94	1.03	0.91	1.01	1.00	1.00
Vermont	0.94	1.01	1.05	1.05	1.02	1.00
Missouri	0.94	0.93	0.90	1.00	1.00	0.99
Kansas	0.96	0.97	0.91	1.03	1.01	1.00
Pennsylvania	0.98	1.04	0.94	1.03	1.01	0.99
Washington	0.99	1.06	0.98	1.05	1.02	1.02
Minnesota	0.99	1.03	1.04	1.01	0.99	1.00
Michigan	0.99	1.04	0.95	0.99	0.99	1.00
Florida	1.00	0.90	1.04	0.99	1.00	0.98
Colorado	1.00	0.90	1.07	1.00	0.99	0.90
Rhode Island	1.02	1.08	0.99	1.06	1.02	1.00
Hawaii	1.02	1.19	1.14	1.00	1.00	1.00
Nevada	1.03	0.97	1.35	1.04	1.01	1.01
Virginia	1.06	1.18	1.04	1.03	1.01	1.00
Delaware	1.07	1.06	1.24	1.05	1.02	0.99
Illinois	1.08	1.10	0.99	1.00	0.99	1.00
Alaska	1.12	1.21	1.59	0.99	0.99	1.01
California	1.12	1.05	1.16	1.00	0.99	1.01
New York	1.16	1.05	1.09	0.99	1.00	0.96
New Hampshire	1.17	1.30	1.26	1.08	1.03	1.00
Maryland	1.17	1.17	1.09	1.04	1.01	1.01
Massachusetts	1.24	1.19	1.29	1.05	1.02	1.00
Washington, DC	1.26	0.69	1.23	0.93	0.98	0.99
New Jersey	1.33	1.32	1.24	1.06	1.02	1.00
Connecticut	1.38	1.32	1.43	1.11	1.04	1.01

\* States with high percentages of poor individuals relative to other states will have index values less than 1.00. States with low percentages of poor people relative to other states will have index values above 1.00

and Utah. Under **NIPA** income, Utah's rank relative to the national average was **.73**; under CPS income its relative rank was 1.07. Utah went from being 27 percent below the national average on one measure to being 7 percent above the national average on the other. Washington, DC has a relative ranking of 1.26 under the **NIPA** measure, but only **.89** under the CPS measure. Relative state rankings under each **income measure are presented in Table 4.**

A second potential source for state per capita income data is the Internal Revenue Service. Though not publicly accessible, the IRS maintains annual data on income for all individuals in the U.S. who are subject to **taxation.**<sup>14</sup> Largely, these data are made up of estimates based upon a sample of all the year's tax returns. Perhaps some data, aggregated by state, could be made available for purposes of interstate resource comparisons. Currently, the release of the data in published form is quite slow. (For example, data from 1988, the most recent year, were published in September of 1991). For these data to be a workable resource for a matching formula, it would be necessary to gain access in a more timely fashion.

Personal income estimates based on samples of the IRS data should be quite reliable. The potentially larger **sample** size of IRS data would make its statistical accuracy greater than **that** of the CPS, while the detailed delineation of income sources give it the same advantage that the CPS has over the **NIPA** measure. IRS data would not, however, provide **information** on individuals below the tax threshold, making it unable to provide necessary information about those with low incomes. Supplementation of these data with other sources of information on the low income populations in each state would be necessary.

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<sup>14</sup>Some of **the** IRS data is published annually in "Individual Income Tax Returns: Returns **Filed**, Sources of Income, Exemptions, itemized Deductions, and Tax Computations". The data in these publications are national aggregates. The **NIPA** does incorporate some **IRS** aggregates in its measure.

Given the extent of the confidentiality concerns of the IRS, the raw **data** themselves would probably not be accessible to outside agencies. However, it might be possible to **obtain** some summary statistics of state income calculated by individuals within the IRS itself.

The Appropriateness of Using Personal Income as a Basis for the Formula. There are, however, questions about the advisability of using any measure of personal income per capita as a standard of state resources. No measure of personal income alone (either mean or median) is necessarily reflective of the state's ability to raise revenue. The measures do not reflect differences in total state revenue-raising ability nor do they adjust for the distribution of income in a state.

One alternative is to use a broader based measure of **tax** capacity. Tax capacity can be thought of as a measure of a state's ability to raise revenue under a pre-determined set of tax rules (Advisory Commission on Intergovernmental **Relations**, 1990). Tax capacity is a measure that is virtually independent of any tax **laws** or policies that are in force in any one particular state. One approach for measuring tax capacity averages all tax rates on all types of tax bases across all states in the nation. Alternatively, the measure could be a standard developed **apart** from all current practices. However uniform tax **rates** are developed, tax capacity is intended to be a method for comparing the **relative** levels of state taxable resources -- what a state is capable of raising.

Aside from income in the form of wages, salaries, etc., potential revenue bases include consumption, business income, property, and natural resources. Revenue from these taxes are often paid by individuals from outside the state, particularly in the case of states with **substantial** tourism and natural resources. Therefore, these bases will not be captured by limiting attention to resident personal income. An effective measure of relative **revenue-raising** ability would incorporate these sources. If average personal income were highly correlated with other sources

of tax revenue, then choosing the best personal income measure for use in the Medicaid formula would be an acceptable strategy. If the correlation is not very high, however, then a direct measure of each separate tax **base** would be more appropriate.

The second problem is that two states with equal mean personal incomes may have very different populations. The ability of a state with a small number of very wealthy individuals and a sizable number of very poor people to raise revenue is not likely to be as high as for a state with a population that is largely clustered around mean **income**.<sup>15</sup> Though these states both have the same average per capita income, they are clearly unequal in their ability to raise tax dollars for financing public programs. An additional problem is created by equally weighting adults and children in the **population**.<sup>16</sup> The private cost of supporting a child is less than that for supporting an adult. States with low per capita income measures tend to have large proportions of children in their populations, making these states appear relatively poorer than they are. States with disproportionate numbers of children, however, also have relatively greater needs for publicly supported educational systems, which can increase the state's relative public financing burden. These competing needs should explicitly be taken into account in some manner. Addressing these problems requires other adjustments, which will be discussed later.

There are a number of different approaches to capturing tax capacity.

Total State Product. An alternative to state average per capita income is a measure of the total product produced in each state. Gross state product (GSP) is the market value of all final goods and services involved in consumption, investment, and government activities less the value

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<sup>15</sup>Caution in making these judgements is called for, however. Given **the regressivity of many state tax systems**, it is **not always clear which income distributions result in greater revenue collection**.

<sup>16</sup>This issue was brought to our **attention** by Steven Gold.

of goods and services imported from outside the state. In general, GSP is approximated using the following components (Department of Treasury, 1985):

- Wages & Salaries
- Social Insurance
- Other Labor Income
- Proprietors' Income
- State Indirect Business Taxes
- Federal Indirect Business Taxes
- Corporate Income
- Positive Profits of State-Local Enterprises
- Positive profits of Federal Enterprises
- Capital Consumption

State product is also a flow concept, and its advantage over personal income is that it accounts for more of the tax revenue of states. Thus, it comes closer to capturing tax capacity. But as with personal income, total product measures alone also exclude important sources of state revenue.

Total product measures exclude the earnings of state residents who work out of state<sup>18</sup>; they exclude the earnings of individuals who live in the state but who own establishments located in other states<sup>18</sup>; and transfers to individuals from other governments are excluded.” Other missing resources include oil bonuses for leasing rights and profits of state owned financial assets. And although income to capital overlaps with the corporate income included in the

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“In general, states tax the income of all of their residents, regardless of the state in which they work. They do, however, tend to allow residents who work out of state to deduct the amount of taxes those individuals were required to pay to the state in which they are employed. For example, residents of New Jersey who work in New York City are required to pay a “commuter tax”. The amount of the commuter tax is credited to those individuals’ New Jersey state tax liabilities.

\*Complicating this issue is the inconsistent way that income from these sources is taxed. There is little control by states over the ways in which income from partnerships, s-corporations, and limited liability enterprises are treated under state tax law when partners reside in more than one state or when partners reside in a state other than the one where the business is located. The owners of these types of enterprises tend to allocate their tax payments in a substantially ad hoc manner.

<sup>18</sup>This too, is a difficult adjustment to make. Given that a portion of all federal transfer payments are financed by tax payments from individuals residing in that state, adding in total federal transfers would result in a double counting problem.

measure, it is not explicitly measured nor accurately accounted for. Consequently, total state product alone is inadequate.

Total Taxable Resources. Supporters of the use of “total taxable resources” in allocation decisions advocate using a measure of total state product, adding estimates of income received by state residents but produced elsewhere (**e.g.**, dividends received from stocks in nationwide corporations) and adding wages from commuting residents. But calculating such figures is not simple. Aside from the problems in calculating tax liability for multi-state business enterprises, corporate profits themselves are a substantial unknown in defining state product. This is because current corporate profit estimates are not broken down by state, but are estimated for the corporation as a whole. Since corporations generally cross over state lines, such estimates, based upon the location of corporate headquarters, are not helpful. And corporations pay state taxes in different manners since tax laws are not constant across **states**.<sup>20</sup>

Some theoretical approach needs to be defined in order to estimate this component. One potential method for doing so (which is used by **the** Bureau of Economic Analysis), is to assume that the profits for an industry are distributed in proportion to the wages and salaries paid (Department of Treasury, 1985). So if 20 percent of corporation Y’s wages and salaries are paid out to workers in Illinois, then 20 percent of their corporate profits would be allocated there as well.

Both gross state product and total taxable resources, however, have some of the same disadvantages as the per capita personal income measures. All dollars are perceived as being equivalent in terms of their potential for revenue raising capacity. These measures do not

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<sup>20</sup>Many states use 3-factor rules for corporate taxation, based upon the percentages of payroll, property, and sales within the state. However, in an effort to attract more employment to their states, some state governments have opted for tax assessments based on formulas weighting **sales** more heavily than **the other components**. Some have adopted formulas based exclusively upon sales. **Such** formulas favor **firms** that locate in the state but have substantial sales in other states.

differentiate in **terms** of taxability and exportability?' Some types of income are **more** difficult to **define**, making them more difficult to tax. Additionally, it is generally easier politically for state A to tax income from residents of other states who have some economic connection with state A than it is for state A **to tax the income** of its own residents. In addition, a substantial tourism industry in state A (and the consequent ability to tax residents from other states on tourism-related consumption) implies a tax base that may be unavailable to a **state** without much tourism. In this way we can see that tax exportability can be a relevant issue for both tax capacity and tax effort

The Representative Tax System. The Advisory Commission on Intergovernmental Relations developed the concept of a representative tax system (RTS) in the early 1960s. **The** purpose of RTS is to maintain **an** index of the relative revenue raising abilities of states under a standard tax system (Advisory Commission on Intergovernmental Relations, 1990). In other words, if all state and local governments were compelled to institute a uniform tax system, RTS would measure the relative amount of **tax** revenue that each state could raise. The intent of the RTS is to measure the underlying economic differences between states that affect their relative abilities to finance public programs.

The advantage of using the RTS is that it removes the bias of existing policy from the relative measurement. **If** a state chooses not to impose an income tax, for example, that choice does not affect its ranking in the RTS. States are judged by their ability to raise revenue from their specific population and resources under an average tax system. ~~the~~ not the case, states choosing not to raise much revenue might be rewarded by higher federal contributions.

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<sup>21</sup>**There are two ways in which states can "export" their tax burdens. First, they can tax resources associated in some way with individuals from other states. One example is a steep hotel tax imposed in states with a large tourism industry. Taxing the use of natural resources is another example. The second way taxes are exported is by state imposition of taxes, e.g., personal income, that are deductible from federal income taxes. Reliance on deductible taxes effectively shifts a percentage of the state burden to the country as a whole.**

RTS does, however, take into account issues of **differential** taxability. If resources used by non-residents (such as hotel use) are more “taxable”, we would expect to see high average tax rates on these exportable tax bases. If one state has little tourism, they will be unable to reap the substantial revenues associated with the national average hotel tax imposition. This will be reflected in their overall tax capacity as measured by RTS.

The RTS also allows sensitivity to **specific** details in tax policy. For example, the measure of personal income in a state subject to tax is the basis for representative income tax estimates. So income earned by individuals living below the poverty level could be excluded from state income since these resources are, in general, not taxable. Such adjustments can be used to take into account distributional differences in income between states. For example, assume that state X and state Y have the same average per capita income. However, state X has large numbers of poor families and a small number of **very** wealthy families, whereas state Y has a large cluster of individuals around mean income. The income of poor families could be excluded (or weighted lower relative to the income of other families) from the measure of personal income used in the RTS. When uniform tax rates are applied to each state’s personal income, the RTS would reflect that state X and state Y do not in fact have the same tax capacities. The distribution of income within states is taken into account.

Another advantage of the RTS is that it is designed to reflect the full spectrum of revenue sources within a state. It is a much **more** comprehensive measure of tax capacity than personal income or state product.

There are however, disadvantages to the RTS. One is that the methodology does not account for the fact that the tax rate for a given tax will have an effect on the base for that tax. For example, increasing a tax on income will likely reduce work effort to some degree. **The** revenue raised by the tax increase will therefore not be as great as the revenue calculated **from**

n applying the tax increase to the existing income base. Complex ~~elasticities~~<sup>22</sup> would have to be estimated in order to take such effects into account. In general, it is not feasible to expect to do so accurately. This omission is only relevant to the extent that resources with significantly greater (or **smaller**) elasticities are present disproportionately across states.

**Representative Revenue System.** An alternative measure also estimated by ACIR, the Representative Revenue System (RRS), in addition to the RTS components, includes three **non-**tax revenue raising bases that are not included in the RTS: state lotteries, user fees, and rents and royalties from state owned enterprises. In this way, revenue that is not typically considered to be part of general revenues can be either included in or excluded from analysis.

**ACIR's** method for developing an **RTS/RRS** is as follows:

1. The ACIR determines the level of tax or revenue bases in each state for each of the RTS' 27 bases and RRS' 3 additional bases.
2. They then calculate national average tax rate for each base by dividing total national revenues by the total national base for each tax and revenue source.
3. They then apply the national average tax rate for each base to the appropriate tax or revenue base for each state.
4. They then sum the hypothetical yields of all bases by state and then add all hypothetical state yields to obtain national capacity.
5. They then divide each state's (and the nation's) capacity by the population in each state and the nation.
6. Each state's Tax Capacity is calculated by dividing each state's capacity per capita by the nation's capacity per capita and multiply by 100. An index of 100 corresponds to the national average.
7. Each state's Tax Effort index is calculated by dividing each state's collections per capita by its capacity per capita and multiply by 100. An index of 100 corresponds to the national average.

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<sup>22</sup>The changes in **demand** or supply of certain goods (for example labor) in response to **changes** in the tax rates on those and/or other goods.

**ACIR** currently estimates state fiscal capacity and effort every two years. Figures for 1990 (and possibly some for 1991 as well) will be available in the fall of this year. The 1988 relative state rankings by **fiscal** capacity (the most recent year available) are shown in Table 4.

The mean difference in relative state rankings between the **NIPA** income measure and the RTS measure is 7.2 percent (calculated as the average of the absolute differences in rankings between **NIPA** and RTS). Nine states had the relative rankings that deviated by less than 2 percent. Alaska's RTS value was 59 percent above the mean, however, while its **NIPA** measure was only 12 percent above the national mean. Wyoming's relative status also differed greatly between the two measures -- under **NIPA** it is 16 percent below the national average and under RTS it is 23 percent above the national average. Consequently, a move to the more comprehensive RTS method of measuring state ability to pay would result in quite different relative allocations of federal Medicaid funding than does the current **system**.<sup>23</sup>

**Barro** (1986) provides a detailed critique of the RTS measure of **fiscal** capacity. He makes several suggestions for improvements in the measure. Such adjustments should be considered carefully for incorporation into the matching formula. First, he recommends using the RRS as opposed to the RTS. Given the more comprehensive scope of the RRS, such a strategy seems clearly preferable. Next, Barro suggests that the tax bases for general sales, selective sales, most license taxes, **and** the residential property tax base be removed from the index and that their weights be added to the weight on the personal income base. The rationale for such a move is that these tax bases are less reflective of fiscal capacity than they are of the particular patterns of resource use within a state. For example, if residents of a state spend a greater

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<sup>23</sup>**Stephen Barro** (U.S. Department of Treasury, 1985) developed another fiscal capacity measure called export-adjusted income. **This** measure focuses on relative state tax exportability. **The** key variable in the measure, the extent of exported revenue possible given a standard tax burden on personal income, is not practically measurable. Consequently, we do not discuss **this method** in detail here.

proportion of their income on taxable goods such as housing or retail goods than residents of other states do, this will increase their relative fiscal capacity under **RTS/RRS**. **Fiscal** capacity should not be impacted by consumption choices. Therefore, Barro suggests that these distortionary bases be eliminated.

Barro also recommends adding 4 items that would make the **RTS/RRS** income variable a more comprehensive measure, and making 3 adjustments that more closely reflect the **fiscal** capacity concept:

1. Including an estimate of the non-dividend corporate income attributable to each state's residents (dividend income is already included in the income measure);
2. Including a "gross-up" adjustment for indirect business taxes (i.e., make an adjustment to approximate the pm- state and local tax value of corporate income attributable to state residents);
3. Adding estimates of income in-kind and imputed income which are not already included in the personal income measure;
4. Adding estimates of unrealized gains on assets;
5. Adjust income to reflect post federal tax income;
6. Adjust the income measure to reflect income prior to state and local transfer payments to individuals; and
7. Use an economic rather **than an** accounting method of depreciation.

Of these recommendations, 1, 2, 5, and 6 **are** readily implementable, and these are the only suggestions **Barro** discusses in detail. Corporate income could be entered into an **RTS/RRS** index as either a separate tax base (for a corporate income tax) or it could be incorporated into the personal income base. Given that this income is a taxable resource that varies across states, it is important that it be included in the index in some way. Although data on the actual undistributed **after-tax** earnings on corporate stock owned by state residents is not available, **Barro** suggests that these earnings be assumed to be distributed across states in the same proportions as are the

dividends received by state residents. Though imperfect, such an adjustment should reasonably approximate the distribution.

Further adjustment of the corporate income measure is necessary, however, since it is measured net of state and local indirect business taxes. To be consistent with the concept of fiscal capacity, corporate income should be measured after federal taxes but before state and local taxes. In this way, the income measure would not reflect any fiscal decisions made by states. Increasing the corporate income measure in this way is known as “grossing up.” Severance taxes are not included in this adjustment since a high proportion of them are exported to residents of other states.

Adjustments 5 and 6 are general income measure adjustments that make the income base of the **RTS/RRS** more reflective of **actual fiscal** capacity. States cannot tax away dollars that are owed to the federal government, so after federal tax income is a more accurate reflection of resources available to states. Also, fiscal capacity of states should be assessed prior to any spending decisions being made, such as the amount state or local governments will pay out in transfers to individuals. These data are available from the Bureau of Economic Analysis, making the adjustments quite straight forward.

**Barro** also suggests that an adjustment to the index be made that takes into account the exportation of state taxes through the federal tax deductibility of state and local taxes. This is also a **feasible** adjustment to make. This adjustment can be made by applying the factor  $1/(1-E_i)$  to each of a state's tax bases.  $E_i$  is equal to the percentage of state and local taxes shifted to out of state taxpayers via the allowance of deductibility on tax base  $i$ . Because of a lack of data on offset rates by specific tax, **Barro** used an overall federal-offset correction for each state.

He further recommends that severance taxes be examined from the perspective of fiscal optimization. Severance taxes are highly exportable. For this reason, one would expect that state

governments would exploit this source of revenue to the extent possible. This interpretation is unlike that of taxes that tend to fall most heavily on state residents -- in that case, residents' tastes for public programs and taxation of their own resources are a factor in making tax rate decisions. In the severance tax case, **Barro** purports that differences in tax rates are **reflective** of the abilities of state governments to tax these resources. So Alaska's high rate of oil tax **reflects** the optimal tax **rate** on that resource, whereas the low rate of tax on oil in **California** is reflective of the lower tax export potential in that **state**. Therefore, **Barro** supports using the actual state severance tax rates as opposed to the national average rate which is used in conjunction with the other tax bases.

Barro simulates the effects of these changes (**1986**), and discusses the impact of each of his suggested adjustments. All are implementable with currently available data and his adjusted index could be calculated annually. Although **ACIR** does not calculate the RTS annually at this time, this is most likely a result of budgetary decisions and the fact that no programs rely upon it for allocation decisions.

### **Cost of Living Adjustment (COLA) and Adjustment for Costs of Health Care**

Regardless of the measure of wealth that is chosen for use in the formula, two issues will be important to address. The **first** is an adjustment for inter-state differences in the cost of living. The second is an adjustment for differences across states in the cost of delivering health care.

In the absence of an adjustment for cost of **living** differences, two states with equal average income and different costs of living are treated in the same manner. This results in a relative disadvantage to high cost states. If high absolute income levels in state X are merely a reflection of high relative living costs, then that state should not necessarily be considered wealthier than other states since state X's purchasing power might be relatively low.

Calculations without a COLA penalize high cost of living states by reducing their relative amount of federal matching funds.

Similarly, a health-specific cost adjustor for states could be used to account for differences in the basic costs of providing health care services under Medicaid. **States** with unusually high costs of providing care may be at a disadvantage relative to other states with equivalent per capita needs, but effectively lower costs of meeting such needs. The problem is exacerbated for states with both high costs of living and high health care costs. Adjusting for differences in cost of living puts fiscal capacity measures in real terms; it does not reflect the fact that some states then have to pay more for Medicaid services due to medical care which are prices beyond the control of the program.

Unfortunately, there is a lack of good interstate cost of living indices--either in aggregate or for health care alone. The Bureau of Labor Statistics (BLS) produced an annual index for major metropolitan areas until it was discontinued by the **Administration** in 1981. The American Chamber of Commerce Researcher's Association collects quarterly price data for certain products in various urban areas. However, neither the cities nor the products are necessarily consistent across quarters of a year. Areas are included in the survey based upon the willingness of local Chambers of Commerce to participate. In addition, this index reflects cost differentials for a "midmanagement" standard of living. It is not necessarily reflective of average standards of living. Also, the sampling procedure within a participating area is not based on statistical sampling methods, but instead relies upon the volunteers' judgement, making the sample's accuracy somewhat suspect. If cost of living adjustments were believed to be sufficiently **important**, a serious investment in the development of a good index would be necessary.

Leonard (1992) constructed a state cost of living index which draws upon both the 1981 Bureau of Labor Statistics' index and the annual consumer price index for all urban consumers,

also published by BLS. He calculates a 1981 index value for each state using available MSA index values and regional index values, weighting each by share of population. For example, in 1981, BLS published a cost of living index value of 97 for the Minneapolis-St. Paul MSA, 100.22 for the North Central metropolitan areas, and 93 for the North Central non-metropolitan areas. Since 54.5 percent of Minnesota's residents **live** in the Minneapolis-St. Paul MSA, 12.3 percent live in **MSAs** for which no specific data were available, and 33.2 percent of the state's population live in nonmetropolitan **areas**, the Minnesota index would be equal to:

$$.545*(97) + .123*(100.22) + .332*(93) = 96.01$$

To get a 1989 cost of living index value, he then uses the state's CPI value in 1989 relative to that in 1981 to adjust the weighted cost of living index. Such a technique holds some promise in the absence of investment in a new **interstate/intercity** cost of living index. However, the development of an up-to-date, accurate cost of living adjustment index is highly preferable, given the amount of money at stake. Researchers in a multitude of fields are hampered by the absence of such an index, and it is likely that collective pressure for such an investment could be rallied and justified by the wide breadth of its applicability and usefulness.

There are also serious conceptual questions involved in developing cross sectional cost of living indices. First, market baskets differ across areas. How much should a cost of living index rely upon a **fixed** market basket (a Laspeyres' index), varying market baskets (a Paasche index), or a blend? Second, do cost of living indices "overadjust" because individuals often choose to live in high cost of living areas because of the "amenities" available there? Finally, if it is appropriate to adjust the Medicaid matching formula, why not adjust the entire structure of government entitlement programs, the federal tax system, and other matching grant programs? The use of cost of living adjustments in one program could raise a complex debate over the fairness of adjusting a wide range of programs.

In addition, these same relative pricing problems are faced when developing a specific health care price adjustor. It is arguable that states should not be held accountable for differences in per capita health care spending that are the result of practice pattern differences. But it seems **clearer** that states should not be penalized for input price differences over which they have no control. There are some measures now in use for modifying payments under the Medicare hospital prospective payment system and the Medicare fee schedule that might be used or at least serve as a basis for such a health care specific adjustor.

Physician fees under the new Medicare Fee Schedule are adjusted by the Geographic Practice Cost Index (GPCI) developed by the Urban Institute and the Center for Health Economics Research (Welch, Zuckerman, and Pope, 1989). The GPCI measures variation in the prices of physicians' practice inputs: employees, office rents, and malpractice insurance. In addition, there is partial adjustment for differences in physicians' own costs of living. Physicians' cost of living differences are approximated by differences in the median hourly earnings of professional workers. An index reflecting the full variation in these costs could also be derived. The GPCI is available for each Medicare pricing locality, but could be computed by state or MSA. Payments made through Medicare's Prospective Payment System for hospitals are adjusted by an MSA-level index of average hourly hospital wages.

### Measurement of Need

Thus far, we have only discussed issues related to the ability of states to finance the Medicaid program and have not considered needs that arise from either extraordinary demands for covered health services in a given state, or from other claims on state revenues. In practice, these other needs might restrict a **state's** ability to fund **an** adequate Medicaid program.

Measures that Capture Health Care Needs. The formula for the Medicaid match might also focus on factors that increase the need for health care services in the state. That is, the

ability to support a health care program depends on **ability** to raise revenues **and** on the demands put on a public program. This section turns to measures that **reflect** the increased levels of demand due to **extraordinary health** care needs.

In practice, measures of **ability** to pay and **special** demands are not totally separate. **States with** high levels of **overall** resources for financing Medicaid are **also likely** to have lower levels of need. But there are important exceptions. The measures discussed above, which concentrate on averages, are **better indicators of revenue-raising ability than health care needs**. For example, if a state has mean income at about the national average, but an **unusually** large number of poor persons eligible for services, it may be placed at a disadvantage in **terms** of its federal matching rate compared to a state with comparable average income but lower rates of poverty. Thus, it may be appropriate to include further recognition of the distribution of poverty, the age distribution, and the prevalence of persons with disabilities and/or specific morbidities in the formula to capture the variability of health care needs.

However, **as** an open-ended entitlement, the Medicaid program implicitly builds on recognition of these differences. States may increase the **size** of their program if they wish. This flexibility has led some to argue that it is therefore **unnecessary** to adjust the matching formula further to incorporate special needs. This argument can be countered, though, by noting that some high need states appear unable to **finance** even the state portion of a larger program.

A number of different indicators are possible to capture states' needs for larger programs. As discussed above, improvements in the measure of ability to **pay** move us partially in that direction. For example, exempting income from those who do not pay tax in a state (as can be done with the **RTS/RRS** measures) implicitly adjusts the formula somewhat for the distribution of individuals with low income across states. But, other more direct adjustment factors might be added to the formula. Poverty rates are more obvious and specific measures; they are linked

directly to some of the eligibility **criteria** for participation in Medicaid. Recognizing differences in the size of specific high cost, Medicaid eligible populations, such as the elderly poor, teenage parents, and those infected with the HIV virus is another way of identifying need more directly.

**Poverty measures.** As a program targeted to low income persons, Medicaid is naturally sensitive to the level of poverty in a particular state. States with both few overall resources and a disproportionate number of poor individuals often do not have large Medicaid programs, however. They may not be able to afford to offer services to all potential eligibles under the broader, more generous programs found in wealthier states.

Historically, this lack of a link between poverty and the size of the Medicaid program has occurred because states were free to set their eligibility levels for AFDC and, hence, to strongly influence the number of young families eligible for Medicaid as well. States with a high proportion of poor individuals often have AFDC programs with eligibility cutoffs well below the **poverty** line. Further, states have some options regarding what health benefits to provide, and poor states can decide to limit optional services under the program.

Over time, however, the links between poverty and the size of Medicaid spending in a state are becoming stronger because of the mandates for covering children that are now directly tied to poverty. For example, all states must cover children up to age 8 who live in families with incomes below poverty. The Qualified Medicare Beneficiary program also links eligibility to the poverty guidelines. Coverage for long term care has similarly been expanded. As the number and level of these mandates increase over time, the number of eligibles grows rapidly-- particularly in states with high numbers of poor persons, but with historically low Medicaid spending. Further, more and more services have been made mandatory for these newly eligible groups.

Consequently, it is **particularly** timely to consider whether **rates** of poverty ought to be part of the **formula**. And if we decide poverty is a relevant indicator of need, perhaps rates specific to children and/or the elderly might be particularly important, **There are two standard definitions of poverty, each used in different** circumstances. And while the numbers **are** similar, they do give somewhat different results. The poverty **thresholds, measured by the Bureau of the Census**, are used to calculate annual statistics on poverty, which are released retrospectively in August or September of each year. The August 1992 release will indicate poverty levels for 1991. A second measure, the poverty guidelines, are prospectively set and used for policy purposes. These are established each year by the Office of Management and Budget and **are** the guidelines used for Medicaid in determining eligibility tied to poverty. The information included in this section uses the OMB guideline numbers. They differ somewhat from the Census numbers; in particular, they do not distinguish families or individuals by age, and the OMB guidelines **are** a bit higher than comparable Census numbers. For 1992, the poverty guidelines by household size (for all states except Alaska and Hawaii) are:

<u>Size of family unit</u>	<u>Poverty guideline</u>
1	\$ 6,810
2	9,190
3	11,570
4	13,950
5	16,330
6	18,710
7	21,090
8	23,470

At this time, poverty guidelines are **not** adjusted for interstate cost of living differences. For much the same reasons as presented in the previous section on **COLAs** for tax capacity measures, poverty guidelines should be cost of living adjusted as well. Two individuals in different states might have equal purchasing power but unequal incomes. If the general price

level in state A is higher than that in state B, individuals in state A might be considered poor, but they would be considered above poverty in state B in real terms. This is because the amount of income it takes to subsist in state A is higher than the income necessary to survive in state B.

It should be noted that the official poverty measures presented here have been the subject of great controversy over the years since their development. These criticisms have been based both in the conceptual framework of the index and in the absence of certain technical adjustments that researchers deem appropriate (Ruggles, 1990). One specific criticism that is particularly appropriate to mention here is that the guidelines do not adequately adjust for differences in household size. Before the **current** poverty guidelines are incorporated into any **grant** formula,, this and other criticisms of its appropriateness should be **fully** explored and addressed.

Table 4 **also** compares the states by shares of their populations **not** in poverty (poverty **as** currently defined: without cost of living adjustments) relative to the national rate, and by the personal income measure used to set the current matching rates. The indices are presented as the share of the population that is non-poor so that **a** low score is indicative of a state that is worse off than **a** state with a high index value -- this way it is comparable with the income and RTS indices. Mississippi has the smallest non-poor population share (the highest **rate** of poverty) and has the lowest relative personal income **as** well. And in general, states with low per capita income have high rates of poverty. But beyond that, there is not always a close relationship between the relative rankings resulting from these two measures. For **example**, Alaska, California, New York and the District of Columbia have relatively high levels of per capita income but above average or average poverty rates. In fact, the District of Columbia has the sixth largest share of its population in poverty, while it qualifies for only **a** 50 percent federal matching rate on the basis of its per **capita** income. On the other hand, **Utah** has relatively low

per capita income but a relatively low rate of **poverty as well**. Income is **more** quality distributed across individuals in Utah than in the average state.

Particularly because two of the most populous states, California and New York, differ so greatly by these two measures, a recasting of the formula to include poverty **rates** in addition to some measure of income would have a large impact. The poverty **measures** could also be further **disaggregated** to capture different population groups. Some states may have relatively low overall poverty rates, but a relatively high proportion of elderly poor. Moreover, since many of the benefits to the elderly are for long term care services and may aid persons above the poverty level but who spend down to eligibility, an expanded **formula** might, for example, include a measure of the population of elderly below 150 percent of poverty instead.

To illustrate the difference that such measures might make, Table 4 **lists** two sets of subpopulation relative measures of poverty: one that reflects children under 100 percent of poverty as a share of the total population, and the other reflects the number of elderly under 150 percent of poverty as a share of the total population. Again, these measures are presented as the share of the total population not including these specific subpopulations in order that the indices be comparable with the income and RTS indices. These measures are affected not only by the proportion of a population group in poverty, but also by the importance of that group as a part of the overall population. For example, a state like Florida might rank as a “needy” state using this second measure just because the share of elderly in its population is so large.

It is interesting that there is so little overlap between relative rankings of states by poor children and near poor elderly. Of the ten states with the highest percentages of low income persons under each measure, only four states would appear on both lists: Arkansas, Mississippi, Alabama and Tennessee. Three **other states are nearly in the top ten of both lists. But then, the** remaining non-overlapping states spread out considerably. For example, the share of Texas’

population that is comprised of poor children is 3 percent above the national average, yet Texas is average when measuring the share of the population comprised of low income elderly. A similar lack of overlap exists for those **states** with the lowest numbers of children and elderly in poverty or with low incomes. Connecticut, Vermont and Washington are the only states which rank in the bottom ten states by both measures.

If Medicaid is expanded to cover more programs for children relative to the elderly or vice versa, a formula that captured only the overall poverty rate might not appropriately reflect differences in needs engendered by such policies. Thus, if poverty is used as an adjustment factor to the formulas, it will be important to make certain that the specific measure used is correlated carefully to the Medicaid population served. Thus, the two sets of proportions in Table 4 could be added together. for example, to come up with an indicator sensitive to different levels of eligibility for Medicaid. Or, a weighted average of the two poverty measures could be used.

Specific **health care needs**. In addition to unusually high numbers of poor persons eligible for Medicaid, a state might contain a disproportionate share of persons with health care problems that demand extraordinary expenditures through the Medicaid program. Perhaps the most dramatic example is the numbers of AIDS patients in a state. Since such patients may need very high levels of health care resources, they may tax the Medicaid program substantially. This only creates a problem for the matching formula to the extent that burdens are unequally distributed across the states. In that case, what may be adequate resources to fund a Medicaid program in one state with the same overall income and rate of poverty would not be adequate elsewhere.

A number of health conditions might fall into this category. High rates of crime--and the resulting trauma cases that violent crime creates--have **been** shown to place unusual burdens on

emergency and other facilities. Drug abuse is also expensive to treat—both on its own and through other complications such as drug-affected babies and health problems such as tuberculosis that go hand in hand with high rates of **illegal** drug use. Low birthweight babies -- born disproportionately to young, poor mothers -- can be very expensive to treat and may substantially increase the costs of supplying **health care** to the AFDC population. States **with** large immigrant populations might also face unusually challenging health care needs if that population brings with it diseases often found elsewhere in the world.

These problems have sometimes been addressed in separate programs, over and above whatever Medicaid provides. For example, special programs for women and infants **try** to take on some of the problems that come with high levels of teen pregnancy. But, often the program of last resort, Medicaid absorbs many of these health care problems.

An expanded formula thus might include an additional factor for extraordinary **health** care problems. The difficulty is to determine whether there are a few key measures of prevalence or incidence that could be used. More likely, there would be many different unique situations that are not amenable to a neat formula. The answer is **not** to use per case spending as a summary measure since higher spending can result from many factors, such as payment levels or the generosity of the program. These factors are under the control of the states and thus could lead to gaming of the system. To effectively incorporate factors beyond the control of the states, it would be necessary to develop a measure that is independent of other determinants of health care spending, but one that could be generalized to incorporate multiple problem areas.

**Representative Expenditures** as an Indicator of Other Public Demands. States with unusually high liability for services in other areas may also have more difficulty in providing needed Medicaid services. If there are other competing demands on the public sector, even high

tax capacity or effort may not yield a large Medicaid program. A measure that seeks to capture such demands might also be appropriate to include in the formula.

The **ACIR** has recently developed a Representative Expenditure measure to examine variations in public service needs across states (**ACIR 1990b**). This new measure considers the legal requirements that states face in providing services, the prices of inputs used to produce public services, and other factors that determine the scope of services provided, such as miles of highways to be maintained and traffic flow. Expenditure categories are divided into 7 groups:

1. Elementary and secondary education
2. Higher education
3. Public welfare (includes Medicaid)
4. Health and **hospitals**<sup>24</sup>
5. Highways
6. Police and corrections
7. **All** other direct general expenditures.

The representative expenditure measure could be used in several ways. First, the health measure could be used as an alternative indicator of special health care needs as described above. But it is not particularly more sophisticated than the adjustments already discussed. Second, it could be used to identify states with other demands on resources that effectively lower the tax capacity that can be devoted to Medicaid. But care is necessary to ensure that such a measure does not capture behavioral decisions made by the state on the appropriate levels of expenditures and on policies that mandate certain types of services. If we wish to recognize unusual demands of other types, we should focus on factors not under the control of states and carefully assess this type of measure in that context. One example of an objective measure of non-health needs is the level of crime in a state relative to the national average. Another would be the percentage of the

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<sup>24</sup>In the health area, one of the components is the **proportion** of the population under 150 percent of the poverty threshold. In addition, the health measure examines the proportion of persons with work disabilities and the overall state population.

population which is of school age. The measure used must avoid institutionalizing existing patterns of spending and providing incentives to states to game the system.

The Representative Expenditure measure shows a great deal of promise, but needs a significant amount of refinement. The Medicaid component, for example, does not take into account differences in the age distributions **from** state to state. Also, the cost of living adjustment issue arises in this context as well. The current calculation only adjusts for differences in the cost of labor, whereas a more comprehensive adjustment is called for. Given that the ability to raise revenue for a specific program is substantially affected by the overall responsibilities and obligations of the state, such a measure is worth further development and investment.

#### CYCLICAL FLUCTUATIONS AND RESPONSIVENESS OF **THE** FORMULA

Medicaid matching rates are currently based upon a three-year average of state per capita income that stretches back as far as four years in time. This characteristic ensures stability in the matching rates over time. This was a deliberate policy, intended to allow states to plan their expenditures. But while such consistency is beneficial in certain respects, it results in a system which is unable to offset state revenue shortfalls during difficult economic times. It also leads to unnecessary federal funding increases during subsequent economic upturns, as the lagged formula recognizes the past recession.

Economic changes can differentially affect **states** and regions across the country. The impacts of a recession, for example, can lead to larger numbers of Medicaid eligibles, and more generally, adversely affect a state's ability to raise tax revenue. In such a situation, states often make temporary, but dramatic adjustments to reduce their spending on Medicaid that may not be

desirable for the health of the eligible **population** or the long run stability of the program (Cohen, 1987; Holahan, Bell, and Adler, 1987).

**All** state financed programs could be considered at risk during recessionary times. What is the justification for adjusting Medicaid financing for cyclical fluctuations? It seems clear that the federal government is less than effective at stabilizing regional economic conditions. Though some variations in standards of living **are** unavoidable, some would assert that fluctuations or gaps in insurance status are especially undesirable. Certain changes in discretionary spending might be considered less troublesome than leaving individuals and/or providers open to potentially substantial increases in medical **care** cost liability because a state had to cut back its Medicaid coverage. This is not to negate the possible need for a similar “cyclical safety net” for beneficiaries of AFDC or housing subsidies, for example. It is just to say that short term gaps in insurance coverage can have rather significant financial ramifications for individuals and providers, and can have medical ramifications for individuals as well.

The advantage of creating an automatic adjustment would be to allow states to anticipate the additional federal revenues that might be available and make plans accordingly. Ad hoc adjustments requiring legislation are often implemented after the fiscal emergency is past, and thus might not prevent undesirable disruptions in the Medicaid program. Moreover, if the trigger for some type of further aid were to be calculated on a state by state basis, it might operate more smoothly if it were part of the system and set in place as a formula. rather than requiring a political debate that pitted states against each other.

Adjustments for short term economic changes could be made either to the formula, or as an additional contribution outside the formal matching calculation. One alternative outside the regular formula might be to generate an additional federal payment in a particular state, **triggered** when one or more indicators reached a threshold, and requiring no state match. In this way,

payments to a state could rise even if its own **contributions** were held constant or only rose slowly during a period of financial pressure. Funding for these additional payments might come from a trust fund established by small annual contributions from the federal government--perhaps with a state match--that would be made in years when the trigger is not met. This approach would operate outside the formula for the federal match for normal Medicaid program financing, and only operate as a supplement to that funding during periods of economic recession in the states.

Whatever adjustment of this type were chosen, it would require tracking of quarterly indicators of the state economic climate. One of the most accessible indicators of this type is the unemployment rate. Unemployment figures **are** obtained monthly and hence would be a timely indicator of a state's economic condition. Indeed, rates of unemployment tend to rise before tax revenues fall, although they are still a lagged indicator of economic changes. They are already part of the federal data collection system and readily **available**.

Unemployment rates are, however, an indirect measure of ability to pay and need. The unemployment rates signal the loss of jobs in a state which then translate into lower incomes and hence lower tax revenues. They may also lead to higher eligibility for public programs. But the ultimate impact on both ability to pay and higher demands for services will depend on where the unemployment occurs and how long it lasts. For example, a downturn in jobs in the high technology sector of a state may affect mainly white collar workers who will not become eligible for Medicaid, or it might affect relatively high earning workers who are able to purchase continuation of their employer's health insurance through the COBRA legislation. Alternatively, **a** very sluggish economy in which workers have their hours cut back or pay limited may not be reflected in higher unemployment rates, even though the state faces a much lower ability to raise revenues.

As a practical matter, these are probably not serious problems with this **approach, at least relative to the** consequences of making no adjustments at all. A more serious problem may be that unemployment rates in some states are high because of long-term **structural** unemployment. The effects of high long-term unemployment rates would be reflected in our measures of personal income or tax capacity. Thus, it **would be inappropriate to make an** additional adjustment for an unemployment rate or a change in unemployment rate that exceeds a national threshold. Some method of compensating the state for the fiscal consequences of short-term cyclical unemployment, but not for those related to structural unemployment, would be necessary for this approach to work effectively.

Another alternative would be to base matching formulas on forecasts of state per capita income. Forecasts could be made by the Federal Reserve or private-sector econometric models. Using forecasted per capita income estimates would make matching rates reflective of the state's current economic circumstances. Retroactive adjustments would be made after the fact, to the extent that the estimates differed from actual income. A **difficulty** with this approach is that it would rely on a forecast of state per capita income relative to national per capita income. To the extent that a recession is widespread throughout the national economy, all states could suffer adverse fiscal effects. The result, at the extreme, would be that none would be compensated for the cyclical decline in incomes because no state's position fell relative to the national average.

Another approach would be to adjust the federal matching rate, using the formula shown below.

$$\text{Recession Adjusted FMAP} = a \left( \frac{(Y_i^{FE})}{(Y_i)} \right) \left( \begin{matrix} \text{standard} \\ \text{FMAP} \end{matrix} \right)$$

‘The idea is that a forecast of full-employment income ( $Y_i^{FE}$ ) relative to a **forecast** of expected per capita income  $Y_i$  would be made for each state. An  $a$  equal to some factor between 0 and 1 would be used to translate this ratio into an adjustment to the federal matching rate. For example, if  $a$  was equal to 1.0 and a state’s per capita income at full employment was 10 percent above the expected state per capita income because of a recession, the matching rate would be adjusted upwards by 10 percent. Thus, a state with a matching rate of **.63** would receive a matching rate of **.695** during the recession. Recessions could be required to exceed a specific magnitude before the adjustment would be come effective. Again, even this adjustment has the problem of failing to distinguish between cyclical and structural economic declines. Using changes in rather than levels of unemployment might address this to some extent, however. In addition. employment relative to a constructed full employment level may not be intuitively appealing or meaningful to policymakers.

#### IMPLICATIONS OF “CREATIVE FINANCING” FOR THE MATCHING FORMULA

While in theory, the formula described in the introduction of this paper determines each state’s share of its Medicaid program, in practice, states have implicitly increased their federal matching shares through several manipulations of coverage definitions and financing schemes. For example, in recent years. states have shifted programs onto Medicaid that were previously funded by state-only programs. Shifts have occurred particularly in the areas of mental health, maternal and child health, care for the developmentally disabled, and home health care. While

this does not alter the match itself, it effectively raises the federal share of spending burdens since the state was fully funding the programs prior to the change.

More recently, states have become creative in their financing of the program; relying on donations, provider taxes, and disproportionate share payments. Provider taxes and donations work essentially as follows. Hospitals or other providers make donations (or pay taxes) to the state. The state then increases the hospital's (or other provider's) reimbursement rates, and in the process, collects federal matching contributions on the higher expenditure. The provider receives payments that are sufficient to cover their usual Medicaid reimbursements plus the amount of the tax or donation. The state usually expends less of general revenues than it had previously, while the federal government expends more.

In addition, the state can increase reimbursement rates above Medicare's payment rates by making disproportionate share payments to hospitals. These supplemental payments are ostensibly paid to allow hospitals serving disproportionate numbers of the poor to finance previously uncompensated care and to make up for traditionally low reimbursement rates. States can thus use disproportionate share payments to provide financial relief to hospitals and to provide care to indigents. In the same way as described above, some states (Louisiana is one example) have financed generous disproportionate share payments using provider taxes and donations.

These approaches lower the amount of resources needed from state general revenues to finance a given level of Medicaid spending and, in effect, raise the state's federal match. Specifically, a higher federal match results when states use these mechanisms as pass-throughs in which the same providers who supply the revenues receive the benefits of the federal match. A Congressional Research Service study in 1991 indicates that, while not all states used such techniques as of that year, others relied on provider taxes and donations for as much as 48

percent of the state spending share. According to estimates by Steven Gold (1993), approximately 48 percent of state tax increases in 1992 were attributable to provider taxes.

In response to the role of provider tax and donation policies in the rapid growth in Medicaid expenditures, Congress enacted the Medicaid Voluntary Contributions and Provider Specific Tax Act of 1991. On November 24, 1992, the Health Care Financing Administration published regulations clarifying the intent of the Act. The Act virtually abolishes the **use** of provider donations and severely restricts the use of provider taxes. Essentially, provider taxes must be broad based, uniformly applied, and not be imposed in such a way as to hold any taxpaying provider harmless for the cost of the tax. The broad based provision means, essentially, that a provider tax must apply to all hospitals, not just Medicaid hospitals that would benefit from higher payment rates in return. Uniformity means that the same tax rates must apply to all providers. The hold harmless provision means there can be no state efforts of any type that would compensate the hospitals **financially** for their tax payments.

States may obtain waivers from the uniformity and broad-base provisions if they prove that the tax is “generally redistributive.” For example, a tax on hospital revenues might be permissible if it excluded Medicaid or Medicare revenues because such a tax would redistribute finances from predominantly private sector providers to predominantly public sector providers. The intent is that the tax actually redistribute **finances** within the state and not simply be a means of transferring money to state coffers for the purpose of leveraging federal matching contributions, then effectively returning the tax collections to the providers. A **final** provision is that even permissible taxes would not be eligible for federal matching funds if they exceeded 25 percent of the state’s Medicaid share. States currently above the 25 percent limit are permitted to stay at the higher level; after 1995 the 25 percent ceiling will be eliminated for all states.

The law also placed restrictions on disproportionate share payments. When fully implemented, the regulations limit each state's disproportionate share payments (**DSP**) to 12 percent of that state's Medicaid expenditures. A phase-in process allows time for state's currently paying greater than 12 percent for DSP to decrease these allotments slowly. These states cannot increase their DSP payments in absolute dollars until they are below 12 percent of their Medicaid expenditures. (As dollars of DSP stay constant and total Medicaid budgets increase, the percentage of the total going to DSP falls.) As these states decrease their shares of DSP, those states currently allotting less than 12 percent will be allowed to increase their DSP allotments (up to the 12 percent maximum).

States are still permitted to use intergovernmental transfers; that is, donations from local governments to the state treasury. These operate much like provider taxes. That is, payments made to states by localities which are then returned to them in the form of disproportionate share payments to public hospitals, also leverage federal contributions in the same way. Local governments increase their Medicaid payments to the state; these payments are then matched by the federal government. Medicaid reimbursements to locally financed public hospitals are then increased -- effectively returning the local taxes to the local government. While intergovernmental transfers are still permitted, the limits on disproportionate share payments may restrict the states' ability to expand usage of this mechanism.

Preliminary indications are that most states will be able to enact some sort of provider tax meeting the federal guidelines. The alternative is to make drastic program cutbacks, which are politically unpalatable. Another alternative is to increase some form of general taxes such as income or sales taxes. States are **finding** that some form of provider tax is more acceptable. These provider taxes result in some redistribution, that is, a shift to hospitals with a large number of Medicaid patients from **all** others and, in turn, a shift onto the insured patients served by

those hospitals. The result, while **redistributive**, still has major winners (large Medicaid providers) and increases (or preserves) sizable federal matching contributions to the states.

Thus, even with the new restrictions on provider taxes and donations and on disproportionate share payments, the level of Medicaid spending may be greater than the federal government may wish. Also, states still have the incentives to move other programs into Medicaid to the extent that they would otherwise **fully** finance these programs or if such programs have lower federal matching funds. Thus, it may be necessary to consider other arrangements which limit the extent of federal obligations.

One approach is some form of **capitation** payment or **block grant**. Capitation payments or block grants could be tied to formulas that considered such factors as income, cost of living, cost of medical practice, and measures of need. The problem with block grants is that they reduce the incentives for states to expend their own resources. At the margin, as shown in Figure 3, states would spend less on Medicaid services under a block grant arrangement than under an **open-ended** matching grant structure. This approach could, therefore, lead to underspending on the poor unless the block grants were associated with much higher federal contributions than are currently made. That is, the level of overall spending may be less than the federal government desires under a block grant.

Another alternative is a closed-end matching grant. That is, state spending would be matched by federal dollars, as they are at present, but only up to some maximum level that would be based on a formula that would be a function of fiscal capacity and need measures; beyond that point, federal payments would cease. This would have strong cost containment incentives. But low tax effort in some states might mean **that** the problem of **insufficient** expenditures is not eliminated. This is the case because states respond to closed-end matching grants in the same **way as** they do to block grants at the high end of the expenditure range.

Another option is to combine a federal mandate that determines minimum state benefit packages with a multi-level matching rate structure. In this scenario, the federal government would **first** mandate coverage of a minimum set of services for all people meeting certain criteria, e.g. 133 percent of poverty for children and pregnant women, 120 percent of poverty for the elderly, and, say 75 percent of poverty for individuals meeting various Medicaid categorical eligibility **requirements**.<sup>25</sup>

The federal government would then calculate an expected budget for each state based upon state! specific price indices and population **characteristics**.<sup>26</sup> Specific measures of need

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<sup>25</sup>This approach was more fully described in **Holahan** and Cohen (1986).

<sup>26</sup>The budgeted amount, *BUD*, would be determined as follows:

$$BUD_i = N_i \bullet B \cdot P_i + N_i^* \bullet B' \cdot P_i,$$

- where *BUD<sub>i</sub>* = the budget for state *i*  
*N<sub>i</sub>* = the number of individuals meeting the income eligibility standards in state *i*  
*B* = the national average cost of the standard benefit package  
*P<sub>i</sub>* = an index of state cost levels  
*N<sub>i</sub><sup>\*</sup>* = the number of persons projected to be likely to spend down to state income eligibility standards in state *i*  
*B'* = the national average cost of the standard benefit package for persons spending oown.

The federal financial participation would vary inversely with both state income per capita relative to the national average of income per capita and state expenditures per eligible relative to *BUD*. That is,

$$FFP = \alpha (X_j < 0.8 BUD_j) + \beta (0.8 BUD_j \leq X_j \leq 1.2 BUD_j) + \gamma (X_j < 1.2 BUD_j),$$

- where *FFP* = the federal financial participation rate  
 $\alpha, \beta, \gamma$  = the federal share of expenditures at different levels of state spending; the federal share would also be inversely related to state income as at present  
*X<sub>j</sub>* = actual state expenditures in spending range *j*  
*BUD<sub>i</sub>* = the budget level as defined above.

could also be used to more **appropriately** define an appropriate basic budget. The federal government would contribute towards this budget according to a multi-rate matching **strategy**.

Matching rates would be inversely related to state fiscal capacity. In addition, the federal share would be higher in the low range of expenditures, decline somewhat around the budgeted amount of expenditures set for each state, and decline further (perhaps to zero) at some level beyond the budgeted amount. Because establishing the budgeted amount involves **difficult** technical decisions that are ultimately very political, they should be made by Congress based on analysis provided by some independent body.”

The idea is that the federal matching rate would be relatively high for expenditures less than some percentage, say, 0.8 of the basic budget amount, would fall to a lower percentage of the base rate for expenditures between, say, 0.8 and 1.2 of the basic budget amount, and would fall even further, perhaps to zero thereafter. For example, depending on the states’ per capita income, the federal share might range from 0.9 to 0.6 for low levels of state Medicaid spending relative to the budget. from 0.6 to 0.4 for moderate levels of spending, and from 0.3 to 0.2 for higher levels of spending. Under this arrangement, the federal government would share at a very high rate in the first dollars of state expenditures. In addition to being required to offer a basic set of benefits to a predetermined pool of eligibles, states would be given generous amounts of federal assistance in providing this basic coverage, so the minimum-level program would be highly subsidized nationally. (States could also be penalized if enrollment fell below a predetermined target participation rate.) States could choose to use more generous eligibility criteria **as** well as a broader set of benefits. However, if states’ expenditures began to considerably exceed their budgeted **amount**, they would at some point bear the full financial

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<sup>27</sup>It may be **necessary** under **this** arrangement as well as others, to consider **separate** financing arrangements for acute and long-term care.

burden for remaining expenses. The overall effect would be to establish a national minimum level of coverage while placing states at greater risk the more generous their programs became.

## **CONCLUSIONS/OPTIONS FOR CHANGING THE FORMULA**

Up until this point, measures of ability to pay and other measures of need have been examined in the abstract. But when such measures are included in allocation formulas, practical questions arise. Do the new allocation results ring true in terms of the goals of the Medicaid program and the formula and in terms of the broader public good? Are the results of such **reforms** such substantial departures from the current formula that the transition might not be feasible? Analyses of the options included here are in the preliminary stages. Though we **lay** out several options, we are in the process of examining the potential implications of such changes for the practical outcome of Medicaid resource **allocations**.<sup>28</sup> These should be used as illustrative examples that capture the issues we deem most relevant to the debate.

One suggestion, however, that is relevant to all of the reform options presented, is the adjustment of the components of the matching formula for interstate cost of living differences. As discussed previously, the unadjusted measures of state fiscal capacity are biased by the substantial differences in costs across the country. High cost states are penalized due to the **use** of income measures that do not accurately reflect true purchasing power. In addition, if more complex reforms are undertaken, differences in the costs of delivering medical care should also be **taken** into account when determining appropriate Medicaid spending at the state level. The cost of living indices currently available are not optimal, and an investment in the development

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<sup>28</sup>Results of alternative matching formula **simulations** will be presented in a forthcoming paper.

of a quality index would substantially improve not only the Medicaid allocation system but would **also** be a valuable resource for many other public programs and for many fields of research.

### Three Options for Changing the Basic Formula

**These** options range along the continuum of potential reforms, with the first requiring the minimum amount of change in the current formula. The other two would add new **measures to** the formula and might result in substantial reordering of the matching **rates**. Careful analysis is needed **to** determine whether the resulting allocation is likely to better achieve the goals laid out at the beginning of this paper.

1. Corrections to the **NIPA personal income measure**. This option calls for several adjustments to be made to the current **NIPA** measure used in the matching formula. The structure of the formula itself would be left intact. Non-taxable income should be excluded from the measure, and the **NIPA** measure should be adjusted downward to account for double counting of state funded transfer payments. In addition, if an investment in the development of an inter-state cost of living adjustor were undertaken, it would be appropriate to use it to modify the **NIPA** measure as well.

These changes would result in a truer measure of ability to fund health care spending and move in the direction of increasing equity between the states. However, this approach suffers from many of the same problems addressed in reference to the current formula. In particular, it focuses exclusively on measuring the potential tax base; but even then, the **NIPA** personal income measure is an incomplete measure of tax capacity and ability to pay. Special health needs and cyclical fluctuations are not addressed; differential rates of poverty and their consequent burdens are not taken into account. Additionally, this modest **reform** does not bring us any closer to decreasing the current ability to “game” the system.

2. Substitute the RRS for NIPA in the current formula and eliminate the squaring provision. Substituting the RRS measure of **tax** capacity for the current **NIPA** income measure would be a move to a substantially more comprehensive measure of **relative** state ability to **pay**.<sup>29</sup> The substitution of the RRS measure for the **NIPA** measure is **also a partial** correction for differential state poverty burdens in that the **RRS** personal income measure can exclude the income from low income individuals. This is still not as effective in that regard as including poverty rates explicitly in the formula; however, it does distinguish between **states** with similar average incomes but different distributions of income.

The formula would also eliminate the squaring provision. Given that no appropriate cost of living adjusters are available, current income measures reflect, in part, differences in cost of living. It would be inappropriate to amplify such nominal differences between states by using an exponent, as in the current formula. The non-squared RRS measure will give more rational results through a matching formula -- if state X has a 20 percent greater revenue raising capacity than state Y, then state Y will receive a 20 percent lower state matching requirement than state X. If the RRS is in fact fulfilling its role by measuring relative ability to pay between states, then an **artificial** exaggeration of these differences is inappropriate. If the RRS is not able to capture the relative differences in need, then use of further adjustments would be called for.

One implication of removing the squaring provision is likely to be a concentrating of the distribution of matching rates across states. For example, in 1988, the second highest revenue raising capacity state had an RRS value of **142**,<sup>30</sup> the lowest revenue raising capacity state had an RRS value of 65. Calculation of state matching rates from the simple formula of (RRS value

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<sup>29</sup>Ideally, the adjustments to the RRS measure suggested by Barro (1986) would be incorporated as well.

<sup>30</sup>The highest RRS index value in 1988 was 255, for Alaska. This value was substantially greater than all the other index values, and would have implied greater than a 100 percent state share. The second highest value is therefore used for expositional purposes.

\*.45) would yield a minimum state contribution of 29.25% and a maximum contribution of 63.90%.<sup>31</sup> Use of the current matching formula boundaries (17% to 50%) would imply that the implemented range would be 29.25% to 50%, as compared to the actual 1988 FMAs which ranged from 2035% to 50%. Both variations would have 1 I states at the maximum state contribution level of 50%. Given that the highest federal match is significantly different between the two measures, however, it might also be important to alter other factors such as the lower bound on the state's share.

3. Use RRS in conjunction with relative poverty rates. A broader change from the current formula might rely on two basic measures, one on ability to pay and one on need, rather than just using income as an all-purpose factor. A state with high average tax capacity (an RRS over 100) would receive a lower federal matching contribution. A higher than average poverty rate would increase the federal share. The RRS and the poverty rates should both be adjusted for interstate cost of living differences.

Several alternative presentations of the formula are possible and the choice of that functional form is largely dependent on how much variation in state matching rates is desired. This, in turn, is an empirical issue. Consider a formula that would multiply the two measures:

$$RTS \times .50 \times \left( \frac{\text{national average of state poverty rates}}{\text{state specific poverty rate}} \right)$$

Multiplying these two indicators to create a new formula is similar to using the square of one measure--as in the current formula--if both components move in the same direction. But since some high poverty rate states also have relatively high tax capacity, the actual range of matching rates might decline. Indeed, part of the reason to use a formula with two components is that a

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<sup>31</sup>This methodology uses the 1988 RTS tax capacity measure. It does not, as the FMAP does, average three years of data. Some of the variation, consequently, may be due to the different years being measured.

single measure **does** not capture both ability to pay and need. In this case, the **variation** across states would **likely be** lower than when squaring one measure, although that will **also** depend upon how much **dispersion** there is in the value of the measures chosen.

Yet another **factor** to consider in this alternative would be where to set the **bounds** on the value of the state **share**. If we believe that the measure is an improved one over the old measure, we might argue, **for** example, to lower the minimum federal contribution. This would help to correct the **current allocation** of funds where it is believed that the wealthier states **may** be overcompensated. **In** the case of our example, the maximum state contribution could be increased from **50 to 60** percent of the costs of the program.

For **example**, a state with above average **tax** capacity (say, an **RRS** value of **107**), but a high relative **share** of individuals in poverty (say their poverty population is **110%** of the **national** average), would **contribute** **48.6** percent of its Medicaid costs. A state, on the other hand, with an average tax **capacity** (RRS value equal to **100**) and a below **average** poverty **rate** (say **85** percent of the national **average**) would contribute **58.8** percent of their Medicaid spending.

This **alternative** adjusts for a number of the problems discussed in earlier sections of this **paper**: it uses a **comprehensive** measure of ability to **pay**, it adjusts more fully for differences in inter-state **poverty** rates, and it moves toward correcting the current **re-allocation** of funds toward the “wealthier” **states** by increasing the state contribution boundary. It still falls short, however, in terms of **capturing** some of the special needs faced by states, **and** it does not address the complex issues **involved** with states’ “gaming” of the system.

### **Other Major Adjustments to the Matching Rate**

1. **Add external adjustments for cyclical fluctuations and other special needs.** We expect cyclical **inconsistencies** to persist under reform of the formula, similar to those which were discussed earlier **in** this paper. That is, even if we were to use the adjusted RRS instead of **NIPA**

personal income there would still be a lag in data collection. Regardless of whether multi-year averages or single previous year values of the RRS were to be used in reform of the formula, some lag is likely to occur between the point at which the data are collected and the year in which the data are used in a matching formula.

**Adjustments** for substantial macro-economic fluctuations could be made outside of a formula (such as the one described in “3” above) in order to better respond to short term changes in states’ relative needs. For example, if state unemployment levels were to rise by a pre-determined percent, a supplementary federal contribution calculated independently of the basic formula would be made. Such supplementation would be calculated automatically, however, the relevant factors need not be included in the **FMAP** formula itself.

**Similarity**: supplementary federal payments could be externally calculated for special health care needs within a state. For example, taking into consideration the specific costs of caring for disabled individuals and/or individuals infected with the HIV virus, states with disproportionate shares of these populations could receive added financial assistance, outside the province of the matching rate.

2. Changing the funding system to a multi-rate scheme with basic budget setting at the federal level. Two important issues are not addressed by any of the preceding options. First is the matching formula manipulation found in many states. Such “gaming” of the system suggests that more structural change of the funding system is in order. States may be using mechanisms such as provider taxes and donations as a response to increases in their internal fiscal burdens and the stresses placed on state budgets by the ever-growing costs of providing medical care. Consequently, these responses may not be simply a function of opportunism at the discovery of loopholes, but may be indicative of an inability on the part of the current Medicaid financing framework to properly adjust to the fiscal capacity and needs of the states. Ignoring this

evidence **and allowing** the manipulation of the matching formula to continue means the federal government **implicitly** chooses subsidies to aggressive **and/or** desperate states instead of making improvements in ~~the~~ system and explicitly allocating federal funds to those in greatest **financial** or health care **need**. Alternatively, regulating out of existence the creative mechanisms being **used** by states **and** disregarding the financial burdens that have likely motivated them, leaves **state** governments in ~~the~~ same fiscal bind they found themselves in before.

Here, we **suggest an** option where **an** estimate of state need is determined **at** the federal level. **and formulas** are then used to determine the **share** of this need that the federal government **will** contribute. The federal contribution, however, would be conditional on **a** minimum **benefit** package defined ~~for~~ all states. Measures of fiscal capacity would be adjusted for differences in interstate cost of ~~living~~ **and** health care input price differences.

As **an example**, we will describe the situation of a hypothetical state. Through assessment of **state A's population** and the health care needs of its specific population, the federal government **would** determine that **a** Medicaid program which included **a pre-determined** level of benefits and ~~which~~ complied with pre-determined program eligibility rules would require \$2 billion dollars in **total** financing. Next, state shares which apply at different expenditure ranges are calculated **using** formulas similar to **that** described in option "3" above. For example, one formula based ~~on~~ relative fiscal capacity adjusted for cost of living and **health** care input price differences. **would** calculate the state share for spending up to 80 percent of budgeted need. Another ~~liger~~ **state** share would be calculated for spending between 80 percent and 120 percent of budgeted ~~state~~ need. And spending **above** 120% of state need would have no federal match **at all**. Federal **financing** would be contingent on specific basic program benefits. in addition, tight controls would ~~be~~ in place to limit the use of non-general revenues for matching purposes.

In this **type** of program, safeguards against extensive gaming are in place. Though controls of **provider** taxes and disproportionate share adjustments might go a long way towards stopping the “pass through” phenomenon, the decreasing multi-step matching rate further diminishes the **marginal** gain of using such mechanisms. Inequity in state benefits could be substantially **decreased**, depending upon the level of benefits and eligibility used to calculate the states’ **health care** spending needs. Relative **ability** to finance Medicaid programs are still **taken** into account **by** using comprehensive measures of ability to pay coupled with adjustments for short term economic fluctuations. And finally, each state’s specific **population** needs can be taken into **account** when the total spending needs are determined.

Such **a system** could take **a** substantial amount of flexibility out of the Medicaid system (though **states could** still spend **more** than the federally determined amount). **retain** the **dual financing** roles for **state** and federal government while accounting for differences in relative state **need**. Such **a** system would also **allow** for cost containment, given that the federally **determined level** of spending need could incorporate assumptions about the efficient provision of care to the **Medicaid** population, thus motivating continued innovation on the **part** of states.

### The Matching Formula and its Implications for National Health Reform

The **preceding** discussion is obviously relevant if Medicaid continues **as** an independent program. It is **unclear** at this time, however, what **will** be the **precise** nature of **a national** health reform plan. **Aside** from uncertainty about the exact reform framework (single payer versus **managed competition**, for example) there is likely to be controversy over whether Medicaid should be **folded** into the new program, or if it should remain as a separate entity. And if some Medicaid **populations** and benefits are absorbed into the new program, it is unclear that **all** Medicaid **populations** will be absorbed into the new program (**e.g.**, the new plan might absorb acute care for **the** non-elderly but **leave** to Medicaid any long **term** care services). Regardless of

the choices made. **however**, the issues discussed in this paper **have** direct relevance for any reform program **that** incorporates some degree of federal and **state** joint financing.

One **strategy**, often mentioned with regard to single payer plans **and** employer based plans, is “maintenance of state effort.” In other words, the Medicaid population would be folded into any new reform **plan**, and the states would contribute their current share of Medicaid financing toward a new **national** plan. Maintenance of effort thus decreases the amount of new revenues that the federal **government** must raise to finance a new program. The state funding is considered too **important** a source of revenue to disregard.

To **require that** existing spending levels be sustained implies that the current division of financing burdens across states is an equitable one that should be perpetuated. The evidence in this paper. **however**. indicates otherwise. First, current spending likely reflects inappropriate measures of both **state** relative fiscal capacity and the absence of adjustments for differences in state needs. in **addition**. differences in levels of tax effort due to the **particular** incentive structure in place and **differences** in state “tastes” for public services. means that currently generous states would be **penalized** indefinitely while less generous states would receive a relative advantage under **requirements** for maintenance of current effort. Under an employer mandate. for example. the federal **government** would pay for all of the costs for the poor not picked up by employers. Consequently. **less** generous states could receive a significant windfall. Also, maintenance of effort does not **take** into account **that** state relative economic status is **likely** to change over time.

Another **problem** with the maintenance of effort concept is that the use of provider taxes **and** donations by some states makes measuring actual current state effort a **difficult** process.

Should “pass **throughs**” of money be counted as **current** financing effort, or should states be held responsible for **only** the funds raised through broad based taxes and revenue collections that do not result in net **gains** for all those entities subject to the tax? If 1992 Medicaid were to be used

as the point of **reference**, states which **used** provider taxes and donations would be held accountable for revenue collected in a way which is no longer legitimate in the eyes of the federal **government**. To raise that much revenue with **a different** set of taxes could be quite **a painful requirement** for those states.

The **notion** that only some Medicaid services and beneficiaries might be brought into **a** new health care **financing** system also raises some equity concerns. Given that current matching **rate calculations** are not sensitive to differences in **population** groups within a state, current levels of effort might **not** be reflective of ability to finance programs for “residual” populations (i.e., those excluded **from** a national health program). For example, if we assume that **acute** care of the non-elderly **Medicaid** population was to be included in the national program, then the state Medicaid **programs** would still be responsible for providing long term care (both elderly and **non-elderly**) and for **financing** Medicare’s deductibles and co-insurance for the indigent elderly.

Some **states** would be left with **large** residual Medicaid programs and some would not, given existing **differences** in state demographic distributions. A residual Medicaid program is likely to be **financed** jointly by the state and federal governments. Unlike maintenance of effort, states could **choose** to expand or contract these programs. In addition to improving fiscal capacity **measures**, it would be critical to take such demographic differences into account in a matching **formula**.

All in **all**, a maintenance of effort strategy could freeze inequitable financing burdens into **a** new **health care** financing system. The **reforms** suggested in the previous sections of this paper are important to consider before decisions are made about the absorption or exclusion of state Medicaid **financing** into a new health care structure. Improved measurement of relative fiscal capacity and **need** is likely to be important **after** reform **as long as** there is any combined

**federal/state funding** for the basic **plan and/or a** residual Medicaid program. Such a measure should also be **regularly** updated, **allowing** for changes in each state's status relative to the others.

## APPENDIX A

### Review of Other Relevant Analyses

Both the U.S. Government Accounting **Office** (GAO) and the DHHS **Office** of the Inspector General (OIG) have issued reports and recommendations concerning reform of the manner in **which federal** Medicaid funds **are** distributed. The findings and conclusions presented by these two **agencies** are summarized here.

The **OIG's final** report, "Federal Financial Assistance for the Medicaid Program" was issued in **August** of 1991. In their analysis they accepted the general premise that per capita income **would remain** the basis for determining state's differential abilities to pay for Medicaid services. **As we** explain in the section, "Measures of Ability to Pay," the advisability of accepting the **per** capita income premise is questionable. In addition, their conclusions are largely a function of **this** decision.

The OIG did find a substantial degree of variance in the benefits provided by the "richest" and "poorest" **states**.<sup>32</sup> As of March 1986, the number of Medicaid funded hospital inpatient days were **limited** in 11 states, including 7 of the lowest income states. None of the 12 "wealthiest" **states** had implemented such limits. Expenditure limits on prescription drugs were limited for **half** of the 12 lowest income states while only one of the highest 12 income states had such limits. In addition they note **that** beneficiary cost **sharing** is required in seven of the 12 lowest income **while** it is only required in 4 of the 12 highest income states.

The OIG report also estimates that in FY 1987 the 12 highest income states spend about 35 percent **more** on their Medicaid beneficiaries per capita than do the 12 lowest income states.

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<sup>32</sup>Wealth is **defined** here by the state average per capita income as calculated by the National Income and Product Accounts.

High income **states'** Medicaid program expenditures per person in poverty were shown to be more **than 2.5 times** that of expenditures in the low income states.

The OIG **concluded** that three features of the FMAP formula are responsible for the variations in **resource allocations** which **are** found among the states: **the** program growth incentive and the federal funding **floor**, and the squaring provision. The current formula for the federal share of **financing** is presented below.

$$\text{Federal Mach} = 1.00 - .45 \bullet [(S\&zte\ PCN)/(U.S.\ PCN)]^2$$

The **program** growth incentive that OIG refers to is the **.45** multiplier found in the FMAP formula above. **The** multiplier sets the share of Medicaid expenditures that **a** state with average personal income **per capita** will pay. Under the original Medical Assistance program, that multiplier was **originally** set at **.50**; in other words, an average state would split its program costs evenly with the **federal** government. The Medicaid legislation of 1965 decreased the average share to **45 percent** from 50 percent **as a** way to encourage the participation and growth of states in the Medicaid **program**.

This **incentive** has different impacts on the high **and** low income states. High income states receive **a higher** percentage increase in their federal matching **rate** from the growth incentive than **do** the lower income states. For FY 1983 through FY 1987 the incentive factor translated into **an** average 6.3 percent increase in **FMAPs** for the 12 highest income states, while it meant only **an** average 3.3 percent increase for the 12 lowest income states. The OIG concludes that **the** growth incentive factor is no longer necessary to encourage states to participate in the Medicaid program, and that **consequently**, the multiplier should be returned to its original value of **.50**.

The OIG **also** finds fault with the federal funding floor which has been set at 50 percent. Thirteen states had calculated **FMAPs** that fell below **50** percent. These high income states benefitted by **having** their matching **rate** increased to 50 percent from its lower calculated rate. In that year, the 13 states received increases in their FMAP rates ranging **from .11** to 3.106 percentage **points**.

Given **that** the federal funding floor **increases** the relative allocations of Medicaid funds to high income **states**, the OIG suggest that the floor be lowered to 45 percent. They indicate that the floor should not be abolished unless the squaring provision is also eliminated. The effect of the squaring **provision** is to amplify the differences between the high and the low income states. The low income states **are** helped by this provision, **and** the high income states are largely unaffected since **they are** protected by the federal funding floor. If however, the floor was eliminated, **matching** rates for the high income states would drop precipitously. Given that the OIG does not **recommend** eliminating the squaring provision since it is of some help **to** low income states, **they** also recommend that some federal floor be maintained **as** well.

The **OIG report** also mentions the possibility of including in the formula **a** measure of relative spending per person in poverty. They do not, however, explore this option in any detail nor do they **make** any specific suggestions.

By generally limiting themselves to adjustments to the components of the existing formula, the OIG presents **an** overly narrow assessment of the distributional issues of Medicaid funding. **Though** they recognize the need to determine state funding levels more equitably, they are unable to **suggest reform** that will more fully address the issues of program **fairness**. The question of **whether** or not average per capita income is **an** appropriate measure of ability to pay is inextricably **entwined** with the equity issue.

By ~~constraining~~ **themselves to the existing components, their** recommendations become of questionable **usefulness**. The recommendations seem to focus on the complications of making slight adjustments in one component and finding the implications of such an adjustment to the other components instead of attempting to **determine** the best way of achieving the program's goals. For **example**, they self-impose the constraint that the funding **floors** cannot be eliminated, or lowered **dramatically**, since the squaring provision would then have substantial negative impacts on the **high** income states. Elimination of the squaring provision would be undesirable, under the logic of the OIF, since it does provide some modicum of benefit to the low income states in terms of redistribution. If they **were** able to look beyond the current **formula** components, **however**, they would be better off trying to assess if there are better ways of **assisting/protecting** the low income states than the squaring provision.

The U.S. **GAO** wrote a detailed report on options for reform of the Medicaid formula ("Changing **Medicaid** Formula Can Improve Distribution of Funds to States") in 1983. This work was updated for **their** testimony on the subject before the House Subcommittee on Human Resources and **Intergovernmental** Relations in 1990.

The **GAC** notes that per capita income is not a comprehensive measure of state ability to **pay**. It does not include any tax bases available to states other **than** individual income. The **GAO** supports ~~the~~ use of the Total Taxable Resources (**TTR**) measure which is estimated by the Department of **Commerce**. **TTR** measures both income produced within the state and income received by **state residents** from non-state sources.

They **also** recognize that per capita income is a poor indicator of the differential incidence of poverty **across** states. States can have virtually identical per capita incomes and very different percentages of **their** populations living in poverty. Such differences lead to substantial variation in burden across **states**. The **GAO** recommends the inclusion of a poverty rate measurement in

the Medicaid **funding** formula. In addition, they **recommend that** the minimum federal **share** be reduced. in the interest of allocating more funds to low resource states relative to high income **states.**

In their **empirical** analysis they assumed a 40 percent minimum federal share and replaced per capita income with **TTR** and state poverty rates. The actual **formula** used is not provided, however. Using fiscal 1989 data. and keeping total federal spending constant. they found that 17 percent of federal Medicaid dollars were reallocated under the **alternative** scenario. Nine states would have **received** an additional \$100 million or more, and benefits seemed to be concentrated largely in the **Great** Lakes and Midwestern regions. GAO suggests **that a** less disruptive approach **would** be to apply **any** alternative formula only to any new funding in excess of past levels.

These **1990** recommendations seem somewhat at odds with **the** original options presented to Congress in 1983. In the 1983 report, GAO raised 4 options for changes that could be made simultaneously **or** in various combinations. These options were: using personal income per person in **poverty** instead of average per capita income: replacing personal income with the Representative **Tax** System: reducing the minimum federal share of Medicaid funding; including an incentive **factor** to both reduce program disparities and slow the rate of spending growth in future years. **The** use of state income per person in poverty is a curious choice. Such a measure could be quite **misleading** given that it eliminates reference to the number of people in **a** state. A high level of **aggregate** state income could be reflective of **a** high average income per capita, or it could be **reflective** of a very populous state with lower average income. Two such states with **equal numbers of** individuals in poverty would be **treated the same under this scenario, when** their abilities to **raise** revenue might be quite dissimilar.

Their **initial** recommendation of **replacing** state personal income with the Representative Tax System (**RTS**) measure is also different from their 1990 recommendation of the use of 'TTR. RTS is a **more comprehensive** measure of state resources than is TTR. RTS includes taxes collected by **individuals** who live out-of-state, such **as** tax revenue from state natural resources, tourism, etc.. **where** TTR does not.

The **other** difference between the 1983 and 1990 recommendation is that related to the **inclusion** of a **growth** incentive. The idea behind such a provision was to provide **systematically** more generous **federal** shares to states with low benefit levels, in **an** effort to encourage them to increase their spending. GAO hoped an incentive of this type would induce a reduction in program **disparities**. Their intention was also that the incentive factor could be used to control spending **growth** by states over time. Their proposed formula was **as** follows:

$$\text{Federal Share} = 100\% - 45\%(\text{relative tax capacity})(\text{relative spending})^{\text{exponent}}$$

Under **this** methodology, a state's federal share would be higher if its relative spending were low, and its share would be lower if the state's relative spending were high. The exponent is the incentive **factor**, and it magnifies the differences in state spending levels. A higher exponent would generate greater differences in federal shares based on relative spending levels than would a **lower** exponent.

Such a **formula**, purports GAO, could also be used to create incentives for states to limit program **growth**. To illustrate, in the **first** year, each state's spending would be measured relative to the U.S. **average**. In subsequent years, each state's spending could be measured relative to some target **rate** of increase over previous year's spending. in this way, if a state's expenditures grew faster than **the** target rate, its federal share would be reduced. If on the other hand, the

state's **expenditures** were below the predetermined target rate, its federal **share** would 'be rewarded with **an** increase.

The **problem** with such **an** approach is that the two incentives seem to work against **each** other for the low spending/low benefit states. On the one hand, the formula encourages spending to increase for **these** states, but if their spending does increase in excess of (say) inflation, their shares are **penalized** by the cost containment incentive. The inclusion of Relative Tax Capacity does provide **some** stability for low spending/low benefit states in the formula. however, these competing **objectives** are still troubling.

## APPENDIX B

### Components of **NIPA Personal Income**

Wage **& Salary** Disbursements (by industry)  
Other I Income (by industry)  
    **Employer** Contributions to **Private Pension & Welfare Funds**  
    **Directors'** Fees  
    Compensation of Prison **Inmates**  
    Judicial Fees  
**Proprietors'** Income of Persons with **Capital** Consumption Adjustments  
    **Farm**  
    **Non-Farm**  
Personal Contributions for Social Insurance (entered with a **negative** sign)  
Rental **Income** of Persons with Capital Consumption Adjustments  
**Personal** Dividend Income  
**Personal** Interest income  
**Transfer Payments**  
    **Government** Payments to Individuals  
        Retirement **& Disability** Insurance Benefit Payments  
            Old-Age, Survivors **& Disability** Insurance Payments  
            Railroad Retirement **& Disability** Payments  
            Federal Civilian Employees Retirement Payments  
            Military Retirement Payments  
            State **& Local** Government Employee Retirement Payments  
            Workers Compensation Benefits  
            Other Government Disability Insurance Payments  
    **Medical** Payments  
        Medicare Payments  
        Medical Vendor Payments (Under Medicaid **& General** Assist.)  
    **Income** Maintenance Benefit Payments  
        Supplemental Security Income Payments  
        Aid to **Families** with Dependent Childnn  
        Food Stamps  
        Other income Maintenance  
    **Unemployment** insurance Benefit Payments  
        State Unemployment Compensation  
        Unemployment Compensation of Federal Civilian Employees  
        Unemployment Compensation of Railroad Employees  
        Unemployment Compensation of Veterans  
        Other **Unemployment** Compensation  
    **Veterans** Benefit Payments  
        Veterans Pension **& Disability** Benefit Payments  
        Educational Assistance to Veterans. Dependents **& Survivors**  
        Veterans **Life** insurance Benefit Payments  
        Other Assistance to Veterans

Federal Education & Training Assistance Payments  
Other Government Payments to Individuals  
**Payments** to Nonprofit Institutions  
**Federal** Government Payments  
State & Local Government Payments  
**Business** Payments  
**Business** Payments to Individuals

## REFERENCES

- Barro, Stephen M., "Improved Measures of State **Fiscal** Capacity: **Short-Term** Changes in the **PCI** and **RTS** Indices," in Federal-State-Local Fiscal Relations: Technical Papers, Volume I, Office of State and Local Finance, Department of Treasury, Washington, D.C., **September**, 1986.
- Cohen, Joel. "**Federal** Matching Rate Reductions, The Recessions and Medicaid Spending," **Medic& Program Evaluation** Working Paper 25, U.S. Department of Health and Human **Services**. **Health** Care Financing Administration, August 1986.
- Davie, B.F. ~~and~~ J.T. White, "Equalization Alternatives on Grant-in-Aid Programs: Allotment **Formulas** and Measures of Fiscal Capacity," National Tax Journal, Vol. 20, No. 2, pp. **193-203**.
- Feldstein. M.S. "Wealth Neutrality and Local Choice in Public Education," American Economic Review, Vol. 65, No. 1, March 1975, pp. 75-89.
- Gold, Steven D. "The **Anatomy** and Magnitude of State Tax **Increases** in 1992," State Fiscal Brief, No. 9, Center for the Study of the States, Rockefeller Institute of Government, **January** 1993.
- Gramlich, E.M. "An Econometric Examination of the New Federalism," Brookings Papers on Economic Activity, 2: 1982, pp. 327-360.
- Holahan, John F. and Joel W. Cohen, Medicaid: The Tradeoff between Cost Containment and Access to Care, Urban Institute Press, Washington. D.C., 1986
- Holahan, J.F., J. Bell, and G. Adler, "Medicaid Program Evaluation: Final **Report**." Working Paper. **Department** of Health and Human Services, HCFA, ORD, 1987.
- Leonard, ~~Herman~~ B., By Choice or by Chance? Tracking the Values in Massachusetts Public Spending, Pioneer institute for Public Policy Research, Boston, 1992.
- Merlis, Mark. "**Medicaid** Provider **Donations** and Provider-Specific Taxes," Congressional **Research** Service, Library of Congress Report for Congress, October 2, 199 1.
- Moffitt, Robert A. "The Effects of Grants-In-Aid on State and Local Expenditures," Journal of Public Economics, Vol. 23, No. 3, **pp.279-305**, April 1984.
- Ruggles, ~~Patricia~~. Drawing the Line: Alternative Poverty Measures and their Implications for Public Policy, The Urban Institute **Press**, Washington, D.C., 1990.
- Sonnefeld. S.T. D.R. Waldo, J.A. Lemieux, and D.R. **McKusick**, "Projections of National Health **Expenditures** through the Year 2000," Health Care Financing Review, Vol. 13, No. 1, pp. 1-27. **Fall** 1991.

- Stevens, **Robert and** Rosemary Stevens. Welfare Medicine in America: A Case Study of Medicaid. Macmillan Publishing Co., Inc., New York, 1974.
- Swartz, T.R. and J.E. Peck. The Changing Face of Fiscal Federalism. M.E. Sharpe, Armonk, New York, 1990.
- U.S. Advisory ~~Commission~~ on Intergovernmental Relations, State Fiscal Capacity and Effort. 1988. Information Report M-170, Washington, D.C., August, 1990.
- U.S. Advisory ~~Commission~~ on Intergovernmental Relations, Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity, information Report M- 174, Washington, D.C.. December. 1990b.
- U.S. Bureau of ~~the~~ Census. Current Population Survey. Washington, D.C., March 1991.
- U.S. Department of Commerce. Bureau of Economic Analysis, National Income and Product Accounts of the United States. 1929-82. Washington, D.C., U.S. Government Printing Office. ~~September~~ 1986.
- U.S. Department of Commerce. Bureau of Economic Analysis, State Personal Income. 1929-87: Estimates and a Statement of Sources and Methods. Washington, D.C.. U.S. Government Printing ~~Office~~. July 1989.
- U.S. ~~Department~~ of Health and Human Services. Health Care Financing ~~Administration/ORD~~, "Medicaid Program Evaluation: Final Report," John Holahan, James Bell, Gerald Adler, eds., ~~Working~~ paper. USDHHS/HCFA/ORD, 1987.
- U.S. ~~Department~~ of Health and Human Services. ~~Office~~ of Inspector General, "Federal Financial ~~Assistance~~ for the Medicaid Program." Report. August. 1991.
- U.S. ~~Department~~ of the Treasury. Office of State and Local Finance. Federal-State-Local Fiscal Relations: Report to the President and the Congress, Washington, D.C., U.S. Government Printing ~~Office~~, September 1985.
- U.S. ~~Department~~ of the Treasury. Internal Revenue Service, Statistics of Income - 1988: Individual Income Tax Returns. Washington. D.C., U.S. Government Printing Office, 1991.
- U.S. General ~~Accounting~~ Office. "Changing Medicaid Formula Can improve Distribution of Funds to States." GAO/GGD-83-27, March 9, 1983.
- U.S. ~~General Accounting~~ Office. "Medicaid Formula: Fairness Could Be improved." testimony before ~~the~~ Subcommittee on Human Resources and Intergovernmental Relations, ~~Committee~~ on Government Operations. House of **Representatives**, December 7, 1990.

U.S. House of **Representatives**, Committee on Ways and Means, Overview of Entitlement Programs (1992 Gnxn Book), U.S. Government **Printing Office**, Washington, **D.C.**, May 15, 1992

Welch, W.P., S. Zuckerman, and G. Pope, "Geographic Medicare Economic Index: Alternative Approaches," Urban Institute Working Paper 3839-01-01, June 1989.