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PUBLIC EXPENDITURE INCIDENCE IN MICHIGAN, 1970: AN ORTHODOX AND A RADICAL APPROACH

By

Donald Moore Peppard, Jr.

A DISSERTATION

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ABSTRACT

PUBLIC EXPENDITURE INCIDENCE IN MICHIGAN, 1970:
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This dissertation has been designed to yield estimates of the incidence of public expenditures in Michigan by using two different analytical models. One model, the conventional or orthodox approach, uses techniques similar to those used in other expenditure incidence studies.[1] The second model, a radical analysis, is based on a neo-Marxist theory of the role of the State in a capitalist socioeconomic system. The purpose of undertaking two analyses in the study is to compare the incidence results of the two models to determine the effect of changing the basic assumptions of the role of the State.

Conventional expenditure incidence studies usually use the costs-incurred-on-behalf-of concept of expenditure allocation. The costs-incurred concept assumes that the government undertakes expenditure programs to benefit either specific groups in society or to benefit society in general. The benefits of government expenditure programs are also assumed to be equal to the costs of the programs. For example, expenditures for education are assumed to benefit the families of students enrolled in school and also to provide benefits to society in general. Educational benefits

are valued at the cost of government spending for educational purposes.

In this conventional analysis, government policies are assumed to be the results of a pluralistic democratic process. Therefore, government programs which benefit specific groups of people, such as transfer payments, and programs which benefit society as a whole are assumed to be consistent with the desires of the majority of the members in the society.

The radical view of the State, on the other hand, rejects the pluralistic assumption and sees the State as directly or indirectly controlled by a single class in society, the capitalists. Because it is dominated by only one class among many, the State must act in the interests of that class, but also disguise its class bias. These often contradictory requirements result in the accumulation and legitimization functions of the State.

The radical assumption about the State leads to different assumptions about the distribution of the benefits of expenditure programs under the costs-incurred concept. For example, in addition to the benefits of educational expenditures which accrue to families of students (called specific goods benefits) and the benefits to society as a whole (called general goods benefits), there are class goods benefits which accrue to capitalists. Class goods benefits from educational programs arise because the educational system provides capitalists with a trained work force which is inculcated with the values of the capitalist system.

The amount of class goods benefits is determined by the difference between the actual cost of the expenditure program and the socially necessary costs of the program. Socially necessary costs are those costs which are necessary to maintain the productive capacity and labor force of the economic system in a given state of productivity or efficiency. These costs are independent of the nature of the economic system, so the difference between socially necessary costs and total costs is assumed to be the result of the capitalist socioeconomic system.

In both of the models used, benefits are allocated to recipients who are identified as members of income classes. The total amount of benefits accruing to any income class, as a percentage of the total income in that bracket, is a measure of the incidence of the public sector in Michigan. The conventional analysis yields incidence estimates which are consistently more regressive (pro-poor) than the results of the radical analysis. For example, under one assumption, the distribution of post-public sector income is 8.3 percent more equal, in terms of Gini coefficients, than the distribution of pre-public sector income. On the other hand, the radical analysis yields a post-public sector income distribution which is only 3.2 percent more equal than the pre-public sector distribution of income. Thus, the different assumptions about the role of the State lead to significantly different public sector incidence estimates. The radical assumptions lead to the conclusion

that public sector spending does much less to redistribute income from rich to poor than previous studies have found.

But expenditure incidence is only one side of the fiscal coin, and this study has been designed to be compatible with a Michigan tax incidence study also done for fiscal 1970.[2] By combining the results of this dissertation with those of Roberts', estimates of the total impact of the public sector in Michigan in 1970 can be generated. Some examples of the net fiscal incidence of the Michigan public sector are contained in an addendum to this dissertation.

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[1]See, for example, the following studies: O. H. Brownlee, Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits (Minneapolis: University of Minnesota Press, 1960); Ann Eapen and A. Thomas Eapen, "Incidence of Taxes and Expenditures of Connecticut State and Local Governments, Fiscal Year 1967" (a study prepared for the Connecticut State Revenue Task Force, 1970); and Charles Ross, "The Effects of State and Local Government Expenditures on the Distribution of Income in Oklahoma," (unpublished Ph.D. dissertation, Oklahoma State University, 1972).

[2]Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975).

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It is probably a rare dissertation that is completed without the help of many people whose contributions have been invaluable. This dissertation is not rare in that sense because I am indebted to a number of people whose help and advice have shaped the form and content of this study and ensured its completion.

My principal debt is to Milton Taylor who has continually shown an interest in my work, supported my efforts and guided my thinking. I am also grateful to Mitch Stengel for convincing me to reorient this study and for his helpful suggestions to that end. Both Milt and Mitch have been instrumental in prompting me to broaden my outlook on the field of economics. The comments by Dan Saks and Leanna Stiefel have also helped to improve the study.

I also want to thank Douglas Roberts for the liberal assistance he has given with the use of his data; there is no question that his help enabled me to complete the dissertation in advance of my original expectations. Finally, I am indebted to Duane Gibson, Director of the Institute for Community Development and Services, for the

opportunity to be employed during the period this study was researched and written.

A special note of thanks is due to my family for their moral support and confidence in my ability. My wife, Linda, has been a continual source of encouragement and has borne well the burden of our support during the years of my graduate study. Without these special contributions it is doubtful that I would have completed an often demanding course of study.

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CHAPTER I

RATIONALE AND SCOPE OF THE STUDY

The Purpose of the Study

This study is an attempt to measure the distributional effects of state and local government expenditures in Michigan in fiscal 1970. Redistribution of income is only one possible impact that a public sector can have on an economy; Richard Musgrave has developed a multiple budget theory of the public sector which includes the allocation and stabilization functions, as well as the distributive function.[1] Analyses of the effects of government budgets typically separate these three functional roles to isolate their impacts, even though, in practice, governments do not budget separately for the various functions they perform.

It is important to recognize that in carrying out the allocation and stabilization functions, governments also have distributional effects. As Weisbrod notes, "The

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[1] Richard A. Musgrave, The Theory of Public Finance (New York: McGraw-Hill, 1959), Chapter 1.

income-redistributional effects of governmental actions pervade most, if not all, aspects of governmental economic activity."[2] But, the redistributional effects, as opposed to the allocative and stabilization effects, have received relatively little attention from economists. The extensive cost-benefit literature is an example of studies which have dealt, for the most part, with analyses of the allocation function. Until recently, studies of the effects of taxation dominated the literature of the distribution function. Analyses of the distributional incidence of public sector expenditures are relatively recent evidence that the distributive effects, as well as the level of the costs and benefits, deserve increased attention.

The need for studies of this type, i.e., studies in which concern for the distributional impact of public sector budgets is paramount, is articulated well by John Weeks:

> The overriding reality of the American economy is inequality . . . inequality of income, inequality of power, inequality with regard to the inability to determine one's life. Inequality is what economics should be all about. But, in fact, economics as it is taught and practiced by economists deals very little with inequality.[3]

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[2]Burton A. Weisbrod, "Collective Action and the Distribution of Income: A Conceptual Approach," in Public Expenditure and Policy Analysis, ed. by Robert Haveman and Julius Margolis (Chicago: Markham, 1970), p. 137.

[3]John Weeks, "Political Economy and the Politics of Economists," Review of Radical Political Economics, Vol. 1 (May, 1969), p. 1.

This study, therefore, is part of a recent trend in the study of public finance toward an analysis of the relatively neglected equity aspects of the expenditure side of public budgets. Neglect of the distributional impact of public expenditures, however, is only part of the reason for this study. A more important reason for this study is the existence of pervasive inequalities in income, wealth, social mobility and political power. These inequalities exist in Michigan as well as in the U.S., but the data which exist for Michigan substantiate only the inequality in the distribution of income.[4] The inequality in the distribution of wealth is undoubtedly greater than that of income,[5] but this dissertation deals only with the impact of the public sector on the distribution of income.

The persistence of inequalities in the distribution of income implies that governmental policies to alter the distribution are either ineffective, non-existent or that things would be even worse in the absence of these policies. One means by which these inequalities can be reduced is expenditure programs designed to benefit the relatively disadvantaged groups in our society. Therefore, one purpose of this study is to examine the distributional impact of spending by state and local governments in Michigan to

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[4]See the income distribution data in Chapter IV for more particulars.

[5]Lester Thurow, The Impact of Taxes on the American Economy (Newport: Praeger, 1971), p. 11.

determine whether these expenditures tend to moderate or exacerbate income inequalities in the state.

Analysis of public sector expenditures has taken many forms. Some studies, as mentioned above, isolate specific programs to determine their costs and benefits and occasionally the incidence of the costs and benefits;[6] another study examined the incidence of expenditures within a metropolitan area;[7] many studies have measured the incidence on income of the combined expenditures of the federal, state and local governments; and finally, a few studies have analyzed the incidence of state and local government expenditures within a single state.[8] This study

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[6]See the extensive cost-benefit literature as an example of the first case; in the second case, see W. Lee Hansen and Burton Weisbrod, "The Distribution of Cost and Direct Benefits of Public Higher Education: The Case of California," Journal of Human Resources, Vol. 24 (December, 1971).

[7]William B. Neenan, "Suburban-Central City Exploitation Thesis: One City's Tale," in Transfers in an Urbanized Economy, ed. by Kenneth Boulding, Martin Pfaff and Anita Pfaff (Belmont: Wadsworth, 1973), pp. 10-39.

[8]The following studies include the principal expenditure incidence studies which examine federal and state and local expenditures in the U.S.: John Adler, "The Fiscal System, the Distribution of Income and Public Welfare," in Fiscal Policies in the American Economy, ed. by Kenyon Poole (New York: Prentice-Hall, 1959), pp. 359-409; Robert Allison, "The Effect of Taxes and Transfer Payments on the Distribution of Income" (unpublished Ph.D. dissertation, University of Colorado, 1966); Tibor Barna, Redistribution of Incomes Through Public Finance in 1937 (Oxford: Clarendon Press, 1945); O. H. Brownlee, Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits (Minneapolis: University of Minnesota Press, 1960); Alfred Conrad, "Redistribution Through Government Budgets in the United States, 1950," in Income Redistribution and Social Policy, ed. by Alan T. Peacock (London: Johnathan Cape, 1954), pp. 178-267; Ann

takes the latter approach. In order to analyze all public sector expenditures in Michigan, local government expenditures are lumped together with the state government's expenditures and the total is analyzed as though it were spent entirely by the state government.

This procedure is analogous to that used in studies which aggregate federal, state and local levels of spending. The diversity of local units of government is not recognized by this procedure, but conducting separate analyses for each of the 83 counties, 260 cities and 1247 townships in Michigan would be an unwieldly undertaking. Thus, while some accuracy is sacrificed by aggregating all levels of government, there seems to be no realistic alternative.

Eapen and A. Thomas Eapen, "Incidence of Taxes and Expenditures of Connecticut State and Local Governments, Fiscal Year 1967" (a paper prepared for the Connecticut State Revenue Task Force, 1970); W. Irwin Gillespie, "Effects of Public Expenditure on the Distribution of Income," in Essays in Fiscal Federalism, ed. by Richard Musgrave (Washington: The Brookings Institution, 1965), pp. 122-186; Richard Musgrave, Karl Case, and Herman Leonard, The Distribution of Fiscal Burdens and Benefits (Cambridge: Harvard Institute of Economic Research, 1973); Richard Musgrave and Darwin Daicoff, "Who Pays the Michigan Taxes?", Michigan Tax Study Staff Papers (Lansing, 1958); Morgan Reynolds and Eugene Smolensky, The Post Fisc Distribution: 1961 and 1970 Compared (Madison: Institute for Research on Poverty, 1974), hereinafter referred to as Reynolds and Smolensky, (1); Morgan Reynolds and Eugene Smolensky, The Post Fisc Distribution: 1961 and 1970 Compared, National Tax Journal, Vol. 27 (December 1971), pp. 515-530; Charles Ross, "The Effects of State and Local Government Expenditures on the Distribution of Income in Oklahoma" (unpublished Ph.D. dissertation Oklahoma State University, 1972); Neil Singer, "Income Redistribution and Fiscal Policy" (unpublished Ph.D. dissertation, Stanford University, 1965); Tax Foundation, Inc., Tax Burdens and Benefits of Government Expenditures by Income Class (New York: Tax Foundation, Inc., 1967); Rufus Tucker, "The Distribution of Government Burdens and Benefits,"

There is considerable evidence to suggest that the redistributional impact of the total spending of all levels of government is significant. The smaller number of state-level studies also demonstrates that public sector expenditures within a single state are redistributive (see footnote 8). Since fiscal 1956, when total expenditures of state and local governments in Michigan were less than $2 billion,[9] no study has been undertaken to estimate the impact of these expenditures on Michigan residents. Thus, it is important to determine the impact of the approximately $4.8 billion spent by all levels of Michigan government in fiscal 1970.

Procedures Used in the Study

There are three types of fiscal incidence studies: The first is an analysis of the incidence of taxes; the second examines the incidence of expenditures; and the third analyzes the combined incidence of taxes and expenditures. These studies begin by defining income, which is the incidence base usually used. Once the definition of income is established, the distribution of that income among families

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American Economic Review, Papers and Proceedings (May, 1953). There is also an extensive literature of studies of this type for other countries; for a review, critique and bibliography, see R. M. Bird and L. DeWulf, Fiscal Incidence Studies in Developing Countries: Survey and Critique (Washington: International Monetary Fund, 1974).

[9] Musgrave and Daicoff, op. cit., p. 152.

and unrelated individuals is determined. This information is necessary because the studies attempt to measure how the taxing and/or spending policies of the public sector affect the way income is distributed.

In order to measure the impact of taxing or spending by the public sector one, or both, of two methods is used. One technique assumes that the definition and distribution of income are before taxes and expenditures, i.e., the definition and distribution of income are those which would exist in the absence of a public sector. This definition of income would include money used to pay taxes, but would not include government transfer payments received as income. Introducing a public actor into this situation would mean reducing incomes by the amount of taxes and raising them by the amounts of transfers and expenditure benefits. Distributional incidence, using this method, is measured by the changes in the distribution of income which result from the introduction of taxes and expenditures by the public sector.[10]

A second method used to examine public sector incidence takes as its incidence base the definition and distribution of income which include the impact of taxes and expenditures on incomes. In other words, income used to pay taxes is not included in either the definition or

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[10]The shortcomings associated with the concept of adding or removing a public sector are discussed in Chapter II.

distribution of income, but transfer payments and the benefits of government expenditures are inlcuded in income. In this case, distributional incidence is measured by the changes in incomes which would result if taxes and spending were discounted.

Studies which use the first of these methods must begin by devising an income distribution which excludes transfer payments. The most common starting point for developing an income distribution is the Bureau of the Census definition and distribution of money income. Census money income, however, includes most money transfers and also includes money which will be used to pay taxes. In order to get a pre-public sector definition and distribution of income, therefore, money transfer payments must be subtracted from the distribution of money income.

By the same reasoning, a study which uses the second method of measuring incidence must determine the incidence of both taxes and expenditures--excluding money transfer payments--and adjust the base distribution of income to reflect these subtractions and additions. Again, the reason for these adjustments is that Census money income includes money used to pay taxes and money transfer payments. If the study is designed to measure the impact of eliminating the public sector, the amounts of taxes must be subtracted from, and the amounts of expenditure benefits, except transfers, added to the basic definition of income. This procedure

yields the distribution of income which includes the distributional impact of the public sector. Essentially, the difference between the two methods is an index number problem, i.e., the only difference is in the income base upon which incidence percentages are calculated.

This study uses the first of the techniques discussed above: the initial income distribution is adjusted by estimating the distribution of transfer payments and subtracting them, leaving a pre-public sector income distribution for Michigan.

Information about either taxes or expenditures alone is insufficient to characterize properly the impact of a public sector; a thorough analysis requires knowledge of both taxes and expenditures. Thus, the attractiveness of this study is enhanced because Douglas Roberts is currently undertaking a tax incidence study for the same time period in Michigan.[11] This dissertation on expenditures has been designed to be complementary to Roberts' dissertation by using the definition and distribution of income he developed for his study (Roberts' income definition and distribution are explained in Chapter IV). By combining the results of these studies, a measure of the total fiscal impact of the Michigan governments will be available.

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[11] Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975).

In addition to an analysis of expenditure incidence similar to those cited in footnote 8, a radical analysis of expenditure incidence is also undertaken in this study. The purpose of doing two types of analyses is to demonstrate that the results of an expenditure incidence study are sensitive to basic assumptions about the role of the State in an advanced capitalist society. The comparison of results is facilitated by using procedures similar to those used in previous studies in each of the two analyses. The results will differ principally because of the different assumptions about the role of the State.

The conventional analysis is similar to previous studies of this type and allocates expenditures by procedures similar to those used in previous studies. The radical analysis, on the other hand, relies on a Marxist analysis of the role of the State in a capitalist society and uses incidence assumptions which follow from socialist premises about the State.

The Scope of the Study

The five expenditure categories discussed in later chapters are (1) transfer payments (including debt interest, welfare, unemployment insurance, workman's compensation and government retirement programs), (2) education, (3) highways, (4) health and hospitals, and (5) all other general expenditures. This classification is based on definitions used in the Bureau of the Census publication Governmental Finances

in 1969-70.[12] Fiscal 1970 was chosen because it coincides with the period analyzed by Roberts and because data are more readily available for this period than for more recent years. Census data were chosen because of their consistent and well-defined expenditure categories and because they are the only sources that include all local-level expenditures.

The analysis of each of the five expenditure categories is discussed in two separate chapters; for each expenditure category there is a chapter which contains the conventional analysis and another chapter which contains the radical analysis. Transfers, education, highways and health and hospitals comprise approximately 77 percent of public sector expenditures in 1970. For the purpose of this study, these first four categories are called "specific goods expenditures." The final category, which includes items such as police, fire and sanitation expenditures, is called "general goods expenditure."

The rationale for this distinction is that expenditures for education and highways, for example, are assumed, in the conventional analysis, to be undertaken principally to benefit specific groups of people, e.g., students and highway users. These groups of people are identifiable and the benefits of public sector spending on their behalf

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[12] U.S. Department of Commerce, Bureau of the Census, Governmental Finances in 1969-70 (Washington: U.S. Government Printing Office, 1971).

can be allocated to them. Expenditures for police protection and sanitation, on the other hand, are assumed to benefit everyone in the society and particular beneficiaries are not identifiable.

The next two chapters are devoted to discussions of the conventional and radical analyses. Both types of analysis are examined with respect to the literature concerning each and the criticisms to which they may be subject. In each case, the analytical model for the expenditure incidence calculations which follow is developed in these chapters.

Chapters IV and V deal with the distribution of income and transfer payments from the conventional and radical approaches, respectively. The remaining chapters contain the analyses of the other four expenditure categories, a summary of the incidence of all expenditures and a conclusion.

CHAPTER II

THE CONVENTIONAL ANALYSIS

Before beginning the discussion of the methodology employed in this dissertation, an examination of previous studies of this type is appropriate. In all cases, these studies rest on two major premises: (1) that the impact of governmental tax and expenditure policies is measurable and that this impact is not the same for all income groups, and (2) that the benefits of government expenditures are ultimately conferred on individuals and that these individuals can be identified.

Underlying the first premise is the idea of introducing into a private economy a public sector which provides social goods. The individuals in the private economy have measurable incomes, or collections of assets, which define their economic positions. Introducing a public sector which supplies social wants diverts resources from the private sector and influences the previously existing economic positions of the individuals. The ultimate adjustment to those changes in economic positions is the result of the

taxes an individual pays and the benefits a person receives from government expenditures.[1] The change in economic position is what is commonly used to define incidence.

Tibor Barna expresses the rationale which supports the second premise:

> The central idea, in the conception of the redistribution of incomes, is that the entire national output is allocable to the factors of production, the entire national income accrues to individuals, and the entire national expenditure benefits individuals.[2]

Two alternative methods of attributing the benefits of government expenditure to individual recipients, identified as members of an income class, have been advanced in the conventional studies. The alternatives are called the money-flow concept and the benefits-received concept. (The latter is also known as the costs-incurred-on-behalf-of concept.) Both concepts assume that transfer payments accrue to the recipients, but the money-flow concept would assume that, for example, government subsidies for education accrue to educators, while the benefits-received approach would assign the benefits of the subsidies to those who receive the educational advantages. The benefits-received approach considers money flows as intermediate products and the output of services as the final products. As Adler points out, the

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[1] W. Irwin Gillespie, The Incidence of Taxes and Expenditures in the Canadian Economy, Report No. 6.1, a study prepared for the Royal Commission on Taxation (Ottawa: Queen's Printer, 1965), pp. 1-2, cited in Ross, op. cit., pp. 11-12.

[2] Barna, op. cit., p. 15.

implication of the money-flow concept is that the incomes of those who actually receive the government payments (in this example, the educators) would be zero in the absence of the government program.[3] Thus, in Adler's opinion, and apparently in the opinions of the authors of other expenditure incidence studies, the money-flow concept is inappropriate, except in the case of transfers.

The inappropriateness of the money-flow concept derives from the assumption that expenditures are not undertaken to benefit educators but are made to benefit the students who receive the education. The benefits-received concept is derived directly from conventional assumptions about the role of the State. Essentially, the neoclassical theory limits the State to interferences in the private market system for three purposes: to stabilize the economic system, to allocate economic resources efficiently, and to adjust the distribution of income and wealth which results from the interplay of market forces.[4]

These functions are justified, in the conventional ideology, by the assumption that the State represents individual wishes and acts in the interests of the society as a whole. Thus, when the government, acting for the State, undertakes expenditure programs to change the market allocation of resources or the distribution of income, it

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[3]Adler, op. cit., pp. 360-361.

[4]Musgrave, op. cit., p. 5.

is acting in the interests of all segments of society when it provides general goods, or in the interests of specific groups in the society when it provides specific goods.

The General Equilibrium Problem

There are several implications which arise from the benefits-received approach which could make it of doubtful value as well. The first is that in the absence of a public sector, the underlying income distribution would be unchanged. For example, most of the studies using income as a measure of economic position use either one or both of two income definitions: the first definition is before-tax and does not include transfer payments and benefits of expenditures, i.e., this approach excludes the impact of the public sector; the second definition is after taxes and includes transfer payments and expenditure benefits.

The incidence, by income class, of expenditures and taxes is then applied to these income definitions and distributions. None of the authors of these studies, however, explicitly accounts for the influences that the introduction of government has on the income distribution beyond that reflected solely in taxing and spending. Aaron and McGuire summarize this problem succinctly:

> The distributional studies noted do not attempt to solve the general equilibrium problem of closing governments down and reallocating their resources to the private economy. As an approximation, they attempt to estimate for each income class its income before taxes <u>at the existing equilibrium</u>

and its expenditure equivalent after government disbursement, at the same existing equilibrium.[5]

The general equilibrium problem is serious, but equally important is the idea that the no-government or pre-public sector situation is realistic. In other words, is the government/no-government comparison either useful or relevant, especially as regards the notion that incomes are unchanged in the absence of government? If the analysis were concerned with a single expenditure, or even a group of expenditures, rather than with all government spending, it would be more reasonable to assume that the underlying distribution of income would be unchanged in the absence of these programs; government policies to promote full employment and the marginal impact of these programs would tend toward this result. But, when government spending in toto is discussed, the assumption is tenuous and even nonsensical.

In the case of a specific expenditure or tax it is possible to use as a comparison for incidence purposes the incidence of another program which was not enacted or the most efficient alternative to the existing program. The no-government assumption is, of course, unrealistic, but it might be possible to hypothesize what the no-government labor force participation and savings rates would be, and use these estimates to derive a no-government income

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[5]Henry Aaron and Martin McGuire, Public Goods and Income Distribution, Reprint 202 (Washington: The Brookings Institution, 1971), p. 907.

distribution.[6] This latter alternative would avoid the tenuous assumption that the income distribution is unchanged in the absence of government. Computing the pre-government income distribution, however, would involve conjecture and assumptions which could be at least as quarrelsome as those of the original government/no-government assumption.

For the purposes of this study it should be kept in mind that these criticisms have been levied against fiscal incidence studies in general, but primarily apply to federal-level studies. In the case of state-level studies, the general equilibrium issues are not as significant. This is because federally-determined economic, legal and political policies are more important variables in the determination of a state's income distribution than are state-level policies. This results from at least two principles: (1) State-level economies are deeply intertwined with the national economy and therefore are heavily influenced by and dependent on federally-determined economic policy. A good example of the dependence of the economic health of Michigan on the national economy is given by a comparison of unemployment rates in Michigan and the U.S. Since 1967 Michigan's unemployment rate has always been higher than the national rate and has varied directly with

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[6]Eugene Smolensky, unpublished memorandum, University of Wisconsin, courtesy of Leanna Stiefel.

changes in the national rate.[7] The automotive industry in Michigan also reacts to changes in national economic conditions and is an important barometer of economic conditions within the saate. Further, at a level of approximately $5 billion, the public sector budgets in Michigan amount to less than 3 percent of the level of federal spending in fiscal 1970. (2) Similarly, the legal and political policies imposed by state-level governments are also limited and guided by federal laws and policy. Constitutional arrangements and political organizations are, of course, the most important examples of these constraints.

The conceptual exercise of inserting or removing a state-level public sector is more acceptable (although no more realistic) in this context because the underlying income distribution would be less subject to change as a result of this relatively marginal influence. At the very least, the bias introduced by this no-government assumption is small compared to that present in national-level studies. In some ways a state-level study is analogous to the analysis of a single expenditure item in a national budget; i.e., the impact of the program is relatively small compared with the magnitude of the major determinants of the distribution of income.

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[7] "Labor Force and Unemployment Characteristics," a draft paper prepared by the Mayor's Office of Manpower for the Labor Market Advisory Council, Detroit, Michigan, May 3, 1974.

Distributing General Goods Expenditures

Another criticism of previous studies of this type has been levied against the methods used to distribute the benefits from government expenditures. This problem arises primarily in the distribution of benefits from general goods and also the benefits of expenditures which can be assigned partially to specific individuals but which also generate major externalities.

There is considerable uncertainty among the authors of previous studies about the proper method of distributing general expenditure benefits. General expenditures typically have been allocated either by the distribution of income, on a per family basis, or by a combination of the two. Aaron and McGuire have shown that allocation of general expenditures is particularly sensitive to assumptions about the nature of the utility function of the benefit recipients. Their analysis recognizes that the knowledge of household utility functions which is necessary to assign values to consumption of public goods is lacking. But, they also state a need to generate estimates of the influence of assumed utility functions on the distribution of general expenditures. Therefore, Aaron and McGuire arbitrarily assume two general utility functions and compare the results derived from these functions with those of the functions implicit in previous studies.[8]

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[8]Aaron and McGuire, op. cit., p. 910.

The basis on which they assume these functions is that it is possible to hypothesize the shapes of utility functions, on the average, which will yield estimates of individuals' marginal rates of substitution between private income and general goods. To use this method, one assumes that taxes have been levied for the provision of redistributive transfers and specific goods and that the pre-public sector income distribution has been adjusted by allocating taxes, transfers and specific goods income to each income class. This calculation will yield the average amount of "private" income in each income bracket. The marginal rate of substitution between this private income and general goods determines the value of general goods benefit allocated to individuals in each income bracket.[9]

Previous studies have made no mention of the utility functions implicit in the distributional techniques employed: that assigning benefits on a per-family basis implies a constant marginal utility of income. The utility functions used by Aaron and McGuire assume, in the first case, that marginal utility of income is always positive, declines with income, and that the total utility rises without limit as income rises; the second function implies that marginal utility is always positive but tends to zero as income rises and that total utility converges to an arbitrary constant. The functions are $MU(Y) = Constant/Y$ and $MU(Y) = Constant/Y^2$,

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[9] Ibid., p. 919.

Where Y is the sum of disposable income and specific goods income. Essentially, the result of using both functions is to allocate benefits inversely to the marginal utility of income because the functions imply that willingness to pay for public goods rises with income. The results show significantly different distributions of general expenditure benefits from those calculated in the Tax Foundation study.[10]

Specifically, the Tax Foundation study found significant income redistribution from income classes over $6,000 to lower income classes. Aaron and McGuire, depending on which function they applied, found that the redistribution was less than that shown by the Tax Foundation, although in the same direction (MU = Constant/Y), and that in the case of the function MU = Constant/Y^2, positive amounts of redistributed income were received by both the lowest and highest two income classes, while the middle groups received negative amounts.

Aaron and McGuire were unable to be specific about the most appropriate utility function. Maital[11] claims to have resolved this uncertainty by citing the results of three empirical studies designed to estimate the marginal rate of substitution between general goods and private

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[10] Tax Foundation, Inc., op. cit.

[11] Shlomo Maital, "Public Goods and Income Distribution: Some Further Results," Econometrica, Vol. 41 (May, 1973), pp. 561-568.

income. The proper utility function, according to Maital, is $MU(Y) = C/Y^{1.5}$.[12]

In spite of Maital's claim that his utility function will yield ". . . believable and unambiguous estimates of the net incidence (taxes less benefits) of the entire fiscal system,"[13] this study uses five allocative methods: (1) on a per family basis, (2) by the distribution of adjusted broad income, (3) one-half by income and one-half per family, (4) using $MU(Y) = C/Y^{1.5}$ where Y is determined by using Robert's least progressive tax incidence data, and (5) using $MU(Y) = C/Y^{1.5}$ under Robert's most progressive tax incidence assumptions.[14] By not relying on a single means of valuing and distributing the benefits of expenditures for general goods, a range of assumptions about individual utility functions is retained. These five assumptions about the allocation of general goods benefits also yield a range of incidence estimates: Assumption 1 yields the most regressive (pro-poor) results, and Assumption 4 yields the least regressive results.

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[12] Ibid., p. 567.

[13] Ibid., p. 561.

[14] Roberts, op. cit. The calculations are made by assuming that the product of the marginal utility of private income times the family's share of general goods benefits is equal for all families. Thus, $MU_i(Y_i) \times E_i = MU_j(Y_j) \times E_j$, where E_i is the share of general goods benefits which accrues to each family in the ith income bracket, and Y_i is the mean disposable income in the ith income bracket; Aaron and McGuire, op. cit., p. 914.

A simple arithmetic example will demonstrate the use of the Maital function: assume there are two income

The Problem of Benefits in Kind

The problem of the choice of utility functions is partially resolved by use of the function specified by Maital, but this leads directly to another problem of valuing benefits. At issue is the value to beneficiaries of in-kind transfer payments. The conventional approach to expenditure incidence has been to assume that the costs incurred by the government were equal to the benefits received by the recipients. Generally speaking, however, equal dollar amounts of cash and in-kind benefits will not be valued equally by recipients because in-kind benefits remove the element of choice involved in the use of cash payments. Thus, there could be a need to weight in-kind benefits in such a way as to make them comparable to cash receipts.[15] The need for weighting to calculate welfare-equivalent cash transfers would arise if benefit weights, i.e., the ratio of the subjective benefits of in-kind programs to taxpayer cost, were not equal to unity.

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brackets with two families in the first bracket and three families in the second bracket. The mean income in the first bracket is \$4 and the mean income in the second bracket is \$9. Then, (1) $C/4^{1.5} \times E_1 = C/9^{1.5} \times E_2$; if the total amount of general goods benefits is 10, then (2) $2E_1 + 3E_2 = 10$. Therefore $\frac{C/8}{C/27} = \frac{E_2}{E_1}$ and $E_2 = 3.75\ E_1$ $E_2 = 10\text{-}2E_1$, from (2). Solving for E_1 and E_2 yields $E_1 = .825$ and $E_2 = 2.783$; the amounts of general goods benefits accruing to each income bracket are 1.65 and 8.349.

[15] Leanna Stiefel, M. Schmundt, and Eugene Smolensky, "When Do Recipients Value Transfers at Their Costs to Taxpayers?" in Integrating Income Maintenance Programs, ed. by Irene Lurie (Madison: Institute for Research on Poverty, 1974).

The difficulty in measuring benefit weights is considerable, as evidenced by the preliminary work of Stiefel, et al., and the value of weights in a study such as this is doubtful. The relative magnitude of expenditure programs for which benefit weights might be useful in this study is small. The focus of this study is on five major categories of spending, only one of which (public welfare) includes a significant amount (53 percent) of one of the in-kind benefits (medicaid expenditure) discussed by Stiefel, et al. The redistributive impact of using welfare equivalent amounts for this single category, which comprises less than 4 percent of total expenditures, would be minimal. Thus, it seems that the work by Stiefel, et al., is particularly important in national studies where the impact of in-kind programs is relatively greater. Until (and unless) reliable benefit weights can be calculated it is sufficient to note that the assumption of costs equal to benefits may impart a small bias toward more redistribution than may actually occur.

The Problem of Lifetime Income

Another criticism of conventional incidence studies is more far-reaching than those discussed thus far. All of these studies have been undertaken on a cross-sectional basis and examined a one-year period and arrived at results for that period. The question that has been raised by

Polinsky[16] is whether a one-year slice is the relevant period over which to measure fiscal incidence. This problem arises because current income is not always a good indicator of lifetime income and because of the distinction between the inequality of annual and lifetime income.[17]

Polinsky points out that there are three redistributional effects of a fiscal structure. One redistributes current income among individuals, another redistributes lifetime income among individuals, and the third redistributes income among different periods of an individual's life.[18] Conventional studies have dealt with the first type of redistributional effect and therefore may be misleading with respect to the long-term effects of the fiscal system.

Because the distribution of income depends, in part, on the age of the individuals, a study which finds, for example, that a given fiscal system is redistributive to low-income families may mistakenly be interpreted as meaning that the fiscal system also is redistributive to poor people over the long term. The mistake could arise if many of those who are poor in the one-year time period have lifetime income streams which rise after this period. Thus, the

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[16] A. Mitchell Polinsky, "A Note on the Measurement of Incidence," Public Finance Quarterly, Vol. 1 (April, 1973).

[17] Ibid.

[18] A. Mitchell Polinsky, "Imperfect Capital Markets, Intertemporal Redistribution and Progressive Taxation" (unpublished manuscript, May, 1973), p. 2.

result would be that the fiscal system redistributes income to them in one period only to redistribute income away from them in later periods when their incomes rise relative to others.

Data about the impact of government programs on cross-sectional distributions of income may not be relevant if income profiles of individuals change dramatically over time, resulting in changes of relative positions in the income distribution.[19] Rather, it would seem that the distribution of lifetime income should be the measure against which the incidence of a fiscal system should be measured. The pervasiveness and persistence of income inequality make it desirable to know how the fiscal system redistributes lifetime incomes. The biggest problem in satisfying this desire is the almost complete lack of data for lifetime incomes for a large sample of people over a long period of time. In the meantime, it is important to recognize that cross-sectional studies provide only part of the data needed to analyze the impact of a fiscal system on the distribution of income. They cannot show, on the basis of existing evidence, that when a fiscal system is found to be regressive,[20] this

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[19] Polinsky, "A Note," op. cit., p. 227. He cites evidence which supports the hypothesis of considerable movement between income classes.

[20] As they are used in the literature, the terms regressive and progressive can be confusing. To avoid confusion in this study, their usage will be consistent with that of tax incidence studies, i.e., regressive implies that the incidence of expenditures as a proportion of income declines as income rises.

implies a fundamental redistribution of income. Quite to the contrary: although redistribution has occurred, it may have been from those temporarily wealthy to those temporarily poor, and this does not tell us what is happening to concentrations of either poverty or income.

The Identity of Benefits and Costs

In addition to the problems of valuing in-kind benefits, there are other considerations which make the assumption of the identity of costs and benefits tenuous. The first is that, as Bird and DeWulf[21] point out, benefits may be weighted by the degree of involvement in the decision-making process by recipient groups. Those most involved will value the outputs more highly because the services are more likely to coincide with the preferences of this group; those not involved in decision-making will be less interested in the package of public expenditures.[22] Secondly, if the political process is Pareto-efficient, so that no one loses as a result of the programs, benefits will be no less than costs, and probably will exceed costs.

By assuming interdependence of individual utility functions, Hochman and Rodgers found that redistributive programs may not involve losses of utility from people who lose income. This result is possible if the utility of

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[21] Bird and DeWulf, Fiscal Incidence Studies, op. cit.

[22] Ibid., p. 47.

income is replaced by the utility of giving or of feeling better off because those who received redistribution of income are better off.[23]

These considerations cast doubt on the identity of the costs and benefits, or the accounting approach. None of the conventional expenditure incidence studies has used anything other than the accounting approach, but Neenan has used a model in which benefits exceeded costs in his work on intra-metropolitan fiscal incidence.[24]

To account for the possibility that benefits may exceed costs is a difficult task, especially in the light of the lack of agreement on beneficiary identification and the allocation of general goods expenditures. Neenan's method adjusted benefits to suburbanites by the ratio of median income in the suburbs to median income in the city. The basic assumption underlying this method is that the value of benefits initially measured by cost can be adjusted by a "willingness to pay multiplier."[25] Thus, Neenan assumes that as incomes rise people are more willing to pay for public services, and this willingness to pay can be used to value benefits.

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[23]Harold Hochman and James Rodgers, "Pareto-Optimal Redistribution," American Economic Review, Vol. 59 (September, 1969), pp. 542-557.

[24]Neenan, op. cit.

[25]Ibid., p. 25.

Neenan cites the evidence of three empirical studies of voting behavior to support his willingness to pay assumption. The general conclusion of the three studies was that, above some minimum income threshold, willingness to pay for public services is a rising function of income.[26]

In Neenan's study median income in Detroit is used as the base and the multipliers for suburbs are calculated on the basis of the difference between median income in a suburb and median income in Detroit.[27] Using Neenan's procedure in this study would require a reference income group, the choice of which would be arbitrary. Further, Neenan's technique is based on assumptions about local tax incidence, and the willingness to pay assumption is based largely on the assumption of regressivity in the local tax system. There is no basis, in this study, for an analogous assumption about the state and local tax system. Finally, Neenan's use of the willingness to pay multiplier to adjust the value of benefits initially valued at their costs means that the value of benefits exceeds their costs. It would be inconsistent, in this study, to value general goods benefits differently than specific goods benefits which may also be valued differently than their costs. Since Aaron and McGuire and Maital have examined the assumption of willingness to pay and specified a utility function, it seems preferable to adopt their methodology rather than Neenan's.

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[26] Ibid., p. 22.

[27] Ibid., p. 25.

Summary and Methodology

Taken as a group, the criticisms discussed thus far delineate the most serious limitations inherent in conventional fiscal incidence studies. The proper response to this evidence is to make such modifications of conventional studies as are possible in attempts to eliminate the shortcomings. To the degree that this is not possible, the remaining shortcomings should be made explicit and, as Bird and DeWulf advise, ". . . the assumptions . . . [should] be stated more explicitly and argued more convincingly and the results displayed with more caution and humility, as befits the present state of the art."[28]

The present state of the art of fiscal incidence is not such that all shortcomings can be removed. Data do not exist, and cannot be generated for the purpose of this study, which shed light on lifetime incomes of Michigan residents. The general equilibrium problem remains, although a state-level study reduces sufficiently the bias this problem introduces.

The choice of utility functions also remains to be resolved, but demonstrating the sensitivity of results to various assumptions about these variables should be adequate for the purposes of this study. Lack of reliable benefit weights precludes a resolution of the problem of in-kind benefits, although the magnitude of this type of benefit is so small as to introduce only a minimal bias.

In spite of the limitations of previous studies and those which remain in this study, there is a need in Michigan for information about the incidence of the public sector. The companion tax incidence study now under way (the Roberts research), in combination with this study, will provide this information. But the existence of the tax incidence study has been an influence on the limits and direction of this study because of the need to arrive at compatible estimates of incidence. In order to achieve this objective, the definition and the distribution of income in Michigan in 1970 developed and used by Roberts in his study of tax incidence[29] has been adopted for use in this study. A discussion of this income distribution and the distribution of transfer payments is the subject of Chapter IV.

Because a part of the importance of this dissertation lies in its relationship to and compatibility with the Roberts study, it is necessary to dichotomize the analyses of the various expenditures. The impact of each expenditure program is evaluated using both conventional and radical assumptions.

The conventional techniques include five assumptions regarding the distribution of general goods expenditures. Allocation of the benefits of general goods expenditures is made in five ways: on an equal per family basis, by adjusted broad income, one-half by adjusted broad income

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[29]Roberts, op. cit.

and one-half by families, and using the utility function recommended by Maital ($MU(Y) = C/Y^{1.5}$) under the two tax incidence results from Roberts' study. Using these five methods will demonstrate the sensitivity of the results to the various assumptions; previous studies typically used only one or more of the first three methods. In addition, various proportions of the general goods component of expenditures for specific goods are allocated using the same five allocative procedures listed above.

Many of the limitations of the conventional approach are either unresolvable in this study or unlikely to result in markedly biased results, as the discussion in previous sections indicates. Further, since there are other state-level studies, it is useful to employ the conventional methodology in this study for the purpose of comparing the results of similar studies.

CHAPTER III

THE RADICAL CRITIQUE AND A PROPOSED RADICAL ANALYSIS

The criticisms of studies of fiscal incidence discussed in the previous chapter have been levied by economists working in the neoclassical economic tradition. It is important to realize, however, that there are economists who reject the neoclassical paradigm and who elaborate on and extend the analysis and criticism of capitalism by Karl Marx. Modern radicals are critical not only of advanced capitalism but also of conventional neoclassical analyses. A fundamental, although tacit assumption in conventional incidence studies is that the State acts within certain limits to perform functions which benefit either specific groups within society or benefit all members of society. The neoclassical theory of the role of the State has never been questioned in any conventional fiscal incidence study. The implication of this procedure for conventional studies is that even if the analytical procedures in the studies are correct, the studies themselves may be

flawed because their assumption about the role of the State is open to serious cricism.[1]

The purpose of this chapter is to propose an alternative to the conventional analysis of expenditure incidence. This alternative is based on a radical, neo-Marxist theory of the role of the State. Unlike conventional studies, however, the radical framework developed in this chapter, and used in later chapters to distribute expenditure benefits, includes an explicit discussion of the role of the State in a capitalist society.

This chapter begins with an analysis of the role of the State and develops a model for expenditure incidence based on a radical theory about the State. The nature of benefits and benefit recipients receives a careful analysis because of the significant departure from the conventional assumptions. The importance of James O'Connor's The Fiscal Crisis of the State[2] for the identification of benefits and benefit recipients is also discussed in a separate section of this chapter. A methodological summary is included to bring together the structure of the radical analysis as it is used in later chapters.

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[1] Paul Sweezy, The Theory of Capitalist Development (New York: Modern Reader, 1942), Chapter 13, especially pp. 240-244.

[2] James O'Connor, The Fiscal Crisis of the State (New York: St. Martin's Press, 1973).

The Role of the State

The assumption in conventional expenditure incidence studies which is most subject to criticism involves the procedure by which the beneficiaries of government expenditures are identified. The benefits-received concept as it is used in conventional studies rests solidly upon the unquestioned assumption of the liberal theory of the role of the State in a capitalist economic system. This theory essentially limits the government to interferences in the private market economy for three purposes: (1) to allocate resources efficiently among private markets; (2) to alter the distribution of income which results from the forces of private markets; and (3) to stabilize the private market system.[3]

These functions are justified, in the liberal ideology, by the assumption that the State, through the action of a representative democracy, represents individual wishes and acts "to advance the interests of all individuals."[4] Individuals enter into collective relationships because they wish to accomplish goals which would otherwise be unattainable or more costly than acting individually.[5] Buchanan and

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[3]Musgrave, op. cit., p. 5.

[4]David Gordon, ed., Problems in Political Economy: An Urban Perspective (Lexington, Mass.: D. C. Heath, 1971), p. 10.

[5]James M. Buchanan and Gordon Tullock, The Calculus of Consent (Ann Arbor: The University of Michigan Press, 1962), p. 13.

Tullock view collective action as ". . . a genuinely co-operative endeavor in which all parties, conceptually, stand to gain."[6] This model is analogous to the model of competitive markets in which each individual pursues his or her own self-interest. If office holders, in this model, seek to maximize their support among voters they will propose programs which satisfy a majority of their constituency.[7] The budgetary results of this process should reflect the attitudes of the citizenry.

In the conventional analysis, the State is mediator among various interests and classes, and does not represent any single interest or class in the society. Thus, the assumption underlying the conventional benefits-received approach is that although some government expenditures are undertaken for ad hoc purposes to benefit specific groups of people, e.g., transfer payments, many expenditures are undertaken for the benefit of all segments of society. Even transfer payments yield redistributive effects which are in accord with the social welfare function of the society.

Radicals on the other hand, content that the pluralistic assumption is erroneous and that the State and the whole of society are in fact directly or indirectly controlled by a ruling class comprised primarily of capitalists. While there is no single radical theory of the role of the

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[6] Ibid., p. 266.

[7] Ibid., p. 241.

State in a capitalist system, there is agreement among Marxist theorists that the role of the State is more complex than it was described by Marx and Engels in the Communist Manifesto: "The executive of the modern state is but a committee for managing the common affairs of the whole bourgeoisie."[8]

It is not important, for this study, to analyze and explain each of the many theories about the State which have arisen from the general characteristics formulated by Marx.[9] What is important, however, is the agreement among modern Marxists about the role of the State. The essential points of agreement center around two related functions which the State performs: (1) The State must broadly serve the needs of the dominant class in the society (capitalists) and (2) it must seem to be

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[8]Karl Marx and Fredrick Engels, "The Communist Manifesto," in The Capitalist System, ed. by Richard C. Edwards, Michael Reich and Thomas E. Weisskopf (Englewood Cliffs, New Jersey: Prentice-Hall, 1972), p. 68.

[9]See, for example, David Gold, Clarence Lo and John Mollenkopf, "Some Recent Developments in the Marxist Theory of the State" (a paper presented at the winter conference of the Union for Radical Political Economy, December 30, 1974); Ralph Miliband, The State in Capitalist Society (New York: Basic Books, 1969); see also the debate between Miliband and Nicos Poulantzas in Ideology in Social Science, ed. by Robin Blackburn (New York: Vintage Books, 1973), pp. 238-262; and Miliband, "Poulantzas and the Capitalist State," New Left Review, No. 82 (November/December 1973); other articles of interest are Amy Beth Bridges, "Nicos Poulantzas and the Marxist Theory of the State," Politics and Society, Vol. 4 (Winter 1974), pp. 161-190; and Alan Wolfe, "New Directions in the Marxist Theory of Politics," in the same issue of Politics and Society.

representative of all classes in the society because the society is ostensibly democratically organized.

As Wolfe and Bridges make clear, the idea of the State as simply the instrument of the dominant class is too simplistic because it ignores the historical development of the State and the origins of its power.[10] The origin of State power, according to Bridges, is twofold: popular support and its commitment to capitalist interests.[11] Thus, the development of the State has been a result of the struggle among class interests, and the continued existence of the capitalist State depends on its ability to meet the accumulative demands of capitalists while at the same time disguising this role by seeming to be universally representative. This latter need gives rise to the legitimization (or legitimation) function of the State without which it could not command support from the majority of the populace. The State seems to be legitimate because it performs certain functions to stabilize the economy and to benefit classes other than capitalists, thereby ensuring its legitimacy. Wolfe describes this contradiction of roles as the practice, by the State, of "alienated politics," i.e., the State derives its power from the dominated majority and exercises this power on behalf of the dominant class:[12]

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[10]Wolfe, op. cit., p. 148 ff; Bridges, op. cit., pp. 177-178.

[11]Bridges, op. cit., p. 178.

[12]Wolfe, op. cit., p. 148.

the State "must simultaneously be a class state and a universal state, which it can only do by claiming the latter in some false way."[13]

A capitalist State depends for its power to perform its functions on generating revenue from wages and profits, so it must serve the accumulation needs of capitalists. The State serves the interests of the capitalist class in two ways: It directly aids that class "by providing services only to members of the class," and it indirectly supports capitalists "by helping to preserve the system of institutions which support and maintain the power of that class."[14] But it must also be aware of and responsive to the demands of dominated classes, without whose support the State would lose its legitimacy. The organization of production under capitalism is such that not only are workers alienated from their work and the products of their labor, but they are also subject to economic insecurities, such as unemployment, which are not typically visited upon members of the capitalist class. The State must, therefore, insure that its policies seem balanced among classes.

The preceding discussion admittedly ignores important aspects of the various theories of the State. It is sufficient for the purposes of this study, however, because the basic elements of the theory demonstrate the departure

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[13] Ibid., p. 149.

[14] Gordon, op. cit., p. 6.

from the conventional theory of the State and provide an analytical framework in which to reconsider the incidence effects on income of State actions. The discussion of O'Connor's work will lend additional insight into the two basic functions of the State.

There are "insidious political implications"[15] in using the conventional benefits-received, or costs-incurred-on-behalf-of, concept of expenditure distribution because it denies that the State plays an important role in the class conflict between workers and capitalists in a capitalist economy. The State acts to defuse political threats against the system by workers and the surplus population and to ameliorate conflict between classes which might endanger the system.[16] For example, welfare expenditures are commonly considered to benefit poor people. On its face, this seems to be a reasonable proposition. But, if some people are poor because of the socioeconomic system, and if welfare payments act to co-opt their anger against the system, can the welfare system be said to benefit only the poor?

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[15]This phrase was used by Mitchell Stengel and the author is indebted to him for the suggestion.

[16]Richard Edwards and Arthur MacEwan, "A Radical Approach to Economics," in Gordon, op. cit., pp. 20-21.

Stephan Michelson has specifically applied a radical view to fiscal incidence studies.[17] Essentially, Michelson has said that there is much more to the impact of governments than their tax and expenditure policies. Researchers, Michelson advises, also should examine the impact of other government policies and actions. The liberal view of the State, however, is unsatisfactory for this purpose because, according to Michelson,

> What good is an analysis of government action in a capitalist system which ignores how capitalist governments act? If, in fact people attain an income class through government action, and the government maintains them in that relative if not absolute class, shouldn't the measurement of the effect of the government on income distribution count that fact?[18]

Michelson goes on to suggest that the distribution of income that results from government policies should be compared not to the same underlying distribution but to a distribution which would obtain either in the absence of these policies, or under different policies, or, preferably, under a different socioeconomic system entirely.

There would seem to be two ways to correct this possible fault of conventional studies. One is to hypothesize a distribution of income that would exist under what a person considers "the good society," to borrow Michelson's phrase, and compare the hypothesized distribution with the

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[17] Stephan Michelson, "The Economics of Real Income Distribution," Review of Radical Political Economics, Vol. 2 (Spring, 1970), pp. 75-86.

[18] Ibid., p. 77.

existing income distribution. However, there is probably a broad spectrum of income distributions desired by different people. The result of such an inquiry, therefore, would be several studies of fiscal incidence, the conclusions of which would not be compatible because of the varying original, "ideal," income distributions.

The choice of a basic income distribution to meet Michelson's "good society" criterion is difficult in a study such as this. It has already been suggested that state and local levels of government are less influential than the federal government in determining the distribution of income within a single state. It would be inappropriate, therefore, to assume an income distribution within Michigan vastly different from that which exists.

Another alternative is to attempt to quantify the impact of various government policies on the distribution of income. Of course, this raises very difficult conceptual questions, such as attempting to measure the effect of the existence of the Department of Defense on its present scale or the impact of the pervasive influence of large-scale monopoly corporations. Further, what are the effects of legal protections of private property, especially as they pertain to the rights of corporations? It seems that this type of analysis involves so many debatable issues that it is unlikely to answer the criticism of fiscal incidence studies. What is important, however, is the recognition that fiscal incidence in a narrow sense is not the sole

impact of governments on the distribution of income; in fact, it may not be even the primary influence.

The proposed radical analysis, however, is designed to meet, in part, Michelson's first criticism of conventional studies: that they ignore how the government acts to maintain the existing income distribution by supporting the class system and institutions of capitalism. This question is precisely what the radical analysis attempts to answer by examining the role of the State in expenditure incidence.

Thus, from a radical perspective it is necessary to identify those who actually receive the benefits of government expenditures. It is incorrect, for example, to assume that transfer payments benefit only the direct recipients of the payments if the real purpose of these payments is to suppress or diminish class conflict. Rather, the ultimate beneficiary of at least part of expenditures undertaken for this purpose is the capitalist class. Another example of the difference between a radical analysis and the conventional technique is the treatment of education expenditures. The most widely used conventional incidence assumption is that the families of students are those on whose behalf the expenditures are undertaken. On the other hand, a radical analysis would allocate some fraction of these expenditures to capitalists because of the extent to which the educational system is designed to meet the needs of monopoly capital for workers with specific knowledge and the socialization necessary to function in the capitalist society.

The Fiscal Crisis of the State

It is appropriate at this point to discuss the implications for this study of the pioneering work of James O'Connor.[19] O'Connor has made more specific the radical theory of the State by developing a theory of the budgetary process of the capitalist State in the U.S. His study is designed to identify the determinants of the level and composition of government budgets in this country. O'Connor identifies three distinct divisions in the economy: the monopoly, competitive and State sectors. In addition he discusses five client groups of the State: monopoly capital, monopoly labor, competitive capital, competitive labor and State labor. In addition, although the surplus population is not a client group (because its composition is principally former members of competitive labor), its existence is also an influence upon the actions of the State. The State serves the interests of capital in general, and monopoly capital in particular, by enacting expenditure and tax programs which benefit capital while at the same time seeming to meet the needs of the other client groups as well.

The State, according to O'Connor, has ". . . two basic and often mutually contradictory functions--accumulation and legitimization."[20] In other words, the

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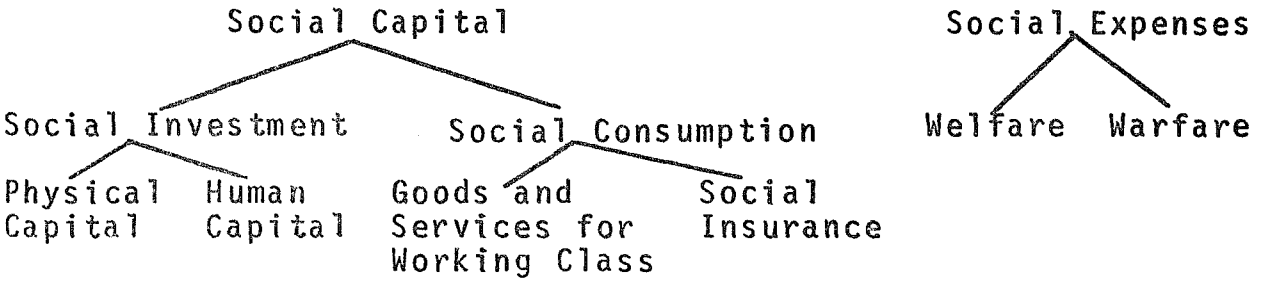
[19] O'Connor, op. cit.

[20] Ibid., p. 6.

State must establish and maintain conditions under which private capital can be accumulated, and at the same time it must create and maintain social harmony.[21] One means of achieving these ends is for the State to undertake expenditure programs. The following diagram shows O'Connor's classification of expenditures.



As the diagram shows, O'Connor categorizes expenditures into two broad groups: social capital and social expenses. Under the heading of social capital are two subgroups of expenditures, social investment and social consumption. Social investment expenditures are classified into physical and human capital and serve two purposes: (1) they increase private sector profit rates by undertaking projects without which the private investments would be unprofitable; and (2) they provide incentives for new private investment which otherwise might not have been undertaken.[22] Highway expenditures, for example, contain elements of both of these purposes because highways offer access to profitable places for new businesses to locate and act to

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[21] Ibid., p. 6.

[22] Ibid., p. 102.

increase the viability of existing private investments along the highway route.

Expenditures for social investment are made in response to the needs of monopoly capital for more and better physical and human capital. These needs are the results of the increasing complexity of production in the monopoly capital sector and the large scale of physical investment projects.[23] At the state and local levels, these types of expenditure, particularly those which are incentives for new investment, are important as methods of attracting industry and a tax base to states and communities.

Social consumption expenditures can also be sub-grouped into two classifications: "goods and services consumed collectively by the working class and social insurance against economic insecurity."[24] These expenditures, according to O'Connor, allow money wages to be lower because the costs of the programs are socialized. Thus, monopoly capital supports these expenditures as well.[25]

In O'Connor's analysis, social expenses are best characterized as "welfare and warfare" expenditures. Welfare expenditures are not productive in the sense that they yield surplus value, or profits, and they are undertaken primarily for legitimization purposes. Warfare expenditures are also principally for legitimization purposes. The need for expenditures of this type arises because of the

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[23] Ibid., pp. 103-104. [24] Ibid., p. 124.

[25] Ibid., p. 124.

relationships of production in the monopoly sector. The needs of monopoly capital are met by these expenditures because they serve to control the surplus population (those unemployed or redundant as a result of production in the monopoly sector) and to gain and control foreign markets which help to absorb the surplus production of the monopoly sector.[26]

It should be emphasized that the three types of expenditures discussed above (social investment, social consumption, and social expenses) are increasing not only because of pressure from monopoly capital, but also from monopoly sector labor. These two groups, in general, according to O'Connor, support the growth of these types of expenditures because it is in their interests to do so. Monopoly capital supports these programs because they tend to increase profit rates, reduce costs to monopoly capital of pension and health programs won by unions in bargaining, and because social expenses increase the tractability of the surplus population. Monopoly unions, on the other hand, support the expenditures becasue they increase productivity and real wages, meet member demands for better health and pension programs, and like capital, because the unions fear the wrath of the surplus population.[27]

These relationships between the monopoly sector and the State also hold true at the state and local levels of

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[26] Ibid., p. 150.

[27] Ibid., p. 41.

government. The major difference in the relationships at the two levels of government is the composition of pressure groups at the state level. At this level, monopoly capital is joined by competitive capital to pressure state-level governments.[28] Nevertheless, O'Connor concludes that "[T]he fiscal function of state governments and agencies thus is chiefly to provide social capital and social investment."[29]

Thus, it appears that in terms of the nature of the role of the State per se, O'Connor has not broken new ground from other modern radicals except to give the State a more autonomous role. The value of The Fiscal Crisis of the State for this study lies in the analytical refinement it gives to the radical theory of the State. By defining the client groups of the State, O'Connor's analysis is an aid in identifying both the benefits and beneficiaries of government expenditures.

The Nature of Benefits and Benefit Recipients

The problem of identifying beneficiaries of government expenditures is made somewhat easier as a result of O'Connor's analysis because he has been specific in defining the client groups of the State. It is, however, possible to O'Connor's analysis incorrectly in a study such as this. For example, one could contend that because monopoly labor

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[28] Ibid., p. 83.

[29] Ibid., p. 86.

often supports, and directly benefits from, specific programs at the expense of the competitive labor sector, it would be reasonable to assign the benefits of these programs to monopoly labor. This, of course, is exactly the procedure used in conventional studies. If one accepts the radical theory of the role of the State and the nature of class conflict inherent in a capitalist society, it is inconsistent and erroneous to assume that the only beneficiaries of government programs are the monopoly workers.

The adoption of the assumption that monopoly sector workers do benefit is, of course, also consistent with the conventional assumption regarding transfer payments. But the conventional analysis assumes a theory of the role of the State which permits governments to act in an ad hoc fashion to serve any group in the spectrum of its pluralistic support. The radical theory, with its emphasis on the class bias of a capitalist State, does not permit the assumption that merely because a person or group receives direct benefits (as in the case of transfers) these benefits are limited to the recipients. Rather, it is immaterial who receives direct monetary benefits, or on whose behalf the government says it is acting, when the purpose of the expenditure is to maintain the system by suppressing class conflict (social expenses) or to enhance the abilities of the system to serve capitalist interests. There can be little doubt that capitalists do, in fact,

benefit from expenditures ostensibly undertaken for the benefit of others or to maintain the existing system of institutions.

It is also possible to argue that the historical development of capitalism has been such as to force capitalists involuntarily to undertake and cooperate in the increased socialization of the costs of many programs. The best examples of programs which might fall into this category are social expenses such as welfare. The argument contends that government incursions into the private sector to aid workers and the surplus population, in particular, are a type of ransom paid by capitalists for continued stability in a system which is becoming increasingly hard to hold together.[30] Thus, it might be possible to argue that capitalists are not truly the beneficiaries of some public sector programs. This argument would rest on a contention that capitalists have been reluctant to accept some actions of the State as it plays an increasingly larger role in the economy because capitalists have not been aware of the reasons for State action.

This argument may well be true. Bridges argues that some State programs are not merely concessions on the part of capitalists to protect their interests, but are the results of struggles by the classes against State action because of an awareness of the class bias of the State.[31]

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[30]Miliband, The State, op. cit., p. 73.

[31]Bridges, op. cit., p. 188.

Only history will be able to judge whether the expenditure programs extant are stop-gap measures in the struggle by the State against the breakdown of the system. But even if the argument is true, any prolongation of the existing system through legitimization programs and any program that increases profits or biases institutions toward private accumulation, benefits capitalists. In addition, although some programs may have seemed like ransom at their inception, O'Connor convincingly argues that capital supports these programs now. Capitalists need or desire public sector projects because the State plays a crucial role in a variety of ways to enable the socioeconomic system to function.

In a sense, any crisis of the State is at the same time a crisis for capitalism because the State is a capitalist State. But it is obvious also that the crisis itself is caused by the capitalist system and the cause of the crisis is primarily the private accumulation of profits and the socialization of costs. So, while the State suffers fiscally, the capitalists continue to enjoy profits and continued legitimacy.

O'Connor's analysis is particularly useful in distinguishing between expenditures that directly benefit capitalists and those which indirectly benefit capitalists by virtue of their system-sustaining qualities. In the first category are social investment expenditures because they either increase profit rates of existing projects or

they provide incentives for new accumulative endeavors. Profit rates are higher in both cases because the costs of these programs are socialized, i.e., not borne privately.

Social consumption expenditures, on the other hand, indirectly benefit capitalists by providing services to the working class which tend to promote and insure the workers' cooperation with the system. Social consumption also provides insurance against the economic insecurity engendered by the system which helps to make workers more tractable and lowers the level of money wages, which indirectly raises profits. Finally, social expenses also partially alleviate the problems of people made redundant by the economic system and help to forestall a revolt against the system by the surplus population.

Even though O'Connor's analysis is predominately devoted to the federal level of government, there is no reason to assume that the functions of state and local government programs differ markedly from those undertaken at the federal level. Rather, it is necessary to define as accurately as possible the beneficiaries of the expenditures of state and local governments. The capitalist class at the state level is somewhat differently composed than that at the national level because the state-level class includes not only monopoly capital but also competitive capital.

It would be erroneous to assume that capitalists are the sole beneficiaries of any expenditure program. There are two criteria used in this study to determine the

proportion of expenditures which accrue to capitalists. The first is based on the concept of "socially necessary costs." Socially necessary costs, generally, are those which are needed to maintain an economy's productive capacity and labor force in a given state of productivity or efficiency. To examine specific outputs, however, socially necessary costs ". . . could be unambiguously defined . . . as those outlays indispensable to the production and delivery of a useful output."[32] These costs are independent of the nature of any given economic system and aid in making a ". . . comparison between the costs incurred in producing the actual output and those that would be incurred in producing a more rational output."[33]

Baran and Sweezy are referring, in the previous quotes, to the output of commodities in a capitalist system. They (probably erroneously)[34] include all government spending in their concept of surplus ignoring any criterion of social necessity.[35] It seems appropriate, however, to evaluate both the outputs of government (for usefulness) and the costs of

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[32]Paul Baran and Paul Sweezy, Monopoly Capital (New York: Modern Reader, 1966), p. 132.

[33]Ibid., p. 138.

[34]Ron Stanfield, "A Revision of the Economic Surplus Concept," Review of Radical Political Economics, Vol. 6 (Fall, 1974), p. 69.

[35]Baran and Sweezy, op. cit., p. 370.

the output to determine the social necessity of the costs of these programs. Thus, this study assumes that there are socially necessary costs incurred by the government; the problem is to determine what proportion these costs are of total costs.

Socially necessary costs, in the context of this study, are those proportions of the costs of expenditure programs which would be incurred under a hypothetical socialist economic system. The difference between the total cost of any program and the socially necessary cost of that program is considered "class goods"[36] and is assigned as the measure of the benefit from the program which accrues to the capitalist class. The relevance of this type of comparison of costs between economic systems is supported by Baran and Sweezy in the case of privately produced commodities.[37]

The second criterion used to assign benefits to capitalists is the degree to which capitalists benefit from the distortion of institutions to their ends. For example, the full costs of educational programs, especially elementary and secondary, can be considered socially necessary and thus contain no benefit to capitalists under the first criterion. However, there is agreement even among neoclassical economists that students are not the only

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[36] Edwards and MacEwan, op. cit., p. 19.

[37] Baran and Sweezy, op. cit., pp. 131-138.

beneficiaries of education expenditures. The following quote from Bird and DeWulf states this position:

> A better public education system, for instance, can be viewed as a substitute for private training facilities by business men . . . Also, the elimination of poverty may promote a stable social climate, the benefits of which go not only to the direct beneficiaries of public hospitals and transfer payments.[38]

Aaron and McGuire[39] also acknowledge that there are more widespread benefits from certain expenditures than those that are attributable to direct beneficiaries. The conventional procedure in cases of externalities of this type is to consider those proportions of the expenditures as general goods and distribute them accordingly. Thus, the assumption that capitalists--rather than the general public--receive part of the benefits of these expenditures is more a change of form than of substance, except in case of transfers. Conventional studies typically do not recognize the existence of externalities from transfer payments.

Identifying Benefits and Benefit Recipients

There is, of course, an arbitrary element in any attempt to define those proportions of total expenditures which would constitute socially necessary costs in a socialist economy or the amount of benefit received by capitalists from education or public health expenditures.

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[38]Bird and DeWulf, Fiscal Incidence Studies, op. cit., p. 47.

[39]Aaron and McGuire, op. cit., p. 916.

There also seems to be no way to avoid these judgmental problems because there is no a priori method of determining either the characteristics of a hypothetical socialist budget in Michigan or the benefits received by capitalists from what are considered socially necessary programs. However, with reference to the second criterion, previous studies have assumed various proportions of specific goods expenditures which are allocable as general goods benefits. This study often uses these proportions as guidelines for the allocation of class goods benefits. In the case of socially necessary costs, however, rather than advance the position that the proportions used in this study are in any way definitive, it is preferable to use them merely as indicators of the direction in which departures from conventional assumptions lead.

It is necessary also to define the capitalists who are the recipients of the benefits of class goods. As noted above, the strongest class at the state level is composed of monopoly and competitive capitalists. Identifying these groups and the individuals who comprise them is difficult because of the various problems inherent in defining a capitalist. The most basic definition is that a capitalist owns the means of production and receives the profit generated by the workers that he hires. Miliband also concurs with O'Connor by recognizing the influence over government wielded by businessmen.[40] This rather simplistic

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[40]Miliband, The State, op. cit., pp. 15-16.

definition ignores other persons and groups that may properly belong in the dominant class. Howard Wachtel has used a definition of working class that by elimination yields a definition of capitalists similar to that used in this study: ". . . [I]t will suffice, as an abstraction, to include in the working class all blue-collar workers and salaried white-collar workers, excluding managers and officers of corporations and professional employees."[41]

Wachtel's definition includes many of the members of what some writers have called the "new working class." This new working class is composed of educated workers whose jobs are qualitatively different from those of the blue collar workers who are the "old" working class.[42] As Aronowitz and others make clear, however, the nature of the jobs performed by the majority of educated workers does not offer those workers any greater control over the productive process than the jobs of the blue collar workers. Thus, most white collar workers also belong to the working class. The problem for this study, therefore, is to define the capitalist class as members of income groups.

For the purpose of this study capitalists are defined by their receipts of six kinds of income: non-farm

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[41] Howard Wachtel, "Class Consciousness and Stratification in the Labor Process," Review of Radical Political Economics, Vol. 6 (Spring, 1974), pp. 13-14.

[42] See, for example, Stanley Aronowitz, "Does the United States Have a New Working Class?" in The Worker in "Post-Industrial" Society, ed. by Bertram Silverman and Murray Yanowitch (New York: The Free Press, 1974), pp. 195-208.

net self-employment income, dividends, undistributed corporate profits, realized and unrealized capital gains and interest from general debt. It is obvious that not all persons who receive these types of income fall into the definition of capitalists. However, to the extent that these items of income reduce the necessity for a person to sell his or her labor services, they should be considered capitalist income. Further, the distribution of these kinds of income is close to what one would expect the distribution of income of the state-level capitalist class to look like: Approximately 73 percent of capitalist income accrues to members of the top two income brackets, where it is expected that the preponderance of capitalists are also located.[43] A more precise method of identifying capitalists by income might be to establish a threshold level of capitalist income, e.g., 30 percent or 50 percent of total income, which would be the criterion for inclusion in the capitalist class. Unfortunately, data for Michigan do not exist to enable one to identify those individuals or families which receive these items of income above threshold levels.

Implicit in the discussion in preceding sections is the assumption that the benefits received by capitalists differ both quantitatively and qualitatively from those received by other identifiable recipients. Another purpose

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[43]See the income distribution data in Chapter V.

of this section is to discuss the qualitative differences in these benefits.

The qualitative difference between the benefits received by capitalists and direct recipients is greatest in the case of transfer payments. There is no doubt that those who receive transfer payments receive actual purchasing power, while the benefits to capitalists--the benefits of stabilizing the economy and maintaining harmony within the surplus population--do not lend themselves to measurement in money terms. These benefits arise principally from the legitimization function served by transfer payments, although social insurance transfers serve primarily the accumulation function. Equating benefits to costs and allocating part of the benefits to capitalists would seem to be inconsistent with the fact that all of the money payments accrue to the recipients of transfer payments.

Since the procedure used in this study is to equate the benefits of expenditure programs with the costs of those programs, it is necessary to divide the money amounts of transfers between transfer recipients, who receive money benefits, and capitalists who receive less tangible, but no less important, benefits from the same expenditures. Thus, this study assumes that externalities, in the form of class goods, arise from the provision of transfer programs. The value of the class goods benefits is assumed to be the difference between the socially necessary costs of the program and the actual costs of the program.

A Methodological Summary

It is desirable at this point to restate the assumptions which are used in the radical analysis and also to summarize in advance the methods used to allocate expenditures with this approach. The primary purpose of conducting the radical analysis is to demonstrate that assumptions about the role of the State in a capitalist society that are different from those used in conventional neoclassical studies will lead to markedly different expenditure incidence results even though other important assumptions are the same in both analyses.

The assumptions common to the conventional and radical approaches used in this study are that studies at the state level are relatively free of the problem of general equilibrium income distributions because of the vastly greater influence of the national economy on the distribution of income within the state. Further, the assumption of the identity of costs and benefits, common to almost all previous expenditure incidence studies, is retained in this study.

The principal departure from the conventional assumptions is the use of radical assumptions about the role of the State in a capitalist society. Instead of the usual assumption that the State reflects the needs of all its people and acts for the benefit of widely differing groups of people, the assumption in the radical part of this study is that the

government in many cases, and ultimately in all cases, acts primarily in the interests of a single class of people, that is, the capitalists. Thus, while it is admitted in the radical analysis that the beneficiaries identified in conventional studies do receive some benefit from the expenditures, it is assumed that each expenditure includes some element of class good benefit which accrues solely to capitalists. The counterpart, in conventional studies, of the class goods benefit is the proportion of general goods benefit contained in many expenditures.

CHAPTER IV

THE DISTRIBUTION OF INCOME AND TRANSFERS: CONVENTIONAL ANALYSIS

The distribution of income used in this study is derived from one developed by Douglas Roberts.[1] Roberts develops his final income definition and distribution by starting with the Bureau of the Census definition of money income, adjusted for unshifted business taxes. Since the Census income data used are for 1969 and the tax incidence study covers fiscal 1970, the distribution is adjusted for a small increase in population, although it is assumed that these additional families have an income distribution identical to that reported for 1969.

The initial distribution of income, called adjusted money income, is presented in Table 1. To this income, the following items were added by Roberts to arrive at a broad definition of income: (1) undistributed corporate profits, (2) inputed rent of owner-occupied dwellings (non-farm), (3) room and board furnished employees, (4) employer

[1] Roberts, op. cit.

TABLE 1

Distribution of Money Income for Michigan, 1970

Income Bracket ($000)	(1) Families (Units in Hundreds)	(2) Unrelated Individuals (Units in Hundreds)	(3) Distribution of Units (Hundreds)	(4) Percent of Total Units	(5) Adjustment for Population Increase (Hundreds)	(6) Adjusted Distribution of Units (Hundreds)
Under 1	395	1,421	1,816	6.27	21	1,837
1-2	523	1,553	2,076	7.17	24	2,100
2-3	718	847	1,565	5.41	18	1,583
3-4	766	590	1,356	4.68	15	1,371
4-5	799	432	1,231	4.25	14	1,245
5-6	887	388	1,275	4.40	15	1,290
6-7	1,014	355	1,369	4.73	16	1,385
7-8	1,257	356	1,613	5.57	18	1,631
8-9	1,492	290	1,782	6.16	20	1,802
9-10	1,527	202	1,729	5.97	20	1,749
10-12	3,051	263	3,314	11.45	38	3,352
12-15	3,632	182	3,814	13.18	44	3,858
15-25	4,676	126	4,802	16.59	55	4,857
Over 25	1,166	39	1,205	4.16	14	1,219
TOTALS	21,903	7,044	28,947	99.99	332	29,279

TABLE 1 (cont'd.)

Income Bracket ($000)	(7) Mean Income	(8) Total Money Income (Millions)	(9) Percentage Distribution of Money Income
Under 1	$ 346	$ 63.56	.21
1-2	1,453	305.13	1.01
2-3	2,444	386.89	1.28
3-4	3,412	467.79	1.55
4-5	4,431	551.66	1.83
5-6	5,398	696.34	2.31
6-7	6,404	886.95	2.94
7-8	7,415	1,209.39	4.01
8-9	8,395	1,512.78	5.02
9-10	9,397	1,643.54	5.46
10-12	10,838	3,632.90	12.06
12-15	13,270	5,119.57	16.99
15-25	18,326	8,900.94	29.55
Over 25	38,943	4,747.15	15.76
TOTALS		30,124.59	99.98

Source: Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975), Table 2.

contributions to social security and private health and pension plans, (5) services furnished without charge by financial intermediaries, (6) realized and unrealized capital gains, and (7) imputed farm income, including the imputed rent and the imputed value of food and fuel consumed on the farm.

It is obvious that some income items have been excluded from this definition of income. Some of the excluded items are "income generated through services rendered to oneself, imputed interest on mutual life insurance policies, imputed income from durable goods, gifts, and bequests, fringe benefits such as employee discounts on expense accounts, as well as certain public assistance programs such as food stamps and medicare."[2]

By way of comparison, it is useful to examine the income definitions used in the two most recent state-level studies of expenditures and net fiscal incidence.[3] Ross uses an income concept he calls "family money income." This definition subtracts from the Office of Business Economics personal income definition the following items: "personal" income of institutions, personal income of the institutional population, and non-money income such as non-money wages and salaries, imputed interest on government bonds, imputed rent from owner-occupied homes, and food and

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[2] Ibid., Chapter 2.

[3] Ross, op. cit., and Eapen and Eapen, op. cit.

fuel consumed on the farm. It is Ross' feeling that this income definition is inclusive of enough items to warrant its use. The benefits of expanding the definition fall short, in Ross' opinion, of the costs of inaccurate estimates associated with the expansion.[4]

On the other hand, Eapen and Eapen begin with Census money income, add food and lodging furnished to employees, realized capital gains, retained earnings of corporations and imputed rent from owner-occupied homes.[5]

Thus, Roberts' definition of income is more comprehensive than either of the definitions used in two other recent state-level fiscal incidence studies, and is almost identical to that used in the 1956 Michigan study.[6] The distribution and derivation of broad income is shown in Table 3. The income distribution data in Table 3 are ample evidence of the degree of income inequality in Michigan in 1970. For example, the lowest 27.8 percent of families received only 5.7 percent of total broad income, while the highest 4.2 percent of families received 20.8 percent of broad income. It is important to remember that many of the items excluded from the definition of broad income would accrue to upper income groups, making the disparity in income shares even worse.

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[4]Ross, op. cit., pp. 24-25.

[5]Eapen and Eapen, op. cit., p. 16.

[6]Musgrave and Daicoff, op. cit., pp. 161-164.

TABLE 2

Source of Income by Income Class for
Families and Unrelated Individuals
(Mean Income Values in Dollars)

Income Bracket ($000)	Total Mean	Wages and Salaries	Non-Farm Self-Employment	Farm Self-Employment	Social Security	Public Assistance	Other
Under 1	$ 346	$ 102	$ 6	$ 3	$176	$ 27	$ 32
1-2	1,453	375	17	5	727	159	169
2-3	2,444	829	50	29	924	203	409
3-4	3,412	1,525	80	36	893	200	679
4-5	4,431	2,501	123	58	829	213	798
5-6	5,398	3,614	166	92	617	114	795
6-7	6,404	4,848	296	70	429	57	704
7-8	7,415	6,150	283	105	320	43	514
8-9	8,395	7,333	284	86	219	37	437
9-10	9,397	8,295	342	56	211	25	468
10-12	10,838	9,779	388	62	158	21	429
12-15	13,270	12,018	499	87	162	16	487
15-25	18,326	16,340	938	96	146	11	795
Over 25	38,943	26,585	7,691	236	180	8	4,243

Source: Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975), Table 3.

TABLE 3

Determination of the Broad Definition of Income for Michigan, 1970
(Millions of Dollars)

Income Bracket ($000)	(1) Money Income	(2) Undistributed Corporate Profits	(3) Imputed Rent (Non-Farm)	(4) Room and Board for Employees	(5) Employer Contributions to Social Security and Health Plans	(6) Services of Financial Institutions
Under 1	63.56	0	12.43	.10	2.83	2.37
1-2	305.13	1.99	18.74	.39	11.34	8.98
2-3	386.89	4.55	16.15	.64	18.78	8.10
3-4	467.79	12.08	17.13	1.01	29.76	10.45
4-5	551.66	15.07	16.29	1.52	44.64	12.92
5-6	696.34	16.38	16.50	2.26	66.60	6.72
6-7	886.95	19.12	20.15	3.26	96.00	14.79
7-8	1,209.39	15.32	23.52	4.88	143.47	11.27
8-9	1,512.78	15.01	32.43	6.43	189.17	13.13
9-10	1,643.54	14.01	35.31	7.06	207.59	17.25
10-12	3,632.90	24.72	85.85	15.95	469.03	31.65
12-15	5,119.57	36.87	121.80	22.56	663.51	37.15
15-25	8,900.94	99.20	204.35	38.63	1,136.08	76.39
Over 25	4,747.15	348.42	81.29	15.77	463.71	68.04
TOTALS	30,124.59	622.74	701.94	120.46	3,542.51	319.21

TABLE 3 (cont'd.)

Income Bracket ($000)	(7) Realized and Unrealized Capital Gains	(8) Imputed Farm Income	(9) Total Additional Income	(10) Percentage of Total Additional Income	(11) Broad Income (Money Income Plus Additional Components)	(12) Percentage Distribution of Broad Income
Under 1	0	1.96	19.69	.21	83.25	.21
1-2	13.96	2.10	57.50	.62	362.63	.92
2-3	34.89	1.93	85.04	.92	471.93	1.20
3-4	53.11	1.95	125.49	1.36	593.28	1.51
4-5	69.01	1.82	161.27	1.75	712.93	1.81
5-6	88.78	2.06	199.30	2.16	895.64	2.28
6-7	99.64	2.17	255.13	2.77	1,142.08	2.90
7-8	89.17	2.46	290.09	3.14	1,499.48	3.81
8-9	68.92	2.63	327.42	3.55	1,840.20	4.68
9-10	88.01	2.54	371.77	4.03	2,015.31	5.12
10-12	131.82	5.06	764.08	8.28	4,396.98	11.17
12-15	203.93	5.85	1,091.67	11.83	6,211.24	15.78
15-25	479.97	7.60	2,042.22	22.13	10,943.16	27.81
Over 25	2,456.05	3.10	3,436.38	37.24	8,183.53	20.80
TOTALS	3,876.96	43.23	9,227.05	99.99	39,351.64	100.00

Source: Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975), Table 4.

For the purpose of an expenditure incidence study, however, it is necessary to modify this income definition in order to treat taxes and transfers (negative taxes) consistently. The definition of income in Table 3 is before-tax, i.e., it includes income used to pay state and local taxes. But it also includes transfer payments from federal, state and local governments. Therefore, to avoid double-counting of the transfers to be distributed in this study, it is necessary to remove state and local transfer payments from the income distribution. This procedure yields the pre-public sector income distribution which is used as the incidence base in this study.

The Distribution of Transfer Payments Under Conventional Assumptions

The transfers to be removed are interest on general debt, public welfare payments, unemployment compensation benefits, workman's compensation payments, and state employee retirement benefits. Table 4 shows the amount of transfer payments and other expenditures to be distributed in this study. As noted, the sources of the data in this table are Census Bureau publications. These were chosen, rather than governmental budgets, because they provide consistent categorical classifications of expenditures and also because these are the only data that provide information about spending by all levels of local government. The amounts in Table 4 do not include either federally-shared revenues to

TABLE 4

Net Expenditures of Michigan State and Local Governments
Fiscal 1970
($ Millions)

Item	Total Expenditure	Federal Revenue	Charges	Net Expenditure
Transfer Payments				
Public Welfare	593.7	261.3	---	332.4
Interest on General Debt	179.6	---	---	179.6
Unemployment	178.1	---	---	178.1
Workman's Compensation	10.8	---	---	10.8
Retirement	164.8	---	---	164.8
Education				
Local	2043.4	21.3	132.4	1889.7
Higher	789.6	207.4	250.6	331.6
Highways	560.1	170.5	9.8	379.8
Health and Hospitals	461.7	32.5	191.2	238.0
All Other General Expenditures	1382.3	87.0	177.1	1118.2
TOTALS	6364.1	780.0	761.1	4823.0

Source: U.S. Department of Commerce, Bureau of the Census, Governmental Finances in 1969-70, Table 17, p. 32 and Table 18, pp. 36-37; State Government Finances in 1970, Table 7, pp. 21-24, Table 16, p. 46, Table 17, p. 47 and Table 18, p. 48; 1967 Census of Governments, Vol. 7, State Report No. 22, Michigan, Table 18, p. 26 and Table 19, p. 27.

both state and local levels or revenues received from charges by state and local levels of government.

Census Bureau data for 1970 do not give the detail of the distribution by expenditure category of federal-to-local shared revenues. The 1967 Census of Governments[7] gives amounts by the type of unit of local government, so the percentage of total locally shared revenues which went to school districts in 1967 (21.4 percent) is assumed to apply in 1970. The remainder of shared revenues is distributed to each expenditure category according to the percentage of total local spending comprised by each category.

Charges are defined as "amounts received from the public for performance of specific services benefiting the person charged and from sales of commodities and services . . ." They include fees, toll charges, tuition and revenue from the performance of commercial-type activities such as parking lots.[8]

These amounts have been subtracted from gross expenditures because one purpose of the study is to combine with a tax incidence study to measure net fiscal incidence in Michigan. Charges reduce total benefits and subtracting in this way assumes that charges equal benefits and are

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[7]U.S. Department of Commerce, Bureau of the Census, 1967 Census of Governments, Vol. 7, State Report No. 22, Michigan (Washington: U.S. Government Printing Office, 1970).

[8]Bureau of the Census, Governmental Finances in 1969-70, op. cit., p. 53.

distributed in the same way, i.e., the assumption about charges is similar to the benefit principle of taxation.

To allocate charges levied at the local levels, 1967 Census data were used again. The percentage of total charges levied for each expenditure category in 1967 was assumed to be the same in 1970, as was the proportion of charges to total "charges and miscellaneous general revenue." These assumptions are necessary because only total amounts, rather than detailed distributions, are available for the local levels.

The first four expenditure categories (education, highways, health and hospitals, and transfer payments) constitute approximately 77 percent of total expenditures and are those typically which are considered specific goods expenditures. The remaining 23 percent, "all other general" expenditures, is made up of police, fire, sewer, sanitation, general control, local parks, financial administration and another "all other general" category.[9]

General debt interest will be distributed on the basis of holdings of municipal debt by individuals and financial intermediaries. The distribution of individual interest earnings is made only to the upper three income brackets (over $12,000) on the assumption that tax-free municipal bonds are rational investments only for upper

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[9] Ibid., p. 37.

income taxpayers.[10] The share of government debt held by commercial banks is assumed to benefit equally both bank users, in the way of subsidized services, and bank shareholders. Interest accruing to other financial institutions is assumed to benefit their shareholders. These allocative methods are similar to those used by Eapen and Eapen in their study of expenditure incidence in Connecticut,[11] and by Musgrave, et al., in their national study.[12]

A distribution among holders of Michigan state and local debt is not available, but data are available for the distribution of the debt of all state and local governments in the United States in 1967. According to Moody's Municipal and Government Manual,[13] 37 percent of privately held debt is held by individuals, partnerships and personal trust accounts, 42 percent is held by commercial banks, and the remainder is held by other financial and non-financial institutions. In addition, it is necessary to estimate the amount of debt held by out-of-state residents. One study has estimated that 93 percent of the increase in Michigan state and local debt between 1957 and 1962 was held by

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[10] See Stanley Surrey, "Federal Income Taxation of State and Local Government Obligations," in Readings in Federal Taxation, ed. by Frank Sander and David Westfall (New York: Foundation Press, 1970), p. 282.

[11] Eapen and Eapen, op. cit., pp. 98-102.

[12] Musgrave, et al., op. cit., p. 34.

[13] Moody's Investors Service, Inc. (New York, 1969), p. 15.

Michigan residents.[14] Aside from Lees' study, which was used by Eapen and Eapen, there is little precedent for distributing debt interest payments in state-level studies: neither Brownlee, Musgrave and Daicoff, or Ross distributed state and local debt interest payments.[15] Therefore, this study assumes that 90 percent of debt interest accrues to Michigan residents held in the same proportions that Moody's described for the United States.

The proportions of general debt held by Michigan commercial banks and other institutional holders and assumed to benefit bank shareholders is also subject to out-of-state shifting because not all owners of these firms are Michigan residents. In 1970, 4.5 percent of all individual shareholders of publicly held stock were Michigan residents.[16] This percentage is assumed to hold for the purposes of distributing interest payments to commercial banks and other financial and non-financial institutions.

Implicit in the decision to distribute interest payments is the assumption that interest expenditures are transfer payments which redistribute income while state and local governments provide services financed by the debt.

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[14] Francis A. Lees, "Interregional Flows of Funds Through State and Local Government Securities (1957-62)," Journal of Regional Science, Vol. 9, No. 1 (1969), p. 82.

[15] All national level studies, however, distribute interest payments.

[16] New York Stock Exchange Fact Book (New York: NYSE, Inc., 1971), pp. 47-48.

Ross argues strongly, but apparently inaccurately, that interest payments are "fundamentally different from other kinds of government expenditures."[17] He argues that both taxpayers and bond purchasers benefit, in that taxpayers forego current taxes for future taxes and bond purchasers forego liquidity for earnings. Therefore, he argues, interest recipients make a qualitatively different sacrifice, i.e., liquidity, than, say, a recipient of educational benefits who sacrifices only time. The latter part of this argument is tenuous.

The basic assumption of expenditure incidence studies is that public expenditures are productive of benefits; these benefits are typically valued at their cost. This is the assumption used in this study. It follows that interest payments are an additional cost incurred to provide government programs and therefore should be included in expenditures to be distributed.

Further, an attempt to measure net fiscal incidence, of which this study is a part, must consider that current taxes are in part used to pay for expenditures incurred in earlier years and financed through the issuance of public debt. This study also will distribute, in the current year, all of capital outlay expenditures, on the grounds that the purpose is to measure expenditure and net fiscal incidence

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[17] Ross, op. cit., p. 83.

in money terms as it actually was in 1970. Interest on general debt is distributed as shown in Table 5.

Public welfare payments are also included in the definition of income as developed by Roberts and therefore must be excluded. The distribution of cash public welfare benefits is the same as the distribution of the public assistance payments included in the definition of money income. Public welfare payments in the amount of $158.4 million are net of federally shared revenues to both state and local governments for the purpose of public welfare and also do not include medicaid payments. The distribution by income class of public welfare payments (less medicaid) is shown in Table 5.

Medicaid payments, which amount to $174 million, are not included in the definition and distribution of income. Medicaid is thus not included with the other welfare payments which are subtracted from the distribution of income. However, when the incidence of all public welfare payments is computed medicaid payments are included, and their distribution is assumed to be the same as the distribution of public assistance payments (Table 2).

Unemployment compensation payments, amounting to $178 million, are distributed by the distribution of unemployment benefits nationally in 1968.[18] The data in Musgrave, et al., are derived from the Brookings MERGE file and the

[18]Musgrave, et al., op. cit., Table 2, p. 5.

TABLE 5

Distribution of Transfer Payments -- Conventional Assumptions
($000)

Income Bracket ($000)	(1) Interest on General Debt		(2) Unemployment Compensation		(3) Workman's Compensation		(4) Public Welfare	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Under 1	251	.26	5,684	3.19	344	3.19	4,277	2.70
1-2	964	.99	6,496	3.65	393	3.65	28,666	18.10
2-3	884	.91	4,915	2.76	297	2.76	27,558	17.40
3-4	1,173	1.21	4,274	2.40	259	2.40	23,440	14.80
4-5	1,449	1.50	12,591	7.07	761	7.07	22,806	14.40
5-6	793	.82	13,052	7.33	789	7.33	12,670	8.00
6-7	1,665	1.72	14,546	8.17	880	8.17	6,810	4.30
7-8	1,274	1.31	12,343	6.93	746	6.93	6,018	3.80
8-9	1,469	1.52	14,194	7.97	858	7.97	5,702	3.60
9-10	1,904	1.97	14,655	8.23	886	8.23	3,801	2.40
10-12	3,485	3.60	24,219	13.60	1,465	13.60	6,018	3.80
12-15	8,341	8.62	17,719	9.95	1,071	9.95	5,227	3.30
15-25	19,150	19.78	28,711	16.12	1,736	16.12	4,593	2.90
Over 25	54,008	55.79	4,680	2.63	283	2.63	792	.50
TOTALS	96,810	100.00	178,079	100.00	10,768	100.00	158,378	100.00

TABLE 5 (cont'd.)

Income Bracket ($000)	(5) Retirement Benefits		(6) All Transfer Payments	
	Amount	Percent	Amount	Percent
Under 1	5,108	3.10	15,664	2.57
1-2	24,389	14.80	60,908	10.00
2-3	23,400	14.20	57,054	9.37
3-4	19,610	11.90	48,756	8.01
4-5	16,479	10.00	54,086	8.88
5-6	12,689	7.70	39,993	6.57
6-7	9,393	5.70	33,294	5.47
7-8	8,404	5.10	28,785	4.73
8-9	6,262	3.80	28,485	4.68
9-10	5,932	3.60	27,178	4.46
10-12	8,404	5.10	43,591	7.16
12-15	9,887	6.00	42,245	6.94
15-25	11,371	6.90	65,561	10.77
Over 25	3,461	2.10	63,224	10.38
TOTALS	164,789	100.00	608,824	99.99

TABLE 5 (cont'd.)

Notes:
- Column (1) Moody's Municipal and Government Manual, 1969, p. 15; Table 3, columns 3 and 8; New York Stock Exchange Fact Book, 1971, pp. 47-48.
- Column (2) Richard Musgrave, et. al., The Distribution of Fiscal Burdens and Benefits, Table 2, p. 5.
- Column (3) Distributed the same as column 2.
- Column (4) Distributed by the distribution of public assistance income from Table 2.
- Column (5) Distributed by the distribution of social security payments from Table 2.
- Column (6) Sum of columns 1-5.

definition of income used is comparable to, although somewhat more complete than, that developed by Roberts. Of the recent state-level studies, only Ross distributes unemployment benefits, but his data are not usable for this study. The Census income data shown in Table 2 include unemployment benefits in the "Other" category, lumped with items such as interest and dividends, which make this distribution unsuitable for the purpose of allocating unemployment compensation payments.

Workman's compensation benefits also are included in the Census definition of income in the "Other" category, while employer contributions to the fund are also included in the income distribution and distributed by wages and salaries. Because of the similarity between the unemployment and workman's compensation systems, and the lack of usable data to distribute benefits from workman's compensation, it is reasonable to distribute these benefits on the same basis as unemployment benefits. This basis if preferable to the wages and salaries distribution because it is likely that wage earners, as opposed to salaried workers, receive the bulk of both types of cash payments.

The final transfer considered in this study is benefits from state and local employees retirement systems. Benefits paid and employer contributions to the systems have already been included in the definition and distribution of income. Thus, the retirement system is similar to the other social insurance expenditures discussed above and will

be treated in the same way. Benefits paid are removed from the income distribution by the distribution of social security payments as they have been by both Musgrave, et al.,[19] and Ross.[20]

The distribution of all transfer payments (less medicaid) is shown in Table 5. These amounts and the distributions of these amounts are subtracted from the distribution of income in Table 3 to arrive at the distribution of adjusted broad income, the incidence base for the study. The distribution of adjusted broad income is shown in Table 6.

Table 7 shows the impact of all transfer payments on the distribution of income. It is obvious, under conventional assumptions, that the incidence of transer payments as percentages of adjusted broad income is regressive (pro-poor). This conclusion is also supported by the data in Table 6 which show that the distribution of adjusted broad income is less equal than the distribution of income before transfers were removed.

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[19] Ibid., Table 12, p. 34.

[20] Ross, op. cit., p. 39.

TABLE 6

Distribution of Adjusted Broad Income -- Conventional Assumptions
($000)

Income Bracket ($000)	Broad Income	Percent of Broad Income	Percent of Families*	Adjusted Broad Income	Percent of Income
Under 1	83,250	.21	6.27	67,586	.17
1-2	362,630	.92	7.17	301,722	.78
2-3	471,930	1.20	5.41	414,876	1.07
3-4	593,280	1.51	4.68	544,524	1.40
4-5	712,930	1.81	4.25	658,844	1.70
5-6	895,640	2.28	4.40	855,647	2.21
6-7	1,142,080	2.90	4.73	1,108,786	2.86
7-8	1,499,480	3.81	5.57	1,470,695	3.80
8-9	1,840,200	4.68	6.16	1,811,715	4.68
9-10	2,015,310	5.12	5.97	1,988,132	5.13
10-12	4,396,980	11.17	11.45	4,353,389	11.24
12-15	6,211,240	15.78	13.18	6,168,995	15.92
15-25	10,943,160	27.81	16.59	10,877,599	28.08
Over 25	8,183,530	20.80	4.16	8,120,306	20.96
TOTALS	39,351,640	100.00	99.99	38,742,816	100.00

*Families and unrelated individuals.

Source: Tables 1, 3 and 5.

TABLE 7

Transfer Payments as Percentages of
Adjusted Broad Income -- Conventional Assumptions

Income Bracket ($000)	Interest on General Debt	Unemployment Compensation	Workman's Compensation	Public Welfare[1]	Retirement Benefits	All Transfer Payments
Under 1	.37	8.41	.51	13.28	7.56	30.13
1-2	.32	2.15	.13	19.94	8.08	30.63
2-3	.21	1.18	.07	13.94	5.64	21.05
3-4	.22	.78	.05	9.03	3.60	13.68
4-5	.22	1.91	.12	7.26	2.50	12.01
5-6	.09	1.53	.09	3.11	1.48	6.30
6-7	.15	1.31	.08	1.29	.85	3.68
7-8	.09	.84	.05	.86	.57	2.41
8-9	.08	.78	.05	.66	.35	1.92
9-10	.10	.74	.04	.40	.30	1.58
10-12	.08	.56	.03	.29	.19	1.15
12-15	.14	.29	.02	.18	.16	.78
15-25	.18	.26	.02	.09	.10	.65
Over 25	.67	.06	*	.02	.04	.79

[1]Includes Medicaid payments.

*Less than .01.

Source: Tables 3, 5 and 6.

CHAPTER V

THE DISTRIBUTION OF INCOME AND TRANSFERS: A RADICAL ANALYSIS

The radical analysis uses essentially the same basic principle as the conventional analysis to modify Roberts' income distribution (Table 3, Chapter IV). This principle is that to establish the pre-government distribution of income transfer payments must be subtracted from the distribution of income developed by Roberts. Transfer payments must be excluded from the pre-government income distribution in the conventional analysis because the benefits of transfer payments accrue to the recipients of the money payments. Transfers are assumed to be negative taxes and because the impact of positive taxes is not included in the pre-government income distribution, transfer payments must also be excluded.

The basic difference between the radical and conventional analyses is the assumption in the radical analysis that there are qualitative and quantitative differences between the money amounts of transfer payments and the benefits which accrue from transfer spending by the government. The radical analysis partially rejects the money-flow

concept of benefit incidence in the case of transfers and uses instead the benefits-received, or costs-incurred-on-behalf-of concept. Thus, the general assumption about transfer payments in the radical analysis is that these expenditures are incurred on behalf of two groups: (1) the direct recipients of money payments and (2) capitalists who benefit from the legitimization purposes of transfer payments.

To the extent that transfer payments yield class goods benefits they are similar to the other expenditures discussed in this study. The money flows of other expenditures are assumed to be intermediate products, and the basic income distribution is assumed to be unchanged in the absence of government spending for these purposes. Therefore, to be consistent with the conventional analysis, only the proportions of transfer payments which yield money benefits to direct recipients are subtracted from Roberts' broad income distribution. These subtractions are made by using the same assumptions about the incidence of transfer payments as were used in the conventional analysis.[1]

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[1] An alternative method of analyzing transfer payments in the radical analysis would be to subtract transfers from broad income in the same way they are subtracted in the conventional analysis. This procedure would yield identical pre-government income distributions for both analyses. Rather than use this method, however, it seems preferable to be conceptually consistent between the two analyses and subtract only those amounts of transfers which yield money benefits to direct recipients.

In the discussion which follows, it is important to recognize that the proportions used are not offered as precise estimates of amounts of benefits which may actually accrue to capitalists. Rather, these figures are used to give indications of the direction of the flow of benefits from specific expenditures. The discussion of each expenditure is based on the general principles of the radical analysis outlined in Chapter III, which provides a rationale for the allocative proportions used.

For the purposes of this study, capitalists will be defined as recipients of the following income items: non-farm self-employment income, dividends, undistributed corporate profits, realized and unrealized capital gains and interest on general debt. Amounts accruing to capitalists will be distributed on the basis of the combined distribution of these six income items (see Table 8).

Debt interest has been distributed conventionally to individual recipients, commercial banks and other financial institutions. These benefits are allocated by retained corporate profits and realized capital gains (individuals), by demand deposits and dividends (commercial banks) and by dividends (other financial). These distributions are still tenable in the radical analysis because the purposes for which debt was incurred are varied, and to assign proportions which would accrue to capitalists and direct recipients would entail an historical analysis of debt issuance. The distributions of capitalist and direct recipients' income

TABLE 8

The Distribution of Capitalist Income
($000)

Income Bracket ($000)	Capitalist Income	Percent
Under 1	1,353	.02
1-2	23,556	.31
2-3	55,236	.73
3-4	95,936	1.27
4-5	124,052	1.65
5-6	152,574	2.03
6-7	190,851	2.53
7-8	175,537	2.33
8-9	159,385	2.12
9-10	185,285	2.46
10-12	328,161	4.36
12-15	498,404	6.62
15-25	1,206,734	16.03
Over 25	4,332,341	57.54
TOTALS	7,529,405	100.00

Source: Tables 2, 3 and Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975).

are quite similar because most of the interest payments accrue to upper-income groups, and the additional complexity of a debt analysis would probably yield little in the way of different results.

Social insurance payments, in contrast to general debt service, are paid to different people for different reasons. Unemployment compensation payments are made to workers who are unemployed and actively seeking work. The need for a system of unemployment compensation arises because of the nature of the capitalist system. The group of unemployed persons acts as a force to keep wages down and to discipline labor generally, but their acceptance of the system and their cooperation in it are increased by the unemployment compensation program. People who are employed are also more tractable and cooperative with the system because they know that unemployment compensation exists to help them if they become unemployed.

Capitalists benefit from the unemployment system because of the favorable effects of the system on workers, both employed and unemployed. Without a program to support unemployed workers, capitalists and workers would both be worse off under the capitalist economic system. But unemployed workers would be even better off in a hypothetical socialist economy in which unemployment would be reduced to the minimal level of frictional unemployment. Thus the radical analysis assumes that the part of the benefits of

cash unemployment payments accrue to capitalists as well as the direct recipients of the transfers.

Frictional unemployment is defined as unemployment which results from adjustments to the normal process of changing job demands in a dynamic economy.[2] For the purpose of this study, frictional unemployment is that proportion of total unemployment characterized by relatively short duration of the period of unemployment. In 1970 the average duration of unemployment in the U.S. was slightly over 8 weeks, but 61.9 percent of all unemployed persons were unemployed for 6 weeks or less.[3] This criterion for defining frictional unemployment compares favorably with the estimate of the National Planning Commission which sets the frictional rate of unemployment at 2 percent of the work force, or approximately 50 percent of the full employment level of unemployment.[4]

Under a more rational economic system unemployment could conceivably be reduced to frictional levels. Therefore, the socially necessary cost of unemployment is assumed to be 62 percent of the total cost of unemployment. Thus, 38 percent of unemployment benefits are attributable

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[2]Wilbur Thompson, A Preface to Urban Economics (Baltimore: The Johns Hopkins Press, 1967), p. 217.

[3]Manpower Report of the President, 1974 (Washington: U.S. Government Printing Office, 1974), pp. 24 and 278.

[4]Thompson, op. cit., p. 209, note 3.

to the irrationality of the capitalist system and accrue to capitalists as class goods benefits.

The benefits (62 percent) which accrue to recipients of unemployment benefits are distributed in the same way as in the conventional analysis: by the distribution of unemployment benefits nationally (see Chapter IV). The proportion of benefits (38 percent) accruing to capitalists is allocated by the distribution of capitalist income from Table 8.

Similar reasoning can be applied to allocate the benefits of the workman's compensation system. The nature of the work process in manufacturing industries is such that concern for job safety is secondary to the need for profits and the productivity of workers. Thus, the capitalist system is in part responsible for the need for workman's compensation.

The rationale of allocating part of these benefits to capitalists arises because of the purpose that they serve: workers are more willing to undertake risky occupations and duties and to labor in substandard conditions. Without the workman's compensation system, capitalists and workers would be worse off than they currently are, but again workers could be better off in a factory system with safer working conditions.

Michigan's industrial safety record is considerably better than the national average: 10.6 injuries per million employee hours, compared to the national rate of

15.2 injuries per million employee hours.[5] In the public sector, which operates without the profit motive, injury rates are much higher than the private sector, with the exception of the federal government: In 1968, federal employees averaged 6.9 disabling injuries per million hours, while state governments averaged 12.1 and municipalities had an average rate of 24.9 injuries per million hours.[6]

Member firms of the National Safety Council averaged 70 percent lower injury frequency rates than the non-NSC firms in 1968.[7] The national and state averages reflected in the BLS data include both NSC members and non-members. Since Michigan's injury rate is already well below the national rate and is also lower than in other northern industrial states such as New York, it would probably be unreasonable to reduce the Michigan injury rate by 70 percent to arrive at a rate which would represent a minimal level of injuries. And the injury rate in the non-profit public sector is of no value as a goal for the private sector. It seems preferable to assume that Michigan's already relatively low injury rate might be reduced by 25 percent in an economic

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[5] U.S. Department of Labor, Bureau of Labor Statistics, Injury Rates by Industry, 1970, BLS Report No. 406 (Washington: U.S. Government Printing Office, 1972), pp. 2 and 25.

[6] National Safety Council, Accident Facts 1970 (Chicago: National Safety Council, 1970), p. 36.

[7] Ibid., p. 27.

system which would not exploit its workers. Thus, 25 percent of workman's compensation payments are assumed to be socially unnecessary and accrue to the benefit of capitalists. The share of direct recipients is distributed by the distribution of unemployment benefits by the same reasoning used in the conventional analysis in Chapter IV. Rather than use the wage/salary distribution, it is preferable to use the unemployment benefits distribution because wage earners, as opposed to salaried employees, are more likely to be subject to on-the-job injuries.

To the extent that public welfare recipients are unable to work or care for themselves, i.e., to the extent that they are children, blind, disabled or elderly, some sort of support would be necessary under a hypothetical socialist economy. Therefore, the proportion of welfare payments which are distributed to these people is considered a socially necessary cost.

The distribution of welfare payments, minus medicaid, by Michigan state and local governments in 1970 was as follows: 10.9 percent for old age assistance, 52.6 percent aid to families with dependent children (AFDC), .5 percent aid to the blind, 9.5 percent aid to the disabled, and 26.5 percent for general assistance.[8] However, 44 percent of AFDC and 47.6 percent of general assistance payments were for

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[8]Michigan Department of Social Services, Annual Report Fiscal 1970.

eligibility by reason of unemployment or for lack of a wage earner (father).[9] These payments would not be necessary except for the capitalist system which generates unemployment and provides almost no facilities (day-care centers) to enable mothers of pre-school age children to work. Therefore, 38 percent of these proportions of AFDC and general assistance payments is assigned to the benefit of capitalists. The rationale for this division is the same as that for the allocation of unemployment benefits.

Thus, it is assumed that 13.6 percent of the benefits of cash welfare payments accrues to capitalists. The remaining 86.4 percent is allocated to the recipients and distributed by the distribution of public welfare payments shown in Table 2, Chapter IV. Medicaid payments are not subtracted from the distribution of income to arrive at adjusted broad income because they are not included in the definition of broad income, but they are included in total welfare payments and distributed similarly for incidence purposes.

Government retirement systems are a means of encouraging a loyal work force because benefits depend not only on the level of wages and salaries but also on the length of an employee's service. The government is assumed, in the radical analysis, to exist primarily to support and

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[9] Ibid., p. 8 and p. 42.

legitimize the capitalist socioeconomic system and, therefore, public employees also work to these ends.

The benefits of payments for public retirement are also assumed to benefit both direct recipients and capitalists. Because public employees are rewarded for their services in government, the proportion of benefits from retirement payments which accrues to direct recipients is determined by the proportion of total spending for specific goods, other than public retirement, which accrues to recipients other than capitalists. The rationale for this approach is that to the extent that the costs of services provided by governments are socially unnecessary, so also are the costs of the rewards for the civil servants who helped provide the services. The proportion of specific goods expenditures which accrues to capitalists is 44.49 percent.

As with the other proportions used in this chapter, these proportions are not intended to be precise; they are intended, rather, to indicate the direction in which departures from conventional assumptions lead. Benefits which accrue to direct recipients are distributed by the distribution of social security benefits from Table 2, Chapter IV.

The distribution of transfer payments by amount is shown in Table 9, while Table 10 shows the distribution of adjusted broad income that results from the radical analysis. Table 11 shows the distribution of transfers as percentages

TABLE 9

Distribution of Transfer Payments -- Radical Assumptions
($000)

Income Bracket ($000)	(1) Interest on General Debt		(2) Unemployment Compensation		(3) Workman's Compensation		(4) Public Welfare	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Under 1	251	.26	3,547	1.99	259	2.40	3,699	2.34
1-2	964	.99	4,184	2.35	299	2.78	24,835	15.68
2-3	884	.91	3,585	2.01	246	2.28	23,967	15.13
3-4	1,173	1.21	3,509	1.97	228	2.12	20,526	12.96
4-5	1,449	1.50	8,956	5.03	618	5.74	20,060	12.66
5-6	793	.82	9,434	5.30	645	5.99	11,384	7.19
6-7	1,665	1.72	10,765	6.04	730	6.78	6,429	4.06
7-8	1,274	1.31	9,195	5.16	620	5.76	5,702	3.60
8-9	1,469	1.52	10,268	5.77	703	6.53	5,383	3.40
9-10	1,904	1.97	10,718	6.02	728	6.76	3,814	2.41
10-12	3,485	3.60	17,966	10.09	1,215	11.28	6,139	3.88
12-15	8,341	8.62	15,521	8.72	986	9.16	5,942	3.75
15-25	19,150	19.78	28,623	16.07	1,732	16.08	7,420	4.68
Over 25	54,008	55.79	41,808	23.48	1,759	16.34	13,078	8.26
TOTALS	96,810	100.00	178,079	100.00	10,768	100.00	158,378	100.00

TABLE 9 (cont'd.)

Income Bracket ($000)	(5) Retirement Benefits		(6) All Transfer Payments	
	Amount	Percent	Amount	Percent
Under 1	2,851	1.73	10,607	1.74
1-2	13,765	8.35	44,047	7.23
2-3	13,525	8.21	42,207	6.93
3-4	11,816	7.17	37,252	6.12
4-5	10,357	6.29	41,440	6.81
5-6	8,532	5.18	30,788	5.06
6-7	7,069	4.29	26,658	4.38
7-8	6,373	3.87	23,164	3.80
8-9	5,030	3.05	22,853	3.75
9-10	5,097	3.09	22,261	3.66
10-12	7,862	4.77	36,667	6.02
12-15	10,342	6.28	41,132	6.76
15-25	18,064	10.96	74,989	12.32
Over 25	44,106	26.76	154,759	25.42
TOTALS	164,789	100.00	608,824	100.00

TABLE 9 (cont'd.)

Notes:
Column (1) Distributed same as Column 1 of Table 5.
Column (2) 38 percent distributed by the distribution of capitalist income, 62 percent by the distribution of unemployment benefits from Musgrave, et. al., Table 2, p. 5.
Column (3) Distributed 25 percent by capitalist income and 75 percent by the distribution of unemployment benefits, Musgrave, et. al., Table 2, p. 5.
Column (4) 13.6 percent distributed by capitalist income, 86.4 percent by the distribution of public assistance income from Table 2 (see text for explanation). Does not include medicaid expenditures.
Column (5) 44.49 percent distributed by capitalist income, 55.51 percent by the distribution of social security income from Table 2.
Column (6) Sum of columns 1-5.

TABLE 10

Distribution of Adjusted Broad Income -- Radical Assumptions[1]
($000)

Income Bracket ($000)	Broad Income	Percent of Broad Income	Adjusted Broad Income	Percent of Adjusted Broad Income
Under 1	83,250	.21	72,677	.19
1-2	362,630	.92	319,095	.82
2-3	471,930	1.20	430,930	1.11
3-4	593,280	1.51	558,126	1.43
4-5	712,930	1.81	674,216	1.73
5-6	895,640	2.28	868,206	2.23
6-7	1,142,080	2.90	1,119,602	2.88
7-8	1,499,480	3.81	1,480,166	3.80
8-9	1,840,200	4.68	1,820,850	4.68
9-10	2,015,310	5.12	1,997,114	5.13
10-12	4,396,980	11.17	4,367,516	11.23
12-15	6,211,240	15.78	6,181,045	15.89
15-25	10,943,160	27.81	10,894,654	28.00
Over 25	8,183,530	20.80	8,123,836	20.88
TOTALS	39,351,640	100.00	38,908,033	100.00

[1]As explained in the text, only transfer payments which yield direct monetary benefits under the radical assumptions are subtracted from broad income to get adjusted broad income.

Source: Tables 1, 3 and 9.

TABLE 11

Transfer Payments as Percentages of Adjusted Broad Income -- Radical Assumptions

Income Bracket ($000)	Interest on General Debt	Unemployment Compensation	Workman's Compensation	Public Welfare[1]	Retirement Benefits	All Transfer Payments
Under 1	.35	4.88	.36	11.56	3.92	21.06
1-2	.30	1.31	.09	17.65	4.31	23.67
2-3	.21	.83	.06	12.59	3.14	16.82
3-4	.21	.63	.04	8.29	2.12	11.29
4-5	.21	1.33	.09	6.69	1.54	9.86
5-6	.09	1.09	.07	2.91	.98	5.15
6-7	.15	.96	.07	1.24	.63	3.05
7-8	.09	.62	.04	.83	.43	2.01
8-9	.08	.56	.04	.64	.28	1.60
9-10	.10	.54	.04	.40	.26	1.32
10-12	.08	.41	.03	.29	.18	.99
12-15	.13	.25	.02	.19	.17	.76
15-25	.18	.26	.02	.11	.17	.73
Over 25	.66	.51	.02	.17	.54	1.92

[1]Includes medical assistance payments.

Note: Totals may not add due to rounding.

Source: Tables 9 and 10.

of adjusted broad income. It is clear from these tables that transfer payments are less regressive (pro-poor) and more progressive in the radical analysis than under conventional assumptions. The distribution of adjusted broad income is slightly more equal under the radical assumptions because of the radical assumptions about the incidence of transfer payments. These assumptions are more progressive than the conventional assumptions, so one would expect the radical distribution of adjusted broad income to be slightly more equal.

In spite of the increased progressivity and the reduced share of transfers of low-income groups in the radical analysis, middle-income groups fare relatively worse in terms of increments to income from transfers. This phenomenon is the result of the allocation to capitalists of relatively large amounts of transfers and the under-representation of persons with middle-incomes in the capitalist class.

Thus, the importance of different assumptions about the role of the State is already apparent. The conventional assumptions imply that transfer payments act to raise the income shares of low-income groups to make the distribution of income more equal. The radical assumptions about the role of the State, on the other hand, imply that the State acts to redistribute income in favor of the upper-income groups while only marginally aiding persons with very low incomes.

CHAPTER VI

EDUCATION: A CONVENTIONAL ANALYSIS

Distributing the benefits from governmental expenditures for education is perhaps the most complex part of this study. The reasons for this complexity arise from the problems of identifying the benefits of education as well as identifying those who receive these benefits. It is also important to discuss the assumptions on which the public provision of education is based. These assumptions should be made explicit because they are the foundation upon which the analysis of benefits and benefit recipients is based.

Conventional Assumptions About Education

Richard Gordon[1] lists and describes four assumptions about education in the liberal (neoclassical) tradition. The first assumption is that education produces or enhances the production of human capital. Neoclassical economists have developed the idea of human capital as the counterpart

[1]Gordon, op. cit., pp. 165-167.

of physical capital and typically use similar terminology in discussions of human and non-human capital, e.g., investment, returns from investment, and marginal productivity. Education is one way of investing in, or increasing the stock of, human capital. Thus, investing in human capital should, ceteris paribus, increase the productivity, and therefore the income of the recipient of this investment.

A second assumption about education is that it is the improvement of skills which results in productivity increases and that the achievement of these skills is measurable by cognitive achievement testing. Thus, conventional analyses of education often analyze the inputs to the educational process (teachers, curricula, etc.) and attempt to allocate these resources efficiently to achieve better outputs from education. The outputs of the education process are the scores of students on standardized achievement tests.

Third, these analyses assume that the historical role of education "has been and can be that of guaranteeing equality of economic opportunity."[2] This is the reasoning behind efforts to upgrade the quality of ghetto schools through enrichment programs and busing. The assumption is that even though the rest of society acts to keep groups relatively disadvantaged, economically or socially, the schools can be a principal means of righting the wrongs.

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[2] Ibid., p. 166.

A fourth assumption is that education has played a role in increasing economic and social mobility over time. As Gordon points out, this involves three related assumptions: first, that the distribution of income has become more equal; second, that inter-generational mobility between income groups has increased; and third, that the first two phenomena are causally related to increasing intergenerational mobility in the acquisition of education.[3]

These assumptions add up to a belief in the importance of education because of its efficacy in achieving an interrelated series of objectives. It should be obvious that the public provision of education follows from the conventional and normative theory of the role of the State: the State should interfere with the market system to provide services characterized by externalities and indivisibilities or to redistribute incomes. With respect to education, the State should act to guarantee the equality of opportunity to receive a good education, although liberals and conservatives differ about the role which the government should play in providing equality of opportunity.[4] In spite of the disagreement over the role of the State in the educational system, both liberals and conservatives agree on the importance of education. The human capital orientation and terminology are thus no accident. The conventional framework

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[3] Ibid., p. 166.

[4] Ibid., p. 166.

of a private market system requires this logic to justify the importance attached to education and the need for socialization of the costs.

The Benefits of Education

A comprehensive list of the benefits from education has been made by Burton Weisbrod.[5] In a definitive article, Weisbrod describes both the benefits which accrue solely to the student and those which are external to the student. Among the privately captured benefits are the direct financial return, the financial option return, the non-financial options and the non-market returns. Of these, the direct financial return is the most important to the student and has also received the most attention from researchers who have analyzed the benefits from education. The financial return is measured by the increment in discounted future income attributable to additional years of schooling. Although Weisbrod concedes the difficulty of isolating the impact of additional schooling, he argues that this return is an indicator of the marginal productivity of investment in education.

The financial option return is the value of the option to obtain additional years of schooling which arises because of the amount of previous education. Non-financial

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[5]Burton Weisbrod, "External Effects of Investment in Education," in Economics of Education 1, ed. by M. Blaug (Middlesex, England: Penguin, 1968), pp. 156-182.

options include the opportunity of an educated person to receive non-monetary job rewards, and the hedging option which comes from being able to adjust to changing job requirements. Non-market returns are best exemplified by the return to literacy and the resulting independence this confers on people.

Weisbrod discusses three types of external benefits from education: residence-related, employment-related, and benefits to society in general. Residence-related beneficiaries include the families of students who benefit from the child care services provided by schools, the future families of students who will benefit from education provided in the home, the neighbors of students because of better behavior norms learned in schools, and taxpayers in the area of the schools because of tax savings due to reduced crime levels.

Employment-related benefits accrue to fellow workers whose productivity, in cooperative efforts, will be improved, and to employers because of the increased productivity of educated workers. Society in general benefits because a literate populace can be better-informed voters, because education will tend to increase equality of opportunities for members of society and because education will tend to reduce crime and raise tax revenues, among other benefits.

The extent and variety of educational benefits raises difficult questions about assigning values to them.

For example, even if one disregards the considerable difficulties in valuing external benefits, the valuation of private benefits is still a major problem. The direct financial return, i.e., the discounted present value of the income received due to additional years of schooling, is one possible measure because it is probably the most important. But controlling for other factors such as ability, health, ambition, and the socioeconomic position of the students' families in order to isolate the effects of schooling is very difficult, even supposing the labor market is so competitive that income reflects marginal productivity. And even if these items are quantifiable, the fact that education is essentially an in-kind program raises the problem of weighing the benefits to recipients as discussed in Chapter II.

The Problem of Valuing Benefits

Rather than attempt to resolve these issues, it seems preferable to discuss the pitfalls and drawbacks of continuing to use the assumption that the costs and benefits of education are identical. Although all of the previous studies of fiscal incidence have used this assumption, and Hansen and Weisbrod,[6] in their study of higher education in

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[6] W. Lee Hansen and Burton Weisbrod, "The Distribution of Costs and Direct Benefits of Public Higher Education: The Case of California," in Redistribution to the Rich and the Poor, ed. by K. E. Boulding and Martin Pfaff (Belmont, Cal.: Wadsworth, 1972), pp. 77-88.

California, distributed the subsidies rather than the benefits of education to recipients, there can be little doubt that the assumption of the identity of benefits and costs is tenuous at best.

One difficulty in measuring benefits as costs lies with the assumption that costs are a good measure of the resource inputs to education. It seems far-fetched, at least in Michigan, to assume that equal dollars spent per pupil implies an equal allocation of resources per pupil, especially if one accepts, for example, the idea that the ability of teachers (or the quality of other equally priced resources) is variable.

But even if equal dollars implied equal resources, there is not necessarily any causal relationship between expenditures for education and the outputs of the educational system. And if people reap different benefits from identical inputs to schooling, both costs and resources are poor measures of the benefits of education.[7]

Another related problem in valuing benefits is that the direct financial return accrues over a period of post-school years. The standard procedure in studies of this type is to allocate benefits in the current year, in spite of the fact that benefits constitute a flow over time. On its face, allocating all benefits in one year is an improper procedure, but the concept of current year allocation is

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[7]Michelson, op. cit., p. 80.

merely saying that benefits can be distributed at the time the asset (human capital) is created, rather than waiting for the flow of benefits to begin.

Thus, it would seem that not only is there a variety of benefits, causing serious problems in quantifying their value to recipients, but there are the added problems of equating costs and benefits because of the nature of the costs and the tenuous link between costs, resources, and outputs of education.

Identifying Benefit Recipients-- Previous Studies

Most of the fiscal incidence studies have identifed the families of students as the principal recipients of the benefits from educational expenditures, including higher education. Ross,[8] Eapen and Eapen,[9] Musgrave, et al.,[10] Musgrave and Daicoff,[11] Reynolds and Smolensky,[12], Gillespie,[13] the Tax Foundation,[14] and Tucker[15] distribute

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[8]Ross, op. cit., p. 58.

[9]Eapen and Eapen, op. cit., p. 77.

[10]Musgrave, et al., op. cit., p. 34.

[11]Musgrave and Daicoff, op. cit., p. 156.

[12]Reynolds and Smolensky, (1), op. cit., p. 31.

[13]Gillespie, op. cit., p. 147.

[14]Tax Foundation, op. cit., p. 12.

[15]Tucker, op. cit., p. 532.

the benefits of spending for elementary and secondary education to the families of students enrolled in school or to families with children under 18 years of age. Brownlee[16] and Singer,[17] on the other hand, distribute one-half of the benefits of elementary education to families of students and one-half as general goods, on a per family basis. Singer also distributes secondary education expenditures in the same way as elementary, but Brownlee allocates 25 percent as a general good and 75 percent to the families of students. Adler[18] and Conrad[19] distribute all education expenditures on a per family basis, arguing that education is available to everyone and that there is no evidence to suggest a concentration of benefits by income class.

With respect to expenditures for higher education, the allocative techniques are similar to those used for other levels of education. The typical method assigns benefits to the families of students enrolled in college. Reynolds and Smolensky and the Tax Foundation do not use the same assumption for higher education as for elementary and secondary: in their studies, spending for higher

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[16]Brownlee, op. cit., p. 31.

[17]Singer, op. cit., p. 88.

[18]Adler, op. cit., p. 386.

[19]Conrad, op. cit., pp. 218-219.

education is allocated by the distribution of spending for higher education by income class.[20]

Criticisms of Previous Studies

These methods of distributing the benefits of expenditures for education ignore important considerations which, in most studies, were not explicitly discussed. Only Ross,[21] Gillespie,[22] and Musgrave, et al.,[23] for example, acknowledge that educational benefits may not be equally received by all children. Gillespie deals with this problem by allocating benefits on the basis of estimates of completion rates for various levels of education and the total costs (not limited to a single year) associated with providing education at the elementary, secondary, and college levels.[24] Thus, Gillespie implicitly recognizes the first two types of private benefits identified by Weisbold: direct financial return from additional years of schooling and the value of the option to continue education.

Ross, on the other hand, questions the assumption that all students receive education alike in either quantity

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[20]Reynolds and Smolensky, (1), op. cit., p. 31, and the Tax Foundation, op. cit., p. 12.

[21]Ross, op. cit., pp. 55-56.

[22]Gillespie, op. cit., p. 147.

[23]Musgrave, et al., op. cit., p. 36.

[24]Gillespie, op. cit., p. 147.

or quality. Students from low-income families, compared to students from upper-income families, receive a poorer quality education, receive fewer years of schooling and also receive lower flows of earnings from comparable amounts of education. For these reasons, Ross uses a second allocative method which he feels is more accurate than assigning benefits to families by the distribution of students by family income. The second method allocates one-half of the benefits to the families of students and one-half to families in proportion to income.[25] By allocating benefits in proportion to income, Ross assigns some benefits to families without students even though his expressed concern is to account for the lower return received by students from low-income families. Therefore, his procedure defines a proportion of expenditures as a general good and allocates that proportion by income. Singer[26] and Brownlee[27] use similar methods, which only partially resolve the problem of low-income students.

Reynold's and Smolensky's[28] and the Tax Foundation's[29] allocation of higher education expenditures in proportion to family spending for higher education deserves discussion.

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[25]Ross, op. cit., p. 58.

[26]Singer, op. cit., p. 88.

[27]Brownlee, op. cit., p. 31.

[28]Reynolds and Smolensky, (1), op. cit.

[29]Tax Foundation, op. cit.

This technique would seem to yield quite progressive results for two related reasons: (1) Families sending children to private schools would spend considerably more on education than those with children in public colleges, and the former families are likely to have higher incomes; and (2) spending for higher education is likely to be more concentrated in upper-income groups because the types of public educational institutions attended by children of wealthy families are likely to be more expensive (though not necessarily provide a better education) than those attended by children from poorer families. The progressive bias generated by these factors may in part be because children from upper-income families are more likely to attend college.[30] To the extent that this element accounts for the progressive bias of using the distribution of expenditures for higher education, Reynolds and Smolensky's method is made more acceptable. On balance, however, it is preferable to avoid using allocative techniques which might allocate benefits to those students attending private colleges and which could include the assumption that more expensive education provides greater benefits than less expensive education.

Many studies, as previously indicated, do not allocate any part of expenditures for education as general goods expenditures. This should be considered a shortcoming

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[30]Hansen and Weisbrod, op. cit., p. 81.

of these studies which may also tend to bias their results. The direction of the bias is unclear, however, because this depends on the distribution of students by income and the choice of allocative methods for general goods. For example, the national distribution of children by family income is such that distributing benefits in proportion to the distribution of children by family income will yield progressive results because over 50 percent of children belong to families with incomes in excess of $10,000; for higher education the benefits will also be progressive for the same reason.[31] If only part of elementary and secondary expenditures were allocated as general goods and distributed in proportion to income, the results would be more progressive than either assigning all benefits to families of students or assigning part as general goods on a per family basis.

In addition to the problem of bias, there are good arguments to be made for assigning a large fraction of expenditure for elementary and secondary education as general goods expenditures. Most economists agree that education provides public benefits in addition to benefits which accrue to students and their families. Weisbrod calls

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[31] Bureau of the Census, CPR, Series P-20, Numbers 222 and 231, p. 40 and p. 21, respectively.

these "external benefits," some part of which accrues to society in general.[32]

It is not clear what proportion of expenditures should be assigned as general benefits, although there are indications from previous studies. For example, Brownlee allocated 50 percent of elementary education spending and 25 percent of spending for secondary education on a per family basis.[33] In one method, Ross allocates 50 percent of both elementary and secondary spending to all families proportion to their incomes,[34] while Singer also allocates 50 percent, but on a per family basis.[35] Aaron and McGuire take an approach similar to Brownlee's: 70 percent of elementary and secondary spending and 50 percent of higher educationcosts are assigned as general goods benefits.[36] The rationale which underlies both Brownlee's and Aaron's and McGuire's methods seems to be that expressed by Milton Friedman: "The social gain presumably is greatest for the lowest levels of schooling, where there is the nearest approach to unanimity about

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[32]Weisbrod, op. cit., p. 177.

[33]Brownlee, op. cit., p. 31.

[34]Ross, op. cit., p. 58.

[35]Singer, op. cit., p. 88.

[36]Aaron and McGuire, op. cit., p. 916.

content, and declines continuously as the level of schooling rises."[37]

Thus, it seems there is ample justification for allocating at least some part of spending for elementary and secondary education as general goods benefits. It is also reasonable to assume, since education is mandatory until age 16 in Michigan, that these expenditures are undertaken on behalf of both students and the public.

There is another more serious shortcoming in most previous studies which has already been noted. This is the assumption, implicit in all studies which allocate education expenditures by the distribution of students among families, that all students receive equal benefits. The implications of this problem are serious for any attempt to analyze the distributional effects of educational expenditures. Although the data are not precise about the effects of education on the earnings of students from different racial and socioeconomic backgrounds, there is no doubt that there are clear indications of the direction of these effects: students from non-white families receive lower returns than white students from equal amounts of education, and students from low socioeconomic groups

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[37]Milton Friedman, Capitalism and Freedom, p. 88, quoted in Ross, op. cit., p. 54.

receive lower returns from education than students of higher socioeconomic status.[38]

These conclusions are strongly supported by a study of the public education system in Michigan by Guthrie, et al.[39] The study was designed to test three hypotheses about education in Michigan: (1) the quality of school services provided to pupils is directly associated with the socioeconomic status of the students; (2) the higher the quality of services, the higher the level of achievement attained by a student; and (3) post-school achievement is related to achievement in school, and higher achievement in school is associated with "success" in post-school opportunities.[40] The Guthrie study tested these hypotheses for Michigan for the period 1967-68 and found positive support for all three hypotheses.

Guthrie, et al., define socioeconomic status (SES) using a number of variables: occupation, income, education

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[38]See, for example, the studies by Stanley H. Masters, "The Effects of Family Income on Children's Education: Some Findings on Inequality of Opportunity," Journal of Human Resources, Vol. IV (Spring 1969), pp. 158-175; Walter Fogel, "The Effect of Low Educational Attainment on Incomes: A Comparative Study of Selective Ethnic Groups," Journal of Human Resources, Vol. I (Spring 1966); Randall Weiss, "The Effects of Education on the Earnings of Blacks and Whites," Review of Economics and Statistics, Vol. 52 (May 1970), pp. 150-159.

[39]James Guthrie, George Kleindorfer, Henry Levin and Robert Stout, Schools and Inequality (Washington: The Urban Coalition, 1969).

[40]Ibid., p. 10.

and material possessions in the home.[41] They found evidence that not only do high SES districts provide better inputs (building age, teacher qualifications and salaries, special programs, etc.) than low SES districts, but they also found that within districts the same kinds of disparities of input quality existed among schools and among pupils.[42]

They also cite evidence to support the hypothesis that post-school earnings are related to achievement in school, even after controlling for non-school variables.[43] The implication of the Guthrie study and others previously cited is that the methods used in conventional fiscal incidence studies to allocate benefits of spending for education have biased the results of those studies in favor of regressivity and redistribution from rich to poor. The principal cause of this bias is the common assumption of equal per student benefits within the various levels of schooling (elementary, secondary, higher education).

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[41] Ibid., pp. 32-34.

[42] Ibid., pp. 83-89; "Our most significant finding is that the relationship between SES and the provision of school services holds for entire school districts . . . . Similarly, we discovered that individual schools which enroll large numbers of poor children tend to provide fewer and lower quality services than schools which enroll small numbers of poor children. Finally, inequities among individual students exist to the effect that poor children are provided with lower quality services than wealthy children, almost regardless of the school district in which they live, or the school building which they attend." Ibid., p. 90.

[43] Ibid., pp. 154-158.

It is possible, of course, that the assumption of equal per student benefits was used simply because it was convenient. However, the data which refute it have been available to all of the authors of the more recent studies.

The Conventional Allocation of Benefits in This Study

This study will attempt to account for at least part of the problem caused by the disparity of benefits received by students from different racial and socio-economic backgrounds. The procedure used in this study consists of four steps: (1) Total benefits of spending for elementary and secondary education are divided between general benefits and benefits which accrue to families of students. Fifty percent of total benefits is assumed to be general goods benefits, because this is a common proportion used in other studies which have allocated part of education spending as general goods benefit.[44] (2) The remaining 50 percent of total benefits is divided between high school and non-high school graduates by the ratio of the discounted lifetime incomes of high school and non-high school graduates. Regardless of the discount rate, non-high school graduates (those with 1-3 years of high school)

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[44]Five allocative techniques are used to distribute the general goods benefits: (1) Equal per family, (2) In proportion to adjusted broad income, (3) One-half by income and one-half equal per family, (4) Using the Maital utility function with the least progressive tax data, and (5) Using the Maital function with the most progressive tax data.

can expect to receive only 85 percent of the lifetime income of a high school graduate.[45] Thus, benefits to students are divided between high school and non-high school graduates so that non-high school graduates receive 85 percent of the benefits allocated to high school graduates. Since 93 percent of high school seniors graduate from high school, 93 percent of the benefits accrue to high school graduates; but the 7 percent which accrues to non-high school graduates is worth only 85 percent as much as the benefits which graduates receive. Therefore, graduates receive 94.05 percent of the benefits, and non-graduates receive 5.95 percent of the benefits. (3) The distributions by family income of high school and non-high school graduates are the result of applying the graduation rates of high school seniors by family income in 1965 to the distribution by family income of children 3-17 years old enrolled in school in 1970.[46] The percentage high school completion rate in each income bracket multiplied by the number of students in each income bracket yields the distributions of high school and non-high school graduates by income. (4) Benefits accruing to families of students are allocated according to the two distributions

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[45] Bureau of the Census, Current Population Reports, Series P-60, Number 74, p. 77.

[46] Bureau of the Census, CPR, p-20, Number 222, p. 40, for the distribution of students; CPR, P-20, Number 185, p. 4, for the graduation rates by family income.

(high school and non-high school graduates) of students by family income.

There are obvious problems with this method of distributing benefits. One difficulty is that not all students who begin elementary school reach high school or high school senior status. Students who drop out are likely to be concentrated in low-income families thereby creating a regressive bias in the results. Another problem is that this method of allocation does not fully account for the lower returns to education received by black students as compared to white students. Since blacks are more likely than whites to have dropped out of school before graduation,[47] this method overstates the benefit accruing to black students.

Other shortcomings are the use of national data and data for years other than 1970. What the procedures does achieve, however, is the distribution of benefits which more fully accounts for the effects of family income (and indirectly, socioeconomic status) on school achievement and post-school success.

The use of national data, as opposed to Michigan data, is necessary because of the lack of relevant data for Michigan. The direction of the bias introduced by this data is unknown, but it should be recognized that this

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[47]Masters, op. cit., pp. 65-66.

problem has occurred in another state-level study,[48] and that many of the studies used the distribution of children by family income, rather than the distribution of enrolled children.[49] Using the distribution of children, rather than enrolled children, tends to make the distribution of benefits more progressive than it would be if the distribution of enrolled children were used. Further, the 1965 data for graduation rates of high school seniors uses much broader income brackets than those used in this study and therefore will introduce a small bias in the results.

In sum, the procedure used in this study is considered to be superior to that used in previous studies, in spite of data limitations, because it explicitly recognizes the impact of socioeconomic status on the receipt of educational benefits. A more sophisticated procedure would not lump elementary and secondary spending and would achieve better results by dropping the assumption that all students reach high school senior status. However, the lack of data precludes these refinements and, therefore, the results of this study will tend to overstate the extent of regressivity in the incidence of the benefits from spending for education. Relative to other studies, however, the incidence in this study of educational benefits accruing to the

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[48] Eapen and Eapen, op. cit., p. 75.

[49] Eapen and Eapen, op. cit., Brownlee, op. cit., Musgrave and Daicoff, op. cit., and Reynolds and Smolensky, op. cit.

families of students is more accurate for two reasons: (1) the benefits are distributed by the number of children enrolled in school, rather than by the total number of children in the family; and (2) students from low-income families are less likely to graduate from high school and, therefore, receive fewer benefits from education. The allocation of benefits partially accounts for this fact.

In the case of the benefits from spending for higher education, the allocation procedure used in this study differs from those used in previous expenditure incidence studies. Only Singer[50] allocated part of higher education benevits as general goods, but Aaron and McGuire also assumed that 50 percent of the benefits of spending for higher education could be considered general goods benefits.[51] The assumption in this study is that only 30 percent of higher education benefits accrue as general goods benefits. This assumption is based on Friedman's position that as the level of education rises, so also does the level of privately captured benefits. Since the assumption for the general goods benefits proportion of elementary and secondary education spending is 50 percent, it is reasonable to assign 30 percent in the case of higher education.

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[50]Singer, op. cit., p. 80.

[51]Aaron and McGuire, op. cit., p. 916.

The assumption, common to most previous studies, of equal per student benefits in higher education is retained in this study because of the lack of data to support an alternative hypothesis. The problem of benefits which accrue to out-of-state students in Michigan schools is dealt with by assigning 9 percent of the benefits to out-of-state students. Nine percent is a compromise estimate which reflects what appears to be a trend, between 1968 and 1973, of relatively lower out-of-state student enrollments.[52] Thus 63.7 percent of total benefits is allocated to the families of students by the national distribution by family income of children 18-24 years old enrolled at the undergraduate level,[53] and the remaining 27.3 percent is allocated as general goods benefits.

Again, there is a problem in the use of national data for the distribution by income of dependent children, but comparable data for Michigan do not exist. It would be desirable to modify the assumption of equal per student benefits if data existed for college graduation rates by family income or if data existed for the proportion of

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[52]Michigan Department of Education, Report on Non-resident Enrollment Policies, Student Migration and Reciprocity Agreements (Lansing: 1971), pp. 27-28. This report is for 1968 when the proportion of out-of-state students in public institutions was 9.6 percent. Data for 1973 for major institutions show a proportion of 8.08 percent: 1973-74 institutional budget requests, furnished by James F. Weber, Director, Higher Education Management Services, Michigan Department of Education, November 20, 1974.

[53]Bureau of the Census, CPR, P-20, Number 231, p. 21.

students by family income who attend two-year colleges but do not continue their education. It seems probable that retaining the assumption of equal per student benefits biases the results in favor of more regressivity than may actually occur.

Summary

The procedures used in this study for allocating the benefits of spending for elementary and secondary education differ from those used in previous studies in order to account for the fact that the benefits of education do not accrue equally to all students. Specifically, this study assumes that all students do not graduate from high school and that students from low-income families are less likely to do so than students from high-income families. The allocation procedures, therefore, recognize, as most previous studies have not, that the benefits from education depend in part on the socioeconomic status of the students' families.

Benefits of spending for elementary and secondary education are assumed to accrue equally to both society in general and to the families of students. The benefits of spending for higher education are assumed to accrue primarily to the families of students (70 percent) and are distributed by assumptions similar to those used in previous studies of this type.

The general goods proportions of spending for education are allocated using five methods: (1) on an

equal per family basis, (2) by the distribution of adjusted broad income, (3) one-half by the distribution of adjusted broad income and one-half equally to families, (4) by the use of the Maital utility function ($MU(Y)=C/Y^{1.5}$) under Roberts' least progressive tax incidence assumptions, and (5) using $MU(Y)=C/Y^{1.5}$ with Roberts' most progressive tax incidence results.

Table 12 shows the distributions of the specific benefits of local education expenditures and the total benefits (specific and general) of these expenditures. As expected from the results of two previous state-level studies,[54] the incidence pattern of specific goods benefits and total benefits under the first three assumptions is basically regressive. Assumptions 4 and 5, however, yield progressivity in the top income bracket because of the Maital utility function used to allocate general goods benefits. (The mixed pattern in the lower income brackets is a consequence of adjusting the national data, which use larger income brackets, to the income brackets used in this study.) Thus, under Assumptions 1-3 which are most commonly used in previous studies, local education expenditures tend to equalize the distribution of income. Using the Maital function, however, results in a much less favorable pattern of distribution to low-income families and even progressivity for the families with the highest incomes.

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[54] Ross, op. cit., pp. 89-91, and Eapen and Eapen, op. cit., p. 107.

In the case of higher education, Table 13 shows that specific benefits are again basically regressive, and, under all five general goods assumptions, the incidence of total higher education benefits is also essentially regressive. The relatively large amounts of benefits accruing to the upper-income brackets are not sufficient to change the pattern of incidence in those brackets.

TABLE 12

The Distribution of Local Education Expenditures -- Conventional Analysis[1]

Income Bracket ($000)	Specific Goods Benefits[2]		Total Local Education Benefits[3]					
			Assumption 1		Assumption 2		Assumption 3	
Under 1	2.62	(36.68)	4.45	(124.34)	1.40	(39.05)	2.92	(81.69)
1-2	3.00	(9.39)	5.09	(31.85)	1.89	(8.52)	3.49	(21.85)
2-3	2.26	(5.15)	3.84	(17.47)	1.66	(7.59)	2.75	(12.53)
3-4	6.54	(11.36)	5.61	(19.48)	3.97	(13.78)	4.79	(16.63)
4-5	5.94	(8.52)	5.10	(14.62)	3.82	(10.96)	4.46	(12.78)
5-6	7.30	(8.06)	5.85	(12.92)	4.75	(10.50)	5.30	(11.71)
6-7	7.83	(6.67)	6.28	(10.70)	5.35	(9.11)	5.81	(9.90)
7-8	8.51	(5.47)	7.04	(9.05)	6.16	(7.91)	6.60	(8.48)
8-9	8.61	(4.49)	7.39	(7.71)	6.65	(6.93)	7.02	(7.32)
9-10	8.36	(3.97)	7.17	(6.81)	6.75	(6.41)	6.96	(6.61)
10-12	11.93	(2.59)	11.69	(5.07)	11.58	(5.03)	11.64	(5.05)
12-15	13.73	(2.10)	13.46	(4.12)	14.82	(4.54)	14.13	(4.33)
15-25	10.68	(.93)	13.64	(2.37)	19.38	(3.37)	16.51	(2.87)
Over 25	2.68	(.31)	3.42	(.80)	11.82	(2.75)	7.62	(1.77)
TOTALS	99.99	(2.44)	100.00	(4.88)	100.00	(4.88)	100.00	(4.88)
MONEY AMOUNTS ($000)	944,850		1,889,700					

TABLE 12 (cont'd.)

Income Bracket ($000)	Total Local Education Benefits[3]			
	Assumption 4		Assumption 5	
Under 1	1.34	(37.53)	1.34	(37.57)
1-2	1.64	(10.28)	1.65	(10.31)
2-3	1.36	(6.19)	1.36	(6.21)
3-4	3.65	(12.67)	3.65	(12.68)
4-5	3.47	(9.97)	3.47	(9.98)
5-6	4.33	(9.56)	4.33	(9.57)
6-7	4.83	(8.24)	4.84	(8.25)
7-8	5.51	(7.07)	5.52	(7.09)
8-9	5.90	(6.15)	5.92	(6.17)
9-10	6.03	(5.73)	6.04	(5.74)
10-12	10.17	(4.41)	10.20	(4.43)
12-15	13.43	(4.11)	13.47	(4.13)
15-25	18.93	(3.29)	18.97	(3.29)
Over 25	19.41	(4.52)	19.24	(4.48)
TOTALS	100.00	(4.88)	100.00	(4.88)

TABLE 12 (cont'd.)

[1]Figures in parentheses are percentages of adjusted broad income from Table 6; other figures are percentages of the money amounts shown at the bottom of the table.
[2]See text for explanation of the distribution of specific goods benefits.
[3]See Chapter II for explanation of Assumptions 1-5.
Source: Bureau of the Census, Current Population Reports, Series P-20, Numbers 185 and 222, p. 4 and p. 40; CPR, P-60, No. 74, p. 77.

TABLE 13

The Distribution of Higher Education Expenditures -- Conventional Analysis[1]

Income Bracket ($000)	Specific Goods Benefits[2]	Total Higher Education Benefits[3]	
		Assumption 1	Assumption 2
Under 1	1.07 (3.35)	2.63 (11.75)	.80 (3.58)
1-2	1.22 (.86)	3.01 (3.01)	1.09 (1.09)
2-3	.92 (.47)	2.27 (1.65)	.97 (.70)
3-4	2.98 (1.16)	3.49 (1.93)	2.51 (1.39)
4-5	2.71 (.87)	3.17 (1.45)	2.41 (1.10)
5-6	4.88 (1.21)	4.74 (1.67)	4.08 (1.44)
6-7	5.24 (1.00)	5.09 (1.38)	4.53 (1.23)
7-8	6.25 (.90)	6.04 (1.24)	5.51 (1.13)
8-9	6.99 (.81)	6.74 (1.12)	6.29 (1.05)
9-10	6.78 (.72)	6.54 (.99)	6.29 (.95)
10-12	14.79 (.72)	13.79 (.96)	13.73 (.95)
12-15	17.03 (.58)	15.87 (.78)	16.69 (.82)
15-25	23.29 (.45)	21.28 (.59)	24.72 (.69)
Over 25	5.84 (.15)	5.34 (.20)	10.38 (.39)
TOTALS	99.99 (.55)	100.00 (.78)	100.00 (.78)
MONEY AMOUNTS ($000)	211,229	301,756	

TABLE 13 (cont'd.)

Income Bracket ($000)	Total Higher Education Benefits[3]					
	Assumption 3		Assumption 4		Assumption 5	
Under 1	1.71	(7.66)	.77	(3.43)	.77	(3.44)
1-2	2.05	(2.05)	.94	(.94)	.95	(.95)
2-3	1.62	(1.18)	.78	(.57)	.79	(.57)
3-4	3.00	(1.66)	2.31	(1.28)	2.31	(1.28)
4-5	2.79	(1.28)	2.20	(1.01)	2.20	(1.01)
5-6	4.41	(1.56)	3.83	(1.35)	3.83	(1.35)
6-7	4.81	(1.31)	4.22	(1.15)	4.22	(1.15)
7-8	5.78	(1.19)	5.12	(1.05)	5.13	(1.05)
8-9	6.52	(1.09)	5.85	(.97)	5.86	(.98)
9-10	6.41	(.97)	5.86	(.89)	5.86	(.89)
10-12	13.76	(.95)	12.88	(.89)	12.89	(.89)
12-15	16.28	(.80)	15.86	(.78)	15.88	(.78)
15-25	23.00	(.64)	24.45	(.68)	24.48	(.68)
Over 25	7.86	(.29)	14.93	(.55)	14.83	(.55)
TOTALS	100.00	(.78)	100.00	(.78)	100.00	(.78)

TABLE 13 (cont'd.)

[1]Figures in parentheses are percentages of adjusted broad income from Table 6; other figures are percentages of the money amounts shown at the bottom of the table.

[2]See text for explanation of the distribution of specific goods benefits.

[3]See Chapter II for explanation of Assumptions 1-5.

Source: Bureau of the Census, Current Population Reports, Series P-20, No. 231, p. 21.

CHAPTER VII

A RADICAL ANALYSIS OF EDUCATIONAL EXPENDITURES

The previous chapter represented a neoclassical analysis of educational expenditures, and included a discussion of four assumptions about education. From a neoclassical perspective toward education, these assumptions have not been met by the educational system in this country. Thus, the educational structure can be severely faulted when it is evaluated by its ability to satisfy those assumptions. But it also could be considered a success when it is evaluated by its contributions toward the maintenance and reinforcement of the existing socioeconomic system.

This chapter begins with a radical critique of the liberal assumptions about education and presents an alternative analysis of the role education plays in our society. The differences and similarities between the conventional and radical analyses are discussed and an alternative method of identifying benefits and benefit recipients is suggested.

The Radical Critique[1]

The first conventional assumption about education is that education improves skills and, hence, the economic opportunities of the poor and the underskilled. One basis upon which this assumption rests is that increased education implies increased income. To some extent this is true, as the discussion in the previous chapter indicates. More important, however, is the evidence for certain groups which refutes the assumption. For blacks and persons from low socioeconomic groups, the evidence indicates that earnings do not vary with educational attainment unless the student has completed college.[2] But it is precisely to these groups (non-whites and lower-class whites) that the assumption of increased opportunities is directed. Since blacks and lower-class whites either do not graduate from high school or enter college at the same rates as middle- and upper-class whites, it is fair to say that this assumption is not met by our educational system.[3]

The second assumption is that achievement tests measure skills which will tend to increase the productivity of students. Productivity increases are assumed to result from improved abilities to "read and reason." Radical

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[1]This section draws heavily from the discussion by Gordon, op. cit., pp. 167-171, and 178-180.

[2]Ibid., p. 180; Weiss, op. cit.

[3]Gordon, op. cit., p. 179.

critics, on the other hand, contend that it is not the reading and reasoning skills that improve productivity. Rather, it is the behavior and motivational traits with which schools inculcate students that lead to post-school productivity. Schools, therefore, perform a training and screening function for the market system, a function which relies on the ability to instill in students good work habits, responsiveness to monetary incentives and acceptance of the prevailing economic system.

For many, particularly whites, this process is a success because these traits are necessary to do well in the world of work. For many others, however, these traits are not only difficult to learn and accept--because they ask non-whites, for example, to cooperate in a system which discriminates against them--but they are also not sufficient for these groups to achieve success comparable to middle- and upper-class whites.

The third assumption is that schools have historically helped to equalize opportunities and they continue to do so now. The radical contention is that schools have never played this role; rather, the function of schools has been and is now to solidify the structure of class stratification while allowing a few "gifted" exceptions to succeed.[4] The evidence cited in the previous chapter, primarily the

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[4]This point was suggested by Mitchell Stengel.

Guthrie, et al., study,[5] supports the radical position on this issue. Better education accrues to students on the basis of socioeconomic status and, for students from high socioeconomic status groups, results in greater post-school success. Thus, this assumption, too, is not met by the system of education in the U.S. and in Michigan.

The fourth assumption is that schools are increasingly better able to fulfill the equalizing function because society is becoming more educationally mobile. Radicals argue that, in fact, the educational system is becoming more important in determining class structure and is therefore becoming a more important force against social mobility. Ivan Illich supports this contention by comparing the role of education with the historical role of religion:

> School has become the world religion of a modernized proletariat, and makes futile promises of salvation to the poor of the technological age. The nation-state has adopted it, drafting all citizens into a graded curriculum leading to sequential diplomas not unlike the initiation rituals and hieratic promotions of former times. The modern state has assumed the duty to enforce the judgment of its educators through well-meant truant officers and job requirements, much as did the Spanish kings who enforced the judgments of their theologians through the conquistadors and inquisition.[6]

The assumption that technological requirements have led to increased demand for a more educated work force is

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[5]Guthrie, et al., op. cit.

[6]"Why We Must Abolish Schooling," New York Review of Books (July 7, 1970), quoted in Gordon, op. cit., pp. 168-169.

probably valid in an historical context which includes the changes in technology and methods of production which occurred in the 19th century and the first half of the 20th century. However, radical critics have challenged the assumption that technological requirements are the principal reason for the rise of mass education and the increased demand for educational credentials. Rather, radicals contend that the need for mass education arose because of the need of capitalists for "a mechanism to insure social control and political stability."[7] Education was perceived as an effective institution which could perform the socialization functions that had previously been the responsibility of the family and the church.[8]

Ivar Berg[9] has criticized the human capital assumption that the changing technology in the economy requires an increasingly educated work force. Berg's study, covering the ten-year period of 1950 to 1960, finds that ". . . educational achievements were changing much more rapidly than jobs, however much concession is made to technological and other influences on work . . . ."[10] Berg is saying that

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[7]Samuel Bowles, "Unequal Education and the Reproduction of the Social Division of Labor," Review of Radical Political Economics, Vol. 3 (Fall, 1971), p. 4.

[8]Ibid., p. 4.

[9]Education and Jobs: The Great Training Robbery (Boston: Beacon Press, 1971).

[10]Ibid., p. 80.

educational requirements for job performance are lower than the levels of education being attained by new workers.

Berg's data and analyses also lend support to the position that educational achievement is used by employers as a screening device to find employees who meet non-job-functional requirements rather than job-related needs. In his analysis of 1950 and 1960 data on educational attainment and the requirements of specific jobs, Berg found that, as a general rule, the education of job holders exceeded the educational requirements needed to perform the jobs.[11] Further, in interviews of personnel managers, Berg found that employers were explicit in their admissions that:

> . . . diplomas and degrees were a good thing, that they were used as screening devices by which undesirable employment applicants could be identified, and that the credentials sought were indicators of personal commitment to 'good middle-class values,' industriousness, and seriousness of purpose, as well as salutory personal habits and styles.[12]

The implication of increasing educational requirements for jobs which do not demand as large an amount of education is that employment and social mobility will be increasingly limited. Berg discovered that "middle-level" jobs were being filled by "better-educated" people, and that there was a reduction in the number of "less-educated" workers advancing into middle-level jobs.[13]

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[11] Ibid., Chapter III.

[12] Ibid., p. 78, emphasis added.

[13] Ibid., p. 59.

It is clear that continuation of this trend means that blacks and other relatively disadvantaged groups in society will continue to find limited opportunities for upward mobility. These groups are precisely those least able to afford schooling necessary to meet employer requirements, and they are the groups which have typically achieved both lower levels of school performance and fewer years of schooling than middle- and upper-class whites. Thus, the importance of schooling in the economy will exacerbate, rather than alleviate, inequalities in income and social class mobility.

The preceding discussion dealt with one important effect of education, but there is another related aspect of the educational system that also acts to preserve and reinforce patterns of class differentiation. As Bowles and other radical critics of education[14] have noted, another essential function of education is to teach acceptance of the status quo, i.e., legitimization, in Miliband's words, ". . . of the prevailing economic and social order, and of its main institutions and values."[15]

One means of achieving acceptance of the status quo is to tailor the internal structural arrangements in schools to parallel the social relations of the work process

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[14]See, for example, Bowles, op. cit., Miliband, The State, op. cit., p. 244, and Baran and Sweezy, op. cit., pp. 306-322.

[15]Miliband, The State, op. cit., p. 244.

which students from different classes are likely to enter.[16] Bowles points out that differences in the interior structures of schools and the content of schooling are readily apparent and that these differences correspond to the social classes of the students who attend the schools.[17] It is not surprising, therefore, that the Guthrie, et al. study[18] found that children from high socioeconomic status backgrounds had better educational inputs and achieved better success than students from families of low socioeconomic status.

Benefits and Benefit Recipients

It is possible to consider the costs incurred in the provision of education as socially necessary costs, as these were defined in Chapter III. In any advanced society, education is important to provide literacy, skills, training, knowledge and socialization to members of society. It is important, however, to recognize that the goals and outputs of the educational system in this country (and Michigan) are not necessarily those which would obtain in a different socioeconomic system.

It is apparent from the preceding discussion that the skills and training aspects of education in this country

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[16] Bowles, op. cit., p. 14.

[17] Ibid., p. 16.

[18] Guthrie, et al., op. cit.

are frequently less important to employers than less tangible traits such as acceptance of prevailing values, authoritarian social relations and "proper" work habits. These types of personality traints and behavior modes are necessary for success in, and the smooth functioning of, the modern bureaucracies of corporations and government. As Bowles notes, ". . . positions of control in the productive hierarchy tend to be associated with positions of political influence."[19] Since the upper class exerts the preponderance of power in determining the public interest and accepted behavior patterns, it is not surprising that not only the rigid structure of education, but also the outputs of the educational institutions, coincide so neatly with the needs and desires of corporate capital and the State.

It is necessary, therefore, to evaluate the benefits of education in the light of this framework. If students do not need, for job performance purposes, the amounts and kinds of education required by employers, it would be erroneous to assume that the public provision of education in this society is intended to yield benefits solely, or even largely, to students. The principal benefit of education is a work force inculcated with the values of the capitalist class and a work force which accepts the existing social relations of production in our capitalist

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[19]Bowles, op. cit., p. 26.

system. In part, the needs of capitalists, rather than students, are met by the system of educational institutions.

It could be argued, of course, that students benefit by virtue of their employability and the increments to income associated with additional years of schooling. But this argument ignores the contention that education does not encourage creativity, spontaneity or individual freedom except as these factors reinforce existing class differences. For the most part, conformity of thought and behavior and acceptance of rigid behavior modes are rewarded instead. The social relations of schooling parallel those of the corporate bureaucracy and are alienating rather than liberating or fulfilling.[20] When the needs of students are molded to the needs of the State and capitalism, rather than vice versa, it is difficult to see how students can be judged the primary recipients of the benefits of education.

Thus, it is assumed that the primary benefits of educational spending are a cooperative and disciplined work force and a populace which accepts and supports the existence and maintenance of the capitalist system in the U.S. The principal recipients of the benefits of education are capitalists, as capitalists are defined in Chapter III. Some benefits must, however, be assigned to students and

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[20]See Herbert Gintis, "Repressive Schooling as Productive Schooling," in Gordon, op. cit., pp. 208-213.

their families to account for the receipt of such basic skills as reading and arithmetic. These skills could be learned in other environments which would encourage individuality rather than repress it, as the school system currently does. Therefore, the proportion of benefits accruing to students and their families is limited to 40 percent. (These benefits amounted to 50 percent of total benefits in the conventional analysis.) The rationale for assigning the preponderance of benefits to capitalists (60 percent) was developed in the preceding discussion of the radical analysis of education. It has been emphasized earlier in this study that some of the proportions used in the radical analysis are arbitrarily assigned to show the direction in which the analysis differs from the conventional approach. However, in the case of education, there is some precedent for the assignment of various proportions of spending for education as general goods benefits (see Chapter VI). The most common proportion of spending for elementary and secondary education assigned as general goods benefits is 50 percent, although Aaron and McGuire assume 70 percent.[21] The radical analysis leads to the conclusion that more than 50 percent of the benefits of elementary and secondary educational spending accrue to capitalists. It is reasonable to use 60 percent as a compromise estimate of these benefits.

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[21]Aaron and McGuire, op. cit., p. 916.

In the case of spending for higher education, the proportions used are the same as those used in the conventional analysis: 70 percent of the benefits accrue to the families of students and 30 percent to capitalists. Public higher education is less directly repressive and offers more freedom for individual choices about programs, etc., but the needs of capital for suitable products of the educational system are also met by higher education. The implication of sequential degrees and rising educational requirements is that the higher education system performs essentially the same functions as lower levels of education.

Allocation of Benefits

Allocation of the benefits of spending for education proceeds directly from the preceding discussion. Elementary and secondary school benefits are distributed by the 60-40 ratio previously proposed, with 60 percent of the benefits accruing to capitalists by the distribution of capitalist income and 40 percent to the families of students. Benefits accruing to families of students, adjusted by the difference in lifetime incomes of high school and non-high school graduates, are allocated to the distributions of enrolled children by family income[22] derived from the high school graduation rates by income.[23] This is the same

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[22]Bureau of the Census, CPR, P-20, No. 222, op. cit., p. 5.

[23]Bureau of the Census, CPR, P-20, No. 185, op.cit., p. 4.

procedure used in the previous chapter to allocate specific goods benefits.

The benefits of spending for higher education are allocated using the 30-70 ratio proposed above. The benefits accruing to capitalists (30 percent) are distributed by the distribution of capitalist income, and the specific goods benefits (70 percent) are distributed by the distribution by family income of children 18-24 years old enrolled at the undergraduate level.[24] Total benefits are reduced by 9 percent to account for benefits which accrue to out-of-state recipients. Again, the allocative techniques for specific goods benefits are identical to those used in the conventional analysis.

Summary

The analysis of the benefits of spending for public education follows the procedures outlined in Chapter III: Two separate analyses were conducted to generate incidence estimates which differ only as a result of the disparate nature of the underlying assumptions about the role of the State in an advanced capitalist system. Chapter VI contains the conventional analysis, modified to reflect better the data on the relative returns and access to education among different income classes. This chapter, on the other hand, uses a radical analysis of the role of the education system

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[24]Bureau of the Census, CPR, P-20, No. 231, op. cit., p. 21.

in our society. The two analyses differ on two essential points: specifying the benefits from education and the recipients of those benefits. The conventional analysis assumes that there is a variety of benefits from education, some of which accrue to students and their families, and others which are shared by all members of society. The radical analysis leads to the conclusion that the principal benefit of education is individuals inculcated with the values of the capitalist society. Since these values are determined by the capitalist class, and the products of education are workers who are employed by capitalists, it follows that the preponderance of benefits from spending for elementary and secondary education accrues to capitalists.

Table 14 shows the distribution of benefits from expenditures for education which results from the radical analysis. Specific goods benefits are allocated in the same way as in the conventional analysis of the preceding chapter and, therefore, show the same regressive pattern of incidence. Total benefits, however, include class goods benefits which are allocated by the distribution of capitalist income. The pattern of incidence of total benefits for both local and higher education, becomes progressive at the top income bracket because of the large amounts of benefits which accrue to that bracket. Thus, the results of the radical analysis show that education expenditures are not as great an equalizing influence on the income distribution as they are in the conventional analysis or in other conventional studies.

TABLE 14

The Distribution of Expenditures for Education -- Radical Analysis [1,2]

Income Bracket ($000)	Specific Goods Benefits (Local Education)		Total Local Education Benefits		Specific Goods Benefits (Higher Education)		Total Higher Education Benefits	
Under 1	2.62	(27.28)	1.06	(27.60)	1.07	(3.12)	.76	(3.14)
1-2	3.00	(7.10)	1.38	(8.20)	1.22	(.81)	.95	(.90)
2-3	2.26	(3.97)	1.34	(5.89)	.92	(.45)	.86	(.61)
3-4	6.54	(8.86)	3.38	(11.44)	2.98	(1.13)	2.47	(1.33)
4-5	5.94	(6.66)	3.37	(9.44)	2.71	(.85)	2.39	(1.07)
5-6	7.30	(6.35)	4.14	(9.00)	4.88	(1.19)	4.03	(1.40)
6-7	7.83	(5.29)	4.65	(7.85)	5.24	(.99)	4.43	(1.19)
7-8	8.51	(4.35)	4.80	(6.13)	6.25	(.89)	5.07	(1.03)
8-9	8.61	(3.58)	4.72	(4.90)	6.99	(.81)	5.53	(.92)
9-10	8.36	(3.16)	4.82	(4.56)	6.78	(.72)	5.49	(.83)
10-12	11.93	(2.06)	7.39	(3.20)	14.79	(.72)	11.66	(.81)
12-15	13.73	(1.68)	9.46	(2.89)	17.03	(.58)	13.90	(.68)
15-25	10.68	(.74)	13.89	(2.41)	23.29	(.45)	21.11	(.58)
Over 25	2.68	(.25)	35.60	(8.28)	5.84	(.15)	21.35	(.79)
TOTALS	99.99	(1.94)	100.00	(4.86)	99.99	(.54)	100.00	(.78)
MONEY AMOUNTS ($000)	755,880		1,889,700		211,229		301,756	

TABLE 14 (cont'd.)

[1]Figures in parentheses are percentages of adjusted broad income from Table 10; other figures are percentages of the money amounts shown at the bottom of the table.

[2]See text for explanation of the distribution of educational expenditures in the radical analysis.

Source: Same as Tables 12 and 13.

CHAPTER VIII

THE DISTRIBUTION OF HIGHWAY EXPENDITURES: CONVENTIONAL ANALYSIS

Expenditures for highways[1] in fiscal 1970 amounted to $366.4 million, or 7.7 percent of total state and local government spending (see Table 4, Chapter IV). The bulk of these expenditures (65.5 percent) were for capital outlay purposes,[2] but the benefits of asset-creating expenditures are assumed, in this study, to accrue in the current year rather than over the life of the asset. This procedure is the same as that used to allocate the benefits of educational expenditures.

The Benefits of Highway Expenditures

The most obvious benefits of highway spending are those which accrue to the users of the road and street

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[1]The term "highways" is defined, in this study, to include the entire system of local streets, county roads, state highways and interstate highways in Michigan.

[2]Bureau of the Census, Governmental Finances in 1969-70, op. cit., p. 36.

system. Among these benefits are savings in travel time, in vehicle operating costs and in reduced accident rates. There are, however, benefits which accrue to the owners of property adjacent to roads and streets and to the general public.

The non-user benefits arise because highways provide access to property which might otherwise have limited value and because of the use of highways by public vehicles. Public use of the highways by police and fire vehicles, for example, yields benefits to highway non-users, but municipally-owned vehicles were only .2 percent of total registered behicles in 1970. Therefore, the distributive effects of the benefits which result from use by public vehicles are ignored in this study because of their relatively insignificant impact.

A serious shortcoming of conventional fiscal incidence studies is that although the direct benefits of highway spending have been examined extensively, none of the studies has explicitly recognized that highways also give rise to external diseconomies. Among the negative benefits of highways are pollution, noise, and congestion in urban areas and conversion of otherwise useful and aesthetic land into concrete. Further, the emphasis on development and expansion of highway systems has resulted in limiting the mass transportation options available to many people, particularly in urban areas.

In state-level studies, highway expenditures are somewhat anomalous because they are perhaps the only expenditures which produce significant negative, as well as positive, externalities. The assumption that the value costs and benefits is identical probably becomes more tenuous in the case of highways than for any other expenditure. The nature of the problem of valuing benefits will become more clear after a discussion of the methods typically used in conventional studies to allocate the benefits of highway expenditures.

Identifying Benefit Recipients

There are two major classifications of recipients of benefits from highway expenditures: highway users and non-users. Among users there are two categories of benefit recipients: owners of private automobiles and owners of commercial vehicles such as trucks and buses. The non-user category principally includes owners of property to which access is provided by roads and streets. The locational advantages of commercial property are enhanced by the increased access because more people can get to the places of business, thereby increasing sales. Some non-user benefits also accrue to the general public through the use of highways by public vehicles.

There are a number of methods that have been used in previous fiscal incidence studies to allocate benefits

among the various recipient groups. The first step in the benefit allocation process is to divide benefits between users and non-users of highways. In order to make this division, one of five different cost allocative procedures is usually used.[3]

These five techniques have been devised for the purpose of allocating the costs of highways according to the benefit principle of taxation. Each of the methods yields an allocation of costs between users and non-users which can be used to raise highway funds from each group in proportion to the assumed benefits received by each group.

Of the five methods, the earnings-credit analysis has been the most widely used, both in highway fiscal studies[4] and in previous expenditures incidence studies. The earnings-credit analysis assumes that the primary road system benefits users rather than property owners. Thus, the costs of constructing and maintaining the primary road system should be borne entirely by users. Total highway user charges, on a per-vehicle-mile basis, equal the cost

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[3]The five procedures are the public utilities concept, the predominant use approach, the standard cost analysis, the relative use method and the earnings-credit approach. See Wilbur Smith and Associates, Michigan Highway Fiscal Analyses 1970-1990 (New Haven: Wilbur Smith and Associates, 1972), p. 153, for explanations of the various procedures.

[4]Wilbur Smith and Associates, op. cit., and Denzel Cline, Milton Taylor and James Papke, Michigan Highway Fiscal Study, 1961 (East Lansing: Institute for Community Development, Michigan State University, 1962).

of highways and are applied to all road and street systems. Since costs per vehicle mile are higher for local streets than for highways, total revenue from user charges will be less than the total costs of all roads and streets. The difference between highway user charges and total expenditures is assumed to be the non-user cost responsibility.

Another analogous calculation is made for local streets which are assumed to benefit property owners rather than vehicle owners. Thus, costs of local streets should be the responsibility of property owners through their property tax payments. The property tax, computed on a per-mile-of-streets-constructed basis, is applied to the full highway system. The costs per mile of streets is lower than the costs per mile of constructed highways, and again there is a deficit between total revenue raised and total costs of the system. The difference is assigned as the cost responsibility of highway users.

Thus, the calculations arrive at two cost responsibility estimates. Each of these, i.e., costs for users and non-users, is weighted by miles traveled, and then the two estimates are averaged. The result is a division of cost responsibility for the total highway system between users and non-users. Since benefits are assumed to equal costs, a division of benefits is also achieved.

Eapen and Eapen[5] and Gillespie[6] use the earnings-credit approach, while Ross uses two allocative procedures, one of which does not allocate any benefits to non-users and another which assumes an arbitrary 75-25 percent division between users and non-users.[7] Singer is also arbitrary in his method, using a 50-50 percent division.[8] Brownlee,[9] Musgrave and Daicoff,[10] Musgrave, et al.,[11] Reynolds and Smolensky,[12] Adler,[13] and Conrad[14] do not allocate any proportion to non-users. Tucker does not allocate any benefits of federal spending for highways to non-users, but assigns one-third of state and local spending to owners of real estate.[15] The Tax Foundation[16] did not allocate any proportion to non-users.

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[5]Eapen and Eapen, op. cit., pp. 78-80.

[6]Gillespie, op. cit., pp. 140-145.

[7]Ross, op. cit., p. 65.

[8]Singer, op. cit., p. 94.

[9]Brownlee, op. cit., pp. 34-35.

[10]Musgrave and Daicoff, op. cit., p. 155.

[11]Musgrave, et al., op. cit., p. 34.

[12]Reynolds and Smolensky, (1), op. cit., p. 45.

[13]Adler, op. cit.

[14]Conrad, op. cit.

[15]Tucker, op. cit., pp. 532-533.

[16]Tax Foundation, op. cit., p. 12.

The next step in the procedure of allocating benefits is to determine the beneficiaries within the broad classes of users and non-users. Within the user category, there are two principal groups of recipients: passenger car owners and owners of commercial vehicles. Again, there are various methods of allocating costs between these two groups,[17] but the most commonly used is the incremental cost method. Using this method, costs are allocated to various groups of vehicles on the basis of the increments in highway costs incurred in accommodating various types of vehicles.[18]

The incremental cost method has not been widely used among fiscal incidence studies. Only Eapen and Eapen[19] and Gillespie[20] use it, although they derive their allocative proportions from a study done in Louisiana.[21] Ross uses a 55-45 ratio to allocate costs between private and commercial users. He derives this ratio from the results

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[17]These methods are the cost function method, the vehicle mile method, the ton mile method and the incremental cost method. See Wilbur Smith and Associates, op. cit., p. 168.

[18]Ibid., p. 170.

[19]Eapen and Eapen, op. cit., p. 81.

[20]Gillespie, op. cit., p. 184.

[21]William D. Ross, Financing Highway Improvements in Louisiana (Baton Rouge: Louisiana State University, 1955).

of three previous expenditure incidence studies, each of which used similar ratios.[22]

Singer allocates all user costs to private passenger cars,[23] Musgrave, et al., use a 67-33 division between individuals and commercial users,[24] Reynolds and Smolensky allocate all highway expenditures to private auto owners,[25] Tucker allocates 50 percent of all federal highway spending to users on the basis of automobile expenditures,[26] and the Tax Foundation allocates total highway costs to users, 50 percent by auto operating expenditures and 50 percent by current consumption expenditures.[27]

Benefits which accrue to commercial users are invariably assumed to be shifted forward to consumers. The rationale for this shifting assumption is that highways lower transportation costs and these costs savings are passed along to consumers. The benefits are allocated to consumers by the distribution of consumption expenditures by income.

Private user benefits are allocated by various methods, the most common of which are by the distributions of oil and gas expenditures, auto operating expenditures and

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[22]Ross, Oklahoma, op. cit., pp. 68-69.

[23]Singer, op. cit., p. 94.

[24]Musgrave, et al., op. cit., p. 34.

[25]Reynolds and Smolensky, (1), op. cit., p. 43.

[26]Tucker, op. cit., pp. 532-533.

[27]Tax Foundation, op. cit., p. 12.

auto ownership. The distribution of auto operating expenditures seems to be the most preferable of the three alternatives because these expenditures are more inclusive of the costs of vehicle use than only oil and gas expenditures, although both of these alternatives will tend to have a progressive bias to the extent that higher costs per mile are associated with larger, more expensive, cars. Auto ownership seems to be the least preferable of the three because ownership does not necessarily reflect use, and benefits would tend to be biased toward progressivity because of the positive correlation between multiple ownership and income.

Among the studies which allocate benefits to non-users, only Ross has made an allocation of benefits to both commercial and private beneficiaries. He uses real property assessments to divide benefits between commercial and residential non-users, and assumes all commercial benefits are shifted forward to consumers, while residential non-users receive benefits on the basis of the distribution by income of expenditures on homes.[28]

The issue of out-of-state shifting of benefits arose in three of the four state-level studies (Ross did not address the problem). Eapen and Eapen allocated 10 percent of total user benefits to out-of-state users of the highways[29] and Brownlee assigned 8 percent of passenger car

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[28]Ross, Oklahoma, op. cit., p. 71.

[29]Eapen and Eapen, op. cit., p. 82.

user benefits to out-of-state drivers.[30] Musgrave and Daicoff shifted benefits to out-of-state residents from only the business share of benefits.[31]

The assumption about the business share of benefits is that they are treated as a negative sales tax, so Musgrave and Daicoff allocated 54.94 percent of the business share of highway benefits to out-of-state consumers. This proportion (54.94 percent) was the proportion of total sales of Michigan firms which were made outside of Michigan.[32]

It should be apparent from the preceding discussion that the conventional procedures of highway benefit allocation attempt to account, at least in part, for positive externalities which arise from the construction and maintenance of the highway system. These methods do not, however, address the recurring issue of the assumption of the identity of costs and benefits, nor do they recognize the negative externalities of highway development. In a cost-benefit analysis of urban highway spending,[33] Herbert Mohring acknowledges the existence of both positive and

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[30] Brownlee, op. cit., p. 35.

[31] Musgrave and Daicoff, op. cit., p. 182.

[32] Ibid., p. 182.

[33] Herbert Mohring, "Urban Highway Investments," in Measuring Benefits of Government Investments, ed. by Robert Dorfman (Washington, D.C.: The Brookings Institution, 1965), pp. 231-291.

negative externalities but admits that data to value the externalities are lacking.[34]

In order to assume the identity of the costs and direct benefits of highway expenditures, it is also necessary to assume that positive and negative externalities are not only equal but also that they have identical distributional impacts. The second condition is necessary because without it the conventional allocative procedures would be erroneous.

In keeping with conventional practice, and because data do not exist to value externalities, this study also assumes that benefits equal the cost of providing highway facilities. It is important to recognize, however, that in the case of highway spending, benefits are probably overstated when equated to costs. The distributional impact of the value of externalities is likely to be regressive because the concentration of negative externalities such as pollution and congestion is principally in the centers of large urban areas where there are large concentrations of persons with relatively low income.

The Allocation of Benefits in this Study

With these caveats in mind, this section takes up the detailed discussion of the allocative methods used in

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[34] Ibid., p. 231.

this study. For the most part, these methods are similar to those used by Eapen and Eapen[35] and Ross.[36]

The allocative procedures used in this study have one significant advantage over those used in previous studies because of the availability of two recent studies of the Michigan highway fiscal structure.[37] The authors of other expenditure incidence studies which used similar methods (Gillespie, Eapen and Eapen, and Ross) used the results of a highway study done in Louisiana (see note 21) to generate their allocative proportions.

The first study available for Michigan was completed in 1962. This study made highway cost projections for the period 1960 to 1980 and selected the year 1970 for analysis. Using the earnings-credit method of cost allocation, the Cline, et al., study assigned 64 percent of the costs of highways to users and 36 percent to highway non-users.[38] A more recent analysis of highway costs was completed in 1972 and projected costs over the period 1970 to 1990. The costs for the 20-year period were averaged on an annual basis, and the earnings-credit method of cost allocation

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[35]Eapen and Eapen, op. cit.

[36]Ross, Oklahoma, op. cit.

[37]See note 4.

[38]Cline, et al., op. cit., p. 147.

assigned 62 percent as the user share of costs and 38 percent as the non-user share.[39]

The Cline, et al., study did not use the incremental cost method to assign cost shares among vehicle categories. A less sophisticated method was used which yielded the following cost allocations: passenger cars, 85 percent; medium-size trucks, 10 percent; and large trucks and buses, 5 percent.[40]

The 1972 highway study used the incremental cost method which yielded cost allocations of 70.4 percent to passenger cars, 1.2 percent to buses, 6.9 percent to panel and pickup trucks and 21.5 percent to trucks.[41] Since the two highway fiscal studies arrive at such similar results using the earnings-credit analyses, this study splits the difference between their results and uses a 63-37 percent division between users and non-users. The non-comparable incremental cost analyses, however, do not lend themselves to a compromise approach. For this reason, the results of the 1972 Michigan highway fiscal study are used in this study.

In addition to the 70.4 percent allocated to passenger cars, 3.4 percent of the 6.9 percent assigned to panel and pickup trucks is also assigned to the private

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[39]Wilbur Smith and Associates, op. cit., p. 165.

[40]Cline, et al., op. cit., pp. 199-200, 211.

[41]Wilbur Smith and Associates, op. cit., p. 184.

user category to account approximately for the proportion of these vehicles which are privately owned. Thus, 73.8 percent of user benefits accrue to private users, and 26.2 percent accrue to commercial users. These benefits are distributed among private users by the distribution by income of expenditures for automobile use nationally.[42] The benefits to commercial users are allocated to consumers using the conventional shifting assumption that all benefits are shifted forward. The distribution of these benefits to Michigan residents is by consumption expenditures by income class.[43]

An approximation of the proportion of highway use allocable to out-of-state drivers can be made from a 1964 study of tourists in Michigan.[44] At that time (1964) non-resident tourists drove over 9 billion miles, while total miles driven in 1970 were over 50 billion.[45] More recent data for non-resident driving is unavailable, so the assumption in this study is that 20 percent of private passenger car benefits accrue to out-of-state drivers. This estimate is only approximate, but assumes that non-resident driving

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[42] Musgrave, et al., p. 10.

[43] Roberts, op. cit.

[44] Michigan Department of State Highways, Tourist Travel in Michigan, 1964 (Lansing: Michigan Department of State Highways, 1964).

[45] Ibid., pp. 14-140; Michigan Department of State Highways, Twentieth Annual Progress Report (Lansing: Michigan Department of State Highways, 1972), p. 4.

increased over the six-year period to 10 billion miles.

In the case of commercial benefits, Roberts has estimated that 51.7 percent of the total sales of Michigan firms are made to Michigan residents and 48.3 percent to out-of-state customers.[46] The benefits of highways which accrue to commercial users and non-users are reduced by 48.3 percent to reflect the out-of-state shifting of benefits.

Non-user benefits are divided between private and commercial owners of real property according to the division of ownership in the state between the two groups.[47] Private non-user benefits are allocated by the distribution of property income, imputed rent, (as a proxy for property ownership) by income class.[48] Commercial non-user benefits are again assumed shifted forward to consumers and allocated by the distribution of consumption expenditure by income.

These allocation procedures can be summarized as follows:

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[46]Roberts, op. cit.

[47]Michigan Department of Commerce, Economic Profile Sheet No. 9.1, Taxes (Lansing: Michigan Department of Commerce, 1971).

[48]See Table 3, Chapter IV.

Users:	Distributed by:
63 percent of total benefits	
Private users 37.2 percent [(63X.738)X.82]	Automotive expenditures
Commercial users 8.5 percent [(63X.262)X.517]	Consumption expenditures
Non-users:	
37 percent of total benefits	
Private 22.9 percent [(37X.62)]	Property Income (imputed rent)
Commercial 7.3 percent [(37X.38)X.517]	Consumption expenditures
Total Michigan resident benefits	75.9 percent

CHAPTER IX

HIGHWAY EXPENDITURES: A RADICAL ANALYSIS

The radical analysis uses a different model of the social, economic, and political system in the U.S. and Michigan to analyze the incidence of public sector expenditures. This model attempts to make the class structure of our capitalist system endogenous, and by doing so the model makes possible a different interpretation of the spending patterns of the public sector.

In the case of highways, the radical model is no better equipped than the conventional model to value the externalities which result from highways, but its assumption of class domination of the socioeconomic system yields an interpretation of the reasons for externalities which is usually lacking in conventional studies. Further, the class domination assumption in the radical analysis yields different, and perhaps more accurate, descriptions of the benefits and beneficiaries of spending for highways.

The radical analysis retains the assumption of the identity of benefits and costs and the user/non-user dichotomy of benefit recipients. But, in addition to the

user/non-user distinction, the radical analysis identifies another group of benefits and beneficiaries. These benefits have previously been called class goods benefits because they accrue to a particular class of people, the capitalists. These benefits arise, in the radical analysis, because of the nature of the class structure in a capitalist socio-economic system. Capitalists are assumed to be the dominant class. Thus, while user and non-user benefits are allocated in the same way as in the conventional analysis, the amount of these benefits is reduced by the amount of class benefits which accrue to capitalists.

The Nature of Benefits from Highway Spending

The benefits of highway spending can be divided between user, non-user and class goods benefits. User and non-user benefits are qualitatively similar to those in the conventional analysis: reduced travel, operating and accident costs and access to property, respectively.

To account for other significant benefits which accrue as class goods, the radical analysis assumes that part of the benefits from the public provision of highways results from the domination of the political and socio-economic system by capitalist interests. The category of class goods benefits should count the benefits which accrue to owners of capital in the automobile industry and auto- or highway-related industries which include, among others,

the petroleum, rubber, steel, glass, concrete, asphalt, auto-related service and recreation and transportation industries. In addition, the automobile and the highway system have been important factors in the spatial development of urban and suburban areas, and highways are an important means by which some people can escape the congestion, pollution and noise in cities and live in the suburbs.

The development of highways has been both a means for and a result of the exodus from cities of industrial and commercial activities, and large numbers of upper- and middle-class persons. Thus, highway development and expansion of the system have been, in O'Connor's words, supported by ". . . many other sectors of monopoly capital [in addition to the automobile lobby] and the general public."[1]

The concept of socially necessary costs can be used to describe the types of benefits from highway spending and their allocation. There would be widespread agreement among radicals that the highway system in the U.S. and Michigan is over-developed relative to other means of transportation. There would also be agreement with the position that the existing highway system would be necessary even under a more rational system of social priorities, at least in the short term. As Andre Gorz has written:

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[1] O'Connor, op. cit., p. 106.

> And finally the private automobile becomes a social necessity: urban space is organized in terms of private transportation; public transportation lags farther and farther behind the spread of the suburbs and the increasing distance required to travel to work; . . . The possession of an automobile becomes a basic necessity because the universe is organized in terms of private transportation . . .[M]otorized escape [from unbearable cities] will continue to be an important--although decreasing--element in the reproduction of labor power, even when priority has returned to city planning, to collective services, and to public transportation.[2]

The present study accepts the premise that the automobile is a social necessity and that the present system of highways is also socially necessary, at least for some indefinite period of time. However, expansion of the highway system under a socialist socioeconomic system would become unimportant relative to emphasis on expanding public transportation options and encouraging work-living arrangements which would reduce all types of transit. Therefore, only that proportion of highway expenditures for purposes other than construction is considered socially necessary costs.

The principal shortcoming of this approach could be that the construction category of costs includes improvements to the existing system of highways, as well as construction of new highways. However, it is likely that much of the improvement of highways comes at the expense of developing other means of transit and is a result of the historically one-sided approach to transit in Michigan. It

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[2]Quoted in Gordon, op. cit., p. 413.

is also reasonable to assume that judgments about the adequacy of existing roads are in large part based on criteria which exclude consideration of alternative forms of transportation or reduced travel altogether. Therefore, improvements as well as new construction are assumed to be socially unnecessary.

In the long run, the existing highway system would become a less important feature of the transportation system, so some part of maintenance costs could also be considered socially unnecessary. This study, however, deals only with one year and takes a short-run view of expenditure analysis. Therefore, since maintenance costs could be discontinued at any time, depending on the need for various parts of the highway system, these costs are considered socially necessary in this study.

Identifying Benefit Recipients

Within the category of socially necessary costs, benefit recipients can be identified as users and non-users of highways. The procedure used to make this distinction is the same as that used in the conventional analysis in the previous chapter. Thus, the same proportions are used to allocate socially necessary costs between users and non-users as were used to allocate the full amount of highway expenditures in the conventional analysis. Further, the distributional series used to allocate benefits among

income classes in the conventional analysis are also used in the radical analysis.

The amount of class goods benefits of highway expenditures (the excess of actual over socially necessary costs) is determined by assuming that construction costs were not socially necessary. Spending for all other aspects of highway programs is assumed to be socially necessary.

To compute the proportions represented by each of these categories, federal aid for highways was assumed to be devoted entirely to construction. The calendar 1969 budgets of the county road commissions and cities and villages, as well as the fiscal 1971 budget of the State Trunkline Fund, were used to determine the amounts devoted to construction and other expenditures.[3]

Approximately 47 percent of total expenditures for highways at all three levels of government was devoted to construction expenditures. Federally shared highway revenues have been subtracted from both total spending and construction spending.

The class goods benefits of highway expenditures (47 percent of total spending for highways) are allocated to capitalists. This procedure is preferable to using the money flow concept of benefit allocation, because the money flow approach would allocate the benefits of socially

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[3] Michigan Department of State Highways, Twentieth Annual Progress Report, op. cit., pp. 72, 93, 117.

unnecessary expenditures principally to the road construction industry as the direct recipients of money payments for highway construction.

The money flow concept is rejected in this study because it ignores other important beneficiaries of spending for highways, such as the highway-related industries listed above. Using the money flow concept also ignores the composition of the dominant class at the state level, and would imply partial rejection of the assumption of class domination.

The composition of the dominant class in Michigan includes persons who receive money payments for highway construction, but it also includes the recipients of ancillary benefits of the public provision of highways. Michigan's manufacturing sector is heavily dominated by the motor vehicle industry and industries related to either automobile manufacture or construction of highways. An example of the importance of these interests in the manufacturing sector, ignoring the importance of highways for the government and service sectors, is that in 1969, 51 percent of total value added by manufacturing in Michigan occurred in automobile- or highway-related industries, and 42 percent of manufacturing employment was also centered in these industries.[4]

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[4]Michigan Statistical Abstract, 1972 (East Lansing: Division of Research, Graduate School of Business, Michigan State University, 1972), pp. 275-280.

The importance of the automobile and related industries, and consequently highways, in the Michigan economy means that the owners of capital in these industries are also important members of the capitalist class in Michigan. O'Connor argues that large segments of monopoly capital have recently begun to advocate mass transit programs in opposition to the interests of the automobile lobby.[5] This apparent split in the interests of the monopoly capitalist sector might argue for a different technique to allocate the class goods benefits of highway spending in this study. But it is also important to recognize that studies of the recently developed mass transit programs in San Francisco and Washington, D.C., have found that the beneficiaries of these programs are also members of the monopoly capitalist class in the two central cities and the suburban areas of these cities.[6] Further, some of the industries which support highways, including the automobile industry, would also benefit from mass transit programs, for example, the construction and steel industries.

Thus, the present system of highways and two recently developed mass transit systems are designed principally to benefit the capitalist class. Ultimately, the dominance

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[5]O'Connor, op. cit., p. 107.

[6]Danny Beagle, Al Haber and David Wellman, "Rapid Transit: The Case of BART," and Willard M. Brittain, "Metro: Rapid Transit for Suburban Washington," in Gordon, op. cit., pp. 437-439, and 439-443, respectively.

over the political system exercised by capitalist interests will preclude the development of programs which do not serve either the accumulation or legitimization purposes of the dominant class. The continued, though decreasing, emphasis on highway development (construction) is a reflection of the dominant interests of capitalists.

Summary

The radical analysis of the incidence of highway spending includes three categories of beneficiaries: users, non-users, and capitalists who receive class goods benefits. The allocation of benefits to private passenger car users of highways is probably overestimated in conventional studies because of the lack of transportation options open to these users. Essentially this means that the coercive element of limited options should reduce the benefits allocated to private users. The radical analysis accounts in part for this bias by limiting user and non-user benefits combined to 53 percent of the total benefits of highway spending. The remaining 47 percent of benefits arises from construction costs and is considered class benefits which accrue to capitalists. The allocative procedures used in the radical analysis are similar to those used in the conventional analysis of the preceding chapter and can be summarized as follows:

Users	Distributed by:
33.4 percent of total benefits (53X.63)	
Net private 19.7 percent [(33.4X.738)X.8]	Automotive expenditure
Net commercial 4.5 percent [(33.4X.262)X.517]	Consumption expenditure
Net user benefits 24.2 percent	
Non-users:	
19.6 percent of total benefits (53X.37)	
Net private 12.2 percent (19.6X.62)	Property income
Net commercial 3.8 percent [(19.6X.38)X.517]	Consumption expenditure
Net non-user benefits 16.0 percent	
Capitalists: 47 percent	Capitalist income
Total Michigan resident benefits 87.2 percent	

The above numbers are derived by reference to the proportions developed in the previous chapter: user benefits are 63 percent of total user/non-user benefits; private user benefits are 73.8 percent of user benefits and non-resident benefits amount to 20 percent of private user benefits; resident commercial user benefits are 51.7 percent of total commercial user benefits; private non-user benefits are 62 percent of total non-user benefits; and 51.7 percent of commercial non-user benefits accrues to Michigan residents.

The radical analysis, because the allocation procedures differ from the conventional analysis, assigns a greater proportion (87.2 percent) of highway benefits to Michigan residents than that allocated in the conventional analysis (75.9 percent). This result derives principally from the assumption that capitalist benefits are not shifted out-of-state. In order to make the two analyses comparable, 11.3 percentage points of capitalist benefits would have to be assumed to be shifted to non-residents. There is no reason to assume that exactly this amount of class goods benefits accrues to non-residents. The highway lobby is, of course, powerful at the national level, as well as in Michigan, and is responsible in part for the development of the interstate highway system in Michigan. Further, the highway and automobile lobbies support efforts to restrict the use of federal gas tax monies to highway purposes and federal highway funds are used to share the costs of highway construction with state governments on a 90-10 basis for interstate highways. Thus, there is a basis for allocating some proportion of class goods benefits to non-resident capitalists, although there is no basis on which to posit a specific number. For comparative purposes, however, the incidence calculations are made under the assumption that total resident benefits are equal in both cases.

The results of both the conventional and radical analyses of highway expenditures are shown in Table 15. The procedures used to allocate the specific goods benefits are identical in both analyses, but the incidence of total benefits shows the impact of allocating 35.7 percent of total benefits as class goods benefits in the radical analysis. In the conventional analysis, the pattern of incidence is regressive in the lowest brackets, roughly proportional between $5,000 and $12,000, and regressive in the upper brackets. In the radical analysis, on the other hand, there is little regressivity in the lowest brackets, a mixed pattern in the middle brackets, and progressivity in the top two brackets.

TABLE 15

The Distribution of Benefits of Highway Expenditures[1,2]

Income Bracket ($000)	Conventional Analysis		Radical Analysis	
Under 1	.77	(3.28)	.42	(1.66)
1-2	1.54	(1.48)	.96	(.87)
2-3	1.52	(1.06)	1.15	(.77)
3-4	1.67	(.89)	1.48	(.77)
4-5	2.36	(1.03)	2.03	(.87)
5-6	2.74	(.92)	2.40	(.80)
6-7	3.74	(.97)	3.17	(.82)
7-8	4.76	(.93)	3.62	(.70)
8-9	6.05	(.96)	4.20	(.67)
9-10	6.55	(.95)	4.63	(.67)
10-12	14.63	(.97)	9.80	(.65)
12-15	16.35	(.76)	11.77	(.55)
15-25	28.22	(.75)	22.49	(.60)
Over 25	9.10	(.32)	31.88	(1.13)
TOTALS	100.00	(.74)	100.00	(.74)
MONEY AMOUNT ($000)	288,268			

[1] Figures in parentheses are percentages of adjusted broad income; other figures are percentages of the money amount shown at the bottom of the table.

[2] See text for explanation of the distribution of highway expenditures.

Source: Consumption expenditures from Douglas Roberts, "Incidence of State and Local Taxes;" auto operating expenditures from Musgrave, et. al., Distribution of Fiscal Burdens and Benefits, Table 5, p. 10; imputed rent from Table 3.

CHAPTER X

A CONVENTIONAL ANALYSIS OF HEALTH AND HOSPITAL EXPENDITURES

Expenditures for health and hospitals totaled $238 million in fiscal 1970. This amount was 4.9 percent of total net expenditures by state and local governments in Michigan during 1970 (see Table 4, Chapter IV). Although these expenditures are often lumped together for analysis in other incidence studies (and in Census data), it is possible to distinguish between expenditures for public health and hospital services and expenditures for mental health and hospital services. It is desirable to distinguish between these two types of expenditures for two reasons: (1) the public and mental health programs are administered by two different state government departments, and (2) the benefits which result from the various types of services offered by the two departments are different enough to deserve separate discussion.

The Nature of Health Services and Their Benefits

The Michigan Department of Public Health is responsible for providing a variety of health services to Michigan residents. Among these are providing support to county health departments and licensing hospitals throughout the state. In addition, the state health department provides laboratory diagnostic services, vaccine development and distribution, epidemiological services, water quality monitoring, occupational health investigations and health statistics development.[1]

County health departments provide services similar to those provided by the state health department. These services include record keeping, licensing of hospitals, control of contagious diseases, sanitation and pollution control and public health clinics.[2] Many counties also operate hospitals and sanitoria which are governed by hospital boards of trustees.[3]

The nature of the services provided by the state and county health departments and expenditures for health purposes throughout the state are such that specific

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[1]Michigan Department of Public Health, Michigan's Health (Lansing: Michigan Department of Public Health, 1970).

[2]Kenneth VerBurg, Guide to Michigan County Government (East Lansing: Institute for Community Development, Michigan State University, 1972), pp. V-5,6.

[3]Ibid., pp. V-10-13.

beneficiaries, as members of income groups, would be difficult to identify. Rather, the public health services benefit a broad spectrum of Michigan residents through preventive, diagnostic, educational and support programs. These programs result in better care for such persons and better health for many Michigan residents, as a consequence not only of direct programs but the externalities generated by these programs and the preventive and educational functions performed by the state and county health departments.

The positive externalities of health care raise once again the problem of valuing the benefits of spending for health purposes. Cost-benefit studies of health programs value benefits at the costs of disease per case and compare the value of reducing these costs with the cost of increasing health services.[4] Thus, it would seem that valuing benefits at the cost of providing health services probably understates the total benefits of health services. For the purposes of this study, however, it is sufficient to recognize this consideration while using the assumption that costs equal benefits.

There is no state-mandated policy for determining the fee policies of county hospitals. It is reasonable to assume that fee policies vary among county-operated hospitals and that these practices correspond to those of

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[4]Herbert Klarman, "Syphilis Control Programs," in Dorfman, op. cit., p. 370.

privately operated hospitals.[5] Thus, neither the state nor county governments are providing subsidies for hospital purposes which bear any relation to the income of the patients.

The Michigan Department of Mental Health has been the principal provider of mental health services in Michigan. Since 1963, however, community mental health programs have been established by individual or groups of counties.[6] The functions performed at both levels of government are quite similar: diagnosis and treatment of mentally ill persons on an inpatient, outpatient or emergency basis and rehabilitation of mentally disabled persons who have received prior treatment.[7] In addition, the state mental health department directly operates or supports 15 facilities for the mentally ill and 13 centers for mentally retarded persons, and provides significant support for community mental health programs.[8]

Many of the mental health services provided by the state and county departments of mental health are paid for

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[5]This is the case at the Ingham Medical Hospital in Lansing. Indigent patients are referred to the hospital's social services department for assistance in payment of the charges through various government programs for which the patient may qualify. In the main, however, there is no provision for fees based on ability to pay.

[6]VerBurg, op. cit., p. V-15.

[7]Ibid., p. V-17.

[8]Michigan Department of Mental Health, Link, Vol. 4, No. 3 (Lansing: Michigan Department of Mental Health, September 20, 1973).

in part by charges to the persons receiving care. These charges are levied on an ability-to-pay basis. Patients admitted to state hospitals are divided into three classes: public patients, for whom the state pays; partial-pay patients, who assume some fraction of the costs of their care; and full-pay patients, who pay for the services in full.[9] Community mental health programs are required by law to establish fee schedules based on ability to pay,[10] and the monthly fee for the care of mentally retarded persons is also established by state law on an ability-to-pay basis.[11]

Although externalities arise from the treatment and prevention of mental illness, especially in cases in which violence is a manifestation of the illness, these externalities are not as widespread as those which result from other health programs. Mental illness is neither contagious or communicable, and the effects of the treatment or prevention of mental illness are largely limited to the individual patient and her or his family. Thus, the benefits of mental health programs are similar to those of public health programs, but the number of beneficiaries is limited to more

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[9]Michigan Compiled Laws, 1970, Vol. III, Sec. 330.17(7) (Lansing: Michigan Legislative Council, 1971).

[10]MCL, op. cit., Sec. 330.614 14 (a).

[11]MCL, op. cit., Sec. 330.658 8(1).

easily identifiable individuals because of the relative absence of tangible spillover effects. There may be intangible spillovers which result from the desire on the part of the community to treat mental illness, but these spillovers are also ignored in this study and in other expenditure incidence studies.

The Allocation of Benefits in Previous Studies

A variety of methods has been used to allocate the benefits of health and hospital expenditures in previous studies. Eapen and Eapen allocate hospital expenditures on the assumption that per capita benefits accrue to recipients in proportion to the reciprocal of the average income in each income class.[12] Brownlee uses the same method of allocating hospital benefits.[13] Ross uses Gillespie's distributive series for allocating hospital benefits. This series is based on the actual income distribution of patients in public hospitals in Illinois, including the impact of the fees charged on an ability-to-pay basis.[14] Musgrave and Daicoff allocate a small fraction of health and hospital expenditures to welfare recipients and the remainder is allocated by the estimated distribution of income of

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[12]Eapen and Eapen, op. cit., pp. 84 and 87.

[13]Brownlee, op. cit., p. 34.

[14]Ross, op. cit., pp. 73-74.

patients in public hospitals.[15] Musgrave, et al., allocate hospital benefits by the distribution of income of patients in funded hospitals,[16] while Reynolds and Smolensky and the Tax Foundation do not separately allocate hospital expenditures.[17]

Health expenditures have usually been allocated as general goods in previous studies. Ross, Brownlee, Musgrave et al., Reynolds and Smolensky, Gillespie, Tucker, and the Tax Foundation allocate health expenditures as general goods. Eapen and Eapen allocate 75 percent of health expenditures on a per family basis and 25 percent to families with incomes below $7,500 in proportion to the number of children in each income group.[18]

In sum, the procedures used to allocate the benefits of health and hospital expenditures typically involve the distribution of hospital expenditures inversely to income, either by the estimated distribution of the income of patients, adjusted for the fee structure, or by an assumption about the inverse relationship between benefits and income. Health expenditures, on the other hand, are usually assumed to be general goods and are distributed on a per family basis.

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[15]Musgrave and Daicoff, op. cit., p. 183.

[16]Musgrave, et al., op. cit., p. 34.

[17]Reynolds and Smolensky, (1), op. cit., p. 42; Tax Foundation, op. cit., p. 12.

[18]Eapen and Eapen, op. cit., p. 87.

The Allocation of Benefits in This Study

This study uses allocative procedures which correspond closely to those used in the previous studies. Health expenditures are allocated as general goods because of their varied nature, the significant externalities which arise from health services, the difficulty in identifying individual recipients and the lack of fee structures based on ability to pay. The tendency in past studies to allocate these benefits on a per family basis is probably no better justified than allocating benefits by income or part by income and part on a per family basis. One of the principal benefits of health care is the avoidance of costs associated with an illness; one of these costs is lost income. Therefore, health benefits are allocated in the same manner as other general goods benefits: on a per family basis, by adjusted broad income, one-half by families and one-half by income and by the Maital utility function.

In the case of mental hospital expenditures, the benefits are allocated by the same procedure as Eapen and Eapen used: benefits are allocated on a per family basis in proportion to the reciprocal of the average income in each income class.[19] This procedure is used because no data are available for the distribution of income for patients in Michigan mental hospitals, including centers for the mentally retarded, and because fees for mental

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[19] Ibid., p. 87.

health services at all levels of government are based on ability to pay (inverse to income). Therefore, benefits accrue inversely to income because the proportion of the costs of mental health services paid will rise with income and net benefits will decline with income.

A precise breakdown of the total costs of health and hospital care is not available from Census data. Only state-level expenditures are grouped into hospital and health categories. At the state level, approximately 60 percent of health and hospital expenditures is for mental hospital purposes.[20] The 1967 Census of Governments provides some indication of the proportions of spending for hospitals and health programs by local levels of government. According to this source, spending for hospitals all local levels of government amounted to 76 percent of total spending for health and hospitals.[21]

Local levels of government, however, probably allocate most of their hospital spending to general hospitals rather than mental health facilities, although data do not exist to accurately describe the relative proportions. Therefore, this study assumes that 25 percent of local hopsital spending is for mental health purposes. The result of this assumption is that 39 percent of total state

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[20] U.S. Department of Commerce, Bureau of the Census, State Government Finances in 1970 (Washington, D.C.: U.S. Government Printing Office, 1971), pp. 32-33.

[21] Bureau of the Census, 1967 Census of Governments, op. cit., p. 27.

and local spending for health and hospital purposes is devoted to mental health care and the remainder (61 percent) is for public health and general hospital services.

The procedure used to allocate the benefits of health and hospital expenditures in this study assumes that 39 percent of these benefits are specific goods benefits which are allocated inversely to the average broad income in each income class.[22] The remaining 61 percent of the benefits are allocated as general goods benefits and there is a preference in this study for allocating these general benefits by income and population, rather than

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[22]The procedure used by Eapen and Eapen to allocate benefits is the following:

$$\frac{H_1}{P_1} : \frac{H_2}{P_2} : \ldots\ldots : \frac{H_m}{P_n} = \frac{1}{M_1} : \ldots\ldots : \frac{1}{M_n}$$

Where Hi = hospital expenditure allocated to each group;
Pi = population in each income group;
Mi = mean income in each income group;

Solving for H_1 yields

$$(1)\quad H_1 = \frac{\sum_1^n \frac{Hi}{Pi}}{\frac{1}{\sum_1^n \frac{1}{Mi}}} \cdot \frac{P_1}{M_1}$$

$$(2)\quad \text{And } \sum_1^n Hi = \frac{\sum_1^n \frac{Hi}{Pi}}{\frac{1}{\sum_1^n \frac{1}{Mi}}} \cdot \sum_1^n \frac{Pi}{Mi}$$

strictly on a per family basis. It seems likely, as Eapen and Eapen recognize, that poor persons are more likely to avail themselves of public health services, while the opportunity costs of lost income are greater for upper-income families.

As Table 16 shows, the specific goods benefits of health and hospital expenditures are very regressively distributed. Total benefits are also consistently regressive under Assumptions 1-3, but become progressive in the top bracket under Assumptions 4 and 5. The pattern of regressivity under the first three assumptions about general goods benefits is similar to the results of the two most recent state-level studies.[23]

Allocating the specific benefits of health and hospital expenditures inversely to mean broad income makes them an important equalizing influence on the distribution of income. They are such a small fraction of total adjusted broad income, however, that it is unlikely that other allocative procedures would change the overall pattern of the incidence of total expenditures.

Since the left hand side of this equation is total hospital costs and everything but $\sum \frac{Hi}{Pi}$ is known on the right hand side, one can solve for $\sum \frac{Hi}{Pi}$ and substitute into equation (1).

[23] Ross, Oklahoma, op. cit., pp. 89 and 91; and Eapen and Eapen, op. cit., p. 107.

TABLE 16

The Distribution of Benefits From Health and Hospital Expenditures -- Conventional Analysis[1]

Income Bracket ($000)	Specific Goods Benefits[2]		Total Health and Hospital Benefits[3] Assumption 1		Assumption 2	
Under 1	51.00	(70.04)	23.71	(83.51)	19.99	(70.41)
1-2	15.33	(4.71)	10.35	(8.16)	6.45	(5.09)
2-3	6.66	(1.49)	5.90	(3.38)	3.25	(1.86)
3-4	4.02	(.69)	4.42	(1.93)	2.42	(1.06)
4-5	2.76	(.39)	3.67	(1.33)	2.11	(.76)
5-6	2.39	(.26)	3.62	(1.01)	2.28	(.63)
6-7	2.14	(.18)	3.72	(.80)	2.58	(.55)
7-8	2.26	(.14)	4.28	(.69)	3.20	(.52)
8-9	2.26	(.12)	4.64	(.61)	3.74	(.49)
9-10	1.88	(.09)	4.38	(.52)	3.86	(.46)
10-12	3.27	(.07)	8.26	(.45)	8.13	(.44)
12-15	3.02	(.05)	9.22	(.36)	10.89	(.42)
15-25	2.76	(.02)	11.20	(.25)	18.21	(.40)
Over 25	.25	(*)	2.63	(.08)	12.88	(.38)
TOTALS	100.00	(.24)	100.00	(.61)	99.99	(.61)
MONEY AMOUNTS ($000)	92,820		238,000			

TABLE 16 (cont'd.)

Income Bracket ($000)	Total Health and Hospital Benefits[3]					
	Assumption 3		Assumption 4		Assumption 5	
Under 1	21.85	(76.96)	19.93	(70.17)	19.93	(70.18)
1-2	8.40	(6.63)	6.15	(4.85)	6.16	(4.86)
2-3	4.57	(2.62)	2.88	(1.65)	2.88	(1.65)
3-4	3.42	(1.50)	2.03	(.89)	2.03	(.89)
4-5	2.89	(1.04)	1.69	(.61)	1.70	(.61)
5-6	2.95	(.82)	1.76	(.49)	1.77	(.49)
6-7	3.15	(.68)	1.95	(.42)	1.96	(.42)
7-8	3.74	(.61)	2.41	(.39)	2.42	(.39)
8-9	4.19	(.55)	2.83	(.37)	2.85	(.37)
9-10	4.12	(.49)	2.99	(.36)	3.00	(.36)
10-12	8.20	(.45)	6.40	(.35)	6.44	(.35)
12-15	10.05	(.39)	9.18	(.35)	9.23	(.36)
15-25	14.70	(.32)	17.66	(.39)	17.70	(.39)
Over 25	7.76	(.23)	22.15	(.65)	21.93	(.64)
TOTALS	99.99	(.61)	100.00	(.61)	100.00	(.61)

*Less than .01.

[1]Figures in parentheses are percentages of adjusted broad income from Table 6; other figures are percentages of the money amounts shown at the bottom of the table.

[2]See text for explanation of the distribution of specific goods benefits.

[3]See Chapter II for explanation of Assumptions 1-5.

CHAPTER XI

A RADICAL ANALYSIS OF HEALTH AND HOSPITAL EXPENDITURES

In the radical analysis, the practice of making the class structure of society and the institutional relationships of capitalism endogenous to the model puts the conventional interpretation of the role of the public sector in the health care system in question. The principal reason for the differences in analysis which arise is that the conventional model examines public health programs in an institutional vacuum. A radical analysis, on the other hand, places public health programs in the broader context of the entire health system, and, in fact, in the context of the entire socioeconomic system of capitalism.

The analytical framework of the radical model calls into question a basic assumption about health care in the conventional model: that the attainment of health is ". . . the ultimate social objective of the medical system."[1]

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[1]Eric Helt, "Economic Determinism: A Model of the Political Economy of Medical Care," International Journal of Health Services, Vol. 3, No. 3 (1973), pp. 475-485.

The following section examines this assumption in an analysis of the health care system in the U.S.

The Political Economy of Health Care

The organization of the private health care system in the U.S. has become increasingly dominated by the needs of the profit-making institutions which dominate the provision of health services. Among these dominant groups are the American Medical Association, the large drug companies, manufacturers of hospital equipment, private profit-making hospitals and the providers of health insurance like Blue Cross/Blue Shield.[2] The profit orientation of the private health care system has important influences on both the reasons for the existence of public health programs and the kinds of health care received by different groups in society.

The entry of government into the health care system is a direct consequence of the profit motive of the private health industry. Medical technology has become increasingly complex and the training of medical personnel and the delivery of health services have become more specialized. These trends mean that the private health industry was required to make major investments in physical and human capital without what the industry considered adequate

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[2]Gordon, op. cit., p. 318.

financial guarantees that the investments would be profitable.[3]

The first response to the desire for a profitable investment climate was the rise of the private hospital insurance industry, of which Blue Cross was the pioneer.[4] The expansion of the third-party payment system removed some of the uncertainty about fee payment in increasingly expensive hospital facilities.

The increasing technological, training and delivery costs, combined with increased demands for equal health care for everyone, led to a larger government role in the area of health care. Government programs began by providing welfare and subsidized medical care--which further enhanced the profitability of the private health industry--and have evolved into programs which include large-scale financing of various health programs.[5]

Another way in which the desire for profits has influenced the health care system is the orientation in medical technology and research toward the specific, organic causation of disease. This orientation gives rise to large research staffs in hospitals and a growing research orientation among medical professionals which encourages government sponsored research programs.

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[3]Helt, op. cit., p. 479.

[4]Barbara and John Ehrenreich, The American Health Empire (New York: Random House, 1970), p. 126.

[5]Helt, op. cit., p. 480.

By focusing on specific organic etiology, other causal elements of diseases are ignored, and consequently the causes of many diseases remain undiscovered. Thus, as relatively more medical personnel enter research-oriented, rather than patient-oriented fields, the accessibility to quality medical care has declined.[6]

A third result of the profit-making bias of the private health care system is what Alford calls a "two-class" system of health care. The poor receive subsidized care which is significantly different both qualitatively and quantitatively from that received by patients who either pay their own fees or are covered by insurance.[7] Often poor patients are used as research objects for the training of doctors, rather than receiving adequate treatment for their problems.

The nature of the private health care system, dominated by monopoly elements in the drug industry and the restrictive practices of the AMA, has resulted in a health care system in which "costs go up as a result of the establishment of new, expensive programs. The accessibility of care goes down as a result of the proliferation of specialized, high-technology, research- or

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[6] Ibid., pp. 477-480.

[7] Robert Alford, "The Political Economy of Health Care: Dynamics without Change," Politics and Society (Winter, 1972), p. 147; see also Ehrenreich, op. cit., pp. 14-16; Rodger Hurley, "The Health Crisis of the Poor," in The Social Organization of Health, ed. by H. P. Dreitzel (New York: MacMillan, 1971), pp. 104-110.

teaching-oriented health care units."[8] And government programs have "come into being sequentially as unbearable defects are uncovered"[9] in the private health care system. As Gordon makes clear, however, the organization of the health care system makes it unlikely that the irrationality of the system will be radically changed to provide quality health care for everyone. A fundamental restructuring of the private care industry is probably not possible without changes in the ways the capitalist system itself is organized.[10] Thus, we are left with a health care system which can be characterized as one in which patient care (the attainment of health) is often secondary to patient "use" for research and training purposes, which directly meet the accumulative needs of the private health industry.[11]

Identifying the Benefits and Beneficiaries of Spending for Health and Hospitals

The criterion of socially necessary costs can be applied to spending for health and hospitals. At first glance, it might seem that spending for these purposes is socially necessary to maintain the productivity of the

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[8]Alford, op. cit., p. 147.

[9]Dr. James A. Shannon, former director, National Institutes of Health, quoted in Alford, op. cit., p. 153.

[10]Gordon, op. cit., p. 318.

[11]Ehrenreich, op. cit., pp. 24-27; Dreitzel, op. cit., pp. xi-xiii.

work force. However, the analysis of the health care system in the preceding section and a closer look at the relationship between illness and income yield a different interpretation of the costs of health care.

One can argue persuasively that the incidence of illness is negatively associated with income. For example, 57.6 percent of the population with incomes under $7,000 in 1964 suffered from one or more chronic illnesses, while only 42.9 percent of the population with incomes over $7,000 suffered from chronic conditions.[12] Further, the distribution of income is a result of the workings of our capitalist system. Thus, if the system itself is to blame for part of the higher incidence of illness among the population to which some public health services are directed, the proportion of spending for public health devoted to these services should be considered to be socially unnecessary.

There seems to be room for little doubt that poverty and sickness are causally related. Further, the high incidence of disabling diseases among the poor is a significant factor in their remaining poor:[13] "sickness makes people poor . . . poverty makes people sick."[14] Poor people

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[12]Hurley, op. cit., p. 94.

[13]Ibid., pp. 86-95.

[14]Dr. Charles Mayo, quoted in Hurley, op. cit., p. 93.

suffer "five times as much mobility limitation from chronic illness as do the rich, and almost five times as many are confined to their homes."[15]

In addition to the interrelationship between poverty and sickness, the reasons for public and mental health programs designed to meet the needs of the poor are a result of the inability of the private health system to meet the needs of all the people in society. The profit orientation of the private health system means that indigent patients either do not receive care (often being studied instead of cured or aided) or they are pushed off on public or publicly subsidized facilities. The care received by poor people, not only in public facilities but also in private facilities under subsidies, is demonstratably deficient relative to the care received by people who pay their own fees or whose fees are covered by health insurance.[16]

In the mental health area, the social control aspects of health care become an important consideration in evaluating the benefits of the health system. The social control mechanism works in two ways: psychiatrists are given the task of identifying socially disruptive people, and ". . . the symptoms of mental illness can be seen as

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[15]Hurley, op. cit., pp. 94-95.

[16]See note 6.

value choices of how men should not behave."[17] Thus, mental illness is not objectively determined but is defined in a context of hidden values which are functions of the society in which they are imposed. When poor people are judged mentally ill, the standards which prevail are those which are ". . . conceptually identical to the middle-class model applied to private patients."[18]

It is reasonable to assume, in a class domination model, that acceptable behavior norms are those which correspond to the values and interests of the dominant class. The social control function of the diagnosis and treatment of the mentally ill is a means of maintaining the status quo and reinforcing the social relations of the capitalist system. This function is performed principally by the state which operates a large number of mental health facilities.

It is apparent that the benefits from the public provision of many health services may be more complex in a radical model than they appear in the conventional analysis. On the one hand, there are benefits to the general populace from disease control and health education programs, benefits which are the same as those discussed in the

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[17]Thomas Scheff, "On Reason and Sanity: Some Political Implications of Psychiatric Thought," in Dreitzel, op. cit., p. 294.

[18]Harry Brickman, "Mental Health and Social Change: An Ecological Perspective," in Dreitzel, op. cit., p. 18.

previous chapter. It is also obvious that there are benefits which accrue as class goods to the capitalist class.

In the case of public health, class goods benefits arise because of the underlying reasons for the need for public health programs. A principal cause for these programs is the maldistribution of income and the reasonable contention that poverty and sickness are causally related. The alleviation of poverty would also eliminate, to a large degree, the need for public subsidies for the health needs of the poor. Alternatively, the health care system could be taken from the control of the private sector and reoriented to the ends of true patient-centered care. This option would only serve to increase the quality of care received by the poor; it would not address the fundamental problem of the health needs of the poor. This latter alternative, of course, would be opposed not only by the American Medical Association, which opposes almost every health care reform, but also by all other elements in the capitalist class because of the threat of a domino effect of State control over private industry.

Many people who are either insured or able to pay for their own health care have no incentive to change the existing health care system. In fact, they might lose by a merger of public and private systems because the total quantity of health care available for them to consume

might decline.[19] Thus, there is a built-in resistance to change of the health care system which is a result of the nature of the capitalist system.

This interpretation of the organization and control of the public health system leads to the conclusions that the system in part, at least, exists because of the socio-economic system and yields benefits which accrue in part to the dominant class in society.

An even better better case for class goods can be made in the analysis of mental health programs. The social control function of the mental health system is the principal reason for the existence of class goods benefits. The importance of the social control function derives from the nature of a capitalist society and the nature of the causes and treatment of mental illness. An important element in the treatment of mental illness is the orientation to the doctrine of specific etiology of disease.[20] Adherence to this doctrine means that the causes of many diseases, including mental illness, have not been discovered, and in fact may never be discovered because there may be many causes of a single illness.[21] In essence, the causes of some mental illness may lie in the relationship of people

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[19]Alford, op. cit., p. 163.

[20]Helt, op. cit., p. 477.

[21]Ibid., p. 477.

to their social and physical environments, and it is these relationships which our health system typically ignores.[22]

This analysis of the diagnoses and treatment of mental illness is important for the radical analysis because the nature of production in the capitalist system engenders alientation among workers which itself may be a cause of aberrant behavior. If the seeds for mental illness lie in part in the socioeconomic system and the criteria by which behavior is judged are also determined with reference to the capitalist system, a means of social control of deviant behavior is necessary.

In a socialist system there would also be criteria for behavior evaluation and the determination of mental illness, and for this reason the costs of mental health care could be considered socially necessary. This contention, however, ignores the role played by the dominant interests in a capitalist society in the establishment of behavior norms and the treatment of mental illness. If the socioeconomic system itself is responsible in part for causing mental illness, and if the treatment which society provides ignores important causal factors, it seems reasonable to conclude that not all of the costs of mental health are socially necessary. Class goods benefits result from the public provision of mental health care because the

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[22] Ibid., p. 478.

system is dominated by the medical elite which enforces the values of the dominant class in society.

The Allocation of Benefits

As the preceding discussion indicates, there is ample reason to believe that class goods benefits derive from the public provision of health care, including mental health services. It is difficult, however, to be at all precise about the relative proportions of specific goods benefits and class goods benefits.

Public health services are predominantly oriented toward services which are not competitive with the private health care system. The need for services such as job environment inspection and maternal and child care for the poor may be a result of the capitalist system. Available budget detail for fiscal 1970 show that gross expenditures for maternal and child care and environmental health purposes amounted to 25.5 percent of total gross expenditures of the Michigan Department of Public Health.[23] Similar data do not exist for local levels of government. It is possible that some part of the expenditure for environmental and maternal/child care purposes is socially necessary, but it is also possible that other expenditures by the various health departments are not socially necessary. Therefore,

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[23]State of Michigan, Detail of the Current Operations of the Executive Budget, Fiscal Year 1972 (Lansing, 1972), p. K-2.

an arbitrary figure of 25 percent is assumed to be the class goods proportion of total benefits from public health services; the remaining 75 percent is allocated as general goods.

A similar problem arises with expenditures for mental health and hospitals. Without better knowledge of the etiology of mental illness, which would enable one to derive estimates of the extent of system-caused illness, 25 percent of spending for these purposes is also assumed to be class goods benefits. The remaining 75 percent of mental health and hospital expenditure is allocated as specific goods. These allocation procedures, while admittedly imprecise, account in part for the various influences exerted by the structure of classes in our society.

The specific goods benefits of health and hospital expenditures are allocated in the same way as in the conventional analysis. As Table 17 shows, allocating 25 percent of the total benefits as class goods causes the incidence of total benefits to be both less regressive in the lower brackets and progressive in the top bracket (Assumptions 1 and 3), and in the top two brackets under Assumptions 2, 4 and 5.

TABLE 17

The Distribution of Benefits From Health and Hospital Expenditures -- Radical Analysis[1]

Income Bracket ($000)	Specific Goods Benefits[2]		Total Health and Hospital Benefits[3]			
			Assumption 1		Assumption 2	
Under 1	51.00	(48.86)	17.79	(58.27)	15.01	(49.16)
1-2	15.33	(3.34)	7.84	(5.85)	4.94	(3.68)
2-3	6.66	(1.08)	4.61	(2.54)	2.64	(1.46)
3-4	4.02	(.50)	3.63	(1.55)	2.15	(.92)
4-5	2.76	(.29)	3.17	(1.12)	2.01	(.71)
5-6	2.39	(.19)	3.22	(.88)	2.23	(.61)
6-7	2.14	(.13)	3.42	(.73)	2.57	(.55)
7-8	2.26	(.11)	3.79	(.61)	2.98	(.48)
8-9	2.26	(.09)	4.01	(.52)	3.33	(.44)
9-10	1.88	(.07)	3.90	(.46)	3.51	(.42)
10-12	3.27	(.05)	7.28	(.40)	7.18	(.39)
12-15	3.02	(.03)	8.57	(.33)	9.18	(.38)
15-25	2.76	(.02)	12.41	(.27)	17.63	(.39)
Over 25	.25	(*)	16.36	(.48)	24.01	(.70)
TOTALS	100.00	(.18)	100.00	(.61)	100.00	(.61)
MONEY AMOUNTS ($000)	69,615		238,000			

TABLE 17 (cont'd.)

Income Bracket ($000)	Total Health and Hospital Benefits[3]					
	Assumption 3		Assumption 4		Assumption 5	
Under 1	16.40	(53.71)	14.94	(48.94)	14.95	(48.94)
1-2	6.39	(4.77)	4.68	(3.49)	4.68	(3.49)
2-3	3.62	(2.00)	2.33	(1.28)	2.33	(1.29)
3-4	2.89	(1.23)	1.82	(.77)	1.82	(.78)
4-5	2.59	(.91)	1.66	(.58)	1.66	(.59)
5-6	2.72	(.75)	1.80	(.49)	1.80	(.49)
6-7	3.00	(.64)	2.05	(.44)	2.06	(.44)
7-8	3.39	(.55)	2.31	(.37)	2.32	(.37)
8-9	3.67	(.48)	2.54	(.33)	2.56	(.33)
9-10	3.71	(.44)	2.74	(.33)	2.75	(.33)
10-12	7.23	(.39)	5.61	(.31)	5.64	(.31)
12-15	9.19	(.35)	8.14	(.31)	8.17	(.31)
15-25	15.01	(.33)	16.60	(.36)	16.65	(.36)
Over 25	20.19	(.59)	32.78	(.96)	32.61	(.96)
TOTALS	100.00	(.61)	100.00	(.61)	100.00	(.61)

*Less than .01.
[1]Figures in parentheses are percentages of adjusted broad income from Table 10; other figures are percentages of the money amounts shown at the bottom of the table.
[2]See text for explanation of the distribution of specific goods benefits.
[3]See Chapter II for explanation of Assumptions 1-5.

CHAPTER XII

A CONVENTIONAL ANALYSIS OF GENERAL EXPENDITURES

The heading "general expenditures" includes the following items: police, fire, sanitation, sewerage, local parks and recreation, financial administration, general control, and "all other general expenditures."[1] These expenditures total $1,118.2 million and were 23.2 percent of total spending by Michigan state and local governments in fiscal 1970. These are expenditures for what are commonly known as public goods, and they are aggregated for incidence purposes because of the nature of their benefits.

The Benefits of General Goods Expenditures

As their classification implies, this group of expenditures yields benefits for which it is difficult to identify recipients as members of income groups. The

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[1] These are the categories in Bureau of the Census, Governmental Finances in 1969-70, op. cit., p. 37.

benefits of expenditures such as general control (government administration) and financial administration accrue to all residents of the state by virtue of their residency and there is no way to exclude residents from the benefits of these services. Other expenditures, such as for police and fire, yield specific benefits to those protected from crime and fire, but also give rise to externalities such as deterrance and prevention which benefit all residents of the state. In short, the benefits of expenditures such as these accrue to everyone in the state because there is no way, by their nature, to exclude Michigan residents from receiving benefits.

Nevertheless, it is possible that there are three exceptions to this generalization in the case of sanitation, sewerage, and local parks and recreation. Each of these services could be offered on a fee-for-service basis, which could be used as an exclusion device. In these instances, the charges for the services would reduce the total amount of benefits available (charges have already been subtracted from allocable expenditures in Chapter IV), but the extent to which charges would limit the consumption of benefits is probably small. Further, there are externalities from the public provision of these services which make the assumption of generality applicable to these expenditures as well.

The Allocation of Benefits in Previous Studies

The most popular of the various allocative methods used in previous studies are allocation on a per family basis and in proportion to income. At least one of these two methods was used in each of the thirteen expenditure incidence studies cited in Chapter I (note 8). In some cases the two methods were combined by allocating 50 percent of general goods benefits by income and 50 percent on a per family basis.[2]

Other methods used include allocation by capital income and disposable income,[3] consumption,[4] and taxes.[5] Allocating benefits by the distribution of taxes assumes that the benefit principle of taxation is operative, i.e., that taxes pay for benefits received.

Musgrave and Daicoff and Eapen and Eapen assume that some general goods expenditures, such as for sanitation and sewerage, provide services to businesses, and that these benefits are shifted to consumers.[6] Consumer benefits

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[2]Eapen and Eapen, op. cit., p. 89; Reynolds and Smolensky, op. cit., p. 13; Tax Foundation, op. cit., p. 12.

[3]Gillespie, op. cit., p. 161; Musgrave and Daicoff, op. cit., pp. 154-155.

[4]Tucker, op. cit., p. 529.

[5]Singer, op. cit., pp. 101-102, Musgrave, et al., op. cit., p. 34.

[6]Musgrave and Daicoff, op. cit., pp. 154-155; Eapen and Eapen, op. cit., p. 89.

are allocated by the distribution of consumption expenditures by income.

The authors of the majority of previous studies were unwilling to choose a single allocative technique because there seemed to be good reasons to select any of these methods listed above. Allocating on a per family basis assumes that all families share equally in general goods benefits. This method has some validity because of the democratic political process which determines the composition of budgets. Methods which allocate general benefits by income or capital income, assume, as Singer does, ". . . that one's share in the infra-structure of the economy is proportional to one's other income . . ."[7] Studies which use a combination of income and family distribution to allocate general goods benefits attempt to balance these assumptions.

The discussion in Chapter II included a description of the utility assumptions which are implicit in these allocative procedures. Aaron and McGuire and Maital have made explicit the utility function of income which they feel is reasonable to use for allocating general goods benefits. This function [$MU(Y) = C/Y^{1.5}$] has not been used in any previous studies, but Aaron and McGuire used similar functions to adjust the results of the Tax Foundation study.

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[7] Singer, op. cit., p. 101.

The central problem in the allocation of general goods benefits is whether the objective circumstances of beneficiaries or their subjective evaluation of benefits should be the basis for the allocation procedure. As the preceding discussion of methods indicates, most previous studies take the position that objectively determined circumstances, i.e., that all persons can consume equal amounts of general goods, or that general goods provide benefits in proportion to income, are the principal criteria for allocating these benefits. The other position, that of Maital and Aaron and McGuire, is that subjective evaluation, i.e., willingness to spend for general goods, should be the basis for benefit distribution. As DeWulf observes, none of ". . . these [formulae] is very convincing . . . rather [they are] quantifications of a set of initial assumptions about the incidence of general government expenditures."[8]

The Allocation of Benefits in This Study

The problems surrounding the specification of allocative methods for general goods benefits cannot be resolved in this study. Rather it seems preferable to adopt the method discussed in Chapter II which is to allocate general goods in the five ways discussed earlier. These alternatives probably cover the incidence spectrum,

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[8]Luc DeWulf, "Do Public Expenditures Reduce Inequality?" Finance and Development, Vol. II (September 1974), p. 22.

with the per family benefits as the most regressive (pro-poor) and the Maital function yielding the most progressive (pro-rich) incidence.

A further refinement, similar to that used by Musgrave and Daicoff and Eapen and Eapen, is also used. Certain types of general goods spending benefits businesses as well as private consumers of the services. Musgrave and Daicoff assumed that 20 percent of general goods benefits accrued to businesses,[9] while Eapen and Eapen allocated part of sanitation and sewerage spending to businesses by the division of property tax payments between business and personal taxpayers.[10] Those expenditures which benefit businesses as well as private groups are police, fire, sewerage, sanitation, general control, financial administration and all other general expenditures. These expenditures amount to 95 percent of all general expenditures. Police, fire, sanitation and sewerage principally benefit owners of property and the allocation to business or families is based on the relative proportions of total assessed valuation of real property represented by the property of each group. These proportions are 61.7 percent residential, and 38.3 percent commercial, agricultural and industrial.[11] Of the remaining general expenditures, 20

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[9]Musgrave and Daicoff, op. cit., pp. 154-155.

[10]Eapen and Eapen, op. cit., p. 89.

[11]Michigan Department of Commerce, Economic Profile Sheet No. 9.1, Taxes, op. cit.

percent is assumed to benefit businesses and 80 percent of the benefits to accrue to families. All business benefits are assumed to be shifted to consumers and are allocated by consumption expenditures, with 48.3 percent of business benefits accruing to out-of-state residents.

The allocation procedures which result from the previous discussion can be summarized as follows:

74.9 percent of total general expenditures accrues to Michigan families, with this amount allocated by the first three methods discussed above;

13.0 percent of general expenditures accrues to businesses, and is allocated to consumers by the distribution by income of consumption expenditures; and

87.9 percent of general goods benefits accrues to Michigan residents.

Table 18 shows the results of the five methods of allocating general goods expenditures. Assumptions 1 and 3 yield regressive incidence patterns, as expected, while Assumption 2 yields results which are mildly regressive and which would be proportional except for the impact of allocating part of these expenditures by the distribution of consumption expenditures. Assumptions 4 and 5, which use the Maital function, yield mildly progressive results above the $5,000 income bracket. These data demonstrate that the choice of allocative techniques for general goods

benefits has a significant impact on the incidence pattern of the results. The Maital function, in particular, shows that general goods may not necessarily be redistributive to low income groups.

TABLE 18

The Distribution of Benefits From General Expenditures -- Conventional Analysis[1,2]

Income Bracket ($000)	Assumption 1	Assumption 2	Assumption 3	Assumption 4	Assumption 5
Under 1	5.47 (79.50)	.27 (3.91)	2.87 (41.71)	.18 (2.57)	.18 (2.60)
1-2	6.45 (21.03)	1.01 (3.29)	3.74 (12.17)	.59 (1.91)	.60 (1.94)
2-3	4.97 (11.77)	1.27 (3.01)	3.12 (7.39)	.75 (1.77)	.75 (1.79)
3-4	4.37 (7.88)	1.57 (2.84)	2.97 (5.36)	1.02 (1.85)	1.03 (1.86)
4-5	4.03 (6.01)	1.85 (2.77)	2.94 (4.38)	1.26 (1.88)	1.27 (1.90)
5-6	4.23 (4.86)	2.36 (2.71)	3.29 (3.78)	1.64 (1.88)	1.64 (1.89)
6-7	4.60 (4.07)	3.00 (2.66)	3.79 (3.36)	2.13 (1.89)	2.14 (1.90)
7-8	5.47 (3.66)	3.97 (2.65)	4.73 (3.16)	2.86 (1.91)	2.88 (1.92)
8-9	6.12 (3.32)	4.85 (2.63)	5.49 (2.98)	3.58 (1.94)	3.61 (1.96)
9-10	5.99 (2.96)	5.27 (2.61)	5.63 (2.78)	4.05 (2.00)	4.07 (2.01)
10-12	11.64 (2.63)	11.47 (2.59)	11.56 (2.61)	9.05 (2.04)	9.10 (2.05)
12-15	13.69 (2.18)	16.03 (2.55)	14.86 (2.37)	13.64 (2.17)	13.72 (2.19)
15-25	17.92 (1.62)	27.71 (2.50)	22.81 (2.06)	26.93 (2.43)	27.00 (2.44)
Over 25	5.05 (.61)	19.37 (2.34)	12.21 (1.48)	32.31 (3.91)	32.01 (3.87)
TOTALS	100.00 (2.54)	100.00 (2.54)	100.01 (2.54)	99.99 (2.54)	100.00 (2.54)
MONEY AMOUNT ($000)	982,898				

[1]Figures in parentheses are percentages of adjusted broad income from Table 6; other figures are percentages of the money amount shown at the bottom of the table.
[2]See Chapter II for explanation of Assumptions 1-5.

CHAPTER XIII

GENERAL EXPENDITURES: A RADICAL ANALYSIS

In the conventional analysis, general expenditures are assumed to provide inclusive benefits to all segments of the population. With few exceptions, previous expenditure incidence studies accept this assumption of generality. The radical analysis, on the other hand, examines the incidence of these expenditures using a different interpretation of the role of the State and its general activities. Within the context of the radical analysis, the criterion of socially necessary costs is applied to general expenditures to determine what proportion of these expenditures should be allocated to capitalists as class goods. As has been the case in the radical analysis in some previous chapters, the class goods proportion of total benefits is difficult to determine, although the allocation procedures used in this chapter are probably no worse than those used in the conventional analysis of general expenditures.

The Benefits and Benefit Recipients of General Spending

In contrast to the conventional analysis, the radical analysis of general spending assumes that there are specific, identifiable recipients of part of the benefits of these expenditures. The very nature of the State in a capitalist socioeconomic system precludes the conventional benefit assumption. In the radical interpretation, the State is seen as a means for perpetuating the class structure of capitalism, which is the dominance of one class--capitalists--over other classes in society. In other words, the neoclassical assumption that the State is a mediator of class differences is explicitly rejected. Therefore, it is necessary to examine general expenditures in a different context to determine which of the expenditure actions of the State are undertaken to preserve the structure of capitalism.

The most obvious general expenditure which includes elements of class bias is police expenditure. There can be little doubt that the law enforcement and criminal justice systems display a consistent class bias. This bias favors middle- and upper-income groups and results in a two-class system of justice.[1] Further, the causes of much crime are the results of the working of the capitalist system.

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[1] See the discussion by Gordon, op. cit., pp. 276-280, and Ronald Goldfarb, "Prison: The National Poorhouse," in Gordon, op. cit., pp. 310-313.

As Gordon describes the radical analysis of crime, the class bias of police expenditures becomes more clear. One element of class bias is the selective enforcement of laws within a statutory system which is nominally general. Thus, many of the laws against actions committed by the poor because of their lack of economic alternatives (numbers running and prostitution, for example) are more heavily enforced and punished than laws against white collar or corporate crime.

The selective enforcement of laws on a class basis arises in part from the nature of the actions which are made illegal. Much of ghetto crime, organized crime and corporate crime is a response to the economic circumstances of the perpetrators.[2] Crime in the ghetto is partially an alternative to the lack of legal means of gaining economic security, while organized crime provides a market for illegal services for which demand exists, and corporate crime is often engendered by the need to protect and enhance corporate profit.[3]

Both the nature of illegal activity and the selective enforcement of laws against certain types of crime act to reinforce the structure of capitalism. Since it is more often the poor than the wealthy whose crimes are punished, criminal convictions can be a means of limiting

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[2]Gordon, op. cit., pp. 276-277.

[3]Ibid., pp. 276-277.

opportunities for the lower classes.[4] Finally, there is a predominant pattern of enforcement against individuals rather than institutions, which also reinforces the structure of the system.

Sanitation and sewerage expenditures also contain elements of class bias because they enhance the profitability of private investments which would otherwise be less profitable or not undertaken at all. These expenditures are what O'Connor calls complementary and discretionary investments.[5] While it is true that these types of expenditures would be necessary in a socialist economy, it is unlikely that the benefits of these expenditures are shifted to families, as the conventional analysis assumes, and it is also unlikely that more socially responsible industry would require the same degree of complementary and discretionary subsidies of production. Thus, there is an element of class goods benefit in these expenditures as well.

The remaining general goods expenditures are essentially for the support of government operations, fire protection and miscellaneous services. Class goods benefits arise from these expenditures to the extent that the dominant class uses the State to preserve the structure of the system.

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[4] Ibid., p. 278.

[5] O'Connor, op. cit., p. 102.

The Allocation of Benefits

The preceding discussion does not lead to empirical estimates of class goods benefits. Crime would certainly exist in a socialist economy, although the nature and causes of crime would be different. Police protection, in a radical analysis, goes beyond protection of property and person because it is part of a justice system which works to preserve the institutional and class structure of capitalism. As an arbitrary estimate, 38.3 percent of police expenditures is assumed to benefit capitalists. This is the same proportion assumed to benefit business in the conventional analysis, but the radical assumption is that these benefits are not shifted to families. This procedure will account in part for the class bias of law enforcement and its system-sustaining qualities.

In the case of sanitation and sewerage expenditures, the same procedure is used to allocate benefits between capitalists and families: class goods accrue in the same proportion as the real property of business is of total real property in Michigan, and it is assumed that the benefits are not shifted to consumers. This procedure accounts for the profit-enhancing and socially unnecessary aspects of spending for these purposes.

The benefits of the remaining general expenditures are divided between those which accrue to families and those which accrue to capitalists. This allocation is

made by the same ratio as the benefits of specific expenditures are divided between these two groups (44.49 percent accrues to capitalists). The rationale for allocating these general goods benefits in this fashion is that these essentially infra-structure expenditures are incurred to support the governmental structure which provides the benefits from the specific expenditures. The conventional assumption of out-of-state shifting of business benefits is retained in the radical analysis for shifting class goods benefits, i.e., 51.7 percent accrues to Michigan residents.

The result of this allocation procedure is that 80.5 percent of general goods spending accrues to Michigan residents. This proportion is 7.4 percentage points less than the proportion which results from the conventional analysis. Again, for purposes of comparison, the radical proportion is adjusted so that total resident benefits are identical in both analyses. The radical allocation of general goods benefits can be summarized as follows:

40.32 percent of general benefits accrues to capitalists as class goods and 51.7 percent of capitalist benefits accrues to Michigan residents; therefore, 20.85 percent of general benefits accrues to Michigan capitalists;

59.68 percent of general benefits accrues to Michigan families and is allocated by each of the four methods discussed above; and

80.53 percent of general goods benefits accrues to Michigan residents. This proportion is adjusted to 87.9 percent, for comparability with the conventional analysis, by raising the resident capitalist proportion to 28.22 percent.

The principal differences between the radical and conventional allocations of general goods benefits are that consumption expenditures are not used to allocate part of the benefits under Assumptions 1-3, and that the radical distribution of adjusted broad income, which is used in the Maital utility function, is slightly different. As Table 19 shows, the results of the radical analysis of general goods benefits are somewhat different than those of the conventional analysis. Assumptions 1 and 3 are regressive up to the top bracket, and Assumptions 2, 4 and 5 yield variable patterns: progressive up to $5,000, regressive between $6,000 and $9,000, and progressive above $10,000. In the latter cases, the shape of the distribution of capitalist income (see Table 8) causes these discontinuities in the incidence patterns. The results are similar to the conventional analysis, however, in that Assumption 1 is the most regressive and Assumption 4 the most progressive.

TABLE 19

The Distribution of Benefits From General Expenditures -- Radical Analysis[1,2]

Income Bracket ($000)	Assumption 1		Assumption 2		Assumption 3		Assumption 4		Assumption 5	
Under 1	4.20	(57.66)	.14	(1.83)	2.20	(29.75)	.04	(.50)	.04	(.52)
1-2	4.97	(15.30)	.66	(2.02)	2.92	(8.67)	.27	(.84)	.28	(.86)
2-3	3.91	(8.91)	.99	(2.25)	2.45	(5.58)	.52	(1.20)	.53	(1.21)
3-4	3.59	(6.31)	1.38	(2.43)	2.49	(4.38)	.89	(1.56)	.89	(1.57)
4-5	3.42	(4.98)	1.70	(2.48)	2.56	(3.73)	1.18	(1.71)	1.18	(1.72)
5-6	3.65	(3.99)	2.17	(2.37)	2.90	(3.17)	1.53	(1.67)	1.53	(1.68)
6-7	4.02	(3.53)	2.77	(2.43)	3.39	(2.98)	2.00	(1.75)	2.00	(1.76)
7-8	4.53	(3.01)	3.33	(2.21)	3.93	(2.61)	2.34	(1.55)	2.35	(1.56)
8-9	4.86	(2.63)	3.86	(2.08)	4.36	(2.35)	2.69	(1.45)	2.70	(1.46)
9-10	4.84	(2.38)	4.27	(2.10)	4.56	(2.24)	3.12	(1.54)	3.14	(1.54)
10-12	9.17	(2.06)	9.02	(2.03)	9.10	(2.05)	6.69	(1.51)	6.74	(1.52)
12-15	11.07	(1.76)	12.91	(2.05)	12.00	(1.91)	10.44	(1.66)	10.49	(1.67)
15-25	16.41	(1.48)	24.16	(2.18)	20.28	(1.83)	22.63	(2.04)	22.70	(2.05)
Over 25	21.30	(2.58)	32.65	(3.95)	26.97	(3.26)	45.67	(5.53)	45.42	(5.49)
TOTALS	100.00	(2.53)	100.01	(2.53)	100.01	(2.53)	100.01	(2.53)	99.99	(2.53)
MONEY AMOUNT ($000)	982,898									

[1] Figures in parentheses are percentages of adjusted broad income from Table 10; other figures are percentages of the money amount shown at the bottom of the table.

[2] See Chapter II for explanation of Assumptions 1-5.

CHAPTER XIV

A SUMMARY OF THE RESULTS AND A CONCLUSION

This chapter contains the results of both the conventional and radical analyses in order to facilitate comparisons between the incidence estimates which result from the different models. The percentage distribution and the incidence of expenditure benefits which derive from conventional assumptions are shown in Table 20, while Table 21 shows the incidence and percentage distribution of total benefits under radical assumptions. Table 22 is a tabular representation of the Lorenz curves of the various income distributions and Table 23 is a list of the percentages series used in the process of allocating the various expenditures.

Discussion of the Results

As Table 20, column 1 shows, specific goods benefits, under conventional assumptions, are distributed almost equally among the income brackets below $10,000. The relatively large proportions accruing to the income brackets between $10,000 and $25,000 result primarily from the

TABLE 20

The Distribution and Incidence of Expenditures Under Conventional Assumptions[1]

Income Bracket ($000)	Specific Expenditures		Total Expenditures[2] Assumption 1		Assumption 2		Assumption 3	
Under 1	4.18	(143.47)	5.01	(332.50)	2.27	(150.36)	3.64	(241.43)
1-2	6.12	(47.06)	6.47	(96.14)	3.59	(53.40)	5.03	(74.77)
2-3	5.22	(29.22)	5.22	(56.38)	3.26	(35.27)	4.24	(45.82)
3-4	6.52	(27.77)	5.56	(45.80)	4.09	(33.64)	4.82	(39.72)
4-5	6.48	(22.82)	5.36	(36.45)	4.21	(28.64)	4.78	(32.54)
5-6	6.18	(16.74)	5.28	(27.69)	4.29	(22.50)	4.79	(25.09)
6-7	5.97	(12.50)	5.34	(21.61)	4.50	(18.21)	4.92	(19.91)
7-8	6.24	(9.85)	5.90	(17.98)	5.10	(15.55)	5.50	(16.76)
8-9	6.49	(8.30)	6.32	(15.64)	5.65	(13.99)	5.99	(14.81)
9-10	6.26	(7.31)	6.13	(13.82)	5.75	(12.96)	5.94	(13.39)
10-12	10.32	(5.50)	10.91	(11.23)	10.81	(11.14)	10.86	(11.18)
12-15	11.36	(4.27)	12.35	(8.98)	13.59	(9.87)	12.97	(9.43)
15-25	13.13	(2.80)	15.09	(6.22)	20.26	(8.35)	17.68	(7.29)
Over 25	5.53	(1.58)	5.06	(2.80)	12.62	(6.97)	8.84	(4.88)
TOTALS	100.00	(5.99)	100.00	(11.57)	99.99	(11.57)	100.00	(11.57)
MONEY AMOUNTS ($000)	2,320,013		4,483,468					

TABLE 20 (cont'd.)

Income Bracket ($000)	Total Expenditures	
	Assumption 4	Assumption 5
Under 1	2.19 (145.43)	2.19 (145.52)
1-2	3.30 (49.10)	3.31 (49.17)
2-3	2.92 (31.61)	2.93 (31.65)
3-4	3.74 (30.77)	3.74 (30.81)
4-5	3.84 (26.13)	3.84 (26.16)
5-6	3.85 (20.19)	3.86 (20.22)
6-7	3.98 (16.08)	3.98 (16.11)
7-8	4.44 (13.53)	4.45 (13.56)
8-9	4.89 (12.11)	4.91 (12.15)
9-10	5.02 (11.33)	5.03 (11.35)
10-12	9.40 (9.68)	9.42 (9.70)
12-15	12.21 (8.87)	12.25 (8.91)
15-25	19.91 (8.21)	19.94 (8.22)
Over 25	20.30 (11.21)	20.13 (11.11)
TOTALS	99.99 (11.57)	99.98 (11.57
MONEY AMOUNTS ($000)	4,483,468	

[1]Figures in parentheses are percentages of adjusted broad income from Table 6.

[2]For the description of Assumptions 1-5, see Chapter II.

Source: Table 5, and the money accounts represented in Tables 12, 13, 15, 16 and 18.

distribution of education and highway expenditures. The distributions of total expenditures under the first three assumptions reflect similar patterns among income brackets.

The incidence of expenditures under conventional assumptions, as shown in Table 20, is consistently regressive (pro-poor) for specific goods and total expenditures under the first three general goods assumptions. These results are similar to those of the other recent expenditure incidence studies. Ross,[1] Eapen and Eapen,[2] Musgrave, et al.,[3] and Reynolds and Smolensky[4] have found that state and local expenditures are consistently regressive up to the level of the highest income bracket used in this study, under a broad range of assumptions similar to those used in this study. Thus, there are no surprises in the results of the conventional analysis and it is difficult to imagine different, reasonable assumptions about specific expenditures which would make the distribution of benefits progressive, or even significantly less regressive.

It is important to point out that the regressive pattern of incidence occurs even though upper-income groups receive large amounts of benefits. The two top income groups, which receive 48.61 percent of broad income, also

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[1]Ross, Oklahoma, op. cit., pp. 89-91.

[2]Eapen and Eapen, op. cit., p. 107.

[3]Musgrave, et al., op. cit., p. 46.

[4]Reynolds and Smolensky, (1), op. cit., p. 18.

receive 18.65 percent of specific goods benefits and between 20.15 percent and 32.88 percent of all expenditure benefits, depending on which of the first three assumptions is used to allocate general goods benefits. It is precisely these income groups, however, which are least in need of the benefits of public sector spending.

The two general goods assumptions which use the Maital utility function yield results in which the incidence of general expenditures is progressive, and the incidence of total expenditures is regressive up to the top bracket. These two assumptions, however, yield less regressive incidence estimates than the first three assumptions about general goods, although there is not much difference between the results of Assumptions 4 and 5.

As Table 21 indicates, the results of the radical analysis are similar to the conventional results in that total expenditures are regressive up to the $25,000 bracket. The top income bracket, however, receives a considerably larger proportion of benefits, causing the regressivity to stop at that bracket. The reason for this discontinuity in the top bracket is the allocation of a large proportion (42.38 percent) of total benefits as class goods benefits which are distributed largely to the highest income bracket. As expected, the radical assumptions result in significantly less regressivity of total expenditures than the conventional analysis.

TABLE 21

The Distribution and Incidence of Expenditures Under Radical Assumptions[1]

Income Bracket ($000)	Specific Expenditures		Class Goods Expenditures		Total Expenditures[2] Assumption 1		Total Expenditures[2] Assumption 2	
Under 1	4.10	(101.89)	.02	(.52)	2.75	(169.38)	1.69	(104.44)
1-2	6.27	(35.51)	.31	(1.85)	3.90	(54.79)	2.80	(39.35)
2-3	5.38	(22.57)	.73	(3.22)	3.41	(35.54)	2.67	(27.93)
3-4	6.75	(21.86)	1.27	(4.32)	4.07	(32.70)	3.51	(28.18)
4-5	6.64	(17.79)	1.65	(4.65)	4.11	(27.33)	3.67	(24.43)
5-6	6.23	(12.98)	2.03	(4.44)	4.14	(21.36)	3.76	(19.41)
6-7	5.94	(9.59)	2.53	(4.29)	4.29	(17.17)	3.97	(15.88)
7-8	6.21	(7.59)	2.33	(2.99)	4.46	(13.50)	4.15	(12.57)
8-9	6.44	(6.39)	2.12	(2.21)	4.56	(11.23)	4.30	(10.59)
9-10	6.15	(5.57)	2.46	(2.34)	4.56	(10.23)	4.41	(9.90)
10-12	10.08	(4.17)	4.36	(1.90)	7.89	(8.10)	7.85	(8.06)
12-15	11.22	(3.28)	6.62	(2.04)	9.61	(6.97)	10.08	(7.31)
15-25	12.65	(2.10)	16.03	(2.80)	14.76	(6.07)	16.74	(6.89)
Over 25	5.93	(1.32)	57.54	(13.46)	27.50	(15.18)	30.39	(16.77)
TOTALS	99.99	(4.64)	100.00	(4.88)	100.01	(11.52)	99.99	(11.52)
MONEY AMOUNTS ($000)	1,807,033		1,900,208		4,483,468			

TABLE 21 (cont'd.)

Income Bracket ($000)	Total Expenditures		
	Assumption 3	Assumption 4	Assumption 5
Under 1	2.22 (136.91)	1.67 (102.89)	1.67 (102.92)
1-2	3.35 (47.07)	2.70 (37.98)	2.70 (38.00)
2-3	3.04 (31.67)	2.55 (26.56)	2.55 (26.57)
3-4	3.79 (30.44)	3.38 (27.17)	3.38 (27.18)
4-5	3.89 (25.88)	3.54 (23.54)	3.54 (23.54)
5-6	3.95 (20.39)	3.60 (18.57)	3.60 (18.58)
6-7	4.13 (16.53)	3.77 (15.10)	3.77 (15.10)
7-8	4.30 (13.03)	3.90 (11.81)	3.90 (11.81)
8-9	4.43 (10.91)	4.00 (9.86)	4.01 (9.87)
9-10	4.48 (10.07)	4.12 (9.24)	4.12 (9.25)
10-12	7.87 (8.08)	7.26 (7.45)	7.27 (7.46)
12-15	9.84 (7.14)	9.45 (6.85)	9.46 (6.86)
15-25	15.75 (6.48)	16.35 (6.73)	16.37 (6.74)
Over 25	28.95 (15.98)	33.71 (18.61)	33.65 (18.57)
TOTALS	99.99 (11.52)	100.00 (11.52)	99.99 (11.52)
MONEY AMOUNT ($000)	4,483,468		

[1]Figures in parentheses are percentages of adjusted broad income from Table 10.

[2]For the description of Assumptions 1-5, see Chapter II.

Source: Tables 8 and 9, and the money amounts represented in Tables 14, 15, 17 and 19.

Again, in terms of the absolute amounts of benefits accruing to each income bracket, the radical analysis yields some interesting comparisons. The top two income brackets receive 18.58 percent of specific goods benefits, 73.57 percent of class goods benefits and between 42.26 percent and 47.13 percent of total benefits, depending on the choice among the first three assumptions. The lowest two income brackets, on the other hand, receive 10.37 percent of specific goods benefits, .33 percent of class goods benefits and between 4.49 percent and 6.65 percent of total expenditure benefits. Assumptions 4 and 5 yield less regressive incidence patterns and larger amounts to the highest income bracket than the first three assumptions. The definition of Y in the Maital function is the sum of adjusted broad income (radical), specific goods benefits, and class goods benefits minus taxes paid in each income bracket.

With the exception of Assumptions 4 and 5, the conventional analysis yields estimates which describe a consistently regressive pattern of public expenditure incidence. The Maital assumptions yield incidence patterns which could be described as being both pro-poor and pro-rich. Similar descriptions could be applied to the radical analysis, i.e., the results show redistribution to both low- and high-income groups, while favoring the lowest income brackets. However, DeWulf points out that while the incidence pattern may imply an actual

TABLE 22

Cumulative Shares of Income for Various Income Distributions

Income Bracket ($000)	(1) Cumulative Distribution of Families	(2) Money Income	(3) Broad Income	(4) Adjusted Broad Income-- Conventional	(5) Adjusted Broad Income-- Radical	(6) Total Income-- Conventional	(7) Total Income-- Radical
Under 1	6.27	.21	.21	.17	.19	.53	.40
1-2	13.44	1.22	1.13	.95	1.01	1.75	1.48
2-3	18.85	2.50	2.33	2.02	2.12	3.15	2.79
3-4	23.53	4.05	3.84	3.42	3.55	4.91	4.47
4-5	27.78	5.88	5.65	5.12	5.28	6.93	6.43
5-6	32.19	8.19	7.93	7.33	7.51	9.41	8.84
6-7	36.92	11.13	10.83	10.19	10.39	12.49	11.85
7-8	42.49	15.15	14.64	13.99	14.19	16.46	15.71
8-9	48.65	20.16	19.32	18.67	18.87	21.27	20.36
9-10	54.62	25.62	24.44	23.80	24.00	26.49	25.42
10-12	66.07	37.68	35.61	35.04	35.23	37.69	36.30
12-15	79.25	54.67	51.39	50.96	51.12	53.31	51.56
15-25	95.84	84.22	79.20	79.04	79.12	80.30	78.29
Over 25	100.00	99.99	100.00	100.00	100.00	100.00	100.00
GINI COEFFICIENT		.4092	.4395	.4477	.4450	.4106	.4306

TABLE 22 (cont'd.)

Income Bracket ($000)	(8) Total Income-- Conventional	(9) Total Income-- Radical
Under 1	.38	.34
1-2	1.42	1.35
2-3	2.68	2.61
3-4	4.33	4.25
4-5	6.25	6.17
5-6	8.63	8.54
6-7	11.61	11.51
7-8	15.47	15.32
8-9	20.17	19.93
9-10	25.29	24.96
10-12	36.34	35.78
12-15	51.88	51.00
15-25	79.11	77.80
Over 25	100.00	100.00
GINI COEFFICIENT	.4296	.4378

TABLE 22 (cont'd.)

Notes:
- Column (1) Table 1.
- Column (2) Table 1.
- Column (3) Table 3.
- Column (4) Table 6.
- Column (5) Table 10.
- Column (6) Table 6 and the money amounts represented by percentages in Table 20, Assumption 3.
- Column (7) Table 10 and the money amounts represented by percentages in Table 21, Assumption 3.
- Column (8) Table 6 and the money amounts represented by percentages in Table 20, Assumption 4.
- Column (9) Table 10 and the money amounts represented by percentages in Table 21, Assumption 4.

redistribution of incomes, "[o]ne ought, perhaps, to concentrate on the absolute amounts of benefits transferred to the various subgroups of the population; only when the poor get more than the rich can one really talk about the redistribution of income through government expenditures."[5]

As far as this study is concerned, DeWulf is only partially correct. Table 22 shows the cumulative shares of income received by each income class for the various distributions of income. These income shares, combined with the cumulative distribution of families, represent the points of Lorenz curves which describe the inequality of the income distribution. At the bottom of each column is the Gini coefficient of inequality.[6] The tabular form of presentation is preferred because, as Figure 1 shows, it would be difficult to show many different Lorenz curves on a graph, especially when the points of the curves are as close together as those in Table 22.

Gini coefficients can be misleading because it is possible to have a lower Gini coefficient associated with a Lorenz curve which describes a more unequal income distribution at either low or high income levels. For example, by comparing the cumulative percent of income columns for the various income distributions in Table 22, one finds that the lowest income brackets have larger proportions of

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[5]DeWulf, op. cit., p. 23.

[6]James N. Morgan, "The Anatomy of Income Distribution," Review of Economics and Statistics, Vol. 44 (August 1962), p. 281.

FIGURE 1

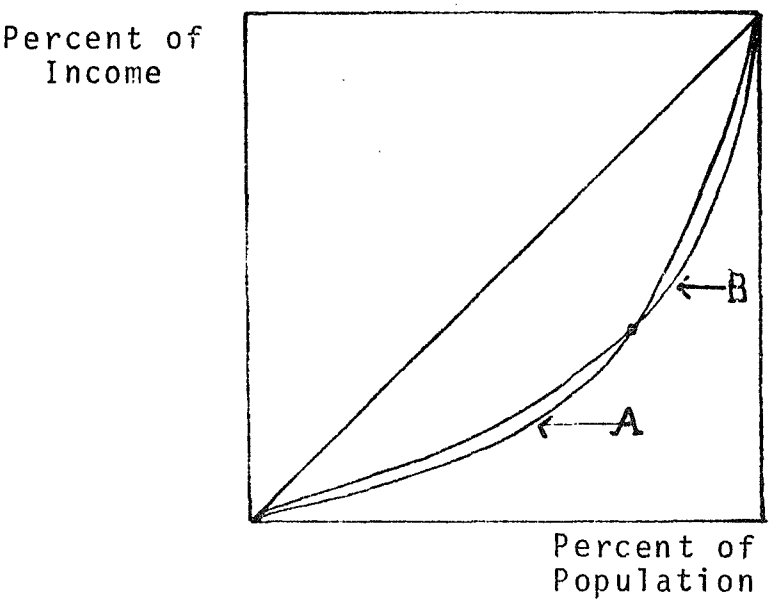

Illustration of Lorenz Curves

total income when income is defined to include public sector spending and adjusted broad income. The reason for this apparent paradox is that the Lorenz curves intersect. Thus, it is possible for the Gini coefficient, which is the ratio of the area between the Lorenz curve and the diagonal to the total area under the diagonal, to be smaller for money income even though the income shares of the lowest income brackets are greater for the distributions of total income. This situation is shown in Figure 1, where curve A represents the distribution of money income and curve B represents total income; the curves intersect at the point which represents 66 percent of the population.

Both conventional and radical analyses yield distributions of total income (adjusted broad income plus public sector benefits) which are more equal than adjusted broad income under Assumptions 3 and 4. (Compare columns 6, 7, 8 and 9 with columns 4 and 5 by reading across Table 22; the higher the number of the same line, the more equal the distribution of income at that level of income.) Under Assumption 3, the radical analysis yields a post-public sector income distribution which is only 3.24 percent more equal, in terms of Gini coefficients, than the pre-public sector distribution of adjusted broad income. The conventional analysis under Assumption 3, however, yields a total income distribution that is 8.29 percent more equal than adjusted broad income.

Conclusion

There is a variety of implications from the results of this study. Perhaps the most important is that total public sector expenditures are not consistently regressive, a result which differs from the conclusions of most previous expenditure incidence studies. The importance of this result is that the choice of assumptions about the allocation of general goods becomes crucial in making the case for the redistributive impact of the public sector.[7]

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[7]This point is also made by Aaron and McGuire and Maital.

Tables 20 and 21 show that specific goods expenditures are consistently regressive, in both analyses, but that total expenditures, even in the conventional analysis under Assumptions 4 and 5, become progressive in the highest income bracket. In the radical analysis, this incidence pattern is even more pronounced and is common to all five assumptions.

It is often said that state and local taxes can be, and even should be, regressive because their unfavorable impact is offset by expenditures which are distributed largely in favor of low-income groups. The results of this study show that expenditures indeed accrue as large percentages of the income of low-income families, but also that public expenditures are important to the most wealthy families as well. The redistribution of income which results from public sector expenditures does not consistently come about at the expense of the upper-income group. Rather, under the radical assumptions and Assumptions 4 and 5 in the conventional analysis, low-income groups benefit principally at the expense of the upper middle-income brackets. Thus, even though there may be an equalizing influence on the income distribution from public expenditures, the redistribution does not always imply a reduction in the concentration of income in the highest income bracket.

If general goods benefits are not shared equally, or in proportion to income, and in fact redound principally

to families in the highest income brackets, as the Maital function implies, the programs undertaken by governments which produce these benefits tend to frustrate efforts to reduce the concentration of income in the hands of a wealthy few. This is not the intention of governments, at least under the conventional assumptions about the role of the State. On the contrary, this is the result which is predicted by the radical analysis, i.e., specific expenditures for legitimization and accumulation purposes often benefit other classes directly, while the ultimate intent of the State is to serve the interests of a single, principally wealthy, class.

These results also lend support for the widespread dissatisfaction among middle-income families. This discontent may in part be a result of the subjective evaluation of benefits from public expenditures and the perception that these groups are not receiving what they consider to be their share of benefits. This study can go no further than to point out that these perceptions may be valid, under Assumptions 4 and 5, for the income brackets above the $7,000 to $8,000 level. In the conventional analysis, redistribution occurs from all the brackets above this level to all of the brackets below. In the radical analysis under Assumptions 4 and 5, the brackets between $7,000 and $25,000 lose, relative to the distribution of adjusted broad income, while the lower brackets and the highest bracket receive increased shares of income.

The results of this study, however, are subject to some qualifications. The most basic limitation of this study and others like it is that the results of the study may be deficient because of the general equilibrium problem which was discussed in Chapter II. It is unrealistic to examine the impact of a public sector by assuming that the impact can be measured by inserting a public sector into a private economy, while also assuming that the underlying income distribution does not change as a result of adding the public sector. In the case of a single state, however, this problem is minimized because of the relative unimportance of the state's public sector compared to the public sectors of the federal government and other state and local governments.

Further, there are limitations in some of the data used to allocate specific expenditures. In some cases data do not exist for Michigan for 1970 and it was necessary to use national data for different years. This is probably a minor shortcoming because the overall results of the study are relatively insensitive to small changes in the distribution of any single expenditure category.

The choice of allocative techniques for distributing general goods benefits is also not resolved. As the data in Tables 20 and 21 indicate, the differences in overall incidence which result from the first three assumptions are not great; however, in the case of the Maital function,

the incidence results are significantly different from the results of the first three assumptions.

There has been no attempt in this study to choose among these allocative techniques, but the use of the costs-incurred-on-behalf-of concept would tend to make the per family assumption the most attractive in the conventional model. The per family assumption is attractive because general goods (and the external benefits of specific goods) are provided for the benefit of all members of society. The Maital function implies that the value of benefits received by various income brackets depends on the subjective evaluation of the benefits, rather than the intent of the government when it provides the benefits.

In the radical model, the Maital function seems to fit the circumstances of government expenditures for class goods. It is much more obvious, in the radical model, that capitalists (who are principally wealthy) would be more willing to pay for the outputs of a government which acts to enhance and protect the interests of the capitalist class. Perhaps it is some implicit or covert awareness of the class bias of the public sector which accounts in part for the positive association of willingness to pay with income in the conventional model. In order to be comparable to the conventional model, however, the radical model distributes only general goods benefits by the Maital function; class goods benefits are included in disposable income.

Regardless of the merits of any of the assumptions about general goods benefits, researchers should be cautious about accepting Maital's judgment that his function provides "believable and unambiguous"[8] estimates of net fiscal incidence. Within the conventional model of expenditure incidence which uses the costs-incurred concept of benefit allocation, there is room for a range of assumptions about the distribution of general goods benefits. The use of a variety of techniques will allow the readers of these studies to select the assumptions and results which follow from their own evaluation of the merits of the various procedures.

Finally, the use of the costs-incurred concept is open to serious criticism. This study has assumed, as have other expenditure incidence studies, that the costs of government programs are identical to the benefits of those programs. As the discussion in Chapter II indicates, there is no a priori basis for this assumption. It is clear that more information is needed about the subjective evaluation of benefits of both specific and general goods expenditures. Aaron and McGuire and Maital have demonstrated that subjective evaluation of general goods benefits yields significantly different incidence results than other allocation procedures, and it is reasonable to assume that procedures which embodied subjective evaluation of specific goods benefits would also yield different

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[8]Maital, op. cit., p. 561.

results, especially if the cost-benefit identity assumption were dropped.

A further limitation of the costs-incurred assumption is that the intangible benefits of spending by a class-biased State (class goods benefits) must be subtracted from the actual money benefits which accrue to direct recipients. Rejection of the accounting method of benefit valuation would allow for the possibility that the class goods benefits may accrue in addition to the benefits of specific goods.

In sum, this study has been designed to demonstrate that different assumptions about the role of the State will yield significantly different incidence results. This hypothesis has been substantiated, but the proof has been achieved in the context of a set of procedures for measuring expenditure incidence which have serious shortcomings. While the ceteris paribus approach of the study does not invalidate the central purpose of the comparison of the analyses and results, the shortcomings of the expenditure incidence framework itself are such that future research should probably be oriented toward resolving some of the problems with incidence models rather than replicating either conventional or radical expenditure incidence studies.

TABLE 23

Percentage Series Used to Distribute Expenditures

Income Bracket ($000)	(1) Families	(2) Broad Income	(3) Consumption	(4) Capitalist Income	(5) Unemployment	(6) Dividends
Under 1	6.27	.21	.84	.02	3.20	0
1-2	7.17	.92	2.33	.31	3.60	.32
2-3	5.41	1.20	2.42	.73	2.80	.73
3-4	4.68	1.51	2.57	1.27	2.40	1.94
4-5	4.25	1.81	2.74	1.65	7.10	2.42
5-6	4.40	2.28	3.20	2.03	7.30	2.63
6-7	4.73	2.90	3.82	2.53	8.20	3.07
7-8	5.57	3.81	4.93	2.33	6.90	2.46
8-9	6.16	4.68	5.87	2.12	8.00	2.41
9-10	5.97	5.12	6.11	2.46	8.20	2.25
10-12	11.45	11.17	12.77	4.36	13.60	3.97
12-15	13.18	15.78	16.65	6.62	10.00	5.92
15-25	16.59	27.81	25.56	16.03	16.10	15.93
Over 25	4.16	20.80	10.19	57.54	2.60	55.95

TABLE 23 (cont'd.)

Income Bracket ($000)	(7) Public Assistance	(8) Social Security	(9) Local Education	(10) Higher Education	(11) Auto Operating Expenditures	(12) Imputed Rent
Under 1	2.70	3.10	2.62	1.07	.12	1.77
1-2	18.10	14.80	3.00	1.22	.50	2.67
2-3	17.40	14.20	2.26	.92	.66	2.30
3-4	14.80	11.90	6.54	2.98	.82	2.44
4-5	14.40	10.00	5.94	2.71	2.22	2.32
5-6	8.00	7.70	7.30	4.88	2.78	2.35
6-7	4.30	5.70	7.83	5.24	4.24	2.87
7-8	3.80	5.10	8.51	6.25	5.56	3.35
8-9	3.60	3.80	8.61	6.99	7.02	4.62
9-10	2.40	3.60	8.36	6.78	7.68	5.03
10-12	3.80	5.10	11.93	14.79	16.90	12.23
12-15	3.30	6.00	13.73	17.03	15.60	17.35
15-25	2.90	6.90	10.68	23.29	28.80	29.11
Over 25	.50	2.10	2.68	5.84	7.10	11.58

TABLE 23 (cont'd.)

Notes:
Column (1) Table 1.
Column (2) Table 3.
Column (3) Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975).
Column (4) Table 3.
Column (5) Adapted from the distribution in Richard Musgrave, et. al., The Distribution of Fiscal Burdens and Benefits, p. 10.
Column (6) Roberts, op. cit.
Column (7) Table 2.
Column (8) Table 2.
Column (9) Bureau of the Census, Current Population Reports, Series P-20, Numbers 185 and 222, p. 4 and p. 40, respectively; also CPR, P-60, No. 74, p. 77. See text, Chapter VI, for explanation.
Column (10) Current Population Reports, P-20, No. 231, p. 21.
Column (11) Musgrave, et. al., op. cit., p. 10.
Column (12) Table 3.

CHAPTER XV

AN ADDENDUM

This study was completed at almost the same time that Douglas Roberts completed his tax incidence study for Michigan.[1] The coincidental completion of both studies makes it possible to present estimates of the net fiscal incidence of the public sector in Michigan in 1970. Table 24 shows these estimates under a selected set of assumptions.

For public expenditures, two assumptions were used to yield the net fiscal incidence estimates for both the conventional and radical models. These were Assumption 1 for the allocation of general goods benefits on a per family basis and Assumption 4, which uses the Maital utility function. These assumptions are used because they represent the extremes of expenditure incidence: Assumption 1 yields the most regressive results and Assumption 4 yields the least regressive results for both the conventional and

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[1] Roberts, op. cit.

TABLE 24

Net Fiscal Incidence in Michigan, 1970, As Percentages of Adjusted Broad Income[1]

Income Bracket ($000)	Conventional Assumptions (1) Most Regressive[2]	Conventional Assumptions (2) Least Regressive[3]	Radical Assumptions (3) Most Regressive	Radical Assumptions (4) Least Regressive
Under 1	286.08	93.03	126.21	54.16
1-2	76.78	26.95	36.49	17.03
2-3	41.95	15.50	21.65	11.05
3-4	33.93	17.86	21.11	14.57
4-5	25.65	14.53	16.78	12.19
5-6	17.79	9.58	11.61	8.11
6-7	11.99	5.80	7.64	4.92
7-8	8.83	3.71	4.41	2.05
8-9	6.76	2.53	2.39	.33
9-10	5.33	2.17	1.78	.13
10-12	2.78	.59	-.32	-1.61
12-15	1.17	.53	-.82	-1.48
15-25	- .78	.83	-.92	- .63
Over 25	-1.74	7.16	10.65	14.56
GINI COEFFICIENT	.4068	.4396	.4347	.4486

[1] Total public expenditures minus net taxes (see text for explanation).
[2] Columns 1 and 3 are the results of subtracting Roberts' most progressive tax estimates from the distribution of expenditures under Assumption 1.
[3] Columns 2 and 4 are obtained by subtracting Roberts' least progressive tax estimates from the distribution of expenditures under Assumption 4.

Source: Douglas Roberts, "Incidence of State and Local Taxes: A Case Study for Michigan, 1970" (unpublished Ph.D. dissertation, Michigan State University, 1975); and Tables 6, 10, 20 and 21.

radical models.[2] Roberts' tax incidence data are also in the form of incidence extremes, and combining these with the expenditure assumptions yields estimates of the limits of the net fiscal incidence of the public sector.

The most regressive (pro-poor) limit is generated by subtracting Roberts' most progressive tax incidence distribution from the most regressive expenditure incidence distribution which results from using Assumption 1. The least regressive incidence pattern is obtained by subtracting the least progressive tax data from the expenditure distribution which results from using Assumption 4.

The amounts of taxes subtracted do not include taxes shifted to out-of-state residents, approximately 30 percent of total taxes under Roberts' assumptions. Further, the amounts of taxes have also been reduced by the benefit received from the reduction in federal income taxes which results from being able to deduct state taxes on federal income tax returns. Thus, there is a significant difference (31.6 percent to 34.3 percent of total net expenditures, depending on tax shifting assumptions) between the amount of expenditures distributed and the amount of taxes assumed to be borne by Michigan residents. The greater part of

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[2]Because of the possibility of confusion between the terms "progressive" and "regressive," it is appropriate to once more define their usage in this chapter. Incidence is regressive when the proportion of expenditures and taxes declines as income rises. Progressive incidence is, of course, just the reverse. Confusion may arise because redistribution of income results from progressive taxes and regressive expenditures.

this difference is accounted for by out-of-state shifting and the federal offset, while the remainder is the result of debt-financed expenditures and miscellaneous other sources of revenue.

As Table 24 shows, the fiscal incidence of the public sector is basically regressive or pro-poor. Under the most regressive conventional assumption, net fiscal incidence is consistently regressive, and the highest two income brackets are net taxpayers. The least regressive conventional assumption, however, yields an incidence pattern which is regressive only through the $12,000 to $15,000 income bracket; thereafter the incidence is progressive, although all income brackets are net beneficiaries. The progressivity in the top brackets is principally the result of using the Maital utility function, although the combination of expenditure Assumptions 2 and 3 with the least progressive tax data also yield progressivity in the top bracket.

Both conventional expenditure assumptions yield distributions of total net income (post-public sector income)[3] which are more equally distributed than adjusted broad income (pre-public sector income). The Gini coefficient of adjusted broad income is .4477, while the Gini coefficients of the income distributions illustrated in Table 24 are .4068 and .4396. In the most regressive

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[3]Adjusted broad income plus public sector expenditure benefits minus taxes.

case, the Gini coefficient is 9.14 percent smaller than the coefficient of adjusted broad income, but under the least regressive assumption, the reduction in inequality is only 1.81 percent.

In the radical analysis the most regressive assumption yields a net fiscal incidence pattern which is much less regressive than that which results from the conventional analysis. Regressivity occurs through the $15,000 to $25,000 income bracket, but the top bracket is a net beneficiary to a greater extent than any of the brackets between $6,000 and $25,000. Under the least regressive radical assumption, the pattern of net fiscal incidence is the least regressive of the four distributions shown in Table 24. Regressivity stops at the top two income brackets, and the top bracket receives more net benefits, in percentage terms, than any bracket between $4,000 and $25,000.

Although the radical most regressive distribution of total net income is more equally distributed than radical adjusted broad income (a 2.31 percent reduction in the Gini coefficient) the redistributive pattern is one which benefits both low- and high-income brackets at the expense of the middle-income brackets. On the other hand, the least regressive radical distribution of total net income is more unequal (by .81 percent in the Gini coefficient) than adjusted broad income, and the redistributive pattern is again from the middle-income brackets to low- and high-income brackets.

The results of the most regressive conventional assumptions are similar to those of a recent study done for Connecticut.[4] Eapen and Eapen found that the pattern of the net fiscal incidence in Connecticut in 1967 was consistently regressive under three assumptions about general goods identical to Assumptions 1-3 used in this study.[5] Differences in the amounts of the deficits and exported taxes and the use of a truncated income distribution in the Connecticut study make it difficult to compare the results in more detail.

The implication of the results shown in Table 24 is that, under conventional assumptions, the Michigan public sector exerts an equalizing influence on the distribution of income, at least during the one-year period under study. These results are intended to show the limits of the pattern of net fiscal incidence in Michigan. The actual public sector impact probably lies somewhere between the extremes shown in Table 24. It is interesting, however, that the impact of the public sector is significantly redistributive (9.14 percent) only under the most regressive conventional assumption. The other limits presented in Table 24 show that the fiscal impact of the Michigan public sector is only a marginally equalizing influence on the distribution of income.

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[4] Eapen and Eapen, op. cit.

[5] Ibid., pp. 118-122.

It should be remembered that including the impact of the federal offset makes the tax incidence data more regressive than they would otherwise be. Therefore, it would be erroneous to compare the net fiscal incidence of this study with the results of a national study which aggregates all state and local fiscal systems, or with any other single-state incidence study which does not include the federal offset in its tax incidence data.

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