71-4609

GARFINKEL, Irwin, 1943-
FINANCING MEDICAL CARE: A WELFARE ECONOMICS ANALYSIS.

The University of Michigan, Ph.D., 1970
Economics, finance

University Microfilms, Inc., Ann Arbor, Michigan

THIS DISSERTATION HAS BEEN MICROFILMED EXACTLY AS RECEIVED

FINANCING MEDICAL CARE: A WELFARE ECONOMICS ANALYSIS

by
Irwin Garfinkel

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Social Work and Economics)
in The University of Michigan
1970

Doctoral Committee:

Professor Harvey E. Brazer, Chairman
Professor Sidney G. Winter
Associate Professor Paul J. Feldstein
Assistant Professor William B. Neenan
Lecturer Philip Booth

ABSTRACT

FINANCING MEDICAL CARE: A WELFARE ECONOMICS ANALYSIS

by
Irwin Garfinkel

Chairman: Harvey E. Brazer

The appropriate role of government in financing personal health care expenditures is a controversial subject in political life and in welfare economics. In my thesis I examine the welfare economic aspects of financing medical care. I argue that there is no one appropriate role for government independent of the values of citizens.

The traditional welfare economics approach creates a strong case for laissez-faire. This case rests on the assumptions that: (1) the technological externalities generated by personal health care are minor and (2) redistribution in kind is inefficient. I argue that the latter assumption is not necessarily valid.

The alleged inefficiency of in kind redistribution is based on the notion that the potential beneficiary could do at least as well and usually better if he were given the cash equivalent. The preferences or values of the potential taxpayer are ignored.

My thesis builds upon the work of Tibor Scitovsky and James Buchanan who have explicitly challenged the second

assumption and upon the work of Mark Pauly and C. M. Lindsay who in their work on efficiency in financing medical care, have implicitly challenged it. These men have incorporated taxpayer preferences into their analysis, but in doing so they have left out beneficiary preferences. I develop a general model within which any possible combination of taxpayer and beneficiary preferences can be analyzed. I show that the traditional case against redistribution in kind as well as the work of Scitovsky, Buchanan, Pauly and Lindsay are very special cases based upon particular assumptions about preferences of potential taxpayers and beneficiaries and on implicit or explicit interpersonal utility comparisons. The reader may then judge for himself how accurate are the former and how appealing are the latter. The latter are not unimportant; in fact, I show that values about the distribution of income are the most important ones in determining the appropriate role of government.

In addition to establishing that subsidizing personal health care expenditures may be efficient, I examine the most efficient methods of subsidizing medical care in order to achieve alternative policy goals. I show that a vanishing tax credit for health services would be a more efficient method of assuring that all individuals consumed at least some minimum amount of care than either a tax credit for health insurance or a free health service. Under certain circumstances, however, the latter might be a more efficient method of achieving equal access to health care.

Contents

I.	Introduction	1
	A. The Importance of Medical Care	2
	B. Procedure	10
II.	Review of the Literature	12
	A. The Case for Laissez-Faire	12
	B. Recent Criticisms of the Case for Laissez-Faire	24
III.	Optimal Social States	32
	A. The Social Welfare Function	32
	B. Values and Utility Functions	38
IV.	Values and Redistribution	43
	A. The Alleged Inefficiency of In Kind Redistribution	43
	B. Evidence of Taxpayer Preferences for In Kind Redistribution	65
	C. Values and Subsidization	72
V.	Efficiency in Achieving Policy Goals	79
	A. Subsidization and Free Provision	79
	B. Evaluation of Alternatives	93
	C. Free Provision and the Means Test	99
VI.	Conclusion	107

Tables

I.	Mean and Percent of Aggregate Family Income Expended for Personal Health Services by Income Group in 1963	7
II.	Percentage of Population Favoring Subsidization of Medical Care in 1964 by Income Class	67
III.	Percentage of Individuals Favoring More, Less or the Same Amount of Spending on Education and Low Cost Housing in 1969 by Income Class	68
IV.	Percentage of Individuals Who Favor Replacing Welfare with a System That Would Supplement Below Poverty Incomes in 1969 by Income Class	68

Figures

I.	The Excess Burden of In Kind Redistribution	14
II.	The Excess Burden: Further Considerations	16
III.	From Excess Burden to the Inefficiency of In Kind Redistribution	18
IV.	Cash versus Kind Redistribution: A Taxpayer's Indifference Map	46
V.	B's Welfare Loss as a Function of the Amount of In Kind Redistribution	51
VI.	Inefficiency of In Kind Redistribution: A Special Case	54
VII.	Efficiency of In Kind Redistribution: A Special Case	57
VIII.	Efficiency of In Kind Redistribution: A Less Special Case	59
IX.	Taxpayer Preferences and the Utility Frontier	61
X.	The Political Feasibility Constraint	64
XI.	Subsidization vis a vis Free Provision	81
XII.	Equal Access, Subsidization and Excise Taxation	85
XIII.	Equal Access and Supply Elasticity	87
XIV.	Equal Access and Demand Elasticity	90

Chapter I

Introduction

This thesis deals with the welfare economics of financing the consumption of medical care. One central argument is that there is no single efficient role for government in financing medical care. Rather, the proper government role depends upon and varies with the values held by a society's citizens. By values I mean the set of beliefs about what constitutes a good society. I discuss in some detail the efficient methods of achieving several alternative value systems.

The issues raised in the thesis have broader implications. Many of the concepts developed are applicable to the question of efficiency in financing education and perhaps other goods as well. Chapter IV, for example, examines in depth the efficiency or alleged lack thereof of in kind redistributions. There are three reasons, however, for focusing the discussion on medical care. First, this enables me to treat in depth the implications for financing medical care of alternative value systems. Second, if I did discuss the efficient financing of other goods, a great deal of the discussion would be repetitive. Finally, medical care is of sufficient interest and import to merit special attention.

In the first section of this introductory Chapter, I

discuss why the efficient financing of personal health expenditures is an important issue. In the second section I briefly describe the contents of the succeeding chapters.

Section A: The Importance of Medical Care

A very large and ever increasing share of our national resources is being devoted to personal health care. Aggregate expenditure for personal health care in the United States in 1968 totaled $46.7 billion. [47, p.3.] This amounted to nearly 5½ percent of our gross national product. Moreover, the growth rate of these expenditures for the period 1950-1965 was approximately 8 percent, and for the last two years has been respectively 14 and 13 percent. [23, p.2 and p.12.] Since such a large proportion of our total resources is devoted to medical care consumption, a concern with the efficiency of financing these expenditures would be appropriate under any circumstances.

This concern is even more pressing for two reasons. First, in 1965 we enacted two massive public programs--Medicare and Medicaid--which altered the old pattern of financing medical care in the United States. Secondly, many influential groups and individuals are proposing new programs which would further alter and in some cases replace entirely the current financing system.

Title 18 of the 1965 Social Security Amendments, popularly known as Medicare, provides hospital and nursing home care insurance and physician care insurance for individuals

age 65 or over. The first two are financed through payroll taxes, while the last is financed through premiums paid by the enrolled aged and matching funds from federal general revenues. Title 19 of the 1965 Amendments, known as Medicaid, establishes a federal state program to pay for the medical care of the medically indigent.[1] Together these two programs in 1968 paid for 34 percent of expenditures on personal health care. [23, p.34.]

While the major proposals for reform differ in detail, most of them can be classified as either tax credit or national health insurance schemes. The American Medical Association proposal calls for the establishment of a vanishing tax credit for the purchase of private health insurance. [See 48, pp.30-33.] Eligibility would be limited to those under age 65. The percentage of health insurance expenditures up to $500 annually which could be credited would vary with taxable income, from 100 percent for those whose annual federal income tax liability is less than $600 to zero for those whose tax liability exceeded $1000. Individuals whose tax credit exceeded their tax liability would receive the difference in the form of a tax refund or voucher for the purchase of health insurance. Under this

---

1. Originally the definition of medical indigence was left up to each state. In 1967, however, a new amendment restricted the maximum family income that could be defined as medical indigence to 1 1/3 the income eligibility limit for public assistance in each state.

proposal approximately 68 percent of all individuals or families under age 65 that filed returns would receive some aid from the credit. Rashi Fein, a Harvard medical economist advocates a similar plan, except that the maximum expenditure subject to the credit is $400, and while the percentage creditable diminishes as income increases, even the wealthiest families would be entitled to credit 10 percent of their expenditures. [See 48, pp.34-37.] HR 9835, introduced in the House of Representatives on April 2, 1969 by Representative Richard Harmon Fulton (R., Tennessee) calls for the establishment of a tax credit similar to that advocated by Fein except that eligibility is not restricted to those under age 65. [See 48, pp.38-42.] Finally, a few academics have proposed a tax credit for health services. [See 4 and 19.] For some reason, however, their proposals have not attracted much political support.

The nation's state governors at the 1969 National Governors' Conference overwhelmingly endorsed Nelson Rockefeller's proposal calling for the establishment of a national health insurance scheme financed at least in part through payroll taxes. [See 30, p.4.] Senator Jacob Javits (R., N.Y.) and Rockefeller are now preparing a proposal which would supplement the existing Medicare and Medicaid programs. [See 30, p.4.]

The Committee for National Health Insurance (CNHI), advocates a national health insurance scheme which would be financed through payroll taxes and general revenues. [See 44.]

Their scheme would replace existing programs. While there is some disagreement among committee members about whether the program should be phased in by expanding (1) population groups covered, or (2) medical care components covered, or (3) percentage of bills covered, there appears to be general agreement that ultimately 100 percent coverage in all three areas is desirable.

The objectives of the reformers vary. For example one of the objectives of the CNHI is to use a national health insurance system to reorganize the medical care delivery system. [See 44.] They cite the rapid increases in medical care prices as evidence of the system's unsoundness.

Medical care prices have risen much more rapidly, especially in the last few years, than prices in general. From 1946 to 1960, the average annual percentage change in the Consumer Price Index (CPI) was 3 percent, while the change in the medical care component (MCI) was 4.2 percent. From 1960 to 1965 the respective figures were 1.3 percent and 2.5 percent. But for the three years 1965-1968, while the average increase in the CPI was 3.4 percent, the MPI was increasing at a rate of 7.7 percent. [45, pp.1-2.]

While this rapid increase in price is no doubt one major reason why many individuals desire a change in our system of financing medical care, I will not deal with this problem. To begin with, a program which simply alters the financing system through increased public subsidization would increase demand and thereby aggravate the price

increase problem. This appears to have been one effect of the Medicare-Medicaid legislation. More importantly, analytically, at least, supply and demand problems can be dealt with separately. To deal with both is beyond the scope of this thesis. Consequently I assume throughout the thesis that the supply side of medical care is efficient or can be made so by policies which are independent of demand.

One objective which seems common to advocates of both the tax credit and social insurance schemes is to eliminate the inability of the poor to afford the cost of medical care. Bad health appears to vary inversely with income. To quote from the U.S. Riot Commission Report [46, p.269.]:

> From the standpoint of health, poverty means deficient diets, lack of medical care, inadequate shelter and clothing and often lack of awareness of potential health needs. As a result about 30% of all families with incomes less than $2000 per year suffer from chronic health conditions that adversely affect their employment, as compared with less than 8% of the families with incomes of $7000 or more.

But as Table I shows, personal expenditures for medical care varied directly with income, while at the same time medical care expenditures constituted a relatively small proportion of the budgets of those with above average income but a fairly large proportion of the budgets of the very poor.

The data in Table I can be summarized by stating that medical care is a normal good with a demand that is income inelastic. That is, the demand for medical care rises with income, but it rises less than in proportion to income.

But recent studies using regression techniques indicate that the demand for medical care has an income elasticity of approximately one. [See 12.] In any case, even if the demand were income inelastic, there are other goods which can also be so characterized. The important question is what, if anything, is unique about and perhaps thereby justifies subsidization of medical care? A good part of my thesis consists of an attempt to answer this question.

Table I: Mean and Percent of Aggregate Family Income Expended for Personal Health Services by Income Group in 1963

Income	Mean Expenditure	Expenditure as percent of income
Under $2,000	$228	15.7
2000-3499	245	8.5
3500-4999	289	6.8
5000-7499	409	5.6
7500 or more	480	3.8

Source: Ronald Anderson and Odin W. Anderson, A Decade of Health Services, Tables 8 and 30. [See 32 for the full citation.]

While Medicare and Medicaid have already changed the distribution pattern substantially, critics point out that the former is limited to the aged while the latter involves an objectionable means test. The means test issue is discussed in detail in Chapter V.

Many advocates of national health insurance think that prepaid medical care for the entire population is desirable.[2]

---

2. It is not always clear whether advocates of prepaid care desire the latter as an end in itself or as a means to achieving another end such as eliminating income as a barrier to medical care consumption. For analytical purposes I assume the former. [See 44.]

Comprehensive national health insurance or a free health care service would achieve this goal. It's advocates point out, quite correctly, that private health insurance has not yet and will not in the forseeable future achieve this.

Thirty-three percent of total private consumer health expenditures in 1967 were paid by insurance companies. [22, p.22.] They paid for 70 percent of expenditures for hospital care, 36 percent of expenditures for physician services, and 4 percent of expenditures for all other types of care. [22, p.22.] The proportion of the non-aged population with insurance coverage for specified services varied in 1967 from 86.5 for hospital care to 42.6 for physicians office and home visits to 2.6 percent for dental care. [22, p.14.] Similarly, even for individuals covered the percentage of their expenditures paid for by insurance varied from 85.7 percent for hospital care to 59.6 percent for physicians' office and home visits. [22, p.21.] Moreover, while the percentage of consumer expenditures for hospital care and physicians' services paid for by insurance has increased between 1950 and 1967 from 34.6 to 70.1 and from 12.0 to 36.2 respectively, even an extrapolation of this growth would suggest that complete coverage even of these two services will not be achieved in the near future. [22, p.22.] Finally, for those who believe that private health insurance is inadequate, it is particularly upsetting that inadequate coverage is directly related to low income. The percentage of the non-aged population with hospital insurance coverage ranged in 1967 from 90 percent for those

in families with income over $10,000 to 35 percent for those in families with incomes below $3000. [22, p.8.]

There can be little doubt, therefore, that critics of the private health insurance industry are correct when they allege that the industry has not achieved nor will it in the forseeable future achieve, universal comprehensive insurance coverage. The important questions to ask, however, are: (1) is universal comprehensive insurance coverage desireable and (2) is the insurance industry's failure to provide this kind of coverage evidence of market failure. These questions are dealt with respectively in Chapters V and II.

Given: (1) that such a large amount of our resources is devoted to medical care consumption, and (2) that there are so many advocates of basic changes in our current method of financing medical care, the question of what is (are) the most efficient method(s) is very important. This question is charged with emotion. Different value systems account for much of the vehement disagreement among individuals. But this does not mean that economic analysis is irrelevant.

While economists cannot resolve value conflicts, as Samuelson has observed:

> It is a legitimate exercise of economic analysis to examine the consequences of various value judgements, whether or not they are shared by the theorist, just as the study of comparative ethics is itself a science like any other branch of anthropology. [See 41, p.220.]

Section B: Procedure

The following chapter consists of a brief but critical review of the normative economics literature on financing medical care. The first section states the traditional case for laissez-faire with the bulk of the discussion devoted to a discussion of the welfare case against in kind redistribution. The second section discusses some recent attempts to modify the tradional laissez-faire case. In this chapter I raise the theoretical issues which are dealt with in the next three chapters.

In the third chapter I develop a general framework within which the issues raised in the second chapter can be analyzed. I begin with a completely general, highly abstract, and, therefore, very empty description of the best state of the world, then discuss the special assumptions economists have made in order to derive policy recommendations from this model, and finally suggest some modifications in these assumptions to incorporate individuals' values.

Within the framework discussed in the previous chapter, I develop a model in the fourth chapter to re-examine the welfare case against in kind redistribution. I show that given taxpayer preferences for in kind vis-a-vis cash redistribution, some of the former is almost certainly efficient. In the last section of the chapter I treat different values which give rise to a desire to subsidize the medical care of others as special cases within the model developed in the first section and consider the weakest possible sufficient

conditions for treating these values as policy goals.

In the fifth chapter I assume that these values may be taken as policy goals and examine the efficient methods of achieving the various goals. Then I evaluate the efficiency of alternative reform proposals in terms of achieving these policy goals.

The last chapter consists of a brief summary, a statement of my own values, a few qualifying remarks and a policy recommendation.

Chapter II

Review of the Literature

The early discussion in this country of what role government should play in financing health care involved much emotion and little rigor.[3] Rather than becoming involved in this morass, in the first section I will summarize the welfare case for laissez-faire in order to establish a point of departure for the discussion to follow. Most of this section is devoted to considering the welfare case against redistribution in kind. The second section is a critical discussion of recent rigorous attempts to modify the laissez faire case.

Section A: The Case for Laissez-Faire

1. The Inefficiency of In Kind Redistribution

Although much, or most, of the impetus for subsidizing medical care appears to arise out of a concern for the ability of the less affluent to afford the cost of medical care, dissatisfaction with the existing distribution of

---

3. National health insurance was an important political issue in the immediate post-war era, died down, was revived in the late fifties with reference to only those over 65, and has only recently re-emerged as an important political issue. For the early post-war discussion see [9,10,11,17,21,and 24.]

income has not been considered a valid reason by most economists for subsidizing medical care.

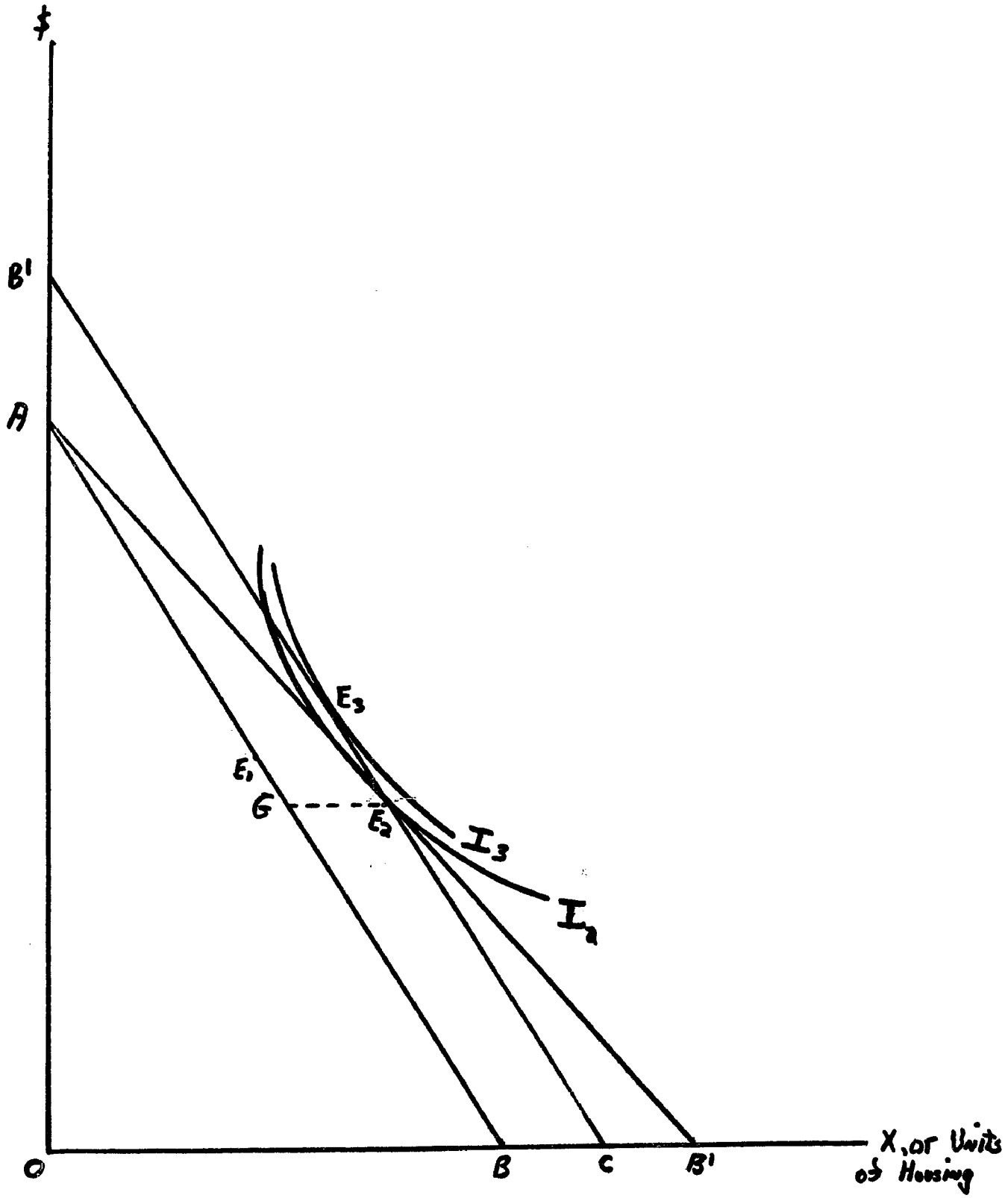
Economists argue that redistribution in kind is inefficient because it condemns the consumer to a lower level of welfare than he could attain if he were given the cash equivalent of the aid in kind. This is illustrated through partial equilibrium analysis in Figure I on the following page. On the vertical axis we put dollars, on the horizontal axis any good X. The initial budget constraint is given by AB. Equilibrium is at the point E, where the consumer's indifference curve, not shown so as not to clutter the diagram, is tangent to the budget constraint AB. Subsidizing the purchase of X pivots the budget line to AC with a new equilibrium at E_2. If the consumer were given the cash equivalent of the housing subsidy i.e., the cost of providing GE units of housing, the new budget line would be A'B', which will intersect the indifference curve I_2.[4] Consequently there must be a higher indifference curve such as I_3 which is tangent to A'B', and the consumer therefore would be better off if he were given the cash equivalent of the aid in kind.

Aid in kind, however, need not take the form of subsidization of a good at the margin. Suppose that the government actually gave the individual y units of X or a

---

4. The slope of A'B' is greater than that of AC, while the slope of indifference curve I_2 is equal to that of AC at E. Consequently A'B' must intersect I_2 at E and a tangency will be achieved on a higher indifference curve.

Figure I: The Excess Burden of In Kind Redistribution



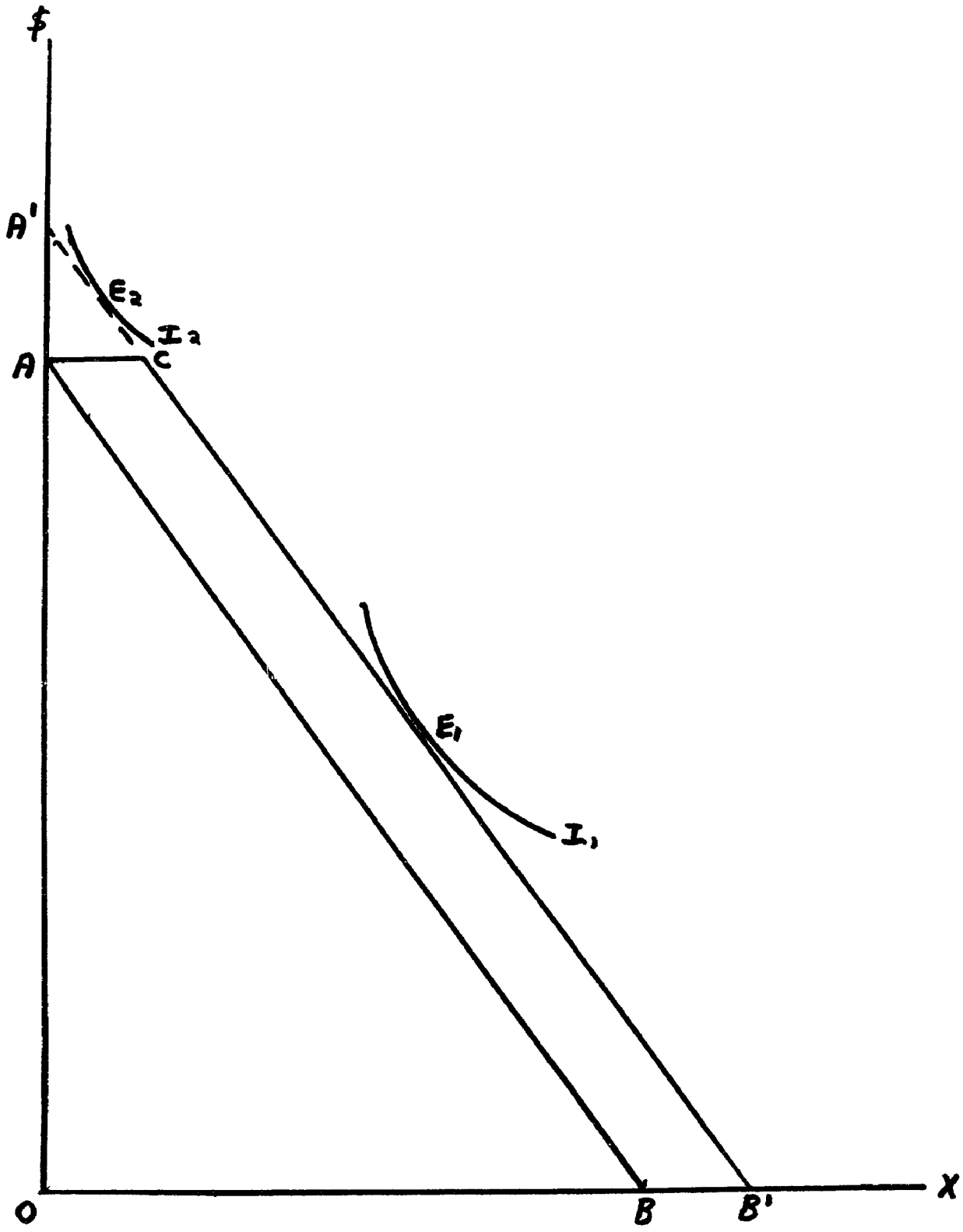
voucher for the purchase of y units of X. In this case depicted in Figure II on the following page, the new budget line would be ACB' where AC=y units of X. The budget line for the cash equivalent redistribution would be A'B'.

It is possible that such an in kind redistribution would involve no excess burden. If the consumers' indifference curve was like I_1, equilibrium would be at E_1 whether he were given the in kind or the cash equivalent redistribution. Some methods of in kind redistribution therefore, need involve no welfare loss.

On the other hand if the consumers' preferences were such that if given the cash equivalent he would consume less than y units of X, as illustrated by indifference curve I_2, there would be an excess burden. It is almost certain that this will be the case, particularly in medical care, for some poor individuals. For example many poor individuals purchase little or no medicare care. If they were given X dollars in cash to spend in any way they pleased, few of these individuals would be likely to purchase X dollars worth of health care. Consequently even if redistribution in kind does not pivot the price line it is likely to involve an excess burden for very poor individuals. Moreover, unless I specify otherwise, the only kinds of in kind redistributions with which I will be concerned are those which pivot the price line.

The forgoing argument that redistribution in kind is inefficient can be translated into the general equilibrium

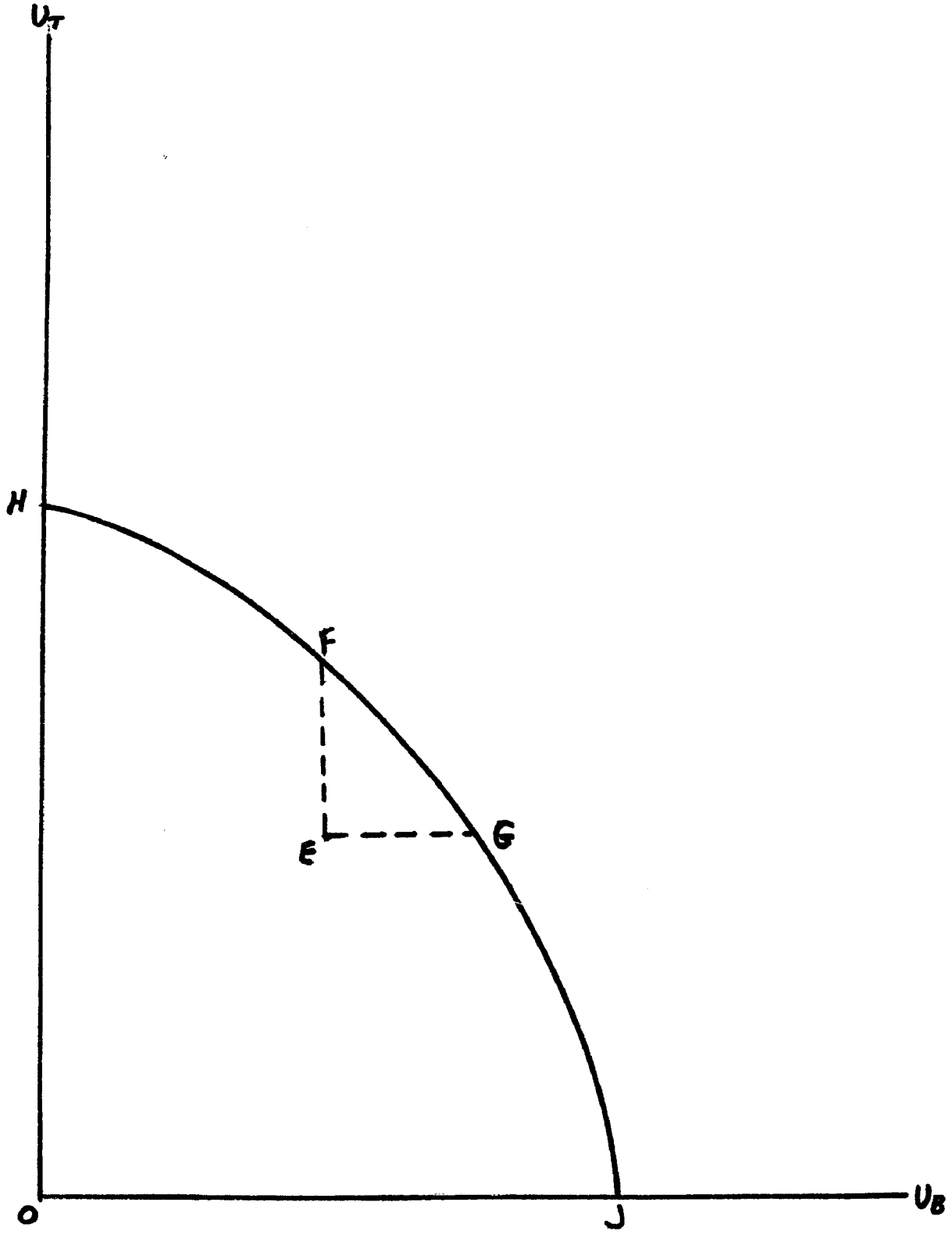
Figure II: The Excess Burden: Further Considerations



context. An efficient allocation of resources satisfies the Pareto Optimality condition that no individual's utility can be increased without diminishing the utility of at least one other individual. The meaning and importance of this notion of efficiency can be illustrated with the aid of the simple diagram in Figure III on the following page. The utility of T is measured along the vertical axis, while that of B is measured along the horizontal axis. HJ, the utility possibility frontier, represents the maximum combinations of the utilities of T and B, given the economy's technology and the (independent) tastes of T and B. All points along HJ represent efficient, or Pareto Optimal, allocations of resources. This is so because along HJ it is impossible to make either T or B better off without making the other worse off. On the other hand, all points within HJ such as E, are inefficient, because either T or B could be made better off without making the other worse off by moving to F or G; or, both could be made better off by moving to some point along FG.

It should be clear from the diagram that there will always be an efficient allocation of resources that is preferable to an inefficient allocation. If T does not care whether income is redistributed in kind or in cash, it should also be clear that redistribution in kind is inefficient. For the analysis of Figure I showed clearly that the beneficiary of redistribution in kind is better off with the cash equivalent. If no one is worse off and someone is

Figure III: From Excess Burden to the Inefficiency of In Kind Redistribution



better off cash redistributions are more efficient or Pareto Superior to in kind redistributions.

Allocation and distribution issues are sharply distinguished in this conventional analysis. Under certain restrictive assumptions it has been shown that perfect competition leads to a Pareto Optimal allocation of resources.[5] To the extent that this is so, the market can be relied upon to get us onto the utility possibility frontier. But the market, depending upon the initial endowments of individuals, their tastes and the technology can lead to any income distribution along HJ. An ethical judgement, called a social welfare function by economists, is needed, in order to decide among distributions of welfare. If the actual distribution produced by the market does not coincide with the ethically desired distribution, the latter can be achieved through monetary transfers.

Recently, several economists have challenged the view that redistributions in kind are inefficient. Their arguments are directed against the assumption that taxpayers are indifferent between in kind and cash redistributions.

2. Criticisms of the Alleged Inefficiency of In Kind Redistribution

Tibor Scitovsky, in an essay entitled "Equity", argues that while individuals are concerned about the overall distribution of income, for any given distribution, their

---

5. See [5] for the best non-mathematical treatment or [4] for a more rigorous and comprehensive treatment.

sense of equity is satisfied in proportion to the degree to which necessities are distributed equally, [See 42, pp. 250-261.]

> Different people's lists of necessities differ, of course, in both length and composition; but bearing these differences in mind, one can say that most people consider equitable an economic system or economic organization that leads to an egalitarian or near-egalitarian distribution of the necessities of life. [42, p. 254.]

Scitovsky also suggests that public provision of necessities may in some cases be the best method of achieving an egalitarian distribution of these goods.

> ...when some goods the public would like to see generally accessible are too expensive to become accessible, given the inequality of wealth and income...Such a situation can be remedied in either of two ways. One is to reduce the inequality of wealth and income distribution through progressive taxation and death duties. The other is to take the necessities whose unequal distribution through the market mechanism public opinion resents and to distribute them in an egalitarian way outside of the market mechanism.
>
> The first is the obvious, natural and most efficient way; but it is also likely to be the less feasible politically. For a very far reaching reduction of monetary inequalities may be necessary to assure the egalitarian distribution even of a single necessity if this is expensive and scarce in relation to demand. The second way is by far the less drastic, by far the less revolutionary whenever the number of such necessities is small. [42, p.255.]

Scitovsky cites medical care as an example of the kind of good he has in mind. But his argument leaves several important questions unanswered. First what would constitute an egalitarian distribution of medical care. Second, even if we rule out a monetary redistribution, is free government provision the most efficient method of achieving this egali-

tarian distribution. In the fifth chapter I give a more precise definition of the concept of an egalitarian distribution of, or what is sometimes called equal access to, medical care. I show that in general free provision may not be an efficient method of achieving this goal. Finally if all individuals' concept of equity relates to other individuals' consumption of specific commodities, either in addition to, or instead of the real income of others, is it true as Scitovsky asserts, that a redistribution of cash is still more efficient than one in kind. In Chapter IV, I argue that under these circumstances in kind redistributions may be efficient.

James Buchanan has also challenged the argument that in kind redistributions are inefficient. [See 6, for example.] Unlike most other economists, Buchanan treats distribution as an allocation problem. He rejects the concept of a social welfare function on the grounds that interpersonal comparisons of utility cannot be made on a scientific basis. Whatever distribution of income exists at the time, he accepts, Buchanan then asks is there some set of transfers that will make some individuals better off and none worse off. If so, these transfers should be instituted. If not, there should be no transfers.

While Scitovsky argues that non-poor individuals derive utility from an egalitarian distribution of certain goods, Buchanan argues that non-poor individuals in our society derive disutility from observing particular manifestations

of poverty, such as ragged dress or run down housing. Although there are important differences in these positions the similarity should not be overlooked. Both argue that the poor's consumption of particular goods generates externalities. But Buchanan goes further and asserts that the non-poor neither care about the distribution of income, nor derive disutility from poverty per se.

> The mere fact that some members of the community are poor does not, in and of itself, normally impose an external diseconomy on many of the remaining members. What does impose such an external diseconomy is the way that certain persons behave when they are poor. It is not the low income of the family down the street that bothers most of us; it is the fact that the family lives in a dilapidated house and dresses its children in rags that imposes on our sensibilities. [6, p.189.]

Since the behavior of the poor generates negative externalities, the non-poor have an incentive to bribe the poor to behave differently, i.e., to change their consumption bundles. The poor also benefit from the bribe or subsidy. Since the welfare of both the poor and non-poor increases, redistribution in kind leads to Pareto Optimality. Moreover, Buchanan claims this explains why, in practice, redistributions are of the in kind variety.

On the other hand, since poverty per se does not disturb the non-poor, they will object to monetary transfers. Cash redistributions therefore will involve coercion and as a result do not constitute Pareto improvements in welfare.

Buchanan's analysis raises several more important normative and positive questions. First, is there an implicit social welfare judgement in his normative analysis, and if

so, what is it. Second, if it is true that the non-poor suffer disutility only from the behavior of the poor, (1) are in kind redistributions alone sufficient to obtain a Pareto Optimal situation, (2) are cash redistributions inefficient, and (3) how does one account for the fact, not mentioned by Buchanan, that in practice, redistributions are also of the cash variety? Finally would the answers to the forgoing questions differ if individuals derived disutility from poverty per se, as well as particular manifestations of poverty. These questions will be discussed in detail in Chapter IV.

Since both Scitovsky's and Buchanan's case for redistribution in kind leave so many unanswered questions, I will assume throughout the remainder of this chapter that redistribution is not a legitimate rationale for subsidizing medical care. This assumption, which I believe is false, will nevertheless facilitate the analytical analysis by making it easier to distinguish allocation from distribution issues. Moreover, this assumption explicitly underlies the analysis of Arrow, Pauly and Lindsay discussed in the second section of this chapter.

3. The Minor Role of Technological Externalities

If redistribution is not a legitimate reason for subsidizing medical care, the laissez-faire case for no, or at most, a very minor role for government in financing personal health care, appears to be very strong. As I noted above,

if certain conditions pertain, perfect competition leads to Pareto Optimality. The most important condition in this context is that there are no externalities. An externality exists when the utility of one individual (the production function of one firm) is dependent upon the consumption of another individual (the production function of another firm). It has also been shown that to the extent that there are externalities, an efficient allocation of resources requires that roughly speaking, goods be subsidized or taxed in proportion to the extent that they generate positive or negative externalities. [See 8.] But outside of public health and research activities medical care appears to be largely a pure private good. That is, whether or not an individual consumes a given amount of medical care appears to be of no economic interest to those outside his immediate family. Consequently, subsidizing personal health care would be inefficient.

This in short is the case for laissez-faire. I now turn to some of the more recent rigorous attempts to modify this case.

Section B: Recent Criticisms of Laissez-Faire Case

1. Uncertainty and the Welfare Economics of Medical Care

In his classic article, "Uncertainty and the Welfare Economics of Medical Care," [1] Kenneth Arrow argues that the existence of uncertainty about the frequency and severity of future illnesses combined with the non-emergence of market

institutions to provide insurance constitutes an overwhelming welfare case for government intervention. The welfare case for insurance follows from the assumption that individuals are risk averters in the sense that they prefer to pay an actuarily fair premium for insurance than to face a probability distribution of expenditures for illness which has a mean equal to the price of the insurance policy. The non-emergence of market institutions is simply a case of market failure.

Dennis Lees and Robert Rice,[18],criticized Arrow's argument by demonstrating that private insurers could not offer an actuarily fair premium because of selling (and buying) costs. Arrow, [2], replied that such costs did not inhere in the good itself but rather in the form of market organization. Since compulsory government insurance would entail only very small administrative costs and since the risk averting individual is willing to pay a slightly unfair premium to avoid uncertainty, his argument for government insurance was still valid.

Mark Pauly,[25], noted, however, that the presence of insurance reduces the price of medical care at the point of purchase, or at the margin, thereby increasing its consumption over what it would have been in the absence of insurance. This assumes consumption of medical care is price elastic. Most evidence indicates it is.[6] The result of this increase

---

6. See [12] for a summary of the research.

in consumption is that the premium the insurance company, or the government must charge the individual is likely to be substantially greater than an actuarily fair premium. Consequently (1) the fact that private insurance companies have not provided universal comprehensive health insurance is not evidence of market failure, and (2) the individual may not be better off under compulsory insurance.

Pauly's criticism destroys the presumptive case for health insurance. But, Pauly does not prove that we will be worse off than we are now if we had compulsory insurance, he only proves that we may be no better off. Whether or not compulsory government insurance would be Pareto superior to the present situation depends upon: (1) the role of the elasticity of health expenditures with respect to insurance vis a vis transactions costs in limiting the extent of voluntary insurance, and (2) the possibilities for compensation.

2. Altruism and the Desire to Augment Others Care

Pauly, in his own dissertation, [51] entitled Efficiency in the Public Provision of Medical Care, argued that there exists a ppeviously unrecognized externality in the consumer's utility function which justifies a certain type of government intervention in medical care. The externality consists of individual A's deriving utility from B's consumption of medical care. This type of externality should be distinguished from that which arises out of a contagious disease. The one he is referring to is a manifestation of A's altru-

istic spirit. Pauly assumes that the utility A derives from B's consumption of medical care varies positively with the severity of B's illness, but not with his income. Since medical care is a mixed good with both public and private aspects, optimality calls for both individual and societal financing. Pauly assumes diminishing marginal utility, with respect to the externality and the normality of the good medical care from which it follows that the higher an individual's income the ~~more~~ medical care he purchases and the less the value to others of his purchases at the margin. More importantly, he concludes that if tastes do not vary with income, efficiency requires that public subsidies vary inversely with income. Moreover, he assumes that above some income level, the externality will no longer be relevant at the margin.

Pauly asserts that the extent of government subsidization should be determined by taxpayer's willingness to pay for the program. In Chapter IV I examine under what conditions this is so.

Finally Pauly recommends a tax credit for health insurance as the most efficient method of subsidizing health care. In Chapter V I show that a tax credit for health insurance would be an extremely inefficient method of subsidizing personal health care expenditures.

3. Altruism and Equal Access

Cotton Mather Lindsay's dissertation, [50], Supply

Response to Public Financing of Medical Care in the U.S. was completed about one year after Pauly's. Lindsay questions one of Pauly's implicit assumptions about the nature of utility functions. In order to derive optimality conditions, Pauly had made the conventional assumption of independence of utility functions. Lindsay deduces the consequences of a particular kind of non-separability of arguments in the utility function. Lindsay argues:

> ...the revelant argument in the utility function may not be the quantity of the good possessed by the individual himself (the private good argument), nor the quantity of the good possessed by another individual (Pauly's separable externality argument), but rather the degree of equality which exists in the size of shares possessed by everyone. In other words, the externalities may not be neatly separable as Pauly assumes, but rather tightly linked by a belief held by all that relative amounts in the hands of all are just as important to their welfare as the quantity they themselves receive. [50, p.32.]

Lindsay argues that deriving utility from equal access is not irrational.

> After all, access to medical care many times means access to life itself. Members of the community may feel that access to care, hence life, should not depend on a person's means. Individuals may feel that all should have an equal chance at obtaining lifegiving services, and that their distribution should be removed from the market place. [50, p.32.]

Lindsay seems to assume that if individuals derive utility from equal access, this is sufficient for equal access to be efficient. This is clearly not so. In Chapter IV this issue is discussed in a more rigorous fashion.

Rather than explicitly recognizing that he is considering the implications of alternative value systems in the context

of utility analysis, Lindsay muddles the issues by couching it in technical terms.

> The distinction between the separable versus non-separable arguments may appear upon casual observation to be rather trivial for policy purposes, but, quite the contrary, they suggest fundamentally different approaches for government action. [50, p.32.]

If it is recognized that we are talking about two different sets of values rather than a technical distinction even casual observation suggests the implications for policy purposes may be far from trivial.

The similarity between the Lindsay and Scitovsky arguments is obvious. Like Scitovsky, Lindsay also assumes that a free health service is the most efficient method of achieving equal access.

Lindsay argues, however, that while the British may have egalitarian preferences, Americans do not. His highly dubious evidence consists of quotations from political advocates of some type of government intervention in the medical care sector. He claims these quotes indicate a desire to augment the amount of care purchased privately. Consequently he argues that Pauly's efficiency criteria remain valid for this country. But, these quotes, reproduced below, hardly show what Lindsay claims they do.

> All communities of the nation must take the action necessary to provide comprehensive personal health service of high quality to all people in each community.[7]

---

7. National Commission on Community Health Services, Health is a Community Affair (Cambridge: Harvard University Press, 1967), p. 17, quoted in [50, p.39.]

> The health of the people is important to the strength and purpose of our country and is a proper part of our common concern.[8]
>
> I recommend a hospital insurance program for the aged aimed at two basic goals: First it should protect against the heaviest costs of a serious illness....Second it should provide a base that related private programs can supplement.[9]
>
> The insurance program...provides basic protection against the costs of hospital and related services...for individuals who are 65 or over...[10]

Of all these quotes only the underlined passage in the third quote can possibly be interpreted as indicating augmentation rather than egalitarian preferences. But if it is recognized that individuals need not think in all or nothing terms, even this statement is not inconsistent with a desire to achieve greater (rather than complete) equality in the distribution of medical care. On the other hand, it may indicate a desire to assure that all individuals consume at least some minimum amount of medical care. It is possible that individuals' notions of equity are satisfied by guaranteeing a minimum level of consumption rather than equal consumption by all of necessities. The implications of this value for the

---

8. Democratic Party, 1964 Party Platform, quoted in [50, p.40.]
9. "Text of Health Message Sent to Congress by President", Washington Post and Times Herald (February 11, 1964), quoted in [50, p.41.]
10. Section 1811, Title XVIII, Public Law 89-97, The Social Security Amendments of 1965, quoted in [50, p.42.] Lindsay also quotes from the Republican 1964 platform which advocated tax credits for the purchase of private health insurance. He argues that since a tax credit is an appropriate program for the augmentation value that the Republican Party's advocacy of this program is further evidence that the augmentation value is held by Americans. He is wrong on two grounds. First as I will show in Chapter V a tax credit program can achieve many values including equal consumption. Second, the Republicans lost.

the efficient financing of medical care are also considered in the chapters IV and V.

In this brief survey of the literature I have touched on a variety of issues and raised many questions. In the next three chapters I will attempt to analyze these issues and questions in a rigorous fashion. I will begin the analysis with a very general framework within which the best states of the world under varying assumptions can be described. The analysis will become increasingly concrete as I make more and more special assumptions. This procedure will enable me to clearly identify what are often implicit and very special assumptions in conventional analysis. The reader may then judge for himself how realistic or ethically agreeable the empirical or normative assumptions are.

Chapter III

The Optimal Social States

In order to analyze the issues raised in the previous two chapters, I develop a very general framework in this chapter for evaluating various social states. The first section is based upon the work of Paul Samuelson and Abram Bergson. The second section extends this framework to incorporate individual values.

Section A: The Social Welfare Function

Almost all Western economists accept the view that social welfare is a function of individuals' welfare or utility. That is in its most general form:

$$(1)\quad W=W[U^{i}(X_{a})] \qquad (i=1\ldots s;\ a=1\ldots z)$$

where X_a is the list of all variables that affect individuals' welfare. A second value judgement is that if one individual's utility increases while the utility of all other individuals remains the same, social welfare increases.[11] These two values based on an individualistic ethic are the starting

---

11. Amartya Sen has shown formally, [28], that this notion of Pareto Optimality may be inconsistent with the liberal ethic if certain kinds of externalities are present. If A derives disutility from B's reading of pornography, and the liberal ethic is so defined as to imply that A's preferences should not count in this case, the liberal ethic and Pareto Optimality considerations will conflict.

point for this analysis. If they are accepted it follows that a necessary condition for the maximization of social welfare is that no individuals' utility can be increased without diminishing the utility of at least one other individual. Social states which satisfy this condition are socially efficient.

The conditions for social efficiency can be expressed mathematically if (1) is maximized subject to a possibility constraint:

(2) $P(U^{i}) =$ $\qquad (i=1...s)$

where (2) defines in implicit form the possible relationships of individuals' levels of well-being. If (1) is maximized subject to (2) the following is obtained:

(3) $W_{Ui}/W_{Uj} = P_{Ui}/P_{Uj} \qquad (j=1;\ i=2...s)$

where $W_{Ui} = \partial W/\partial U$. The right hand side of (3) represents the marginal rate of social transformation (among utilities), while the left hand side represents the marginal rate of social substitution. Let j's utility be a numeraire. Then (3) says simply that the marginal gain in social welfare of increasing i's utility must be equal to the marginal cost, i.e., j's forgone utility as evaluated by society.

In this very general form, equation (3) provides no help in formulating social policy. In order to derive any policy guidelines it is necessary to make some assumptions about: (1) individuals' utility functions, (2) the possibility function, and (3) the relative weights society places on all individuals' welfare. All welfare economics discussions

entail explicit or implicit assumptions about these three functions. Most of my discussion will focus on assumptions made about individual utility functions though I will also discuss the other two functions, especially in the following Chapter. I argue that the assumptions about utility functions which dominate theoretical welfare economics are unnecessarily restrictive. While the alternative I suggest leads to less definitive policy recommendations than traditional analysis, I believe this is desireable because some of the policy implications of traditional analysis may be wrong.

Most economists have assumed that for economic analysis it is useful to assume that individuals derive utility only from the consumption of goods and services measured in the national income accounts. In two of the classical welfare economics works by A. C. Pigou [39] and Bergson [3], the authors recognize that welfare depends on factors other than those with which the economist has been concerned traditionally, but they go on to explicitly assume that for small changes the "non-economic" factors are independent of the "economic ones".

Given these assumptions a partial analysis is feasible. Since by assumption some elements of X which affect general welfare are neither affected by nor affect economic welfare, they can be ignored. Consequently an economic welfare function like the following may be formulated.

$$(4)\quad W=W[U^{i}(X_e)] \qquad (i=1...s;\ e=1...n)$$

where X_e is the list of variables that affect individuals'

economic welfare.

A very special and familiar case of (4) is obtained by stipulating that each individual's utility is independent of all variables in X_e except those characterizing his own consumption of goods and services. Given this assumption equation (4) can be rewritten as follows:

$$(5)\quad W=W[U^i(X_e^i)]$$

where X_e^i is the i^{th} individual's consumption list. It is also common to assume that for economic analysis the utility possibility constraint (2) derives from an underlying possibility function of the following kind:

$$(6)\quad F(X_e)=0 \qquad (X_e=\sum_{i=1}^{s} X_e^i)$$

In this case, given well behaved consumption and production functions, the best possible state of the world can be described as follows:

$$(7)\quad U_g^i/U_r^i=F_g/F_r \qquad (i=1\ldots s;\ r=1;\ g=2\ldots n)$$

$$(8)\quad W_i U_r^i/W_j U_r^j=1 \qquad (j=1;\ i=2\ldots s;\ r=1\ldots n)$$

The first set of equalities in (7) are the familiar necessary conditions for Pareto Optimality. The second set of equalities state that the marginal social utility of the same good or service must be equal for each individual. They contain the interpersonal utility comparisons (W_i vis a vis W_j) that must be made to lead to a unique solution.

Equation (5) is just a special case of (1), (6) implies a special case of (2) and (7) and (8) are a special case of (3). But while (3) is devoid of policy implications, the policy implications of (7) and (8) are quite clear once it is

recognized that perfect competition leads to the conditions specified in that equation.

The assumption that individuals derive utility only from their own consumption of goods and services is a crucial one in the demonstration that perfect competition leads to economic efficiency or Pareto Optimality. Once it is admitted that externalities or public goods exist, (5) must be modified. An externality is present when the utility of one individual is affected by the actions of other individuals. This discussion will be confined to consumption externalities which exist when the consumption of a good by one individual affects the utility of another individual. To the extent that such interaction exists, the good in question is a public good because the first individuals' consumption is shared by the second. Formally, externalities may be treated as giving rise to separate pure public goods. Thus, denoting the list of public goods by X_ρ, (5) must be reformulated as follows:

$$(9)\quad W=W[U^i(X_e^i, X_\rho)] \qquad (e=1\ldots n;\ p=n\ m)$$

If the production possibility function is broadened so as to include public goods as follows:

$$(10)\quad F(X_{e+p})=0 \qquad (X_e=\sum_{i=1}^{s} X_e^i;\ X_\rho=X_\rho^i)$$

the best state of the world can be described as follows:

$$(11)\quad U_g^i/U_r^i=F_g/F_r \qquad (i=1\ldots s;\ r=1;\ g=2\ldots n)$$

$$(12)\quad \sum_{i=1}^{s} U_{m+g}^i/U_r^i=F_{m+g}/F_r \qquad (i=1\ldots s;\ r=1;\ g=2\ldots n)$$

$$(13)\quad W_i U_h^i/W_j U_h^j=1 \qquad (i=1\ldots s;\ h=1\ldots n\ m)$$

While (11) and (13) are identical to (7) and (8), (12) adds a new element. Perfect competition cannot lead to a situation

which satisfies (12). Since no individual can be excluded from consuming whatever amount of the public good is available to all, all individuals will have an incentive to demand less of the good than they really desire. Consequently, the output of a public good will be sub-optimal if left to the private market. This is the rationale for government provision of public goods.[12]

While the equations in (11), (12) and (13) are more general than those of (7) and (8), they are still a special case of (3). Moreover, while a good part of the public finance literature is devoted to the analysis of externalities and public goods, most of this work unfortunately contains the implicit assumption that externalities and public goods arise only out of the objective nature of the goods themselves. In his latest book, Richard Musgrave states this explicitly:

> Whereas recognition of consumer sovereignty is an ideological matter, externality is a technical issue. [See 37, p.19.]

It is this contention that Pauly, Lindsay and I deny. This assumption makes (11), (12) and (13) a more special case of (3) than need be. In the following section I attempt to build upon and broaden the externality and public goods concept by suggesting that public goods may arise out of indi-

---

12. James Buchanan and Milton Kafoglis [7], have demonstrated that in the case where the consumption of a good by A is more than a perfect substitute for B's consumption of that good, public provision may actually lead to less output than market arrangements.

viduals' values as well as the nature of goods themselves. Alternatively my argument may be viewed as: (1) a rejection of the assumption that economic variables do not affect non-economic ones which affect welfare, or (2) an attempt to selectively incorporate some of the non-economic variables into welfare economics analysis.

Section B: Values and Utility Functions

In this section I argue that values may be treated like preferences for one's own consumption in that they give rise to wants which may be satisfied by (public) goods.

While some values may be dismissed for the purposes of most economic analysis, other values should not be so dismissed. In medical economics, the human capital or maximizing output of GNP criterion for evaluating health programs is based on the assumption that individual values may be ignored. But this approach has some disturbing implications as J. Wiseman indicates in the following passage.

> The young (with the longest expectancy of working life), the basically fit, and those with the highest expected earnings, would provide the highest rate of return and would therefore be given access to medical resources on the most favorable terms. The old, in contrast, constitute a liability...Indeed, if growth is the sole aim of our policymaker, there might be a strong case for providing only one medical service for those who can no longer work: euthanasia...[See 3, p.130.]

The fact that few if any of us would accept these implications is an indication that we value things other than output of goods and services. The following observation by Vincent

Taylor is especially relevant:

> Human capital calculations would indicate that medical care to persons over 65 is relatively unimportant. Politicians knew full well that such care was extremely important not only to the recipients but to the (voting age) children of the recipients. Nor is it mere chance that the only new major program proposed by the Administration in 1968 was the child and maternal health program, even though women and children do not count heavily in human capital calculations. [See 54, p.7.]

The fact that we do support programs which promise smaller measureable output returns than alternative programs indicates that: (1) individuals derive utility from and are willing to pay for programs that satisfy their wants arising from values and (2) because these programs entail opportunity costs[13] and satisfy wants they can be treated as economic goods. Finally it is appropriate to treat goods which satisfy these wants, like other goods, as arguments in individual's utility functions. Thus (9) should be amended as follows:

$$(14)\quad W=W[U^{i}(X_{e}^{i},X_{p},X_{v})] \qquad (e=1\ldots n;\ p=n+m;\ v=n+m+d)$$

where X_v is the list of goods which satisfy wants arising out of values. The utility individuals derive from any good, x_t, related to a particular value, t, will vary among individuals, $[t=(n+m)+1\ldots d]$. Since values conflict some individuals will derive disutility from the consumption of x_t while other individuals derive utility from its consumption. If $U^{i}_{x_t}>0 (U^{i}_{x_t}<0)$ the individual derives utility (disutility) and is willing to pay something for the good (to avoid consuming it). If

---

13. In some cases, the opportunity cost might be an alternative value forgone.

$U^{i}_{x_t}=0$, the individual is indifferent.

Unless I specifically note otherwise I assume throughout the thesis that utility functions are continuous and twice differentiable. This is obviously an inappropriate assumption with regard to some values and some individuals. Patrick Henry's famous statement "Give me liberty, or give me death," suggests an extreme discontinuity in his utility function. But such strong assumptions about utility functions are unnecessary to derive any of the conclusions in my analysis, unnecessarily complicate the analysis, and seem less appropriate for the values I wish to consider.

Values give rise to pure public wants. These cannot be satisfied efficiently through the market because everyone shares equally in the consumption of the goods which satisfy them. An example will help clarify the preceding discussion. Individuals may value a more equal distribution of income than that produced by the market. In this case greater income equality is a good. But since there will be only one degree of income equality in society everyone oonsumes this good. Exclusion is impossible. It is a pure public good. Any individual who unilaterally transferred his income to others would find that his efforts made little difference in the overall distribution. Since whatever he does will make little difference he will have an incentive to do little or nothing. Because this is true of all individuals redistribution produced by the market--charity--will be sub-optimal.

Since goods which satisfy wants arising from values are

pure public goods, the necessary conditions for efficiency are formally identical to those derived by Samuelson. Thus the following set of equations should be added to (11), (12) and (13):

$$(15)\quad \sum_{i=1}^{s} U_t^i / U_r^i = F_t / F_r \qquad (r=1;\ t=(n+m)+1 \ldots d)$$

where r is a numeraire private good. The right hand side of (15) is the marginal rate of transformation in production between t and r, or the marginal cost to society of producing t. The left hand side is the summed marginal rates of substitution between t and r for all individuals in society, or society's marginal evaluation of consuming t. The equation simply states that a necessary condition for efficiency is that benefits and costs be equal at the margin.

Conflicting values can be incorporated into the analysis. If individuals derive disutility from t, the sum on the left side of the equality is reduced, or alternatively the disutility they suffer can be shown on the right side as an additional opportunity cost of producing t. In principle those who derive disutility should be compensated. But to do this in practice would create nearly insuperable problems. Consequently in the ensuing analysis I will assume that no individual derives disutility from the subset of the goods X_v which I consider.

The conditions for describing the best state of the world expressed by adding (15) to (11) through (13) are more general than those of (11) through (13) alone; in fact, the latter can be thought of as the special case of the former given the Musgrave assumption that externality is a purely

technical issue. In the next chapter I consider a few other special cases of (11), (12), (13) and (15) which relate to the financing of medical care. These cases depend upon assumptions about the actual values relating to medical care of individuals.

Chapter IV

Values and Redistribution

In this chapter I first consider the welfare case against redistribution in kind. In the first section I develop a framework within which I subsequently analyze specific values which lead individuals to desire the subsidization of medical care. Within the first section, however, I abstract from the values that give rise to the utility function discussed. I argue that given taxpayer preferences for in kind redistribution, such redistribution is efficient. In the second section I present evidence that suggests such preferences may be prevalent. In the last section I discuss particular values relating to medical care, show how they fit into the framework developed in the first part of the chapter and discuss the necessary conditions for treating values as policy goals.

Section A: The Alleged Inefficiency of In-Kind Redistribution

In this section I consider the alleged inefficiency of in kind redistribution. I consider what kind of redistribution is efficient: (1) if taxpayers derive utility from and are willing to pay something for increases in beneficiaries consumption of particular goods, or increases in their income, or some combination of both or (2) if taxpayers are

willing to pay for neither increases in beneficiaries' consumption of particular goods nor increases in their income.

I assume throughout the analysis that subsidized goods cannot be traded for other goods. If free and costless trade is possible there would no difference between cash and kind redistributions. But the assumption of no trade possible is very realistic, especially in the case of medical care. Moreover, I assume that the type of redistribution will affect the beneficiary's consumption bundle, i.e., that the excess burden of in kind redistribution described in Chapter II exists.

In general, the taxpayer, T, has the following kind of utility function:

$$(16)\quad U^T = U^T(Y_T, Y_B, X_B)$$

where Y_T is T's net income after redistribution, Y_B is dollars of cash redistribution from T to B (the beneficiary), and X_B is dollars of a particular kind of in kind redistribution. Actually T derives utility from B's income and consumption of X, but these are related by some variable to my definitions of Y_B and X_B, and the latter lend themselves to easy manipulation while the former do not. Given these definitions of Y_T, Y_B, and X_B, the first can be written in terms of the other two, i.e., $Y_T = K-(Y_B+X_B)$. With this substitution, T's marginal rate of substitution between cash and kind redistribution can be derived:

$$(17)\quad dX_B/dY_B = -U^T_{Y_B} - U^T_{Y_T} / U^T_{X_B} - U^T_{Y_T}$$

where $U^T_{Y_B}$ is the marginal utility T derives from an increase in B's income, $U^T_{X_B}$ is the marginal utility T derives from an

increase in B's consumption of X, and $U^T_{Y_T}$ is the marginal utility T derives from an increase in his own income.

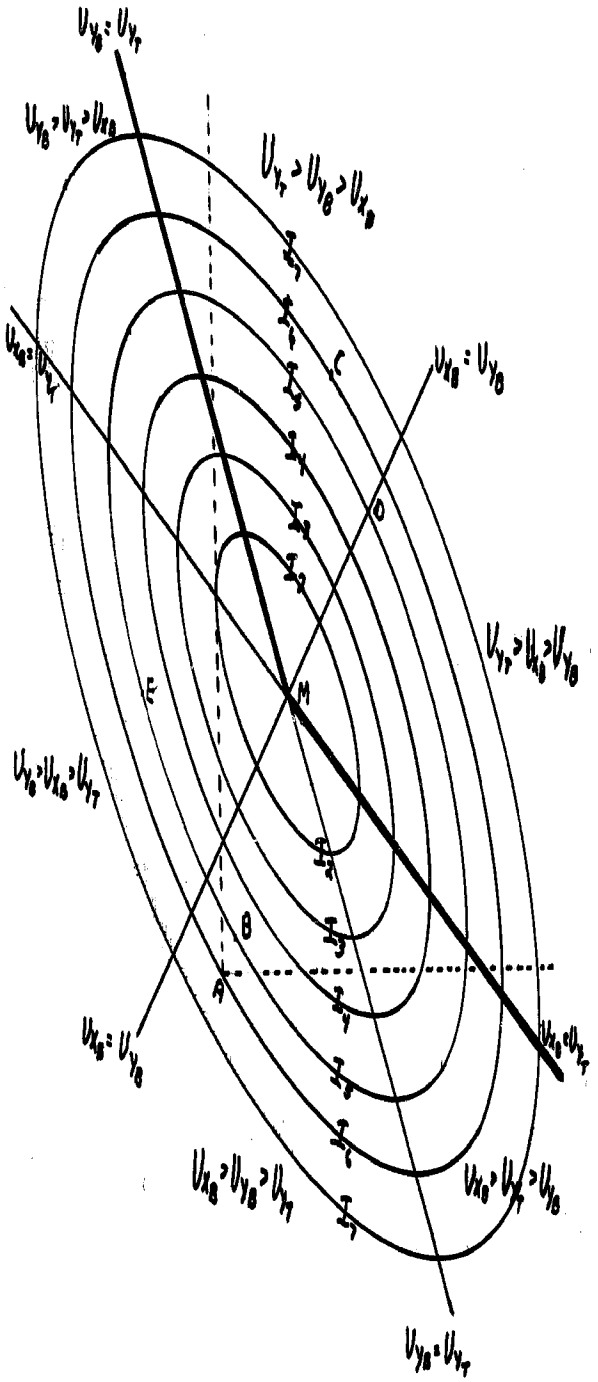
The preferences of every kind of conceivable taxpayer can be described in terms of the relationships of these three marginal utilities. Figure IV on the following page depicts an indifference map of a general taxpayer in cash and kind space. The origin which represents the pre-transfer distribution of income is not specified because it would vary with the current distribution of income and with taxpayers' generosity and preferences for cash vs. kind redistribution. The importance of the origin will become clear below.

Cash redistribution is measured from left to right and in kind redistribution from the bottom to the top of the page. The decrease in T's income as a result of redistribution is measured by the sum of the horizontal and vertical distances from the, as yet, unspecified origin.

The indifference map is divided into six areas by the three lines $U^T_{X_B} = U^T_{Y_B}$, $U^T_{X_B} = U^T_{Y_T}$ and $U^T_{Y_B} = U^T_{Y_T}$. The line $U^T_{X_B} = U^T_{Y_B}$ is the locus of points through T's indifference curves where the slope (dX_B/dY_B) is equal to -1, i.e., the locus of points where the taxpayer is indifferent between cash and kind redistribution. Similarly $U^T_{X_B} = U^T_{Y_T}$ and $U^T_{Y_B} = U^T_{Y_T}$ are the loci of points through T's indifference curves where the slopes are respectively infinite and zero.

The relationship between the three marginal utilities is specified in Figure IV for each of the six areas. Their meaning and the importance of the origin will be clarified

Figure IV: Cash versus Kind Redistribution: A Taxpayer's Indifference Map



by: (1) denoting the point of independent utility maximization and (2) arbitrarily selecting an origin and discussing the indifference map in terms of this origin.

If (16) is maximized subject to T's budget constraint, providing there are no corner solutions, the necessary condition for T's welfare maximization is that $U^I_{X_B} = U^I_{Y_B} = U^I_{Y_T}$. If this condition is not satisfied the taxpayer can reallocate his budget by reducing or increasing Y_T, Y_B, or X_B in such a way as to increase his utility.

The unique point, M, in Figure IV where the three partial derivatives are equal is in the center of the elipses. In general, while T's indifference curves will not be concentric elipses, his bliss point will be an interior point such as M.

Suppose point A on indifference curve I_6 is the pre-transfer distribution of income. The dotted lines extending from A in the northern and eastern direction would be the in kind and cash redistribution axes. The taxpayer will prefer some redistribution to none. At B, for example the taxpayer is better off than at A. Since D is on the same indifference curve as B, the taxpayer also prefers D to A. But he is indifferent between C and A.

The taxpayer is like Goldilocks in sampling the three bears' porridge. At A there is not enough redistribution; at C there is too much. They are equally unappealing combinations of cash and in kind redistribution. B and D are better but redistribution is still too little or too much. M is just right!

The importance of the origin can now be seen clearly. If the origin were at M, instead of at A, any redistribution would make the taxpayer worse off. This implies that in general, a taxpayer's willingness or desire to transfer income depends on the distribution of incomes. Taxpayers who would not willingly transfer any of their income in either cash or kind no matter how skewed in their favor was the income distribution, would have an indifference map only in the area to the northeast of the thick segments of the lines $U^T_{y_\beta}=U^T_{y_\tau}$ and $U^T_{x_\beta}=U^T_{y_\tau}$. But very few individuals are so infinitely ungenerous. Moreover, such a strong assumption about taxpayers' utility functions is unnecessary to derive the result that some taxpayers will oppose any kind of redistribution.

The origin is also important in terms of preferences for cash verses kind redistribution. With the origin at A, much more in kind than cash redistribution is necessary for T to achieve independent utility maximization. This is because A is the range where $U^T_{x_\beta}>U^T_{y_\beta}>U^T_{y_\tau}$, i.e., where at the margin T prefers an increase in kind to cash redistribution and an increase in the latter to an increase in his own income. If instead, the origin were at a point such as E along a horizontal line through M, a pure cash redistribution would be necessary for T to achieve independent utility maximization.

The curvature of the indifference curves implies that T's preference for kind versus cash varies with the amounts of cash and kind redistribution and that his preferences are

subject to a diminishing marginal rate of substitution. Neither may be the case. Some taxpayers might prefer cash to kind no matter what the relative shares of cash and kind redistribution. In this case the entirety of taxpayers indifference map will lie above or to the left of line $U^T_{X_\beta}$-$U^T_{Y_\beta}$. The opposite would be the case for the taxpayer who always preferred in kind to cash redistribution. The taxpayer who never derived more utility from cash(kind) redistributions than from increases in his own income, would be just a special case of the latter(former), where the map is restricted even further to the area where $U^T_{Y_T} > U^T_{Y_\beta}$ ($U^T_{Y_T} > U^T_{X_\beta}$). Finally, for the taxpayer who is indifferent between cash and kind redistribution no matter what the circumstances, the elipses become straight lines with slopes of -1. (Moreover, his welfare is maximized at any point along one of the straight lines.)

Before considering these special cases in further detail however, it will be useful first to examine the preferences of potential beneficiaries. For in order to analyze the efficiency, or lack thereof, of in kind redistributions preferences of beneficiaries as well as taxpayers must be considered. The beneficiary's utility function may be formulated as follows:

$$(18)\quad U^\beta = U^\beta(Y^\beta_\beta,\ X^\beta_\beta)$$

where Y_β is his income inclusive of cash transfers[14] and X_β

14. This assumes that the increase in B's utility from an additional dollar of income is the same irrespective of whether the source is a transfer or earned income. This may not be the case, but the conclusions in this discussion would not be modified.

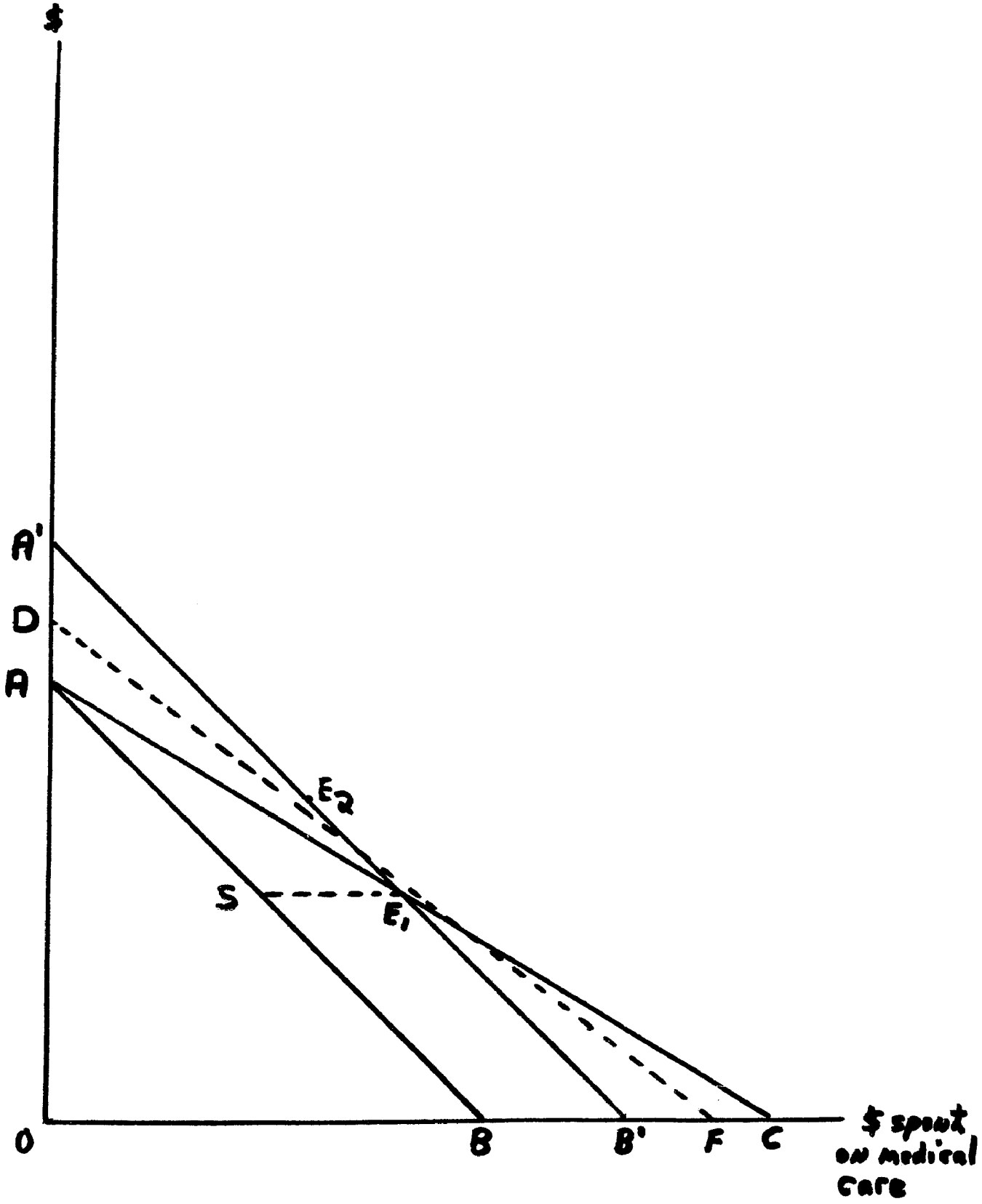
is the dollar cost to T a particular kind of in kind redistribution. (Again, though B actually derives utility from consumption of X, this is related in a unique way to T's expenditure on redistribution through X, but the former is subject to manipulation.) B's marginal rate of substitution is:

$$(19)\quad dX_\beta/dY_\beta = -U^\beta_{Y_\beta}/U^\beta_{X_\beta}$$

B's marginal rate of substitution must always be equal to or greater than one because $U^\beta_{Y_\beta}$ must always be equal to or greater than $U^\beta_{X_\beta}$. (All references are to absolute values.) Since I assume that in kind redistribution, vis a vis a potential cash equivalent redistribution, entails a welfare loss for beneficiaries the slope of B's indifference curve (dX_β/dY_β) must be greater than one. Moreover, B's indifference curves will reflect the property of diminishing marginal rate of substitution.

The slope of B's indifference curves is a function of the welfare loss which he suffers from not getting the cash equivalent of an in kind redistribution. The magnitude of the welfare loss declines along his indifference curves in cash and kind space as the proportion of cash to in kind redistribution increases. This is demonstrated in Figure V on the following page. Figure V is similar to Figure I in Chapter II except that dollars spent on medical care rather than units of medical care purchased is measured along the horizontal axis. For this reason the original budget constraint or price line AB has a slope of -1. When medical care is subsidized the price line pivots to AC. The new

Figure V: B's Welfare Loss as a Function of the Amount of In Kind Redistribution



equilibrium would be at a point such as E, where B's indifference curve--not shown--is tangent to AC. The cost to the taxpayer is SE dollars. If the consumer were given SE dollars in cash A'B' would be the new price line. The new equilibrium under these circumstances would be at a point such as E_2. Points along A'B' between E_1 and E_2 represent combinations of cash and in kind redistributions which cost the taxpayer SE_1 dollars. Through each of these points we can draw price lines such as DF which involve less and less price subsidization than AC and lead to tangencies with indifference curves along A'B'. The closer is the slope of the price lines like DF to the pure cash price line A'B', the larger will be the cash component. Similarly, the closer is the slope, the higher will be the indifference curve which is tangent to that price line. The welfare loss from in kind redistribution decreases as B attains increasingly higher indifference curves. Along indifference curves in cash and kind space, therefore, as the in kind component decreases, the welfare loss decreases. Consequently his preference for cash versus kind redistribution will diminish. This means his indifference curves will exhibit a diminishing marginal rate of substitution.

The taxpayer's and beneficiary's indifference curves can now be analyzed together in a modified Edgeworth box diagram to ascertain when in kind redistributions are efficient. The southwest corner of the box represents the pre-transfer distribution of income. Dollar amounts of cash redistribution

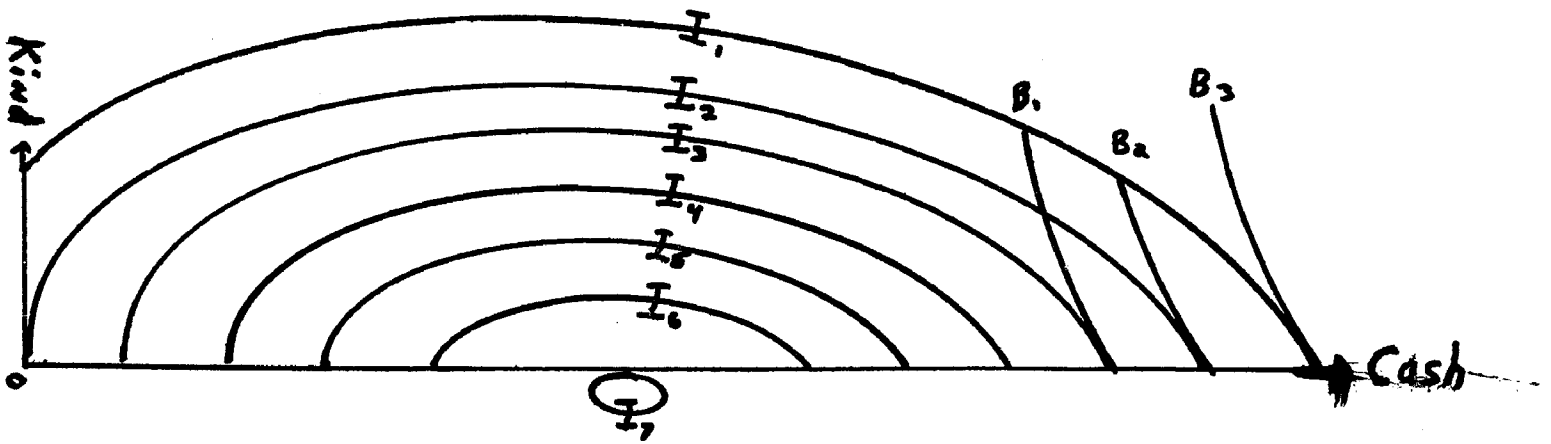
are measured by the distance from the southwest origin to points along the horizontal axis and dollar amounts of in kind redistribution are measured by the distance from the southwest origin to points along the vertical axis. The northern boundary of the box is determined by the community's social welfare function. Consequently, the Edgeworth box becomes a triangle, with one curved side.

To simplify the analysis I consider only the relevant range of various taxpayers indifference maps. These ranges correspond to one or more of the six areas in Figure IV. They are derived by superimposing the Edgeworth triangle on some part of the taxpayer's indifference map. All references to taxpayer preferences should therefore be understood to apply to this relevant range only.

If $U^T_{x_B}$ exceeds $U^T_{y_B}$, the taxpayer prefers in kind redistribution. If $U^T_{x_B}$ also exceeds $U^T_{y_T}$ the taxpayer is willing to pay for an in kind redistribution. If $U^T_{x_B}$ exceeds $U^T_{y_B}$, but is smaller than $U^T_{y_T}$, although the taxpayer prefers kind to cash redistributions, he prefers no redistribution to either. In either of these cases at least some and perhaps a great deal of in kind redistribution is efficient. If, on the other hand, $U^T_{y_B}$ is equal to or exceeds $U^T_{x_B}$, in kind redistribution is inefficient irrespective of the relationship of $U^T_{y_B}$ to $U^T_{y_T}$.

Consider first the taxpayer who prefers cash to kind redistribution. Whether or not he wishes to transfer some of his income, only a pure cash redistribution will be efficient. This is illustrated in Figure VI on the following page.

Figure VI: Inefficiency of In Kind Redistribution: A Special Case



T's bliss point lies outside the Edgeworth triangle. Consequently T is best off where I_7 is tangent to the cash axis. However, suppose the community's welfare judgement is that T's welfare should be reduced to I_1 in order to increase that of B. Given T's preference for cash over kind the slope of I_1 is less than one (absolute value) even at the cash axis. But the slope of B's indifference curves are everywhere greater than one. Consequently B's welfare is maximized holding that of T constant along I_1 through a pure cash redistribution where B_3 crosses I_1 at the cash axis.

The argument would not be altered if the origin were at, or to the right of, the point where I_7 was tangent to the cash axis. Moreover, the same argument would clearly apply if T were indifferent between a cash and kind redistribution. However, if, in the community's judgement, T should be made worse off than I_1 in order to further improve B's welfare, the range where T prefers kind to cash redistribution could become relevant. In this case, the conclusion that an all cash redistribution is efficient, might have to be modified.

In short, if the taxpayer is either indifferent or prefers cash to kind redistribution in the relevant range the latter is always inefficient. In these special cases the traditional generalization from the partial equilibrium analysis of the excess burden of an in kind redistribution to inefficiency of in kind transfers in general equilibrium is valid. Moreover, it is clear that contrary to what Pauly and Lindsay seem to implicitly assume, the fact that taxpayer's

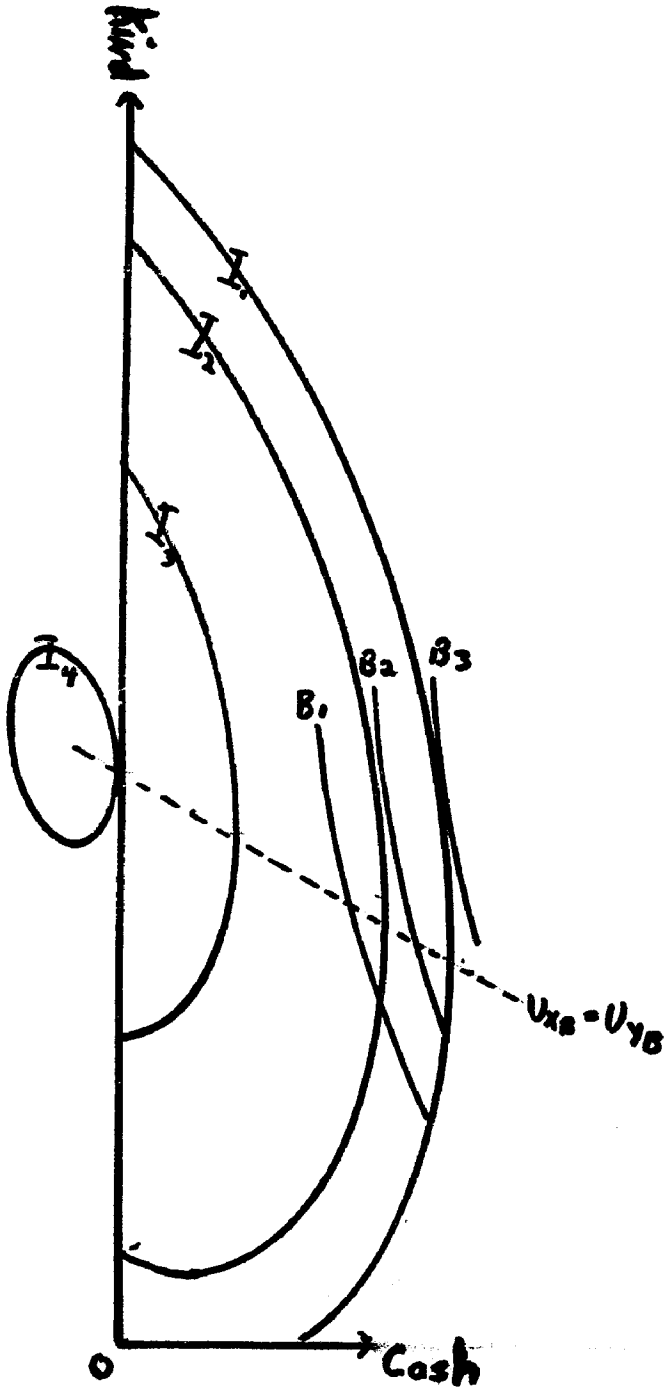
derive utility from beneficiaries' consumption of medical care is not sufficient for the subsidization of medical care to be efficient.

Suppose on the other hand that the taxpayer prefers in kind to cash redistribution throughout the relevant range. In this case a pure in kind, or some combination of cash and kind will be efficient. As depicted in Figure VII on the following page a combination of both is efficient. But this need not be the case. It depends upon the original distribution of income, the community's welfare judgement and T's and B's preferences.

At the very least, some in kind redistribution will be efficient because the welfare loss B suffers approaches zero as the amount of in kind redistribution approaches zero. This implies in turn that the slopes of B's indifference curves approach one near the cash axis. But the slopes of T's indifference curves are by assumption everywhere greater than one. Consequently a tangency a very small distance from the cash axis is assured. On the other hand a tangency near the in kind axis is also quite possible, because for low levels of total redistribution the welfare loss from even a pure in kind redistribution will probably be small.

Again, the argument would not be altered if the origin were at, or above, the point where I_{μ} is tangent to the kind axis. At least a little and perhaps a lot of in kind redistribution will be efficient irrespective of whether the taxpayer is willing to pay for it or not. Thus, Pauly's assertion

Figure VII: Efficiency of In Kind Redistribution: A Special Case

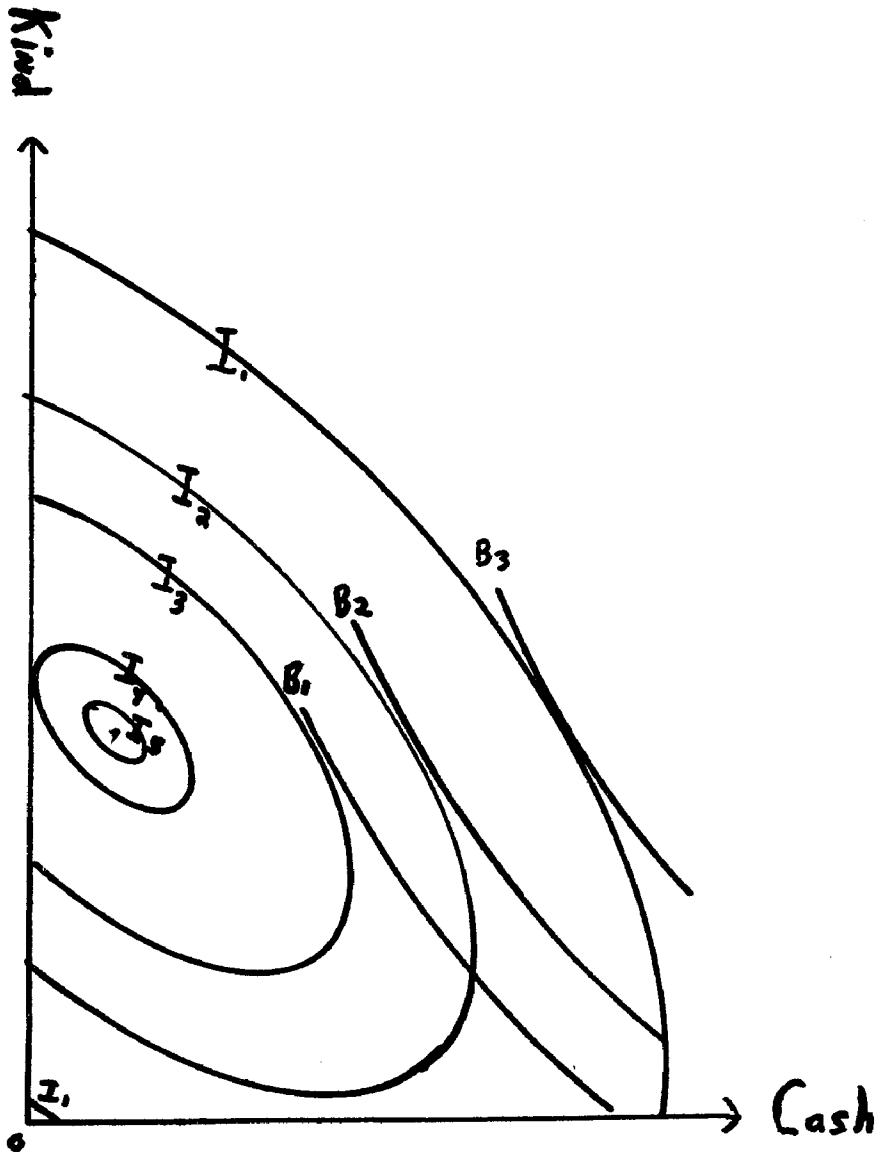


that the efficient aggregate amount of subsidization of medical care is determined by simply aggregating the willingness to pay of all individuals, is false. More or less may be efficient depending on society's welfare judgement. As illustrated in Figure VII, less would be efficient. T is best off when he subsidizes medical care only, i.e., where I_4 is tangent to the kind axis. But given the community's welfare judgement society is better off if he spends less on subsidizing medical care and more on increasing B's income than he would choose to do freely. Moreover, Buchanan's assumption that taxpayers derive utility from and are willing to pay for only beneficiaries consumption of particular items is not a necessary condition for demonstrating the efficiency of in kind redistribution. (It is, however, sufficient.) Nor is it necessary that taxpayers prefer in kind to cash redistribution throughout the Edgeworth triangle.

It is only necessary (though not sufficient) as depicted in Figure VIII on the following page that within some range along their indifference curves, taxpayers prefer in kind to cash redistributions. In this case, which appears to be what Scitovsky has in mind, either a pure cash, or a pure kind or some combination of both will be efficient. As depicted in Figure VIII, a combination of both is efficient. But this need not be the case. If the slope of B's indifference curves were steeper everywhere (less steep) than I_1, a corner solution along the cash (in kind) axis would have resulted.

Figures VI, VII and VIII are translated into utility

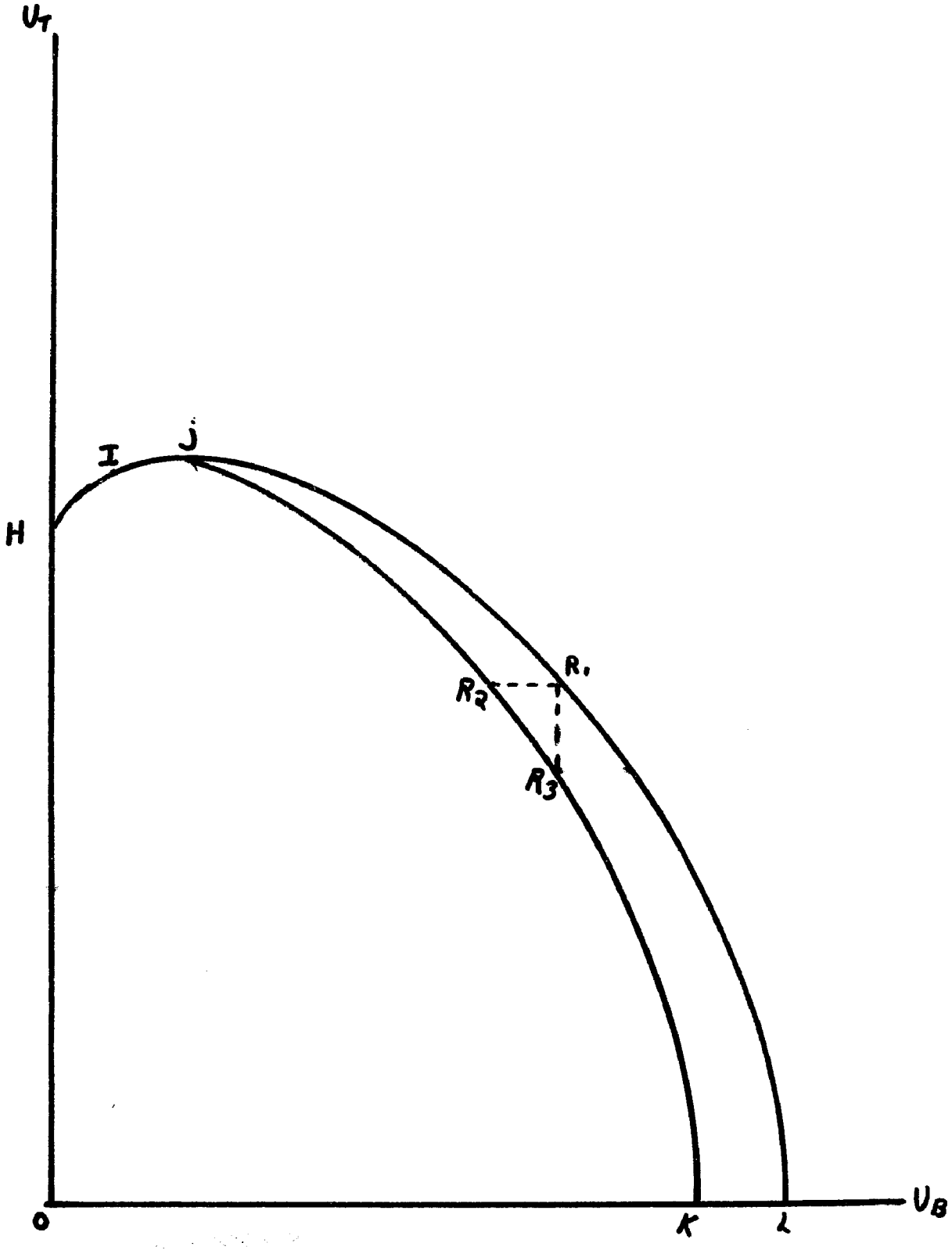
Figure VIII: Efficiency of In Kind Redistribution: A Less Special Case



space in Figure IX on the following page. Initially I will assume that the only relevant element in the utility possibility constraint is the production transformation function, defined so as to include the taxation and coercion costs of transfers. I is the initial, or pre-transfer distribution of income. From H to J the utility frontier has an unconventional positive slope indicating that T's as well as B's welfare increases as T pays for redistributing income to B. Any distribution along HJ is inconsistent with a Bergsonian welfare function, because the slope of the latter must always be negative. JK is the relevant utility frontier if the taxpayer prefers kind to cash redistribution, while JL is the relevant utility frontier if the taxpayer is either indifferent to or prefers cash to in kind redistributions. JK must lie within JL. Consider a cash redistribution of X dollars. Let R_1 represent the new distribution if T does not care or prefers cash. Now suppose T prefers kind. Hold T's welfare constant. This implies either that his taxes are lower, or that the redistribution is in kind, or some combination thereof. In any case B must be worse off. The new distribution is given by a point such as R_2. But we could also hold B's welfare constant. The new distribution would be at R_3. The point is that if T does prefer kind to cash, there is less welfare to share. Whether T or B suffers as a result depends on society's social welfare function. This is a point which apparently has eluded some economists.[15]

A priori it is impossible to say whether movements along JK are achieved by pure cash or pure in kind, or some unique

Figure IX: Taxpayer Preferences and the Utility Frontier



combination of both. But as I have argued it seems safe to assume that the latter is the case. Along JL, of course, redistributions consist of pure cash.

Assume for the moment that all taxpayers prefer in kind to cash redistribution and that some combination of both is efficient. In order to describe the best state of the world, an ethical judgement or a social welfare function with specified interpersonal utility comparisons must be supplied. For to say that a combination of cash and kind redistributions is a necessary condition for achieving the "best state of the world" is not to characterize that state uniquely.

If one individual's welfare can be increased without diminishing the welfare of any other individual, the allocation of resources is inefficient. This is the case along HJ. But all points along JK are no less efficient than J. While it is true that moving from J to K involves taxation and coercion costs, this does not make R_2 or R_3 inefficient. For at R_2 or R_3 no less than at J it is impossible to make T or B better off without making the other worse off. The Pareto criterion of efficiency does not say that no one should be made worse off in order to make someone else better off.

The only difference between R_2, R_3 or any point along JK and J is in the distribution of welfare between T and B. Some individuals will prefer J. Others will prefer some other

---

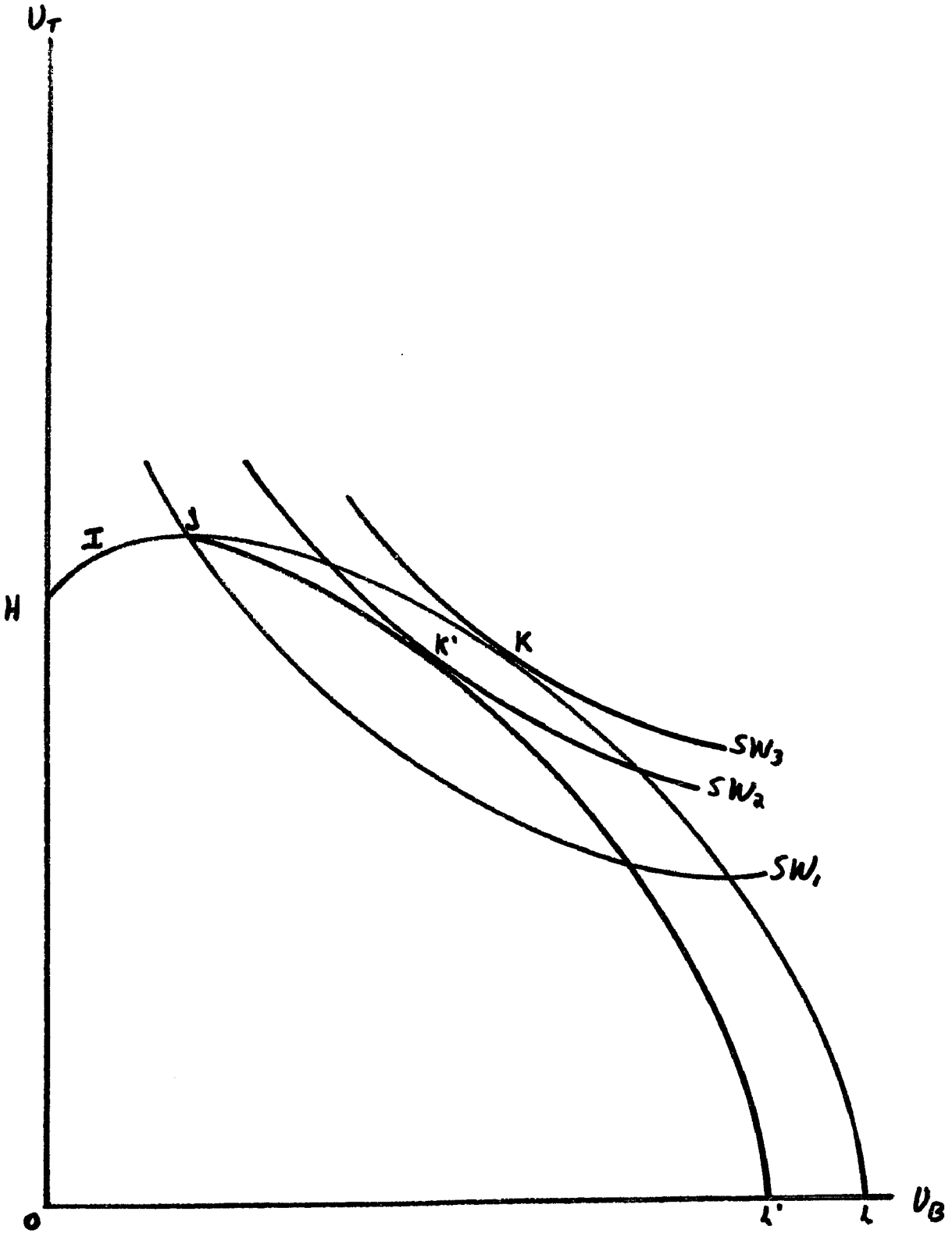
15. See Weisbrod [49] and Taylor [54] who argue that the choice of whether or not to recognize taxpayer preferences is a welfare choice between beneficiaries and taxpayers.

distribution in which B is better off. The two points which should be stressed are: (1) a choice is required to describe the best state of the world and (2) that both choices involve an interpersonal utility comparison.

Up to this point I have assumed that the production transformation function fully characterized the utility possibility constraint in (2). This assumption overlooks the possibility that political feasibility may be an important element in the possibility constraint. Within the utility possibility frontier there may lie what Samuelson has called a political feasibility frontier. [See 26.] The former is based on technological constraints alone while the latter encompasses political feasibility constraints as well. The important point for the analysis here, is that given certain kinds of welfare or value judgements some inefficient allocations of resources in terms of the former frontier will be preferred to efficient ones. Such a case is illustrated in Figure X on the following page.

HIJKL is the utility possibility frontier. HIJK'L' is the political feasibility frontier. I is the initial distribution. Up to J, T is willing to pay for subsidizing B's medical care, but beyond J additional subsidization is inefficient, either because T does not prefer that his unwillingly paid tax dollars be used for additional subsidization of medical care, or although he does prefer this his preference is so weak relative to B's welfare loss that any more subsidization of medical care would still be inefficient. K' represents the division of welfare when T is taxed enough to achieve equal

Figure X: The Political Feasibility Constraint



access to medical care. As illustrated above, given a social welfare function wherein more eqality is preferred to less, K' will be preferred on welfare grounds to J even though the latter is efficient on technical grounds alone while the former is not. Of course, K is preferable to K'. In general although all efficient points are not preferable to all inefficient ones, there is always at least one efficient point preferable to any inefficient one. But by assumption this efficient solution is not politically feasible. In other words even if subsidization of medical care in excess of taxpayer's willingness to pay is inefficient in the narrow sense, it still may qualify for a best state of the world given the political system and certain kinds of welfare or value judgements such as more equality is preferable to less.

While it is impossible to marshall evidence to support the superiority of one ethical judgement vis-a-vis another, and difficult to specify in great detail what is politically feasible, it is possible to get some idea of what taxpayer preferences are like. Although the evidence is far from conclusive, at the very least, it suggests that the hypothesis that taxpayers prefer in kind to cash redistributions is a reasonable one worthy of further investigation.

Section B: Evidence of Taxpayer Preference for In Kind Redistribution

There are two sources of data which can confirm or reject this hypothesis. They are: (1) public opinion survey data and (2) outcomes of the political process.

For the programs discussed in this section it seems fairly safe to assume that many if not most individuals in families with incomes over $7500 would be taxpayers. Certainly, individuals in families with incomes over $10,000 would be. On the other hand for some programs many individuals from families with incomes below $7500 would also be taxpayers. For the purposes of discussion I arbitrarily adopt the former as the dividing line between taxpayers and beneficiaries.

Public opinion survey data suggest that taxpayers are concerned with the distribution of specific commodities and the distribution of income per se. Moreover, these data reveals very strong support among potential beneficiaries for in kind redistributions.

Support for action by the federal government to help people get doctors and hospital care at low cost in 1964 was widespread. This support also varied inversely with income class as the table on the following page indicates. A year after the passage of Medicare, the Harris Survey found that 51 percent of the population favored a federal plan like Medicare to cover the entire population. [See 16.] Ten percent were not sure and 39 percent were opposed. Although data from the Harris Survey were not available by income class there is little reason to believe that the pattern differed substantially from that of Table II. A large percentage of both potential taxpayers and beneficiaries support subsidization of medical care.

Table II: Percentage of Population Favoring Subsidization of Medical Care in 1964 by Income Class

Income	For	For with Qualifications	Against
$ Less than 1000	82.7	5.8	11.5
1000-1999	78.2	4.6	17.2
2000-2999	76.8	3.0	20.2
3000-3999	68.7	7.0	24.3
4000-4999	61.9	7.6	30.5
5000-5999	60.4	6.7	32.9
6000-7499	62.8	5.6	31.7
7500-9999	45.9	9.8	44.4
10,000-14,999	45.9	10.1	43.0
15,000-or more	38.7	10.8	50.5
Entire population	59.2	7.4	33.4

Source: University of Michigan Survey Research Center, 1964 Election Study, Question No. 74.

Table III on the following page indicates that this is also true of support for subsidizing education and low cost housing. Support for current levels of expenditure is overwhelming in every income class. Moreover a majority, or near majority in the low cost housing case, in every income class supports additional expenditure.

But close to a majority of both the general population, and only potential taxpayers, also favors a cash redistribution program. Table IV on the following page indicates the response of individuals to a question of their opinion about replacing welfare by a system in which the government raises the incomes of the poor so that every family in the country would have an

income at least equal to some minimum poverty standard.

Table III: Percentage of Individuals Favoring More, Less or the Same Amount of Spending on Education and Low Cost Housing in 1969 by Income Class

	Education				Low Cost Housing			
Income	More	Same	Less	NA	More	Same	Less	NA
$ Less than 3000	52	33.2	9.6	5.3	49.9	29.3	14.8	6.1
3000-4999	62.6	30.5	4.8	2.1	58.8	24.6	13.4	3.2
5000-7499	60.7	29.8	9.2	.4	52.3	32.4	14.5	.8
7500-9999	66.0	21.0	11.5	1.5	49.2	32.1	17.6	1.1
10,000 or more	64.8	25.9	8.0	1.2	53.3	29.8	15.0	1.9
Entire Population	61.9	27.2	9.1	1.9	52.5	29.5	15.3	2.6

Source: University of Michigan Survey Research Center, 1969 Fall Omnibus Study, Question No. 27.

Table IV: Percentage of Individuals Who Favor Replacing Welfare with a System That Would Supplement Below-Poverty Incomes in 1969 by Income Class

Income	Good Idea	Good Idea with Qualifications	Bad Idea	Undecided[a]
$ Less than 3000	44.1	10.0	23.6	22.3
3000-4999	32.6	15.5	31.6	20.3
5000-7499	34.4	12.2	42.2	11.2
7500-9999	26.0	15.6	51.5	6.9
10,000 or more	26.7	16.0	48.0	9.3
Entire Population	31.6	14.0	41.2	13.2

[a] Includes not ascertained

Source: University of Michigan Survey Research Center, 1969 Fall Omnibus Study, Question No. 31.

Buchanan, therefore, seems to be in error when he suggests that taxpayers are disturbed by the behavior of the poor, but not by poverty per se. Rather, the evidence suggests that Scitovsky's hypothesis is correct. It appears that many taxpayers are concerned with and willing to pay for changes in the distribution of income. But in addition, they are concerned with and are willing to pay for changes in the distribution of particular goods.

Unfortunately, to my knowledge, there is no public opinion survey on two very important questions. First, would potential taxpayers or beneficiaries prefer a program which transferred the cash equivalent of in kind redistributional programs that they support? Second, would taxpayers who oppose any kind of redistribution suffer less disutility from in kind rather than cash redistributions?

There are two reasons to infer that many if not most, taxpayers who favor in kind redistributions would not prefer programs which transferred the cash equivalent. First, the kinds of values that would lead individuls to prefer in kind to cash redistributions are widespread in our country. There would appear to be two major explanations of a preference for in kind to cash redistributins. The first is that taxpayers do not trust the poor. For taxpayers with paternalistic preferences, in kind redistribution has the virtue of exerting some control over beneficiary expenditure decisions. This is the most common explanation. But the second may be even more important. The second is that taxpayers may believe in equality of opportunity, but not equality of results. They may quite

consistently favor programs which achieve an egalitarian distribution of goods that are closely connected to economic opportunity in our society, while they do not favor programs which redistribute income. Education and medical care to a somewhat lesser extent are the most important examples of such goods.

Outcomes of the political system also make it difficult to believe that most taxpayers who express support for in kind redistributive programs would prefer programs which transferred the cash equivalent.

Unless one believes that outcomes of the political process are completely irrational and totally divorced from individual preferences, it is impossible to explain the existence of in kind redistribution without postulating that some taxpayers prefer such redistribution. From the partial equilibrium analysis we must conclude that, if given the choice, beneficiaries would prefer the cash equivalent of any in kind redistribution. If taxpayers were indifferent or also preferred cash redistributions to such programs as public housing, food stamps or aid to education for low income school districts, how did these latter programs ever become legislation? Who supported these programs? Similarly, if an effective voting majority preferred a monetary redistribution of equivalent magnitude to these in kind programs how were the latter ever passed? Their very existence suggests: (1) that taxpayers favor in kind redistribution, and (2) that a program redistributing the cash equivalent is politically infeasible.

On the other hand if taxpayers were not concerned with the welfare of potential beneficiaries per se, as Buchanan suggests, it is impossible to explain the existence of monetary transfer programs such as old age survivors insurance and public assistance.[16] For at any given time beneficiaries of both programs are a minority of the population, which suggests rather strongly that there must also be taxpayer support for these programs.

It seems reasonable to conclude, therefore, that many taxpayers are willing to pay for both cash and in kind redistributive programs, but within the relevant range prefer the latter to the former.

Similarly it seems reasonable to assume that taxpayers who support neither in kind nor cash transfer programs would derive less disutility from the former. For most of these taxpayers probably differ from their more generous brethren primarily in their willingness to pay. That is, they are probably just as paternalistic--maybe more so--and no less imbued with a preference for equality of opportunity to equality of results.

The beneficiaries, on the other hand, might favor the cash equivalents. According to theory, purely economic considerations would lead them to do so. However, the potential beneficiaries may realize that given taxpayer preferences it

---

16. Pechman, Aarow and Taussig [40], argue that the OASI program can be most usefully viewed as a tax transfer program. This is the view taken here.

is politically infeasible for them to get the cash equivalent of some in kind transfers. Or, the beneficiaries may also be imbued with the belief that programs designed to achieve equality of opportunity are good while those designed to achieve equality of results are bad. If the latter is true, it suggests the rather unpalatable and ironical possibility that even beneficiaries are better off with in kind redistributions related to equality of opportunity than with the cash equivalents.

In any case, there appears to be sufficient evidence to suggest that the hypothesis of a taxpayer preference for in kind to cash redistribution is a tenable one. Consequently, the traditional argument for the inefficiency of in kind redistributions must be rejected as a very special and probably unrealistic case.

Section C: Values and Subsidization

In the first section of this chapter I assumed that taxpayers derived utility from in kind redistributions. In this section I will consider several different values which individuals might hold that would give rise to such a utility function. Although the values need not be directly related to redistributional considerations I will argue that all of them can be handled formally within the framework developed in the first section. In the last part of this section I will consider the minimum necessary conditions for treating any of these values as public policy goals.

Individuals may derive utility from the subsidization of other individuals' medical care for any one or some combination of the four following reasons: (1) they feel bad when other individuals are ill and their impulse to help takes the form of a desire to increase others medical care, or (2) they believe that regardless of income all individuals of a given health status are entitled to or should consume some minimum amount of care, or (3) they believe that regardless of income all individuals in similar health and with similar tastes are entitled to, or should consume, the same amount of medical care, or (4) they believe that medical care should be provided free. This list may not be exhaustive, but I believe that it includes the most important values.

The minimum provision and equal access values are explicitly related to income redistribution considerations, while the augmentation value is implicitly related. In all three cases, the utility a taxpayer derives from another individual's consumption of medical care is related inversely to the level of that person's consumption. This may also be the case for individuals who hold the free provision value. But this need not be so.

Some individuals appear to believe that medical care is a need rather than a want; that the amount of at least some kinds of medical care which everyone consumes should be determined by the medical authorities, irrespective of an individual's demand for that good. In this view positive prices confronting the patient are disfunctional.[17] They can

deter people who are at the margin of whether or not to seek care from seeking the care they need. To the extent that prices perform this allocative function they subvert the goal of meeting need. To the extent that they do not perform this function, they are a nuisance.

As I noted in Chapter I it is often difficult to know to what extent advocates of free provision view it as a means to achieving equal access or as an end in itself. Since I argue in the next chapter that free provision is not necessary in general to achieve equal access, I will treat them separately here. But I will assume that up to the point where equal access is achieved, the utility that a free provision advocate derives from the subsidization of another individual's medical care is also related inversely to the level of that person's consumption.

I also assume that: the augmentation, minimum provision, equal access and free provision values respectively would require an increasing degree of subsidization to achieve them; and while individuals' values differ, no one derives disutility from a subsidy program which achieves a costlier value than they support. Given these assumptions, differences in values can be interpreted as a first approximation as differences in the demand for the subsidization of medical care. Other things being equal, individuals who wish to achieve

---

17. So long as there is some substitutability among inputs, prices or shadow prices serve the useful function of helping the doctor to choose the most efficient production mix.

free provision are willing to pay more for subsidizing medical care than those who desire equal access. The latter are willing to pay more than those who wish to guarantee a minimum consumption level; who, in turn, are willing to pay more than those who wish to augment the care of others because they feel bad when other people are sick.

More precisely in terms of the taxpayer's utility function developed in the first section of this chapter:

$$(16)\quad U^T = U^T(Y_T, Y_\beta, X_\beta)$$

the amount of taxes T will pay for subsidizing medical care before $U^T_{X_\beta} = U^T_{X_T}$ depends upon his values. The amount of taxes will be greater, for example, if he values equal access instead of minimum provision.

However, this interpretation is only a first approximation for two reasons. First, individuals who believe in equal access derive utility from a decrease in some measure of dispersion of medical care consumption. While subsidizing the consumption of those who consume little would reduce this measure of dispersion, I show in the next chapter that if it is efficient to achieve equal access, the efficient method of doing so would require not only increasing the consumption of some individuals, but also decreasing the consumption of other individuals.

Second, and far more important is the fact that this formulation overlooks the fact that the relationship of $U^T_{X_\beta}$ to $U^T_{Y_\beta}$ is as important as that of $U^T_{X_\beta}$ to $U^T_{X_T}$. For so long as $U^T_{X_\beta}$ exceeds $U^T_{Y_\beta}$, even if $U^T_{X_T} > U^T_{X_\beta}$, increased subsidization of medical care may be efficient. (As I showed in the first

section of this chapter, it is possible for less subsidization to be efficient.) Consider the following utility function which describes an individual with values similar to that of Pauly:

$$(20)\quad U^T = U^T(Y_T, Y_B, X_B) \quad U^T_{X_B} > U^T_{Y_B} \text{ for all } k X_B < g;$$
$$U^T_X > U^T_{Y_T} \text{ for all } k X_B < f;$$
$$\partial^2 U^T / \partial X_B < 0$$

where k is the variable which relates X_B to B's consumption of medical care, g is some amount of medical care for B at which T's preference for subsidizing medical care vis a vis giving B the cash equivalent ceases, and f is the amount of B's care where T's willingness to pay for subsidization ceases, i.e., where $U^T_{X_B} = U^T_{Y_T}$; and where f is less than or equal to g.

Only by accident will f equal g. The more likely possibilities are that f is less than or greater than g. If f is greater than g subsidization of medical care is inefficient for this implies a preference for cash redistribution in the relevant range.

On the other hand, if f is less than g, this implies some subsidization in excess of T's willingness to pay may be efficient. This extra subsidization may or may not be desireable. An ethical or welfare judgement is required.

The utility function of an individual who values minimum provision would be identical to that of (20) except that by definition there is a sharp discontinuity in his utility function which occurs when B's consumption is raised to the minimum level. After that $U^T_{X_B} = 0$. By coincidence this might be where $U^T_{X_B} = U^T_{Y_T}$ in which case f=g, but again there is no reason to

believe this would be the case.

The same argument would also apply to the equal access and free provision values. This is just another way of stressing the point made earlier that willingness to pay is not in itself a sufficient criterion for determining the optimal, or best state of the world, level of subsidization.

The values of minimum provision, equal access, and free provision can easily be translated into policy goals; in the next chapter in fact, they are treated as such and the analysis focuses on efficient methods of achieving the goal. However, they should be treated as policy goals only if completely satisfying the want which arises from the values is efficient. In this part of section C, I establish the weakest assumptions which are sufficient for treating a value as a policy goal.

Consider the equal access value. Assume for the moment that all taxpayers hold this value. Even so, given the usual assumptions about diminishing marginal utility, achieving equal access will be inefficient. When the distribution of medical care is extremely unequal $U^T_{X_\beta}$ may exceed $U^T_{Y_\beta}$ substantially. But as the degree of inequality approaches zero, $U^T_{X_\beta}$ will also approach zero. Consequently at some point short of achieving equal access $U^T_{X_\beta}$ will equal $U^T_{Y_\beta}$. Further subsidization of medical care would be inefficient.

Note that this argument applies to the free provision value as well.[18] Furthermore, note that it applies irrespective

---

18. If individuals believed that the price of goods that are needs should be reduced to less than zero, the same argument would not hold. But this seems quite unlikely.

of whether the taxpayer is willing or unwilling to pay for the transfer. It is possible that willingness to pay may fall far short of the requisite amount needed to satisfy a want that arises from a value held by all. This is so because all individuals have limited budgets which must be devoted to purchasing other goods and services from which they derive utility as well as to achieving values like equal access. But the major point is that the argument does not hinge on the possible inadequacy of willingness to pay.

Leaving political feasibility considerations aside for the moment, a necessary condition for treating a value as a policy goal is that there be a sharp discontinuity in the taxpayer's utility function such that $U^{\tau}_{X_B}$ exceeds $U^{\tau}_{Y_B}$ until equal access is achieved, whence it precipitiously falls to zero. Second unless willingness to pay is sufficient, an appropriate welfare judgement is also required. But the strongest argument for treating values as policy goals arises out of political feasibility considerations.

At best the political process produces satisfactory, not optimal solutions. Of course, satisficing may be treated as a special case of optimizing in the face of ignorance or if the costs of seeking the information required to "optimize" were taken into account. In the face of the huge costs of finding out exactly how much subsidization would be efficient, treating values like equal access as a policy goal, if one happens to hold that value, makes some sense.

Chapter V

Efficiency in Achieving Policy Goals

In this chapter I consider the most efficient methods of achieving minimum provision and equal access. If the objective of social policy is free provision, no analysis on the demand side is required. However, I argue that free provision would be an inefficient method of achieving minimum provision and is not in general the most efficient method of achieving equal access. But it is possible under certain circumstances that free provision would be the most efficient method of achieving equal access. Since this is a complex issue most of the first section is devoted to it. In the second section I evaluate alternative reform proposals based on the theoretical analysis of the first section. In the last section I discuss the implications for the alternatives of a desire to avoid the means test.

Section A: Subsidization and Free Provision

To simplify the analysis in this chapter I: (1) abstract from uncertainty in the demand for medical care, (2) assume that medical care is a single good rather than a composite of several goods, (3) assume that demand and supply curves are linear, that unless I specify otherwise, the latter is per-

fectly elastic and that both are known to policy makers and (4) assume that the values discussed can be treated as policy goals.

To further simplify the graphical analysis I assume: (1) that the demand for medical care is a function of only income and price, (2) that income effects including those of taxation can be ignored because they are so small and (3) that there are only three income groups represented by three individuals in society.

Consider the demand curves of a rich, middle income, and poor man, RD, MD and PD, and the aggregate demand curve RABC in Figure XI on the following page. If the initial price is OX, the consumption of the three individuals would be decidedly unequal. The rich man would purchase Q_R, the middle income man Q_M and the poor man only Q_P units of medical care. Aggregate output would be Q_0. In the absence of any desire by consumers to subsidize medical care, this would be the efficient output. For at Q_e the costs of producing and benefits from consuming medical care are equal at the margin.

1. Minimum Provision

If, on the other hand, society wished to assure that all individuals consumed no less than Q_n units of medical care, subsidizing only the poor man's consumption so that he pays only OY per unit of medical care would achieve the goal. The cost would by XYST dollars. Aggregate output would increase

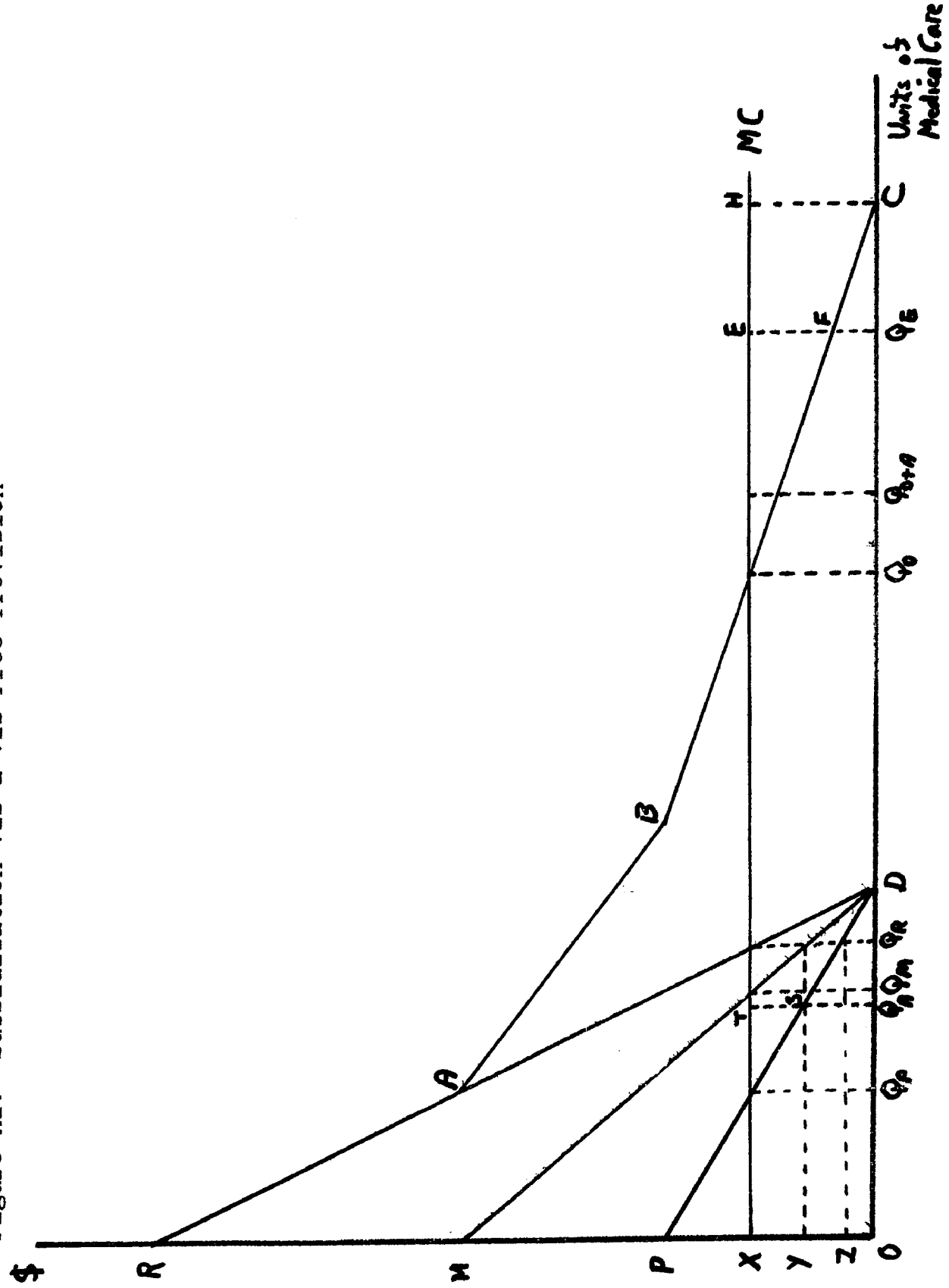


Figure XI: Subsidization vis-a-vis Free Provision

from Q_0 to Q_{OTA}. Given the assumption that an expenditure of XYST dollars on subsidizing the consumption of the poor man is efficient, Q_{OTB} is the efficient level of output, since again at the margin the costs of producing and the benefits, both public and private, of consuming medical care would be equal at the margin.[19]

2. Equal Access

Similarly, suppose society wanted to achieve equal access to medical care. Given differences in taste which are not a function of income and differences in health status, equal access will not lead to equal consumption but will eliminate the differences which arise from differences in income. Hence Figure XI is applicable. Equal access can be achieved by subsidizing the consumption of both the poor and middle income men so that the price is reduced to OZ per unit for the former and OY per unit for the latter. In this case they will both purchase Q_R units of care, aggregate output will be Q_E, and equal access will be achieved. While I will show that this is not necessarily the most efficient method of achieving equal access, it is more efficient than free provision.

If the price of medical care were reduced to zero and no restrictions on supply were introduced, aggregate con-

---

19. Note that in principle, the minimum level may be as high as Q_M, Q_R or even D. Only in the last case, however, would free provision be efficient.

sumption and output would be C units. If income effects are of second order importance, the value to R, M and P of their own additional consumption can be measured by the area under their demand curves, which, summed, equals $Q_E CF$ dollars. Since the additional consumption does not lead to more equality in consumption--what can be more than perfectly equal--no one will place any value on this additional consumption of care by others. But the cost of the additional units of medical care is equal to $Q_E CHE$ dollars. A partial measure of the inefficiency of achieving equal access through a free health service therefore is CHEF dollars. To this measure must be added the welfare cost of the extra taxation needed to finance a free health service system.

The free health service system therefore, would be an inefficient method of achieving equal access because it would entail: (1) devoting an unnecessarily large amount of resources to medical care and (2) raising an unnecessarily large amount of revenue to finance the program. Equal access would be more efficiently achieved through a subsidy scheme wherein the subsidy varies inversely with income and ceases altogether after some income level. The same argument, of course, applies to minimum provision.

a. Subsidies, Taxes and Equal Access

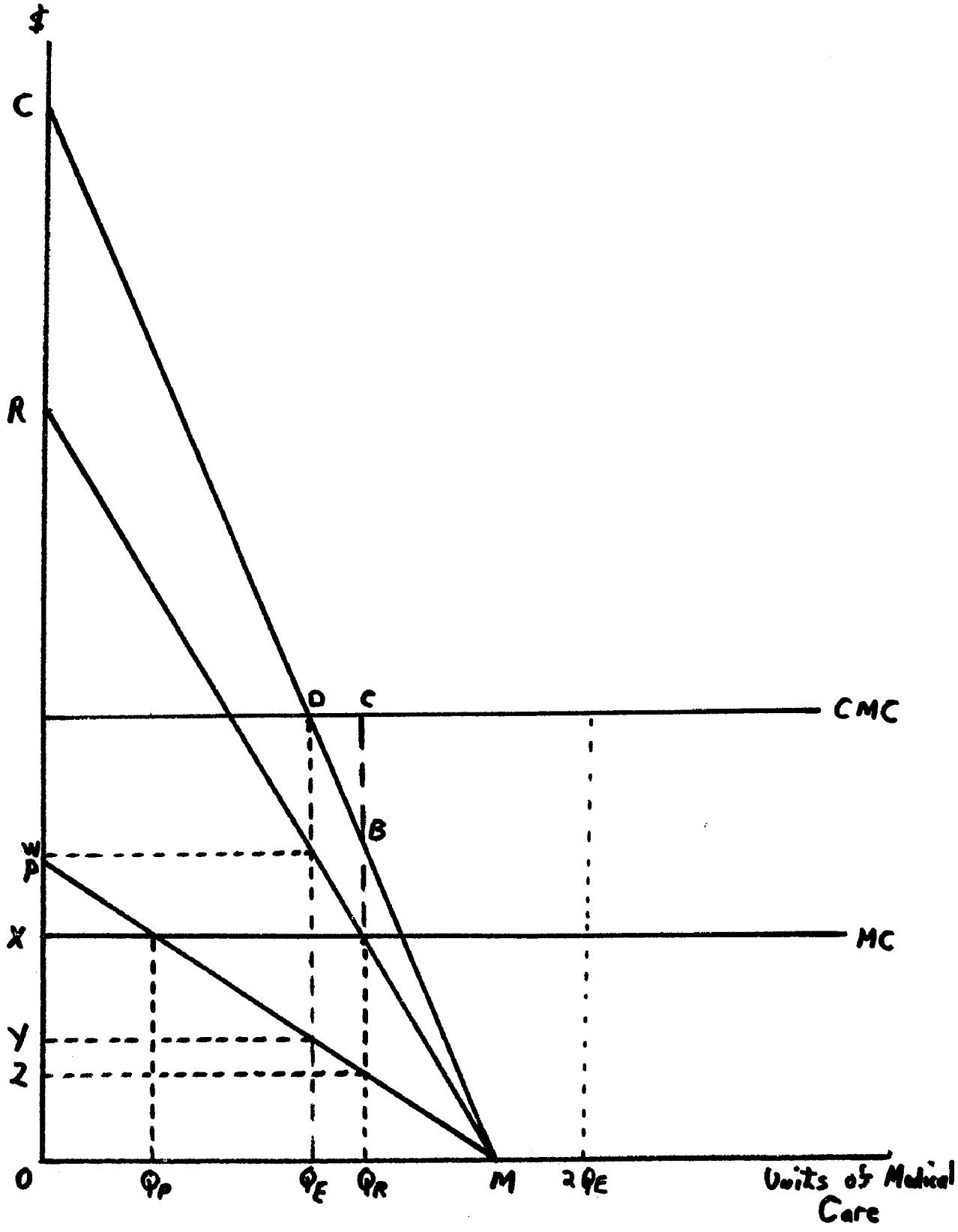
If there were no political feasibility constraints the most efficient method of achieving equal access would be to subsidize the consumption of some individuals and tax the

consumption of others. A pure subsidy scheme would be inefficient. Since society has decided that everyone must consume the same amount of medical care, every individual's private consumption becomes a public good. Hence the efficient output level is where their summed marginal rates of substitution equals the marginal rate of transformation, or if there is a numeraire good, where their summed marginal benefits equals marginal cost. This is depicted graphically in Figure XII on the following page.

RM and PM are the rich and poor men's demand curves. In the pre-subsidy state, the market price is OX, the poor man's consumption is Q_p, the rich man's is Q_R. CM reflects the sum of the rich and poor men's valuation of their own medical care consumption. Given the decision to achieve equal access, the community marginal cost curve is CMC rather than MC. For although medical care consumption can be treated as a public good, it still has the private good attribute that one man's consumption reduces the amount left for others. The cost to society of producing Q_E units of care is not $OX \cdot Q_E$, but $2OX \cdot Q_E$, or, in general s times marginal cost, where s equals the number of individuals in society. The efficient level of output is therefore given by where CMC intersects CM, or at Q_E. At Q_E costs and benefits are equal at the margin.

A subsidy which reduced the price of medical care from OX to OY for the poor man and an excise tax which increased the price from OX to OW for the rich man would induce both of them to purchase Q_E units of care. A subsidy which reduced

Figure XII: Equal Access, Subsidization and Excise Taxation



the price of care to OZ for the poor man would induce him to purchase Q_R units of care. In the absence of an excise tax on the rich man's consumption this would also result in equal access. But this would be an inefficient level of output. The cost of the extra output would be equal to $Q_E Q_R CD$ while the benefits of the extra output to the rich and poor men would be equal to the areas under their demand curves, or only $Q_E Q_R BD$. Hence, a partial measure of the inefficiency of the pure subsidy scheme is DCB. To this measure must be added the "welfare cost" of the additional unnecessary taxation.

However, it seems fairly safe to assume that it is not politically feasible to impose an excise tax on wealthier individuals' medical care consumption. Consequently, the pure subsidy scheme may be the most efficient method available when the possibility constraint is properly defined. In the subsequent discussion, therefore, I compare the efficiency of a pure subsidy scheme to that of free provision.

b. Supply Elasticity and the Inefficiency of Free Provision

Even if the supply of medical care is inelastic, free provision is still an inefficient method of achieving equal access. Moreover, unless supply is perfectly inelastic, the more inelastic is supply, the more inefficient is free provision in achieving equal access. This can be shown with the aid of Figure XIII on the following page. If S_1 were the supply curve, the initial price would be OX. If the poor man's consumption is subsidized so that he pays only OZ per unit of medical care, he will purchase Q_{E_1} units of medical

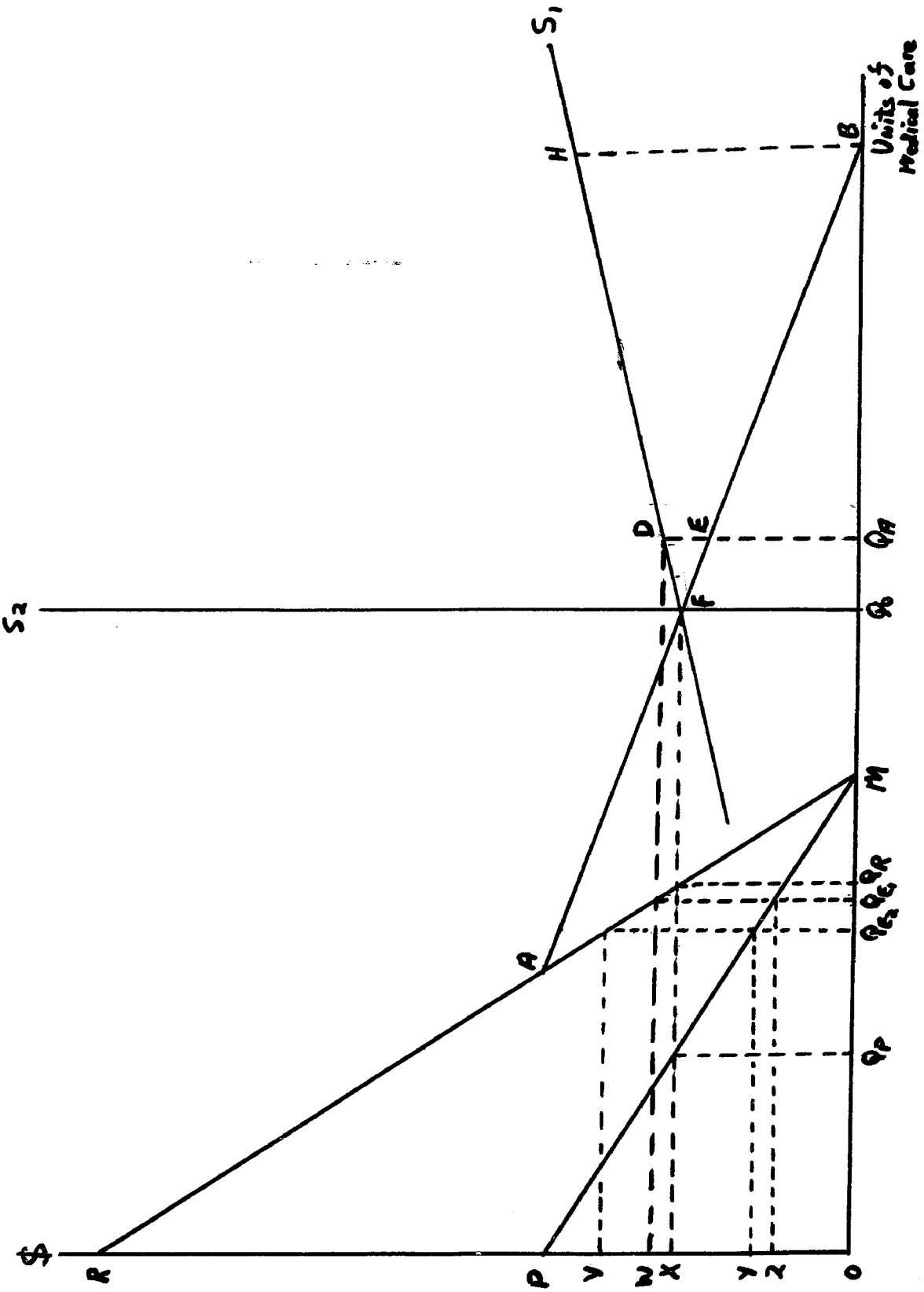


Figure XIII: Equal Access and Supply Elasticity

care. The market price will rise and the rich man will reduce his consumption until the new market price is OW and he also purchases Q_{E_1} units of medical care. Aggregate output will be Q_A. With free provision aggregate output would be B. The inefficiency of the extra output would be equal to the area BHDE. It is easy to see that the more inelastic is S_1, the larger will this area be.

Even if supply were completely inelastic so that free provision involved no unnecessary output or consumption a subsidy scheme would be more efficient. S_2 in Figure XIII is a completely inelastic supply curve. The initial price is OX. If the poor man's consumption is subsidized so that he pays only OY per unit of medical care and the rich man is taxed so that he pays OV per unit of medical care, both will purchase Q_{E_2} units, or one-half the available supply of Q_0 units of medical care. A free health service would also achieve equal access if the alternative rationing device was neutral with respect to income class. Although the free health service system would not involve any unnecessary output or consumption in this case it would still entail unnecessary additional taxes. Moreover, it is probable that the method used to ration the limited supply will be less efficient than pricing. Consequently, even when supply is completely inelastic free provision will be an inefficient method of achieving equal access.

If excise taxes on medical care are politically infeasible and supply is completely inelastic, free provision may

be the only method of achieving equal access. While the supply of medical care is probably inelastic it is impossible to believe that it is completely inelastic even in the short run. Doctors can work longer hours. The number of hospital beds can be increased. Hence this appears to be an unrealistic case.[20]

c. Demand Elasticity and the Inefficiency of Free Provision

The price elasticity of the demand for medical care of the upper income classes also affects the relative inefficiency of a free health service in achieving equal access. The more inelastic this demand the less inefficient is a free health service. But even if their demand is completely inelastic, a free health service would still be less efficient than a subsidy scheme. This is illustrated in Figure XIV on the following page.

Suppose R,D is the rich man's demand curve. He purchases Q_R units of medical care. A subsidy that reduces the price to OY for the poor man will induce him to purchase a similar quantity. Aggregate output would be Q_E. Under a free health care system output would be C. The inefficiency of devoting these extra resources to medical care production would be equal to the area CEFG. It is clear from the dia-

---

20. In his discussion of equal access Lindsay appears to implicitly assume complete inelasticity. For example he speaks of "an available fund of care." [See 50, p.35.] Moreover, the major part of his thesis is devoted to arguing that due to a peculiar form of organization, the supply of medical care is completely inelastic or very nearly so even in the long run.

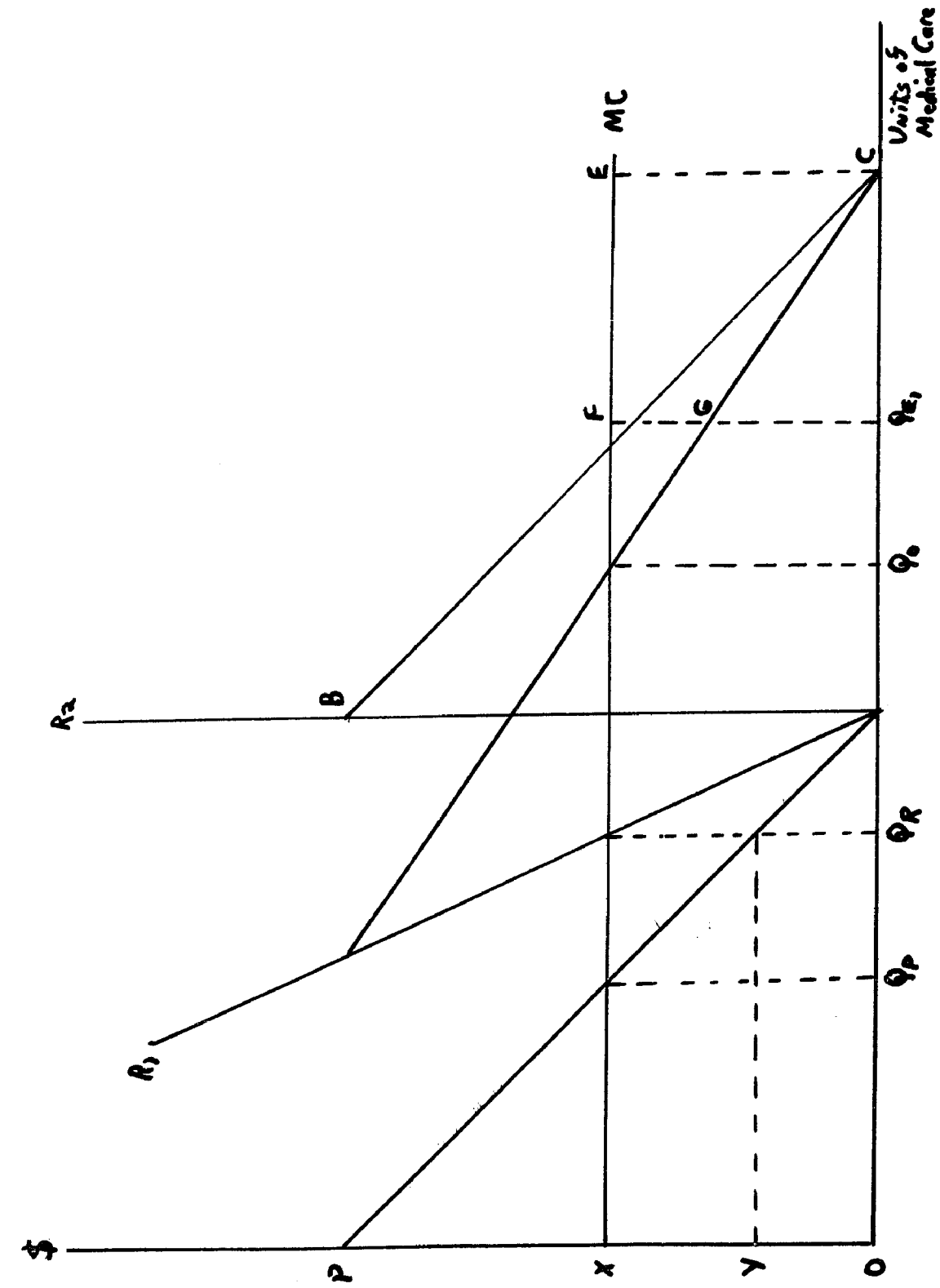


Figure XIV: Equal Access and Demand Elasticity

gram that the more inelastic is the rich man's demand, the smaller is the area CEFG. When his demand is completely inelastic this area disappears entirely. For in order to achieve equal access the price of medical care must be reduced to zero for the poor man. But even in this extreme case free provision would be somewhat inefficient because it would entail the welfare cost of unnecessary taxation since the rich man need not be subsidized.

Although there is no empirical evidence on the elasticity of demand by income class, it seems safe to make two generalizations: (1) the price elasticity of the demand for various medical care components of the rich will vary among components and (2) the price elasticity of demand by the rich for some components that are fairly elastic in the aggregate may be relatively inelastic. While the demand for hair transplants is probably highly price elastic even among our most affluent citizens, the demand for dental care may be somewhat inelastic within this group although it is fairly elastic in the aggregate. I conclude therefore that free provision would be a somewhat inefficient way of achieving equal access to medical care for some components and a highly inefficient method for some other components of medical care.

d. Restricted Supply and the Inefficiency of Free Provision

Up to this point I have assumed that if medical care were provided free, supply would be allowed to expand to meet demand. However, if the industry were nationalized, the

government could restrict supply below the level needed to equilibrate the demand for medical care at a zero price. If the alternative rationing device was neutral with respect to income class, equal access could be achieved.

If supply were restricted to the same level that would result from a pure subsidy system that achieved equal access, the latter would be a more efficient system since taxes would be lower. But supply could also be restricted to the optimal level that would result from a combination subsidy-excise tax system. In this case the free provision alternative might even be more efficient than the pure subsidy scheme. The welfare cost of the extra taxation of the former would have to be weighed against the excess output cost of the latter.

If the health care industry were nationalized and medical care provided free of charge, it is unlikely that the government would increase supply sufficiently to equilibriate demand. On the other hand, the government will have no way of knowing the optimal output level. Nor will it be possible ex poste to judge whether or not the government has restricted supply to the optimal level. For we do not have the requisite knowledge of demand and supply curves.

e. Ignorance and the Inefficiency of Free Provision

For illustrative pruposes, I have assumed that medical care is a single rather than a composite good and that policy-makers have complete knowledge of individuals' demands for

medical care. In reality individuals do not have a demand for some good called medical care but rather individuals have a demand for various surgical procedures, innoculations, eyeglasses, dental care, pre-natal care and so on. The price and income elasticities of demand for these components of medical care undoubtedly vary among components. In order to achieve equal access, the percentage of expenditures subsidized would have to vary among components as well as individuals. This pre-supposes a great deal of knowledge which we do not have. But while we do not know the exact magnitude of the required subsidies, we can certainly make some intelligent guesses. The costs of guessing wrong must be balanced against those of adopting the free provision alternative.

Section B: Evaluation of Alternatives

1. Tax Credits for Health Services vis a vis Health Insurance

Suppose that in order to achieve the community's objective in subsidizing medical care, the price of medical care for some income class would have to be reduced by x percent of the market price. If supply is not perfectly elastic, the percentage reduction should be thought of in terms of the post subsidy market price. This could be achieved through a tax credit that entitled individuals of this income class to subtract x percent of their expenditures on health care from their federal income tax liability. If the value of the credit exceeded an individuals' tax liability, the government would give him the difference through a tax refund. By

manipulating the percentage of expenditures that can be credited, the government can achieve any desired objective, including free provision.

Given the existence of uncertainty in the demand for medical care, individuals will have a demand for health insurance as well as health services. The fact that many individuals already have private health insurance does not create insuperable problems for a tax credit for health services. The tax credit legislation could stipulate that health expenditures credited against the income tax could not also be reimbursed through health insurance payments. The effect of such legislation would be to convert a large share of private health insurance to a supplementary basis. For example an individual who was entitled to credit eighty percent of his health expenditures against his income tax might still desire to purchase insurance which covered the remaining 20 percent of his expenditures. This is already the case with private health insurance for the aged which covers expenditures not covered by Medicare.

A tax credit for health services could be administered in a variety of ways. The simplest, most efficient, and most decent method would appear to be for the federal government to accept initial responsibility for all medical care bills. They could then bill taxpayers for their co-insurance payments. The co-insurance charge could be based on the individual's income tax return of the previous year. Adjustments for changes in income could be made when the individual files

his next tax return. If the individual had to pay his bill before he could receive credit, many poor individuals would either forgo getting the care which the community desires them to receive, or be forced to go into debt or apply for welfare. Alternatively special provisions would be established for the poor. It is hard to conceive of a set of such special provisions that would not single out and stigmatize the poor.

For any tax credit program for the purchase of health services, there is a tax credit program for the purchase of health insurance which would lead to the same pattern of medical care consumption. But the tax credit for health insurance program would be much less efficient.

Suppose a tax credit for health services which reduced the price which a poor individual would pay to X percent of the market price would induce him to purchase Q units of medical care. A tax credit for health insurance that induced the poor person to buy an insurance policy with a co-insurance feature of X percent, also would induce him to purchase Q units of medical care.[21]

A tax credit for health insurance, however, would entail an unnecessary devotion of resources to the health insurance industry. By construction total medical care expenditures are the same under both programs. Moreover,

---

21. Actually, the price reduction would have to be somewhat larger because of the income effect of premiums paid for insurance.

individuals are equally insured under both programs. Clearly from the individual's point of view it would make no difference whether the federal government or an insurance company was responsible for paying X percent of his medical bills if the costs to him were the same. But in the aggregate the costs will not be the same.

Total medical care expenditures will be made up of out of pocket expenditures and government and/or insurance company payments. Under both programs out of pocket expenditures on medical care will be the same. Moreover, government payments plus insurance company payments under the health services tax credit must equal insurance company payments under the health insurance tax credit. Since direct government payments for care will be substantial in the former program and non-existent under the latter, the insurance industry's role will be much larger under a tax credit for health insurance program.

If premiums for private health insurance were actuarily fair, in the sense that company payments equaled premium income, this would present no problem. But insurance company payments are and must be less than their premium income. Even the non-profit companies such as Blue Cross and Blue Shield have administrative expenses. In 1967, the private insurance industry's payments for claims expenses amounted to only 86 percent of premium income. [See 22, p.15.] Assuming that the cost to the government of administrating a tax credit for health insurance would be approximately the same as the cost of administrating a tax credit for health services, the entire

administrative expense of the insurance companies would be a dead weight loss. This leads to the disconcerting conclusion that for each dollar paid by insurance companies under a tax credit for health insurance which would be paid by the government under a tax credit for health services, 16 cents would be wasted.

For a large program this loss will be quite substantial. For example, a crude estimate of the inefficiency of the latest AMA proposal suggests that as much as $2.3 billion might be wasted.[22]

2. A Tax Credit for Health Services Vis a Vis National Health Insurance or a Free Health Service

A national health insurance system could pay for 100 percent of everyone's medical care bills, or it could involve co-insurance payments. If the system contains a variable co-insurance feature, it would be similar to the tax credit for health services described above. If the system involves a co-insurance feature which does not vary with income, it

---

22. I assume that the differential amount of funds channeled into the insurance industry under a tax credit for health insurance vis a vis a tax credit for health services would be approximately equal to the program cost of the former. On the one hand the differential amount might be smaller because some of the public funds for a tax credit for health insurance would simply replace current private expenditures for insurance. On the other hand the amount might be larger because a credit for health services is a substitute for privately purchased insurance. In the absence of any better information I assume these effects offset one another. Saul Waldman, [48] estimates that a $500 tax credit for those under age 65 would have cost $12.9 billion in 1966. The $2.3 billion figure was arrived at by multiplying $12.9 billion by .16.

cannot be an efficient method of achieving augmentation, minimum provision or equal access. If the system involves no co-insurance payments, on the demand side, it will be identical to a free health service system. A free health service would also be an inefficient method of achieving augmentation, minimum provision, and if supply were not restricted, equal access.

A free health service system could be a fairly inefficient method of achieving equal access even if supply were restricted to the level which would result from a pure tax credit system. A very crude conservative estimate of the inefficiency of a free health service system, with restricted supply as specified above, vis a vis a tax credit would be about $1 billion.[23]

23.2 I assume (1) the only inefficiency of free provision with restricted supply is the "welfare loss" of the unnecessary additional taxation, (2) that welfare loss is directly proportional to total income taxes, (3) a tax credit for health services which achieved equal access would cost no more than $12.9 billion, the cost of the latest AMA proposal, and (4) an equal access program would lead to an increase in aggregate expenditures of between 10 and 30 percent.

Dorothy P. Rice and Barbara S. Cooper, [47], estimated that aggregate medical care expenditures in 1968 amounted to $46.7 billion. A 10 to 30 percent increase would result in expenditures of from 51.4 to 60.6 billion dollars. With free provision taxes would have to be just as large. Hence the unnecessary additional taxation would amount to from 38.5 to 47.7 billion dollars. A. C. Harberger, [36], estimated that the "welfare loss" due to the federal income tax of $41.3 in 1961 was $985. Given the proportionality assumption the welfare loss would vary from .926 to 1.093 billion dollars. Since Harberger's estimate of welfare loss is very sensitive to marginal tax rates this estimate is probably too low. On the other hand, the $12.9 billion figure is very arbitrary, since without knowledge of demand curves it is impossible to say what the cost of an equal access program would be.

But if supply were further restricted to the optimal level, free provision might actually be more efficient than the pure tax credit alternative. Furthermore, as I noted in the first section of this chapter, given the variance in demand for different components of medical care, there would be costs which are almost impossible to measure of attempting to achieve equal access through tax credits.

The relative efficiency in achieving equal access by tax credits vis-a-vis free provision is, therefore, not clearcut. But the potential advantages of the latter which emerge from this analysis differ from those normally offered by advocates of free provision. In the next section I discuss one of those alleged advantages.

C. Free Provision and the Means Test

Some individuals, particularly in the social work profession have argued that free provision of goods used to redistribute income is necessary in order to avoid the means test. [See 29.] In this section I consider the relationship of a means test to efficiency in redistribution. I argue that a desire to avoid the distasteful aspects of a means test is not a sufficient reason for favoring free provision. Throughout the discussion I assume that the goods to be subsidized generate no technological externalities and exhibit perfectly elastic supply curves.

1. Efficient Redistributions

If we ignore the work incentive problem an efficient

cash or in kind redistribution can be defined as one in which the total public expenditure for the redistributional program is minimized subject to the constraint of achieving the redistributional goal.[24] For in kind redistributions, an expenditure which exceeds this minimum is inefficient for two reasons: (1) it would excessively increase demand and therefore entail a greater opportunity cost in real resources and (2) it would entail an unnecessary distortion of the work-leisure trade-off arising out of the unnecessary additional taxation. Only the latter applies to cash redistributions.

An efficient cash redistribution is one where the beneficiaries pay no taxes for the program and the tax-payers receive no subsidy. If the taxpayer receives a subsidy, his subsidy could be eliminated and his taxes reduced by an equivalent amount without altering the redistributional impact of the program. Similarly if the beneficiary pays taxes, his taxes could be eliminated and his subsidy reduced by an equivalent amount without altering the redistributional impact of the program.

In kind redistributions are somewhat more complicated. If the redistributional goal were to assure a minimum level of consumption of some good, an efficient distribution would still be one wherein beneficiaries pay no taxes and taxpayers

---

24. If the redistributional goal is defined in terms of assuring everyone a minimum level of income or consumption of some good there will be a conflict between efficiency as defined and maintaining work incentive. But if the goal is to achieve greater equality no such conflict need exist. Marginal tax rates need never approach 100 percent.

receive no subsidies. However, if excise taxes are ruled out because of political feasibility consideration equal access probably cannot be achieved without some taxpayers receiving a subsidy. If there are five income groups, to achieve equal consumption the price must be subsidized for all but the highest income group. Most of us, however, would probably agree that those in the second and perhaps those near the top of the third income group as well as those in the highest group should pay for the redistributive program. Consequently, when equal access is the redistributional goal, an efficient redistribution can entail subsidies for some taxpayers. But taxes will still vary directly and subsidies inversely with income.

For cash or in kind redistributions, therefore, a minimal condition of efficiency is that subsidies vary inversely with income and cease altogether above some income level. That is, efficient redistributions must be income-related; they must involve an income or means test.

2. Values and the Means Test

Many individuals, however, believe that redistributional programs should not employ means tests. Objections to the means test are based on two grounds. First, historically means tests have been administered in such a fashion as to degrade and humiliate the poor who needed aid. The objective was and still is in many places to discourage those who were eligible for aid from applying. Even where this is no longer the objective, there is some evidence that means tests still

have this effect.[25] Second, means tests by their nature explicitly divide the population into the givers and the receivers. Such a division conflicts with some individuals' notions of a good society.

Feelings about the means test can be treated, like other values, as arguments in individuals utility functions. If individuals who dislike the means test are willing to pay enough in the aggregate to avoid its use then it is efficient not to use a means test.

There are, however, different conceptions about what constitutes eliminating the means test. Suppose the redistributional goal is to achieve equal access to medical care. In the previous section, I showed that this could be achieved through an income tax credit for the purchase of health services. If this system were administered in the manner described in the first section of this chapter it is probably safe to assume that the humiliating and degrading aspects of the means test would be eliminated. A tax credit, therefore, would satisfy many, and perhaps most, individuals' objections to a means test.

But some individuals object to the means test involved

---

25. A.B. Atkinson argues with the aid of regression analysis that despite Great Britain's noble attempt to remove the means test stigma from Old Age Assistance only 100,000 to 200,000 of 700,000 eligible individuals who were not claiming benefits because of the means test did so as a result of the change. The Reform was prompted by evidence that almost 1/3 of those eligible ($\frac{700,000}{2,3000,000}$) were not claiming benefits because of the means test. [See 34.]

in a tax credit. They argue that the tax credit still involves too explicit a division of the population into the subsidizers and the subsidized. Moreover, they assume that Americans accept an amalgam of the Puritan and capitalist ethic which implies that income earned by individual exertion is a blessed reward while unearned income is somehow tainted. It follows that income redistribution of equal dollar value in the form of either a social health insurance or free health care program would be preferred by the beneficiaries of the program to the more explicit income redistribution achieved by a tax credit. For a major feature of the former is the creation of a right to benefits derived from contributions. Due to the insurance feature of social insurance, beneficiaries feel they have earned a right to their benefits; the social or redistributional feature in their minds plays a secondary role. A free health care program for all citizens also creates a feeling of right or entitlement to service and minimizes the explicit redistributional characteristic of the program. Finally, they argue that taxpayers are more willing to generously support a program in which they have a stake. The implication is that potential beneficiaries will fare better under non-income tested programs.

The case against the income or means test that would be involved in a tax credit program is, I believe, a weak one. It is based primarily on untested empirical generalizations. I will consider the last argument first.

Taxpayers are subject to what I will call redistribu-

tional illusion if they would vote for a program with a given redistributional value that involved a subsidy to them but against another program with the identical redistributional value that did not involve a subsidy to them. Taxpayers are subject to egalitarian redistributional illusion if they would vote for a program that involved equal subsidies to all, but against another program with the same redistributional value as the first, that entailed a smaller subsidy for them. If a majority of voters were subject to egalitarian redistributional illusion, it is clear that the potential beneficiaries would be better off under a non-income tested program.

Even if taxpayers are more willing to generously support a program in which they have a stake, i.e., they are subject to redistributional illusion, this is not a sufficient argument for a non-income tested program. For example, the AMA tax credit proposal would give some stake in the program to a large majority of the population, while the Fein proposal would give some stake in the program to everyone in the population. In both programs, however, the subsidy would vary inversely with income. Redistributional illusion can be accomodated through income tested programs. Only if taxpayers are subject to egalitarian redistributional illusion, would a non-income tested program be a necessary condition for maximizing the potential beneficiaries' welfare.

Whether or not any kind of redistributional illusion exists is an empirical question, which to my knowledge has not been tested. A priori, it is just as conceivable that

taxpayers are subject to tax illusion. If taxpayers are willing to support programs whose redistributional value differs so long as the taxes they pay are constant, they are subject to tax illusion. A tax threshhold would give rise to a fiscal budget constraint. In this case, with a fixed dollar sum to be spent on the redistributional program, every dollar spent on subsidizing taxpayers reduces by a like sum of dollars the amount available to subsidize the potential beneficiary. If a majority of voters were subject to tax illusion, the potential beneficiary would be better off under an income tested program. In the absence of any empirical evidence which supports or refutes either the redistributional or tax illusion hypotheses, it is difficult to know how much if any weight to give to them.

Similarly, whether or not beneficiaries would derive less utility from a non stigmatized income-tested transfer than from a non-income tested transfer of equal amount is an empirical question which has not been tested. The core of the income tax is an income test. Hardly anyone finds this income test objectionable. It appears to me that the income test in a tax credit for health services would be no different and hence no more objectionable than the income test in the income tax.

In this chapter I have discussed the efficient methods of achieving a few different policy goals in subsidizing personal health care, and evaluated reform proposals in light of this discussion. I have shown that a tax credit for health services is: (1) a more efficient method of achieving any goal

than a tax credit for health insurance, (2) a more efficient method than free provision for guaranteeing a minimal level of consumption and (3) may be a more efficient method than free government provision for achieving equal access. In this last section I have argued that even though a tax credit for health services would involve an income test, that is not a very persuasive reason for preferring free provision.

Chapter VI

Conclusion

In this final chapter I summarize a few major points made in the text, describe my own values, and discuss a few of the difficulties of jumping from theoretical analysis to policy recommendations.

The efficient method of financing medical care depends upon the values of citizen consumers. If citizens do not believe medical care should be subsidized, personal health expenditures should be left to the market. If citizens believe medical care should be subsidized, then some sort of subsidization will be efficient.

Many citizens believe medical care should be subsidized because they are dissatisfied with the existing distribution of income. Redistribution via subsidization of medical care is probably not inefficient. The appropriate level of subsidization cannot be determined without making interpersonal utility comparisons. For depending upon the nature of taxpayer and beneficiary preferences, and the community's welfare judgement more or less subsidization than taxpayers' willingness to pay may be efficient. Moreover, even if the level of subsidization is inefficiently excessive, it may be desirable, given the existence of certain political feasibility constraints and value judgements about income distribution.

Of all values, therefore, those that are concerned with the distribution of income are the most important ones for determining the optimal role of government in financing medical care.

The fact that individuals derive utility from values such as equal access is not sufficient for treating such values as policy goals. Stronger assumptions are needed. Given the nature of the political process, however, it makes sense to treat some values as policy goals.

If the community desires either to supplement the medical care of its poorer members or to guarantee some minimum level of care, a tax credit for the purchase of health services is the most efficient method of doing so. If the community wishes to achieve equal access to medical care, a tax credit for health services would be a more efficient method than free provision of medical care with unrestricted supply. Free provision with restricted supply, however, might be more efficient than a tax credit. Finally, the community may desire free provision as an end in itself.

The appropriate public policy would appear to be fairly clearcut once the public policy objective has been established except for the equal access case. There are three reasons, however, why it is difficult to make a clearcut policy recommendation.

First, to recommend an efficient method of financing medical care without examining the supply side is, to say the least, precarious. To assume, as I did in the first chapter,

that the supply of medical care is or can be made efficient through policies independent of demand, does not make it so. It is quite possible that politically at least the two will be inextricably intertwined. It would be quite inconsistent for me to dismiss political feasibility considerations in this context while placing great emphasis on them in Chapter IV.

Second, at this time there is no way of knowing exactly what goal Americans wish to achieve through subsidization of medicare. My own values are clear. If incomes were distributed equally, I would not be very interested in subsidized let alone free medical care, since the technological externalities generated by personal health care appear to be relatively minor. But we do not have now nor are we likely to have in the near future an egalitarian distribution of income. Almost 40 years ago, R. H. Tawney, in his classic work Equality, described what is in essence a second best strategy for egalitarians.

> If every individual were reared in conditions as favourable to health as science can make them, received an equally thorough and stimulating education up to sixteen, and knew on reaching manhood that, given a reasonable measure of hard work and good fortune, he and his family could face the risks of life without being crushed by them the most shocking of existing inequalities would be on the way to disappear. Sharp contrasts of pecuniary income might indeed remain, as long as society were too imperfectly civilized to put an end to them.. But the range of life corrupted by their influence would be narrower than to-day. It would cease to be the rule for the rich to be rewarded, not only with riches, but with a preferential share of health and life, and for the penalty of the poor to be not merely poverty, but ignorance, sickness and premature death. [See 43, p.257.]

But my values are not necessarily shared by the majority of individuals in the community.

Finally, neither a tax credit for health services nor a nationalized, free health care system appear to be receiving much political attention in this country at this time. This suggests that perhaps more variables such as the political power of the health and insurance industries should enter into the political feasibility constraint. If enough variables are included in the constraint, the possibility of any choice could be eliminated. Yet the fact that neither of these alternatives appears to have strong political appeal suggests that since this thesis has been only a partial analysis policy recommendations should be made with care.

Given these kinds of considerations one should be modest in moving from theoretical analysis to policy recommendations. It does not seem too immodest, however, to suggest that a tax credit for health services, or if equal access is desired, a national health service system and/or a tax credit system, warrant more attention than they have received from reformers and politicians.

Bibliography

Journal and Newspaper Articles

1. Kenneth J. Arrow, "Uncertainty and the Welfare Economics of Medical Care," American Economic Review, LIII (December, 1963) pp. 941-973.

2. Kenneth J. Arrow, "Uncertainty and the Welfare Economics of Medical Care: Reply," American Economic Review, LV (March, 1965),pp. 154-157.

3. Abram Bergson, "A Reformulation of Certain Aspects of Welfare Economics," Quarterly Journal of Economics (1938), reprinted in Readings in Welfare Economics,ed., Kenneth J. Arrow and Tibor Scitovsky (Richard D. Irwin, Homewood, Illinois, 1969),pp. 7-25.

4. Charles W. Baird, "A Proposal for Financing the Purchase of Health Services," The Journal of Human Resources, V, (Winter, 1970), pp. 89-105.

5. Francis M. Bator, "The Simple Analytics of Welfare Maximization," American Economic Review, XLVII (March, 1957), pp. 22-59.

6. James Buchanan,"What Kind of Redistribution Do We Want," Economica, XXXIV (May, 1968),pp. 185-190.

7. James Buchanan and Milton Kafoglis, "A Note on Public Goods Supply." American Economic Review, LIII (January, 1963), pp. 403-414.

8. James Buchanan and Wm. C. Stubblebine, "Externality," Economica, XXIX (1962), pp. 371-84.

9. Rita Ricardo Campbell and Glen Campbell, "Compulsory Health Insurance: The Economic Issues," Quarterly Journal of Economics, LXVII (February, 1952), p. 1-24.

10. Rita Ricardo Campbell and Glen Campbell, "The Economic Issues of Compulsory Health Insurance: A Reply," Quarterly Journal of Economics, LXVII (February, 1953), pp. 125-135.

11. I. S. Falk, "Compulsory Health Insurance: The Economic Issues: A Comment," Quarterly Journal of Economics, LXVII (November, 1952), pp. 572-585.

12. Paul J. Feldstein, "Research on the Demand for Health Services," Milbank Memorial Fund Quarterly, XLIV (July, 1966), pp. 128-162.

13. Lucien Foldes, "Income Redistribution in Money and in Kind," Economica, XXXIII (February, 1967),pp. 30-41.

14. Lucien Foldes, "A Note on Redistribution," Economica, XXXIII (May, 1967), pp. 203-5.

15. Lucien Foldes "Redistribution: A Reply," Economica, XXXIV (May, 1968), pp. 198-204.

16. Harris Survey, Washington Post, January 23, 1967.

17. Clarence A. Kulp, "Voluntary and Compulsory Medical Care Insurance," American Economic Review, XLI (May, 1951), pp. 667-684.

18. Dennis S. Lees and Robert G. Rice, "Uncertainty and the Welfare Economics of Medical Care: Comment," The American Economic Review, LV (March, 1965), pp. 140-154.

19. Jacob Meerman and Millard Long, "Aid to the Medically Indigent," Vanderbilt Law Review, XVI (December, 1962).

20. E. J. Mishan, "Redistribution in Money and Kind: Some Notes," Economica, XXXIV (May, 1968) pp. 191-193.

21. Dick Netzer, "Compulsory Health Insurance: A Comment," Quarterly Journal of Economics, LXVII (November, 1952)

22. Louis S. Reed and Willine Carr, "Private Health Insurance in the United States, 1967," Social Security Bulletin,(February, 1969), pp. 1-22.

23. Dorothy P. Rice and Barbara S. Cooper, "National Health Expenditures, 1950-67," Social Security Bulletin, XXX (January, 1969), pp. 1-20.

24. Jerome Rothenberg, "Welfare Implications of Alternative Methods of Financing Medical Care," American Economic Review, XLI (May, 1951), pp. 666-687.

25. Mark V. Pauly, "The Economics of Moral Hazard: Comment," The American Economic Review, LVIII (June, 1968), pp. 531-537.

26. Paul Samuelson, "Evaluation of Real National Income," Oxford Economic Papers (1950), reprinted in Readings in Welfare Economics, ed. Kenneth J. Arrow and Tibor Scitovsky (Richard D. Irwin, Homewood, Illinois, 1969), pp. 419-420.

27. Paul A. Samuelson, "The Pure Theory of Public Expenditure," The Review of Economics and Statistics, XXXVI (1954), pp. 387-89.

28. Amartya Sen, "The Impossibility of a Paretian Liberal," Journal of Political Economy, LXXIV (January/February, 1970), pp. 152-157.

29. Alvin L. Schorr, "Not a Blueprint," Editorial page, Social Work, XV (January, 1970), p. 2.

30. Washington Report on Medicine and Health, September 8, 1969, No. 1158.

31. J. Wiseman, "Cost Benefit Analysis and Health Service Policy," Scottish Journal of Political Economy, X (February, 1963), pp. 128-145.

Books and Pamphlets

32. Ronald Andersen and Odin W. Anderson, A Decade of Health Services (The University of Chicago Press, Chicago, Illinois, 1967).

33. Kenneth J. Arrow, Social Choice and Individual Values (John Wiley and Sons, Inc., New York, 1951).

34. A. B. Atkinson, Poverty in Britain and the Reform of Social Security (University of Cambridge Occasional Paper 18, Cambridge, 1969).

35. James Buchanan and Gordon Tullick, The Calculus of Consent (Ann Arbor: University of Michigan Press, 1962).

36. A. C. Harberger, "Taxation, Resource Allocation, and Welfare," in The Role of Direct and Indirect Taxes in the Federal Revenue System (Princeton University Press, Princeton, N. J., 1964), pp. 25-80.

37. Richard Musgrave, Fiscal Systems (Yale University Press, New Haven, 1969).

38. Richard Musgrave, The Theory of Public Finance (McGraw-Hill Book Company, New York, 1959).

39. A. C. Pigou, The Economics of Welfare (MacMillan, London, 1952).

40. Joseph A. Pechman, Henry J. Aaron and Michael K. Taussig, Social Security: Perspectives for Reform (The Brookings Institution, Washington, D.C. 1968).

41. Paul A. Samuelson, Foundations of Economic Analysis (Athenium, New York, 1967).

42. Tibor Scitovsky, "Equity", in Papers on Welfare and Growth (Stanford University Press, Stanford, California, 1964), pp. 251-264.

43. R. H. Tawney, Equality (Capricorn Books, New York, 1961).

Government Documents

44. Congressional Record-Senate, Materials submitted by Senator Edward Kennedy, October 23, 1969.

45. Loucele A. Horowitz, "Medical Care Prices Fact Sheet," Research and Statistics Note, No. 6, U. S. Department of Health, Education and Welfare Social Security Administration, Office of Research and Statistics (May 9, 1969).

46. Report of the National Advisory Commission on Civil Disorders (Bantam Books, New York, New York, 1968).

47. Dorothy P. Rice and Barbara S. Cooper, "Outlays for Medical Care of Aged and Non-Aged Persons, Fiscal Years 1966-68," Research and Statistics Note #12, U. S. Department of Health, Education and Welfare, Social Security Administration. Office of Research and Statistics (July 16, 1969).

48. Saul Waldman, Tax Credits for Private Health Insurance: Estimates of Eligibility and Cost Under Alternative Proposals, U.S. Department of Health, Education and Welfare, Social Security Administration, Office of Research and Statistics, Staff Paper #3 (October 1969).

49. Burton Weisbrod, "Collective Action and the Distribution of Income: A Conceptual Approach," The Analysis and Evaluation of Public Expenditures: The PPB System, Joint Economic Committee, Congress of the United States (U. S. Government Printing Office, Washington, D.C., 1969),

Unpublished Material

50. Cotton Mather Lindsay, Supply Response to Public Financing of Medical Care in the United States (PHD dissertation, Department of Economics: University of Virginia, 1968).

51. Pauly, Efficiency in Public Provision of Medical Care (PHD dissertation Department of Economics, University of Virginia, 1967).

52. Survey Research Center, University of Michigan, 1969 Fall Omnibus Study

53. Survey Research Center, University of Michigan, 1969 Fall Omnibus Study

54. Vincent Taylor, How Much is Good Health Worth (The Rand Corporation, Santa Monica, California, 1969).

12. Paul J. Feldstein, "Research on the Demand for Health Services," Milbank Memorial Fund Quarterly, XLIV (July, 1966), pp. 128-162.

13. Lucien Foldes, "Income Redistribution in Money and in Kind," Economica, XXXIII (February, 1967),pp. 30-41.

14. Lucien Foldes, "A Note on Redistribution," Economica, XXXIII (May, 1967), pp. 203-5.

15. Lucien Foldes "Redistribution: A Reply," Economica, XXXIV (May, 1968), pp. 198-204.

16. Harris Survey, Washington Post, January 23, 1967.

17. Clarence A. Kulp, "Voluntary and Compulsory Medical Care Insurance," American Economic Review, XLI (May, 1951), pp. 667-684.

18. Dennis S. Lees and Robert G. Rice, "Uncertainty and the Welfare Economics of Medical Care: Comment," The American Economic Review, LV (March, 1965), pp. 140-154.

19. Jacob Meerman and Millard Long, "Aid to the Medically Indigent," Vanderbilt Law Review, XVI,(December, 1962).

20. E. J. Mishan, "Redistribution in Money and Kind: Some Notes," Economica, XXXIV (May, 1968) pp. 191-193.

21. Dick Netzer, "Compulsory Health Insurance: A Comment," Quarterly Journal of Economics, LXVII (November, 1952)

22. Louis S. Reed and Willine Carr, "Private Health Insurance in the United States, 1967," Social Security Bulletin,(February, 1969), pp. 1-22.

23. Dorothy P. Rice and Barbara S. Cooper, "National Health Expenditures, 1950-67," Social Security Bulletin, XXX (January, 1969), pp. 1-20.

24. Jerome Rothenberg, "Welfare Implications of Alternative Methods of Financing Medical Care," American Economic Review, XLI (May, 1951), pp. 666-687.

25. Mark V. Pauly, "The Economics of Moral Hazard: Comment," The American Economic Review, LVIII (June, 1968), pp. 531-537.

26. Paul Samuelson, "Evaluation of Real National Income," Oxford Economic Papers (1950), reprinted in Readings in Welfare Economics, ed. Kenneth J. Arrow and Tibor Scitovsky (Richard D. Irwin, Homewood, Illinois, 1969), pp. 419-420.

27. Paul A. Samuelson, "The Pure Theory of Public Expenditure," The Review of Economics and Statistics, XXXVI (1954), pp. 387-89.

28. Amartya Sen, "The Impossibility of a Paretian Liberal," Journal of Political Economy, LXXIV (January/February, 1970), pp. 152-157.

29. Alvin L. Scherr, "Not a Blueprint," Editorial page, Social Work, XV (January, 1970), p. 2.

30. Washington Report on Medicine and Health, September 8, 1969, No. 1158.

31. J. Wiseman, "Cost Benefit Analysis and Health Service Policy," Scottish Journal of Political Economy, X (February, 1963), pp. 128-145.

Books and Pamphlets

32. Ronald Andersen and Odin W. Anderson, A Decade of Health Services (The University of Chicago Press, Chicago, Illinois, 1967).

33. Kenneth J. Arrow, Social Choice and Individual Values (John Wiley and Sons, Inc., New York, 1951).

34. A. B. Atkinson, Poverty in Britain and the Reform of Social Security (University of Cambridge Occasional Paper 18, Cambridge, 1969).

35. James Buchanan and Gordon Tullick, The Calculus of Consent (Ann Arbor: University of Michigan Press, 1962).

36. A. C. Harberger, "Taxation, Resource Allocation, and Welfare," in The Role of Direct and Indirect Taxes in the Federal Revenue System (Princeton University Press, Princeton, N. J., 1964), pp. 25-80.

37. Richard Musgrave, Fiscal Systems (Yale University Press, New Haven, 1969).

38. Richard Musgrave, The Theory of Public Finance (McGraw-Hill Book Company, New York, 1959).

39. A. C. Pigou, The Economics of Welfare (MacMillan, London, 1952).

40. Joseph A. Pechman, Henry J. Aaron and Michael K. Taussig, Social Security: Perspectives for Reform (The Brookings Institution, Washington, D.C. 1968).

41. Paul A. Samuelson, Foundations of Economic Analysis (Athenium, New York, 1967).

42. Tibor Scitovsky, "Equity", in Papers on Welfare and Growth (Stanford University Press, Stanford, California, 1964), pp. 251-264.

43. R. H. Tawney, Equality (Capricorn Books, New York, 1961).

Government Documents

44. Congressional Record-Senate, Materials submitted by Senator Edward Kennedy, October 23, 1969.

45. Loucele A. Horowitz, "Medical Care Prices Fact Sheet," Research and Statistics Note, No. 6, U. S. Department of Health, Education and Welfare Social Security Administration, Office of Research and Statistics (May 9, 1969).

46. Report of the National Advisory Commission on Civil Disorders (Bantam Books, New York, New York, 1968).

47. Dorothy P. Rice and Barbara S. Cooper, "Outlays for Medical Care of Aged and Non-Aged Persons, Fiscal Years 1966-68," Research and Statistics Note #12, U. S. Department of Health, Education and Welfare, Social Security Administration. Office of Research and Statistics (July 16, 1969).

48. Saul Waldman, Tax Credits for Private Health Insurance: Estimates of Eligibility and Cost Under Alternative Proposals, U.S. Department of Health, Education and Welfare, Social Security Administration, Office of Research and Statistics, Staff Paper #3 (October 1969).

49. Burton Weisbrod, "Collective Action and the Distribution of Income: A Conceptual Approach;" The Analysis and Evaluation of Public Expenditures: The PPB System, Joint Economic Committee, Congress of the United States (U. S. Government Printing Office, Washington, D.C., 1969),

Unpublished Material

50. Cotton Mather Lindsay, Supply Response to Public Financing of Medical Care in the United States (PHD dissertation, Department of Economics: University of Virginia, 1968).

51. Pauly, Efficiency in Public Provision of Medical Care (PHD dissertation Department of Economics, University of Virginia, 1967).

52. Survey Research Center, University of Michigan, 1969 Fall Omnibus Study

53. Survey Research Center, University of Michigan, 1969 Fall Omnibus Study

54. Vincent Taylor, How Much is Good Health Worth (The Rand Corporation, Santa Monica, California, 1969).