33-69

INSTITUTE FOR RESEARCH ON POVERTY DISCUSSION PAPERS

THE WELFARE ECONOMICS OF HOUSING FOR THE POOR

Larry L. Orr

UNIVERSITY OF WISCONSIN - MADISON

Errata for "The Welfare Economics of Housing for the Poor"

p. 2, line 7 : ... the optimal form...

p. 9, line 18 : ... enjoying utility I_1.

p. 9, last line : ... initial level I_1.

p. 10, line 2: ... is the optimal way ...

p. 10, equation (5): $(I_3 - I_2) \frac{\partial W}{\partial U_p^i} > \sum_{i=1}^{m} (\bar{H} - H'') \frac{\partial U_n^i}{\partial H_p} \cdot \frac{\partial W}{\partial U_n^i}$

p. 10, line 23: ... will be socially optimal.

p. 13, line 20: The optimal policy ...

p. 15,: Footnotes should be numbered 9, 10, and 11, rather than 7, 8, and 9.

p. 18,: Footnote should be numbered 12 instead of 10

p. 20, line 1: ... the optimal form...

p. 20, line 14: ... justified in tying...

THE WELFARE ECONOMICS OF HOUSING FOR THE POOR

Larry L. Orr

The author is a member of the Department of Economics, University of Wisconsin, and of the senior research staff of the Institute for Research on Poverty. Preparation of this paper was supported by funds granted to the Institute pursuant to the provisions of the Economic Opportunity Act of 1964.

December 1968

ABSTRACT

This paper is a welfare theoretical analysis of several alternative policies designed to subsidize the housing consumption of the poor. The policies considered are conventional public housing, cash subsidies granted on the condition that the recipient obtain standard housing, and unconditional cash grants.

The three forms of subsidy are compared in terms of a social welfare function which allows for the existence of external benefits to non-poor families resulting from increased housing consumption by poor families. Analysis of the consumption choices of recipient families is employed to derive the change in family welfare and housing consumption for the recipient family under each type of subsidy. The resulting changes in social welfare are then compared for the three programs, with the program which gives rise to the greatest increase in social welfare being deemed optimal. The ranking of the three alternative programs on social welfare grounds will depend somewhat upon the income level of the recipient. Critical income levels at which the ranking of the subsidies may change are therefore specified in terms of the utility function of the recipient and the cost of minimum standard housing.

Two separate cases, differing in the assumed nature of public housing, are examined. If public housing is assumed to represent minimum standard housing, then public housing is clearly inferior to conditional cash grants of equal value on social welfare grounds, and may be inferior to unconditional cash grants, depending on the strength of the external benefits to the non-poor. The choice between conditional and unconditional grants also turns on the strength of externalities. If public housing represents better housing than the minimum standard, the choice is less clear unless the form of housing externalities in the social welfare function can be specified more precisely. As an illustrative case, external benefits are assumed to occur only at the transition from substandard to standard housing. In this case, public housing is again seen to be inferior to conditional cash grants and possibly inferior to unrestricted cash subsidies.

The two principal findings of the analysis are: 1) that there is a strong presumption that on social welfare grounds, conventional public housing is an inefficient means of subsidizing the housing consumption of the poor, and, 2) that the choice of subsidy depends crucially on the nature and strength of external benefits to the non-poor; therefore, empirical quantification of these externalities would seem to be highly desirable.

INTRODUCTION

One of the oldest and most controversial federal efforts to alleviate urban poverty is the public housing program. Over the last three decades, some 800,000 standard dwelling units have been constructed under public auspices and made available at subsidized rents to families whose incomes fall below specified minimum levels. In recent years, however, dissatisfaction with the program both on sociological and economic grounds has given rise to a number of proposals for the replacement of the traditional public housing approach with some other form of subsidy. The rent supplement program recently enacted by Congress is one such proposal,[1] as are the various schemes for income maintenance such as a negative income tax or family allowance.

In evaluating these and other policy alternatives, most writers have tended to focus on their allocative efficiency aspects. Thus, for example, Hugh Nourse has developed an analytical framework for estimating the impact of a negative income tax on the quantity and quality of urban housing.[2] Eugene Smolensky has suggested that the rehabilitation of substandard dwellings by the private market may be a cheaper source of standard dwellings than new construction, and has proposed a system of conditional cash grants to provide the impetus for such upgrading.[3]

The social welfare implications of these proposals have scarcely been discussed, however. Such discussion as is presented generally begins and ends with the observation that cash subsidies with no restrictions as to their use will do more to raise the

welfare of the poor than an equivalent subsidy in kind, whether in the form of housing or any other good.

This observation is quite correct--as far as it goes. But it is only a partial analysis from a social standpoint; it fails to take account of the external benefits to individuals, other than the subsidy recipients, which may very well be the crucial factor in determining the optional form of the subsidy in terms of maximizing social welfare.

The purpose of this paper is to compare several alternative approaches to the provision of low-income housing on social welfare grounds, taking explicit account of the external social benefits of increased consumption of housing by low-income families.[4]

The policies to be considered are:

a) unrestricted cash grants to low-income families;

b) cash grants to low-income families on the condition that the recipients occupy standard housing (the Smolensky proposal); and,

c) traditional public housing.

The analysis proceeds on the basis of standard economic welfare criteria, to be described in the following section.

Part I.

Low-Income Housing and Social Welfare.

We shall assume throughout that the social welfare function to be used in appraising alternative policies is an "individualistic" one: i.e., that increasing one individual's (family's) welfare as he

perceives it, without affecting the welfare of anyone else, unambiguously increases social welfare. We shall, however, allow one individual's welfare to depend not only on his own consumption, but also on the consumption patterns of other individuals; i.e., we admit externalities of consumption. Under such a social welfare function, any form of subsidy to the poor financed by taxation of the non-poor will have three principal effects on social welfare.

a) the non-poor will be made worse off by the taxes they pay to finance the program;

b) the poor will be made better off by the increased consumption made possible by the subsidy; and,

c) the non-poor will be made better off to the extent that they derive some utility from the increased consumption of the poor.

If the method of finance and total program cost of the alternatives to be considered are the same, the welfare impact of effect (a) will be the same under all alternative approaches. For simplicity we shall assume that this is the case. However, effect (b) (benefits to the poor) will depend on the form of the subsidy, as will be demonstrated. Effect (c) (benefits to the non-poor) may or may not depend upon the form of the subsidy; the more interesting case arises when it does.

To see why the benefits of the subsidy to non-poor non-recipients might depend upon the form of the subsidy, consider the implicit rationale of subsidies-in-kind such as public housing. It is easy

to demonstrate (in fact, it is a standard elementary textbook exercise) that the welfare of the poor would be improved more by an unrestricted cash subsidy than by a subsidy-in-kind of equal cost. If policy makers are guided by a social welfare function of the type suggested here, than the rationale for public housing must be that consumption of housing by the poor confers benefits to non-poor members of society which, combined with the benefits to the poor themselves exceed the benefits which society would derive fron unrestricted cash subsidies to the poor.[5] I say "the benefits which society would derive" advisedly, because other items in the consumption of the poor may have external benefits. But selection of housing consumption as the object of subsidy implies that this consumption item has greater external benefits for the non-poor than any other items which the poor might select if allowed to spend the subsidy as they wish.[6] Thus, as a first approximation, we might assume that the external benefits of the subsidy to the non-poor are a monotonically increasing function of the amount of housing consumed by the poor. Such benefits, then, will depend crucially on the form of the subsidy to the poor.

Of course, close examination will indicate that simple aggregate housing consumption of the poor is not an altogether adequate measure of the externalities involved. For one thing, the distribution of housing consumption among the poor families may be important. That this is the case in practice is indicated by the fact that public housing

tends to concentrate the subsidy upon an extremely small subset of all poor families. Moreover, the form of the total housing consumption of each family may be important. Housing has both a quantity dimension and a quality dimension (although the two are exceedingly difficult to disentangle). A given expenditure may produce either a small dwelling of high quality or a large dwelling of low quality. The emphasis of current housing programs upon obtaining "standard" housing for the poor (and upon actually destroying "substandard" housing) indicates that this distinction is important to the architects of current policy. This distinction may also help to explain the uneven distribution of the current public housing subsidy, noted above; i.e., external benefits may be perceived as chiefly associated with the transition from substandard to standard housing, rather then being, say, proportional to the housing consumption of the poor regardless of quality.

Unfortunately, the difficulties of separating quality from quantity in the consumption of housing constrain the present analysis to consideration of a single measure of housing consumption; we shall define housing consumption as the market value of housing services consumed by the poor, individually or in the aggregate. In this context, "standard" housing will include all dwelling units providing services with market value above some specified minimum. (This concept is, of course, necessary for the evaluation of specific subsidy programs couched in terms of "standard" and "substandard" housing.)

The social welfare function to be consulted, then, has the following general form:

$$1)\quad W = W\left(U_n^1\left(C_n^1, C_p, H_p\right), \ldots U_n^m\left(C_n^m, C_p, H_p\right), U_p^1\left(C_p^1\right), \ldots U_p^k\left(C_p^k\right)\right),$$

where U_n^i and U_p^i are, respectively, the utilities of the i^{th} non-poor and poor families; C_n^i and C_p^i are total consumption of the i^{th} non-poor and poor families (more strictly, they are consumption vectors); and C_p and H_p are aggregate total consumption and housing consumption for all poor families. The foregoing discussion suggests the following partial derivatives for these functions:

$$2)\quad \frac{\partial W}{\partial U_j^i} > 0$$

$$3)\quad \frac{\partial U_n^i}{\partial H_p} > \frac{\partial U_n^i}{\partial C_p} \geq 0$$

$$4)\quad \frac{\partial U_j^i}{\partial C_j^i} > 0$$

Part II

A Welfare Analysis of Three Subsidy Plans

The three alternative approaches suggested at the outset (unrestricted cash grants, conditional cash grants, and public housing) can be readily compared in terms of the social welfare function defined above, under certain plausible assumptions about the housing market.

Assume, first, that the supply price (rent) of dwellings of a particular size and quality is constant, regardless of demand for this type of dwelling and regardless of whether the units are existing units, newly constructed units, or units produced by upgrading or downgrading dwellings of initially different size or quality.[7] Thus, the structure of housing prices facing the individual family will be independent of the form of the subsidy he receives, and we can measure housing consumption as simply expenditures for housing. "Standard" housing is defined to include all dwellings with rents above a specified minimum level, say, $\bar{H}$.

Second, assume that under the cash grant alternatives, the subsidy will be equal to the implicit subsidy in public housing, i.e., the difference between public housing rents and the cost of housing services provided by public housing. Thus, the social cost of the subsidy, for a given number of recipients, will be the same under all three programs.

Finally, assume to begin with that public housing units are the cheapest form of standard housing. This assumption will be relaxed in Part III.

Under these assumptions, the effect of the three alternative subsidy schemes upon the consumption opportunity locus of the recipient family can now be derived. Consider a family with income Y_o which may be divided between expenditures on housing, H and all other items (including saving), Y-H; this family has the budget line $Y_o H_o$ in Figure 1. Introduction of an unrestricted cash grant in the amount $(Y_1 - Y_o)$ per period will shift this opportunity locus to $Y_1 H_1$.

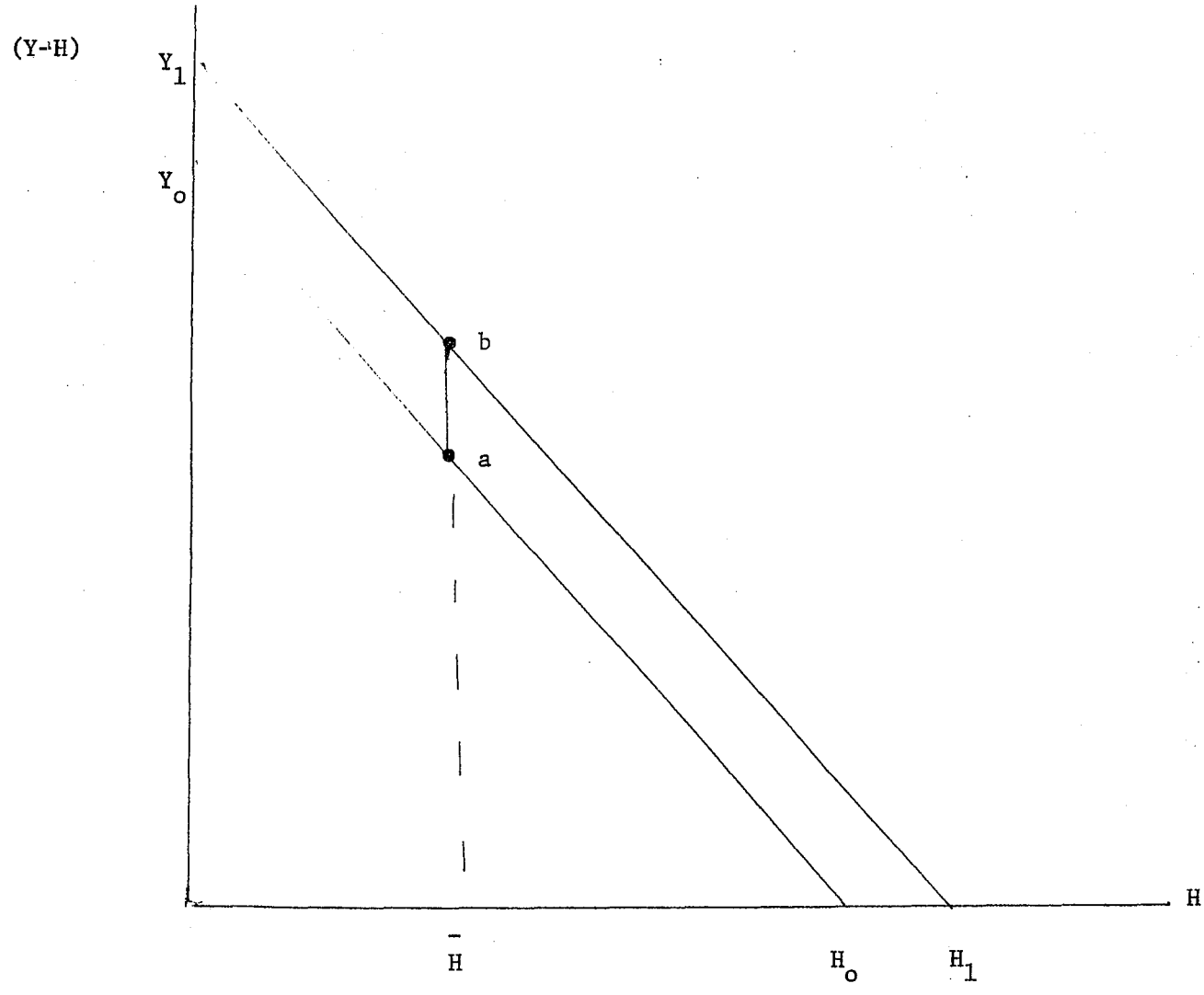


FIGURE 1

Introduction of a cash grant in the amount (Y_1-Y_o) per period on the condition that the recipient occupy standard housing changes the original budget line to the broken line $Y_o abH_1$. That is, in the region $O\overline{H}$ (where $\overline{H}$ represents the minimum cost of standard housing) the family receives no subsidy; in the region $\overline{H}\ H_1$, the subsidy is equivalent to an unrestricted cash grant. Finally, the opportunity locus presented by public housing available at rents set (Y_1-Y_o) below market value is the original budget line $Y_o\ H_o$ plus the single point b. That is, public housing offers only one kind of accommodation, the minimum standard dwelling and the family must accept that quantity of housing if it is to receive the subsidy at all.

Having specified these three opportunity loci (for a family with given pre-subsidy income), we need only specify the utility function of the family to determine the consumption mix it will choose under each of the three subsidy arrangements. Clearly, the utility-maximizing mix of housing and all other consumption will depend upon both the form of the family's utility function and its income constraint. To minimize the number of variables that must be considered explicitly, it will be convenient to assume that all potential subsidy recipients have identical tastes as between housing and all other goods. These tastes will be represented as a single set of indifference curves in the H, (Y-H) plane.

The alternative assumption of heteogeneous tastes would add little to the analysis substantively, while greatly complicating the exposition. The assumption of identical tastes allows us to categorize families and their reactions to the various housing subsidies on the basis of family income alone.

A second useful expositional device, relating to the geometry of Figure 1, will also be employed. We may represent the budget constraints of two families with different incomes either as two separate loci, one lying further to the northeast in the H, (Y-H) plane and representing the larger income, or as a single locus with the H, (Y-H) axis measured in different scales to take account of the difference in income. In the latter case, since $\bar{H}$ is fixed in absolute terms, its position along the H axis will vary inversely with income; i.e., the ratio $\bar{H}/H_o$ is the fraction of family income required to obtain minimum standard housing. Similarly, $(Y_1-Y_o)/Y_o$, the ratio of the subsidy to presubsidy income, will also vary inversely with income since the subsidy is fixed in absolute terms. Thus, the scales of the H, (Y-H) axis are set by these two ratios, and given either $\bar{H}$ or (Y_1-Y_o), family income may be readily derived in any particular diagram.

Case 1: Consider now a family with budget constraint and indifference curves as shown in Figure 2. In the absence of the subsidy this family consumes (substandard) housing in amount H', enjoying utility I. A subsidy in the form of either public housing or a conditional cash grant induces the family to raise its housing consumption to $\bar{H}$ (the minimum standard level) and raises its utility to I_2. An unrestricted cash grant of equal value induces a smaller increase in housing consumption, to H''.[8] The family will enjoy a higher utility level, I_3, than that enjoyed under either public housing or the conditional cash grant system, or a fortiori, the initial level I.

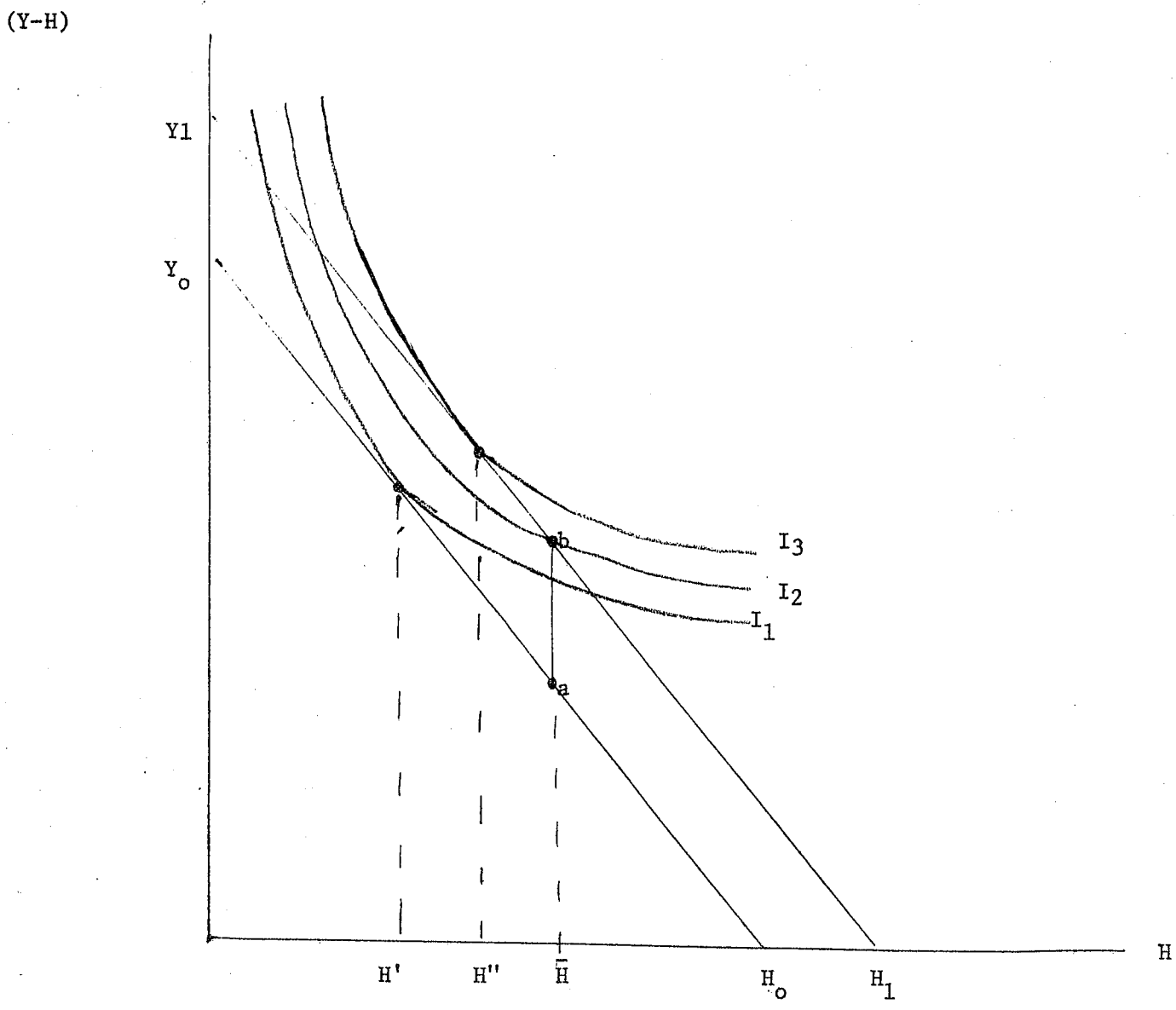


FIGURE 2

In terms of the welfare of the recipient alone, then, an unrestricted cash grant is the optional way to administer the subsidy. In terms of social welfare, however, the situation is less clear. The unrestricted cash grant results in a smaller increase in housing consumption by the poor than the other two alternatives. Thus, the external benefits enjoyed by the non-poor are smaller under the former system. Whether the increase in utility of the poor family from I_2 to I_3 outweighs the differential external benefits to the non-poor of the poor family consuming $\bar{H}$ rather than H'' depends upon the form of the social welfare function. In terms of the social welfare function, the condition for the unrestricted cash grant to be preferred to the alternative approaches is that:

$$5) \quad (I_3-I_2)\frac{W}{U^i_p} > \sum_{i=1}^{m} (H-\bar{H}'')\frac{\partial U^i_n}{\partial Hp}\frac{\partial W_i}{\partial U^i_n}$$

Under the "democratic" assumption that $\frac{\partial W}{\partial U^i_n} = \frac{\partial W}{\partial U^i_p}$, and assuming that all the non-poor evaluate the externalities of housing consumption by the poor identically, this reduces to:

$$6) \quad (I_3 - I_2) > m\,(\bar{H}-H'')\frac{\partial U^i_n}{\partial Hp}$$, where $\underline{m}$ is the number of non-poor families. The larger is either $\underline{m}$ or $\frac{\partial U^i_n}{\partial H_p}$, the less likely is this condition to be satisfied. That is, the greater is the incremental utility enjoyed by each non-poor family as a result of increased housing consumption by the poor, and the more non-poor individuals there are who enjoy this external benefit, the more likely it is that the restricted subsidies will be socially optional. This is simply to say that the stronger are the externalities of low-

income housing, the greater are the social benefits of subsidies which favor housing consumption over other forms of consumption.

Obviously, we have no direct measure of the strength of these externalities. But if past policy decisions with regard to public housing are an accurate reflection of the preferences of the non-poor majority, the answer must be that either of the two approaches that result in occupancy of standard housing is preferred to the unrestricted subsidy. As between those two arrangements, the resulting level of social welfare is (in this case) identical.

Case 2: The results obtained so far depend somewhat upon the initial income of the recipient family assumed in the analysis. Suppose the recipient family has a much lower income, so that the rental price of minimum standard housing represents a greater fraction of initial income; such a case is presented in Figure 3. This family will still increase its housing consumption, from H' to H'', and enjoy an increase in welfare, from I_1 to I_2, under the unrestricted subsidy. But it will not be in the family's interests to avail itself of either public housing or the conditional cash grant because movement from its initial consumption point c to point b represents a decrease in utility, from I_1 to I_o.

In this case, we cannot avoid facing the question of the disutility to the non-poor of paying taxes to finance subsidies to the poor, because -- unlike the previous case -- the costs of offering the different subsidy arrangements are different. The poor family will accept the unrestricted subsidy, with a resultant tax cost to the majority whereas it will reject the two alternative arrangements, resulting in

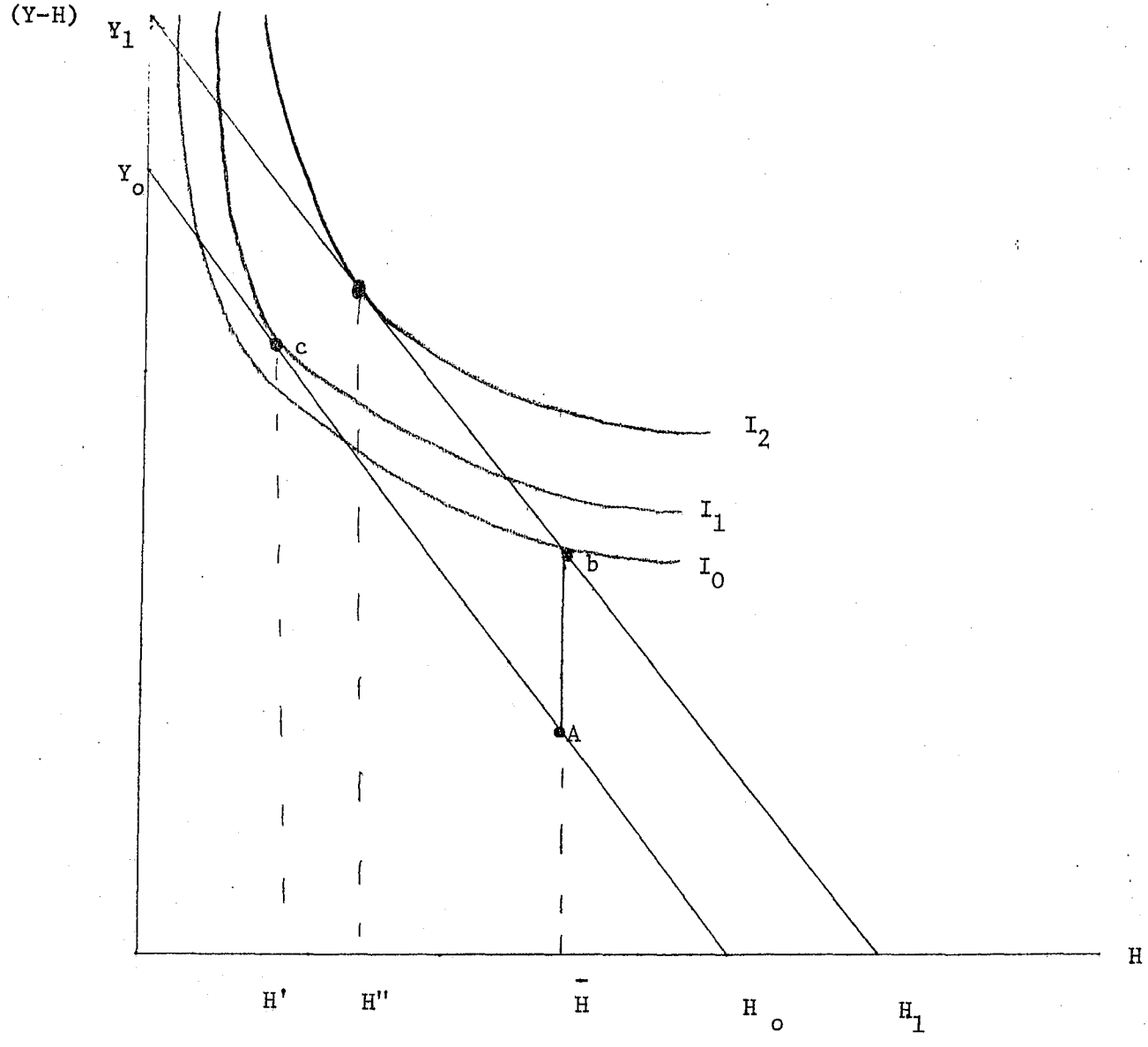


FIGURE 3

zero cost to non-poor tax-payers. The choice between these two results will depend, again, upon the form of the social welfare function. If, for instance, consumption of a given bundle of resources, ignoring externalities, has the same social significance whether consumed by the poor or the non-poor (i.e., if $\frac{\partial W}{\partial U_p^i} \cdot \frac{\partial U_p^i}{\partial C_p} = \frac{\partial W}{\partial U_n^i} \cdot \frac{\partial U_n^i}{\partial C_n}$ for all i), then the disutility of the non-poor associated with paying taxes will be just offset by the added utility of the poor recieving the subsidy. But since we have assumed that the non-poor derive some benefit from added consumption by the poor, whereas the converse does not hold, there is a net social gain (equal to the consumption externalities) from the transfer. Thus, in this case, we should opt for the unrestricted cash grant, as opposed to no subsidy at all.

The case just considered merges with the first case at the income level where the initial indifference locus of the recipient (I_1 in Figure 3) passes through point b. Under the assumption of identical tastes, this situation will correspond to some unique family income level, say $\overline{Y}$. Families with incomes below $\overline{Y}$ will reject public housing or conditional subsidies. For these families, unrestricted subsidies are the only effective option.

Case 3: At higher income levels than those considered up to now (again, assuming identical preference maps), yet a different situation arises; this is shown in Figure 4.

Here the effects of the unrestricted cash grant and the conditional subsidy are identical. Both raise the recipient's utility from I_1 to I_3, and his housing consumption from H' to H''. The public housing option

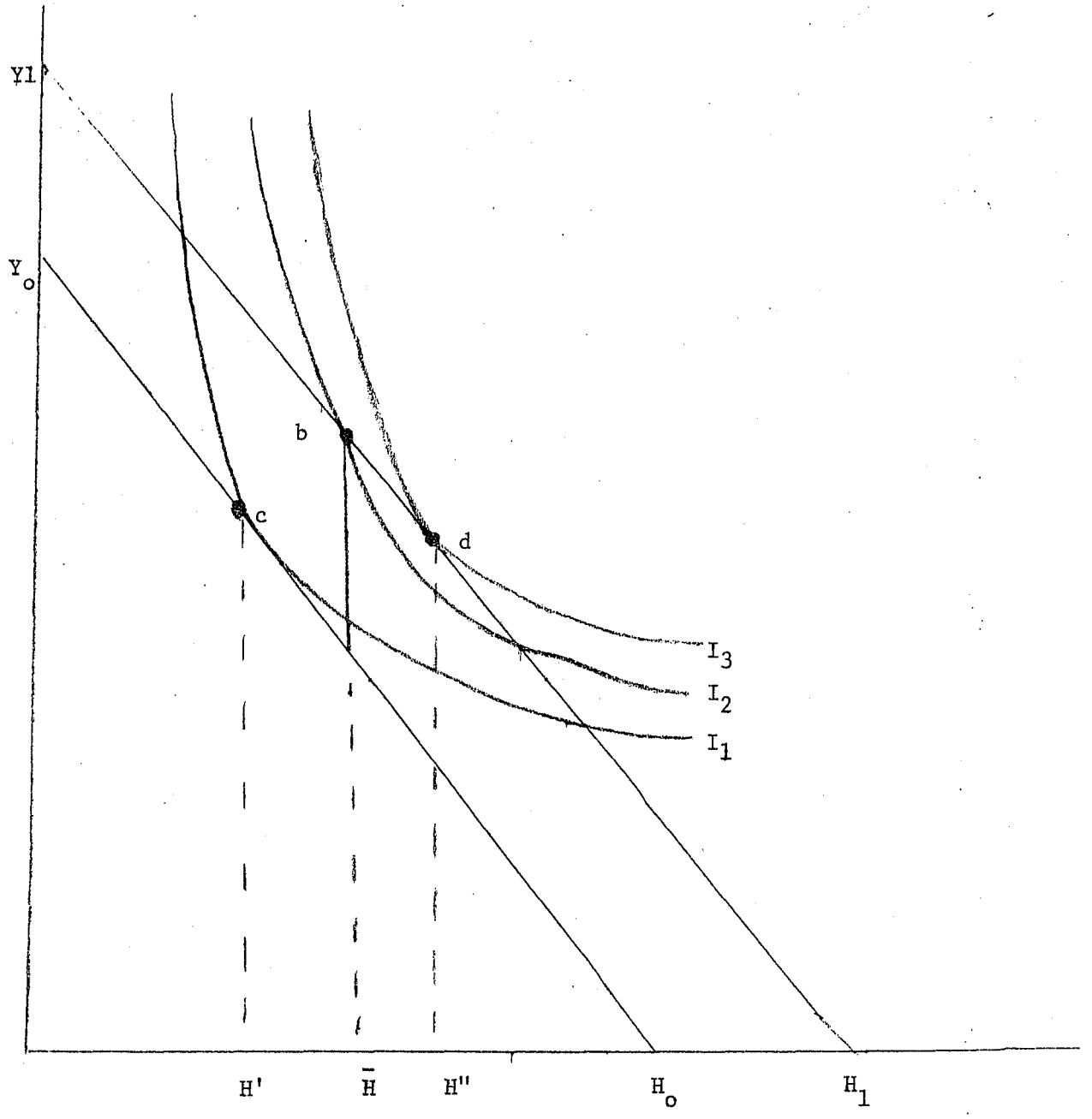


FIGURE 4

increases the recipient's utility by less, to I_2, and his housing consumption by less, to $\bar{H}$. On social welfare grounds, then, public housing is clearly inferior to either type of cash grant. Both the welfare gain of the recipient and the external benefits to the non-poor (as measured by the increase in housing consumption of the recipient) are smaller under the public housing option than under the alternative schemes. This, of course, reflects the inflexibility of the public housing approach, which offers only one type of housing at a single price.

As before, we can define the boundary between this case and Case 1 in terms of family income, if we assume that all poor families have identical preference functions. The boundary occurs at the income level where the recipient's post-subsidy indifference curve I_3 is tangent to the subsidized budget line Y_1H_1 at point b; let us denote this income level $\hat{Y}$. At the income level $\hat{Y}$, the three approaches have identical social welfare implications. At incomes above $\hat{Y}$, either type of cash subsidy is unambiguously preferable to public housing on social welfare grounds.

Summary of Findings: Part II

The optional policy choice among the various subsidy schemes considered here, then, depends upon the income level of the recipient (assuming all the poor have identical tastes) and the specific form of the social welfare function. For very low-income families, the offer of public housing or conditional cash grants will be rejected, so that unrestricted cash grants are the only effective policy alternative. Under reasonable assumptions about the social welfare function, however, this policy may be preferrable to no subsidy at all. For families with

incomes between $\bar{Y}$ and $\hat{Y}$, conditional cash grants and public housing result in identical welfare gains, but whether either is preferrable to unrestricted subsidies depends upon the social welfare function employed. In general, if there are strong (aggregate) external benefits involved, the two restricted subsidies are likely to be preferred, even though the direct welfare gain of the poor is clearly greater under the unrestricted cash subsidy system. For families with incomes above $\hat{Y}$, public housing is clearly inferior to the two alternative systems, which have identical welfare implications.

The principal conclusion to be drawn from these findings for policy purposes is that if we are restricted to a choice between public housing and conditional cash grants of the type discussed here, public housing is an unambiguously inferior solution. It is at best equivalent to conditional cash grants (for incomes below $\hat{Y}$), and in some income ranges (above $\hat{Y}$) clearly inferior on social welfare grounds. We can also say, albeit with somewhat less precision, that if the external benefits of improving low-income housing are substantial, then for the (probably broad) range of poor families with incomes above $\bar{Y}$, conditional cash grants are also superior to unrestricted subsidies, even though the latter result in a greater welfare gain for the poor. To improve the housing conditions of the very poor, however, only unrestricted subsidies will be effective. Thus, for very low-income families, income maintenance programs such as the negative income tax should be viewed as complementary to, rather than competitive with, programs aimed explicitly at raising housing conditions of the poor to standard levels.

Part III: An Alternative Analysis

A number of simplifying assumptions were employed in the analysis presented in Part II, in order to reduce the problem to a manageable scope. By and large, it is felt that these assumptions do no great violence to reality and could, in any case, be relaxed somewhat without changing the analysis substantially. The modification of one assumption, however, does affect the results of the analysis substantively, and therefore deserves detailed consideration. This is the assumption that public housing yields the smallest flow of housing services consistent with "standard" quality.

There are numerous grounds for believing that this is not the case. First, there is the considered opinion of knowledgeable students of urban housing to the contrary.[7] Second, at least one investigator has found that the estimated market value of housing services produced by public housing units falls fairly close to the estimated average market rental value of all U. S. Housing; Edgar Olsen's estimates of the two rental values are $75 per month and $86 per month, respectively.[8] Finally, one interpretation of the evidence marshalled by Smolensky to support the contention that substandard dwellings can be rehabilitated to standard at lower cost than new units can be built is that the rehabilitated units, although of standard quality, are of lower quality than public housing.[9]

Although these arguments are far from conclusive, it seems worthwhile to investigate the welfare implications of the assumption that public housing provides housing services of higher than minimum standard quality. We shall focus our attention on the welfare comparison between

public housing and conditional cash grants, because modification of our assumption about the quality of public housing obviously has no effect upon the relative merits of the two cash subsidy alternatives, which have already been discussed in detail. To consider all three options in the analysis would thus unduly complicate the exposition.

The comparative effects of public housing and conditional cash grants for the three income ranges considered in Part II are summarized in Figures 5-8. In each diagram, the opportunity locus under conditional cash grants is $Y_o acH_o$; under public housing with implicit subsidy of equal value, it is $Y_o H_o$ plus the point b, which corresponds to housing consumption $H_{ph} > \overline{H}$.

Families with incomes below $\overline{Y}$ will again reject both public housing and conditional cash grants, as shown in Figure 5. Either subsidy would result in a reduction of the family's welfare.

In the income range between $\overline{Y}$ and $\hat{Y}$, public housing will always result in lower utility for the recipient than the conditional cash grant, as shown in Figures 6 (a) and 6 (b). In fact, families in the lower part of this income range would actually suffer a reduction in welfare (from I_2 to I, in Figure 6 (a)) if they moved from their present substandard housing into public housing; they will therefore reject the public housing offer. At some income level, however, point b will lie on a higher indifference curve than the family's current substandard housing. We shall denote this income level $\overline{Y}'$. The situation of families with incomes between $\overline{Y}'$ and $\hat{Y}$ is represented in Figure 6 (b).

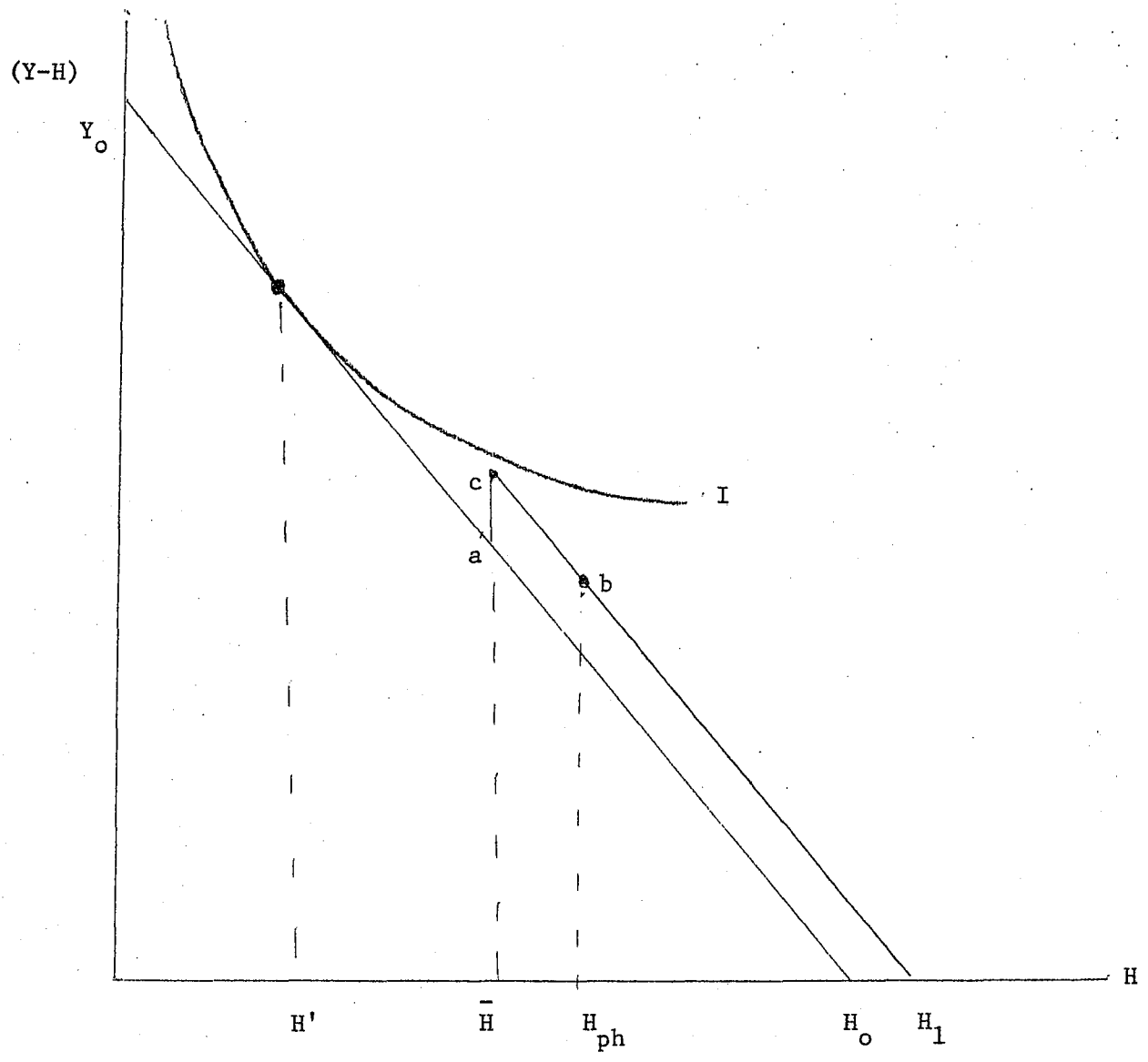
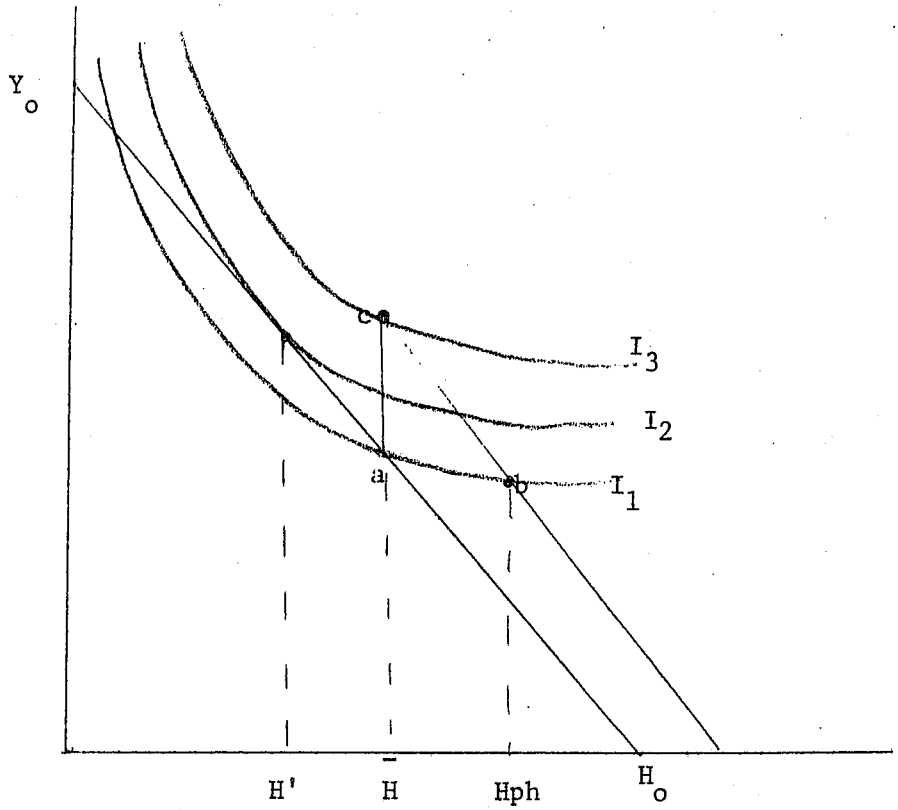


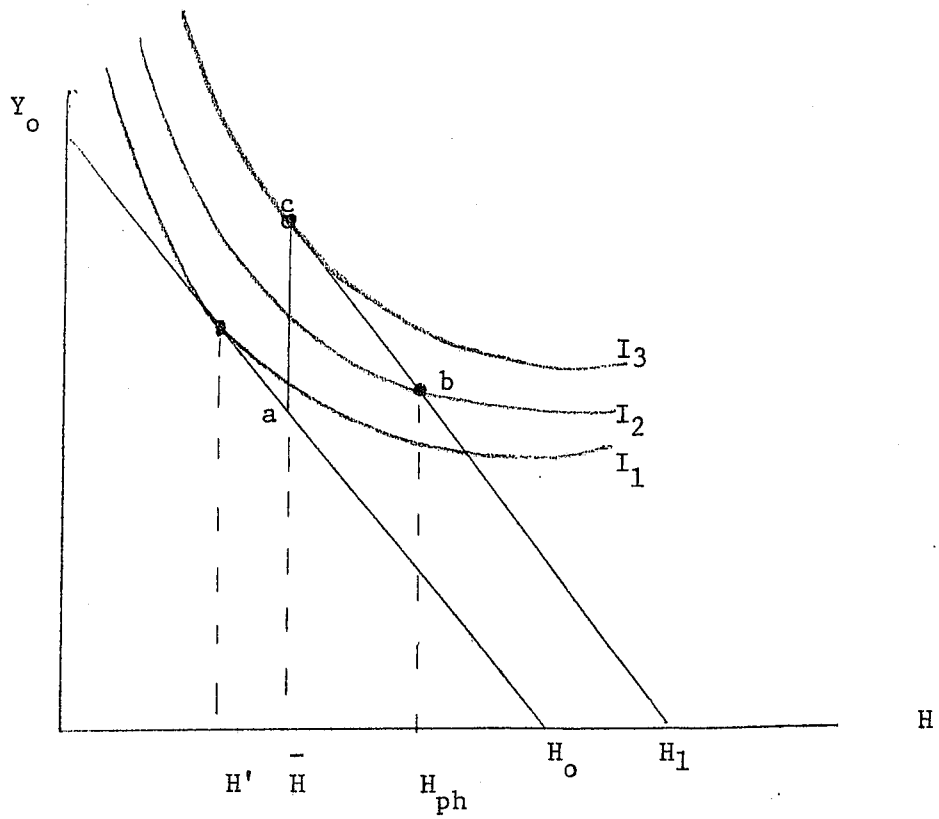
FIGURE 5

(Y-H)



(FIGURE 6a)

(Y-H)



(FIGURE 6b)

In the income range from $\bar{Y}$ to $\bar{Y}'$, then, conditional cash grants will both raise the recipient's welfare and increase his housing consumption, while the offer of public housing will be rejected leaving both unchanged. In the somewhat higher income range from $\bar{Y}'$ to $\hat{Y}$, conditional cash grants will raise the welfare of the recipient by more than public housing, but public housing will result in higher housing consumption by the family (H_{hp} as opposed to $\bar{H}$), and therefore greater external benefits. Which program is to be preferred depends upon the relative strength of the externalities.

Qualitatively the same results apply for the income range immediately above $\hat{Y}$; this is illustrated in Figure 7. However, above some income level $\hat{Y}'$, the family's new consumption mix under the conditional cash grant will include greater housing consumption than that provided by public housing; such as the case shown in Figure 8. The income level $\hat{Y}'$, of course, is the income level at which an indifference curve tangency occurs precisely at point b. For incomes above $\hat{Y}'$, then, conditional cash grants not only result in greater welfare gains for the recipient, but also greater externalities, due to greater housing consumption (H'' as compared to H_{ph} in Figure 8). Thus, there is an unambiguous preference for conditional cash grants for families in this income range.

To recapitulate these results, if there exists standard housing of lower quality than public housing:

a) for families with incomes below $\bar{Y}$, neither subsidy will be effective;

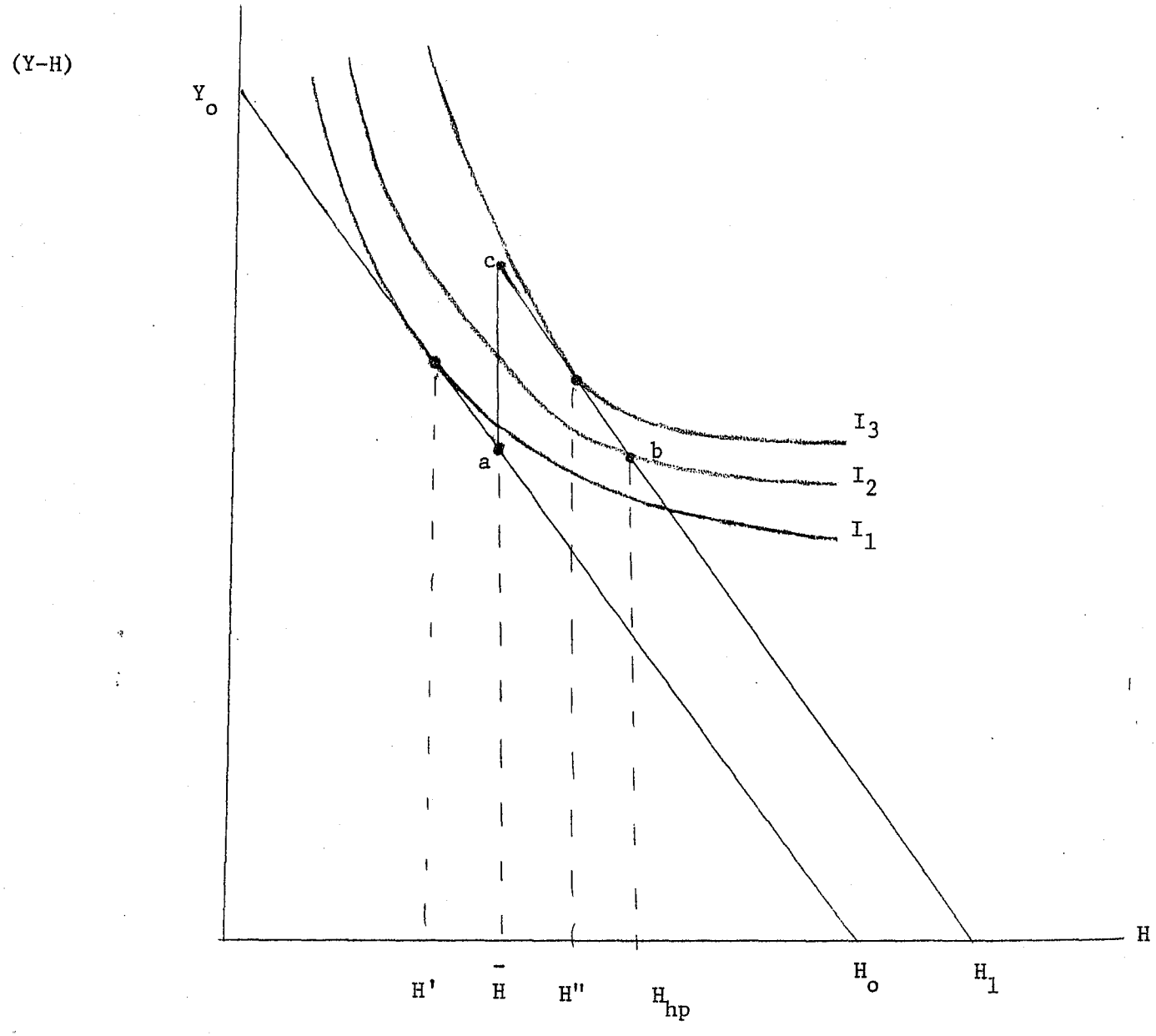


FIGURE 7

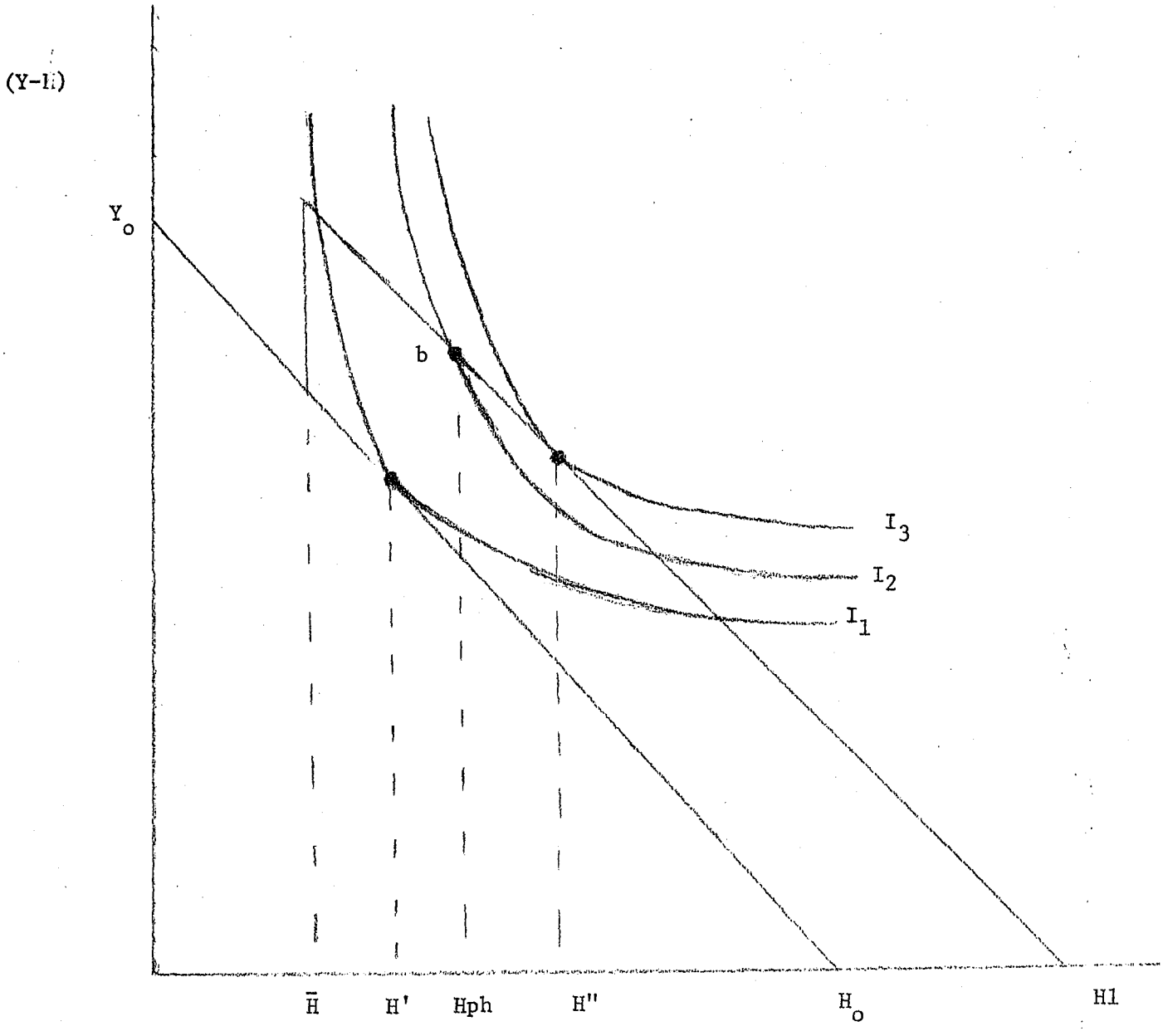


FIGURE 8

b) for families with incomes between $\overline{Y}$ and $\overline{Y}'$, the public housing offer will be rejected, while the conditional cash grant will raise both the housing consumption and the welfare of the recipient;

c) for families with incomes between $\overline{Y}'$ and $\hat{Y}'$, conditional cash grants involve a greater welfare gain to the recipient, but public housing involves a greater increase in housing consumption;

d) for families with incomes above $\hat{Y}'$, conditional cash grants increase both recipient welfare and housing consumption by more than does public housing.

Thus, while conditional cash grants are clearly preferrable (or at least, more effective) in cases (b) and (d), the social welfare implications of the alternative plans are ambiguous in case (c), without a more specific formulation of the social welfare function. I shall conclude the analysis by considering one such specific formulation which allows an unambiguous choice between the two policies.

Part IV: A Social Welfare Function with Dichotomous Externalities

An extremely simple, but quite plausible, view of the externalities of low-income housing is that all substandard dwelling units generate the same disutility for members of the non-poor majority, regardless of quality differences among substandard units, and that standard dwellings generate no (or negligible) externalities, regardless of quality differences (within the relevant range). Thus, the external benefits of improving low-income housing occur only at the transition from substandard to standard dwellings.[10] In this view, "substandard" is synonomous with "objectionable", and "standard" with "acceptable"

to the non-poor observer who draws no distinctions among the various qualities of housing within those two classes. This is, of course, an extreme position, but it corresponds closely to the way many policy discussions of low-income housing are framed, and is analogous to the use of a single poverty line (or even one which varies from family to family) which simply dichotomizes the population into poor and non-poor.

If we adopt this view, the social welfare function remains as postulated in Part I, except that the variable H_p in the utility functions of non-poor families must be redefined. Instead of measuring the aggregate housing consumption of the poor, H_p now becomes simply the number of substandard dwelling units or, equivalently, the proportion of the population housed in substandard dwellings.

Formulated in this way, the social welfare function yields an unambiguous preference for the conditional cash grant as opposed to public housing. For, in case (b) of the previous section, where public housing resulted in greater housing consumption but lower utility for each recipient family, the external benefits to the non-poor will be identical under the two schemes; both result in the recipient family recieving standard housing. Therefore, social welfare will be higher under the conditional cash grant because it increases recipient welfare by more than the equivalent public housing subsidy. As before, both subsidies will be rejected by very low-income families, and conditional cash grants are clearly preferrable on welfare grounds in the remaining income ranges outside the income range of case (b).

Summary and Conclusions

We have seen that the optional form of subsidy for low-income families will, in general, depend crucially upon the strength and form of the external benefits of the poor's consumption of housing. Only by making fairly strong assumptions about the social welfare function can we select one of the alternative subsidies as socially optimal, and even then, the same subsidy may not be optimal for families at all income levels. That is, we must know a good deal more than we do about the tastes of the non-poor before we can choose the appropriate vehicle for subsidizing the poor.

As between traditional public housing and conditional cash grants, however, the issue is much clearer -- at least so long as public housing can be regarded as providing minimal standard housing services. In that case, conditional cash grants are clearly superior. If we are justified in trying anti-poverty subsidies to housing consumption in the first place, then conditional cash grants offer a more efficient solution, in welfare terms, than the existing public housing program. It must be borne in mind, of course, that neither of these two approaches will be effective for very low-income families. If we are to aid these families, the subsidy cannot be conditioned upon occupancy of standard housing.

If we assume that public housing provides more than minimal standard housing services, not even the choice between conditional cash grants and public housing is clear. For in this case, while public housing always results in smaller welfare gains for the poor, it may very well involve greater external benefits for the non-poor.

If, however, we are willing to assume that the externalities of low-income housing are dichotomous, depending only upon whether the family inhabits standard or substandard housing, we must again opt for conditional cash grants.

It should perhaps be emphasized, however, that the analysis leaves unanswered, except in a rather formal sense, one of the most basic welfare questions involved. It cannot be established a priori whether there is any justification for encouraging the poor to consume more housing as opposed to other consumption items. The answer to this question, again, depends upon the strength and character of the externalities of low-income housing. This is an empirical question which deserves much more thorough investigation than it has received to date.

FOOTNOTES

1. Urban Renewal Act of 1965, Title II, Section 1, as amended by the Urban Renewal Act of 1968.

2. Nourse, "Income Redistribution and the Urban Housing Market", Institute for Research on Poverty Working Paper, August, 1968.

3. Smolensky, "Public Housing or Income Supplements--The Economics of Housing for the Poor," Journal of the American Institute of Planners, March 1968, pp. 94-101.

4. Although the analysis is developed in terms of the provision of low-income housing, it could be applied to virtually any program which provides subsidies in kind or cash subsidies tied to the consumption of a particular item.

5. An alternative explanation, of course, is to invoke some paternalistic notion such as the Musgravian concept of "merit wants." The basic idea of merit wants is that society is better able to judge what is best for the individual than the individual himself. Or, alternatively, that society is better able to judge what is best for the poor family than the family decision-maker. Thus, for example, if it is felt that poor children will benefit more from decent housing than from other consumption items that might be selected by their parents, there are paternalistic grounds for intervention. A social welfare function which involves paternalism, however, violates the concept of consumer sovereignty embodied in the individualistic social welfare function assumed here.

6. It is interesting to speculate on the form these externalities take. If more housing consumption means better housing for the poor, the benefits to the non-poor might include a lower social incidence of disease and fire. A related benefit which is often attributed to housing subsidies, lower crime rates, would seem to be more closely related to the social organization of the poor than to their physical accommodations; indeed, the social organization of current public housing projects may actually increase the incidence of crime. One writer has suggested that the most important externality of public housing may be that it makes poverty less conspicuous--and therefore more palatable--to the non-poor majority.

7. Under this assumption, we take a neutral stance with respect to the question of relative efficiency of new construction and rehabilitation posed by Smolensky. This seems appropriate, given the inconclusive nature of existing evidence; in any case, it allows us to focus directly on welfare considerations without regard to questions of allocative efficiency.

8. H'' will be greater than or equal to H' so long as housing is not an inferior good, an altogether reasonable assumption which will be made throughout.

9. Eugene Smolensky, for one, rejects this assumption, especially in the case of new public housing, which would seem to be most relevant here. He suggests that if public housing were built as minimal standard dwellings, they would inevitably deteriorate to substandard quality in a short time, in the absence of major maintenance and renovation expenditures. Thus, most of the existing public housing units would by now be substandard, which is not the case.

10. Olsen, "A Welfare Economic Evaluation of Public Housing: Some Estimates of Waste," presented at the Annual Regional Science Association Meetings, Nov. 4, 1967. Both of these estimates of market rental value are far below Smolensky's estimate of the monthly per unit cost of public housing, $109, (Smolensky, op. cit.) but Olsen's estimates seem more relevant for our purpose. The difference between the estimates of cost and rental value, of course, reflects the inefficiency of public housing on resource allocative grounds, a question from which we have attempted to abstract in this discussion.

11. Smolensky, op. cit. This interpretation, however, assumes some relation between cost and market value of public housing.

12. This view of housing externalities is implicit in the objective function posited in Smolensky, op. cit. In unpublished papers, Smolensky has spelled out this notion quite explicitly.