Need, Equity and Equality in Health and Health Care

by

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ABSTRACT

Four distributional principles for the allocation of health care resources are discussed: equal expenditures per capita, proportionality to need, proportionality to endowment health status, and proportionality to capacity to benefit. They are compared with another process, concept of equity, equality of access and an end-state concept, equality of health. Each, save the last, is shown to create anomalies and inequity.

INTRODUCTION

A variety of definitions of equity in health care has been proposed in the literature (eg. Mooney 1983, 1986; Mooney and McGuire 1987; Le Grand 1982, 1987). The first we explore is "equality of expenditure per capita". This definition underlies the regional budget allocation formulae used in some countries. The obvious objection to it is that it takes no account of "need". So the second definition we explore is "distribution according to need". Exploration of this definition, which is to be found in several policy documents and is frequently encountered in the academic literature, is hampered by the absence of agreement in the literature as to the meaning of "need" despite the considerable demand for the concept noted by Boulding (1966) which shows no sign of diminishing. In this paper we suggest that two interpretations of "need" found in the literature are inadequate and we propose a new one. The third definition of equity we explore is "equality of health". This definition underlies the Black Report (Black 1980; Townsend and Davidson 1982). The fourth definition of equity we shall explore is "equality of access". This definition is more common in policy documents than any other definition and is sometimes narrowed to "equality of access for equal need". Quite what is meant by "access", however, is not at all clear and part of the paper will be concerned with what is meant by "access".

One of our objectives is to explore the compatibility of these four definitions of equity. That this issue has received so little attention in the literature is surprising, since there is a widespread view that at least some equity goals are incompatible with others. Those who argue for the principle of distribution according to "need", for example, argue that the

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principle implies, or is implied by, a commitment to equality. Thus Miller (1976) argues that the two principles (viz. equality and distribution according to "need") stand "in a peculiarly intimate relationship to one another" (p. 148). We conclude that the four principles will in general conflict with one another. We therefore go on to ask the question: is there any reason to prefer one over the rest?

WHAT IS NEED?

It is not uncommon to find "need" identified with ill-health. Examples in the philosophy literature include B. Williams (1962) and Gillon (1985). Examples in the economics literature include the empirical work of Le Grand (1978), Collins and Klein (1980), O'Donnell and Propper (1991), Wagstaff, van Doorslaer and Paci (1991) and the country studies reported in van Doorslaer, Wagstaff and Rutten (1992).

A difficulty with such a definition is that it is hard to see why someone who is sick can sensibly be said to need health care regardless of the latter's ability to improve the person's health. More generally, it seems that the concept of need is inherently consequentialist or instrumental: an entity can be held to be needed only insofar as it is a necessary condition for some more ultimate goal to be attained (Barry 1965). Moreover, it is plain that any old goal will not do. We do not wish to permit a usage that would allow there to be needs for luxuries, or for implements to do evil; nor do we wish need to be a synonym for wants (at least, not for any old wants, though it seems quite likely that what is needed may also occasionally, even frequently, be wanted), nor do we wish it to be a synonym for reasonable expectations. These issues, which have been much discussed in the

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philosophical literature, are not our concern here (see eg., McCloskey 1976 for a fuller discussion). For a need to exist, however, we shall take it that it has to be demonstrated that two necessary conditions apply, viz. (i) the entity is indeed necessary to attain the goal in question and (ii) the goal itself is sufficiently meritorious as to justify use of so persuasive a term as "need" rather than mere want or preference.[1] There is a kind of hierarchy of goals that is well-illustrated in the field of health and medical care. Thus, health may be the entity needed in order to serve the goal of a "flourishing" life (Wiggins 1984) or "vital purpose" (Nordenfelt 1984) or to realize life's "projects" (B Williams 1973) or to be able to operate within the "normal opportunity range" for achieving a person's life-plans (Daniels 1985). In this case the state "good health" is the necessary instrumentality for attaining some higher order goal. Another focus, which is that adopted here, and which involves a further step backwards from whatever is the ultimate justification for regarding "health" as particularly special, is to identify resources as the entities needed, specifically health care resources, with the goal served by these instrumentalities being better health.

This view of need has two immediate, and not uncontroversial, implications. First, if a (marginal) need for an entity is to be asserted, its expected (marginal) productivity in terms of health must be positive. For example, if a particular medical technology is not at all effective in terms of improving health, then it cannot be held to be needed, or if beyond a particular rate of application to an individual or a group it is no longer effective, then more beyond that rate of application is not needed (such judgments will normally be probabilistic[2]). An alternative, but equivalent, way of stating this necessary condition for a need to exist is that there should be an expected capacity to benefit from the consumption of resources (A. Williams 1974, 1976, Culyer 1976). Second, a positive marginal product is a necessary but

not sufficient condition for a need to exist: there may be other less costly or more productive technologies which fulfil the goal more efficiently (Culyer 1978, 1989). An individual may thus need health care but not be ill (preventive medicine) or be ill but not need medical care (when no medicine is effective).

But, in view of condition (ii) above, it is clear that there may be no need even for effective means if the goal served is insufficiently meritorious. This raises an important set of questions to do with who ought to judge the merit or otherwise of various goals, whether their merits are evaluated by reference to a particular individual's preferences[3] or by reference to a set of moral principles that are independent of preferences (as in "merit" goods), whether the attainment of goals can be monitored and measured (normally at least up to a linear transformation), and whether it is possible to speak of goals, and hence needs, in such a fashion as to be culture-independent (and, if not, what is to be done in a culturally diverse society or in making cross-cultural comparisons of need).

Although it is an improvement on equating need with ill-health, this second interpretation of need as "capacity to benefit" leaves unanswered the question of how much medical care someone needs. This depends on the precise relationship between medical care expenditures and their output: health improvements (compared with what would otherwise have been the case). A technological breakthrough which makes it possible to treat a particular condition as effectively as before but at a fraction of the previous cost clearly leaves a person's capacity to benefit the same (in the sense that the improvement in health achieved by treatment is the same) but the amount of medical care expenditure the individual "needs" is much reduced. This suggests that need is best defined not in terms of capacity to

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benefit alone but rather in terms of the amount of expenditure required to effect the maximum possible improvement or, equivalently, to reduce an individual's capacity to benefit to zero. If capacity to benefit is zero, need is also zero. Where capacity to benefit is positive, assessment of need requires an assessment of the amount of expenditure required to reduce capacity to benefit to zero.

WHAT IS ACCESS?

It is common in the US literature to find "access" to health care interpreted in terms of individuals <u>entering</u> the health care system (cf. eg. Salkever 1975, Aday and Andersen 1975). Mooney (1983) has suggested that defining access in this way confuses access with receipt of treatment. He suggests that access can be more usefully defined in terms of the <u>opportunities</u> open to individuals. Whether these opportunities are exercised, and hence whether individuals actually enter the health care system, is immaterial. Thus, two individuals may have the same access to health care and yet one may enter the health care system while the other may not.

Le Grand (1982) and Mooney (1983) have suggested that access is best thought of in terms of the money and time costs that individuals incur in using health services. Equality of access then requires that all individuals face the same money and time costs. Evidently, this will not necessarily result in each consuming the same amount of medical care, even when their diagnoses and prognoses are the same, because their preferences may differ. Quite how income fits into this interpretation of access is unclear. Mooney does not address the issue. Le Grand does. He notes that access costs will be higher for those with low incomes

on the assumption that they also have a higher marginal utility of income. The implication is that access costs ought to be measured in terms of utility rather than money.

An alternative characterisation of access, which seems to be consistent with Le Grand's and which we adopt in this paper to simplify presentation, is that of Olsen and Rodgers (1991). They suggest that equality of access to a good requires that the maximum attainable consumption of that good be the same for all. This is illustrated in Figure 1, with axes income (Y) and medical care expenditure (M). Assume that OG units of medical care (M) are available free of user-charge and that no supplementation or resale are permitted. This assumption makes sense in the context of a British-style NHS and many other OECD countries' systems. The budget set is therefore OCEG. Assume also that the consumption of medical care and other goods (Y) involves the patient's time. The time constraint is shown as AB. The feasible set is now OCDFG and the individual has access to OG medical care. It is evident that, even though health care is "free", individuals may, in Figure 1, choose not to consume OG. An individual with the indifference curve IC_1 would choose point D in preference to F. Moreover, two individuals with the same feasible set OCDFG - and hence enjoying the same access to health care - may well choose different amounts of M. An individual with the indifference curve IC_O, for example, would consume at F while another, having IC_1, chooses D.

It is worth noting that where medical care is distributed free of user-charge, differences in income and time costs are not necessarily incompatible with equality of access. Suppose in Figure 1 that income increases so that the budget set expands to OHJG. The feasible set then expands to OHIFG. But the individual still has the same access to medical care as

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before. If the individual's preferences before the change were IC_1, consumption of medical care will change. Indeed, in the case shown, a rise in income will cause the amount of care consumed to fall, even if medical care is a normal good. The paradox arises from the interaction of an all-or-none subsidy programme and the time constraint. Alternatively, suppose that the time price of consuming health care were to rise. This causes point B to move towards the origin, making the time constraint steeper. Provided that point B does not move to the left of point G, access to medical care remains unchanged at OG. Note that, irrespective of preferences, the amount of health care consumed will change.

HORIZONTAL AND VERTICAL EQUITY

In exploring the principles of equal expenditure per capita and distribution according to "need", we adopt the Aristotelian distinction between horizontal and vertical equity, with horizontal equity requiring the equal treatment of individuals who are equal in relevant respects and vertical equity requiring the proportionately unequal treatment of individuals who are unequal in relevant respects. In what follows we reserve the word "need" for our definition of need as the amount of expenditure required to eliminate capacity to benefit. We refer to the other two definitions of need as "endowment health status" and "capacity to benefit". The candidates for "relevant respects" which we shall consider are thus:

(i) mere "being" - a purely horizontal principle requiring equal expenditures per head (as is the case with the regional budget allocation formulae used in some countries)

(ii) need (horizontal and vertical)

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(iii) endowment health status (horizontal and vertical - in the latter case, favouring the worse off)

(iv) capacity to benefit from medical care (horizontal and vertical - in the latter case, favouring those with greater capacities).

We shall compare these four with an end-state principle, viz, final health status.

We shall discuss equity at the macro rather than the micro level. Equity at the micro level is a common component of medical ethics, as when, for example, it is held that doctors ought to have an equal respect for individuals' autonomy (eg. Stanley 1989) which enjoins them to take account of patients' attitudes to risk in choosing or recommending alternative courses of treatment having different efficacies and side-effects. At the macro level at which we are dealing, however, the concern is with programmes of care rather than with individuals, and with groups of individuals, identified by such characteristics as geographical area of residence, social class, income group, or risk factor.

Traditional medical ethics are insufficient to determine the equitable distribution of health care across programmes or social groups. One doctor may be a pretty good judge of the needs of his or her patients but is rarely in a good position to evaluate the rival claims of other doctors who are also making demands on behalf of "their" patients, or to assess the strength of these rival claims. For such macro decisions, judgments of a broader kind are necessary. The equity principles that ought to inform such judgments, and the conflicts between them, are the concern in this paper (see Culyer 1992 for an extended discussion of

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this and related issues).

A GEOMETRY OF EQUITY

In Figure 2 the axes in quadrant I represent the health (H) of two individuals (A and B) measured on ratio scales and interpretable either as flows per unit time or as stocks (for example, present values of time streams of QALYs - Quality Adjusted Life Years). S is an endowment point with each having the same health endowment. Capacity to benefit is defined with respect to point S and is determined by the technology available for transforming resources (expenditure on resources) into better health. The capacities to benefit of A and B are shown in quadrants II and IV, where the output functions C_B and C_A are loci of the <u>maximum</u> output in terms of health attainable at a variety of rates of expenditure on A and B (i.e. we assume cost-effectiveness). We assume that these functions are strictly concave, and independent in the sense that there are no production externalities between A and B. When the marginal product of expenditure falls to zero, capacity to benefit is exhausted, and this locates the two points h_{Bmax} and h_{Amax} in quadrant I, which, in Figure 2 also happen to be the same health status for each. A need for the resources in question exists within the "capacity to benefit" box Sf_BNf_A defined to the north-east of S. In the case illustrated, A and B have not only the same endowment and the same capacity to benefit ($Sh_{Bmax}=Sh_{Amax}$) but also the same need for resources shown by point n in quadrant III, determined by the points at which the C functions reach their maxima. The resource endowment line m_Bm_A with slope -1 in this quadrant defines the system's budget constraint and the coordinates of point E_e on its intersection with On indicate the resources to be allocated to A and B on the principle "equal treatment for equal need". Clearly $Om_B^*=Om_A^*$. By tracing all possible distributions

of the fixed budget between A and B via the C functions in quadrants II and IV, the health

frontier $f_B f_A$ is derived, showing the various distributions of health that are possible, given the

budget of quadrant III, the technologies embodied in II and IV, and assuming production

efficiency. In Figure 2, this frontier is necessarily symmetrical about the 45° line through S

since identical cost technologies have been assumed. It is also symmetrical about the 45° line

through O as identical endowments of H have been assumed. The slope of $f_B f_A = MC_A/MC_B$

where MC is the marginal cost of a change in the health of the indexed individual.

In this simple case it is plain that the four "relevant respects" in terms of which

distributions may be evaluated yield the same answer and that the final state is also one of

equality of health. It will also be evident that A and B have an equal amount of unmet need

in this special case.

Before considering more general cases, it is worth considering briefly one further

definition of equity that has been proposed in the literature: "equality of marginal met need"

(Steele 1981, Mooney 1983). Here "need" is defined as capacity to benefit: high priority

needs are those where the return to marginal additional expenditure is high. "Needs" are then

ranked according to priority and equity is defined as an allocation of resources where

marginal met need is equalised, viz. the payoff to marginal expenditure is equalised across

regions, programmes, client groups, etc. Evidently, this occurs in Figure 2 where the slopes

of the two output functions are the same and therefore where the slope of the health frontier

is equal to -1 at H_e. It ought to be apparent that equalising marginal met "need" will result

in the sum of health statuses being maximised, where the latter is defined in terms of

maximising per capita health status and a unit of health counts equally for each as under

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"QALY egalitarianism" (cf. A. Williams 1986). It is also obvious that this is an efficiency condition for any system with the objective of maximising health (eg. Culyer 1976, p. 110).

UNEQUAL CAPACITIES TO BENEFIT

In Figure 3 we illustrate a case where capacities to benefit differ (A can be restored to a relatively high health status, h_A, if all the available resources were devoted to him or her, but the maximum attainable for B, even if the entire budget and more were committed entirely to B, is only h_B. Initial endowment and need are, however, the same. The effect of these assumptions is to rotate the health frontier anti-clockwise and to squeeze the capacity to benefit box, with f_B moving to the south of its previous position.

The distribution of health resulting from an equal distribution of expenditure between A and B at E_e on $m_B m_A$ in quadrant III is shown by H_e on the health frontier in quadrant I. Distribution in proportion to endowment implies equal expenditure since the endowments are equal and locates point $H_s = H_e$ on the health frontier in quadrant I. Distribution in proportion to need implies equal expenditure since need is equal and locates point $H_n = H_s = H_e$. Proportionate capacity to benefit is shown by the angle $\propto$ formed by the diagonal SN in the capacity to benefit box and the 45° ray through S and distribution of expenditure in proportion to capacity to benefit is given the intersection of Oc and $m_B m_A$ in quadrant III. This locates point E_c and implies point H_c on the health frontier. An equal distribution of final health is determined by the intersection of the health frontier and the 45° ray through the origin in quadrant I. This determines point H_h and implies the distribution of expenditures in quadrant III shown by point E_h.

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The four principles all imply increasing inequality compared to the endowment point and favour A, the individual with the higher capacity to benefit. Indeed, they create inequality of health where none existed before. The principle of allocating resources in proportion to capacity to benefit reinforces, as may be expected, this favouring of A. To implement equal final health actually requires discrimination in favour of B, the individual with the smaller capacity to benefit, as indicated by E_h on the budget line, with $m^*_B > m^*_A$, where m^* henceforth denotes an individual's allocation of the available resources if equality of health is to be attained.

UNEQUAL NEED

In Figure 4 a case is illustrated where needs are unequal ($m_A > m'_B$ in quadrant III). Each has, however, an equal capacity to benefit ($f_A = f_B$), so the capacity to benefit box is a square. There are also equal endowments. Equality of expenditure at E_e on the budget constraint in quadrant III implies point H_e on the health frontier in quadrant I. Vertical equity in terms of distribution in proportion to need is, as before, determined by tracing the expenditures implied by point N in quadrant I and the C functions, giving the ray On in quadrant III, which intersects with the budget constraint at point E_n below and to the left of the point of equal expenditure E_e. Since endowment health and capacities to benefit are equal, horizontal equity requires a resource allocation at the intersection of the 45° ray through the origin in quadrant III and the budget line, with $E_s = E_c = E_e$. Equality of final health at point H_h on the health frontier requires the distribution of resources shown by point E_h on the budget constraint, with coordinates m^*_B and m^*_A.

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Since each had an equal initial endowment, it is scarcely surprising that distribution in proportion to need should introduce inequality in health where previously there was none, and that the principle favours the individual (A) with the greater need in terms of resources $(m^*_A > m^*_B)$. It is less obvious, however, that this also implies that the final distribution of health is in favour of B, the individual with the smaller need. The horizontal principles of distributing equally according to endowments and capacity to benefit are even more in B's favour because B's capacity to benefit is greater than A's for the same expenditure on each. So, of course, is the straight per capita distribution.

UNEQUAL ENDOWMENTS

Figure 5 is a case of unequal endowments (S is no longer on the diagonal through the origin in quadrant I), however, need and capacity to benefit are the same for each individual (and meeting the need of either fully would exhaust the budget). Equality of expenditure at E_e on the budget constraint implies point H_e on the health frontier in quadrant I, where the 45° ray through S intersects the frontier. Since needs and capacities to benefit are the same, they imply an expenditure distribution also at E_e and health distributions $H_n=H_c=H_e$. All these points are necessarily to the right of H_h, the equal final distribution of health, determined by the intersection of the 45° ray through the origin in quadrant I. However, they also imply less inequality than obtained in the endowment position, since they are to the north west of the point on the health frontier at which the produced ray OS intersects it. The vertical principle of distribution in proportion to endowments requires expenditure to be divided in proportion to the angle @ made by the diagonal OS and the 45° ray through the origin in quadrant I. This locates point E_s on the budget constraint in quadrant III, which in turn implies a final

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health distribution at H_s.

In this case, all principles of distribution make the final distribution of health more equal than the endowment distribution. They plainly favour the individual with the worse initial health status. This is, as one would expect, particularly so with the endowment-based principle. Distribution according to need and capacity to benefit, and equal per capita distribution, necessarily result in a final distribution of health in which the initially sicker person is still the sicker (though less so), but this need not be the case with distribution according to initial endowment. We have shown a case in which H_s lies to the south east of H_h. It is, however, possible for it to lie to the north east. Consider an endowment such that B was worse off than shown in Figure 5, with A having the same initial health stock. This will cause C_B to shift vertically parallel down wards as B's coordinate of S fell, and the (square) capacity to benefit box to be displaced vertically downwards at the same time as OS and OE_s were rotated clockwise. Even though this would cause the location of E_h also to move, it is possible for E_s to move to the north west of E_h on the budget constraint, causing a reversal of the initial ranking of health stocks. It is thus possible for the principle "distribution in proportion to initial health" to reverse an initial inequality, and points up the importance of distinguishing between initial health and need (with which initial health is sometimes confused).

CASES OF CLASHING VERTICAL PRINCIPLES

It would be tedious to enumerate the differences in resource allocations and distributions of final health states for all possible combinations of inequalities and equalities

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of needs, endowments and capacities to benefit (see, eg. Culyer 1991). Their outcomes are not, however, easily intuited. For example, in the case where need is equal but the individual with the worse endowment position also has a lower capacity to benefit, equal allocation of resources, as required by both the per capita and the needs rules, would maintain the same proportionate difference in health in the final state as in the endowments, resource allocation in proportion to relative capacities to benefit or to endowments will worsen the relative distribution compared to the endowment position. Whether H_c would represent more inequality in final health than H_s would depend on the relative degree of inequality in these "relevant respects".

WHAT OF ACCESS?

If the equity goal is equality of access, the maximum amount of medical care in Figure 2 to which A and B can be permitted to have access is $m^*_A = m^*_B$. A higher level of access might result in a violation of the budget constraint if each individual chose to consume the full amount of health care to which they had access. If ensuring that access is equal for public policy with the goal of promoting equality of consumption, it is evident from Figure 1 that nothing can be said a priori about the final distribution of medical care expenditure in the box $Om^*_A E_e m^*_B$. It is a matter for the individuals themselves to decide, and will depend on their preferences, their incomes and the time costs associated with "other consumption". Because nothing can be said about the final distribution of medical care expenditures within this box, it cannot be said whether the final distribution of health will be equal or not. Nor, indeed, can it be said whether the distribution will lie on the health frontier, since there is no assurance that the budget will be spent. In general, since preferences vary across individuals,

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and since income and the time costs of other consumption also vary, one would expect a policy of equality of access to result in the generation of inequalities in health where none existed before and also in inefficiency. It is obvious that the same conclusion also applies to the principle of equal access for individuals in equal need.

WHICH DISTRIBUTIONAL PRINCIPLE OUGHT TO DOMINATE?

Is there any compelling reason for preferring any of the principles since it seems that one is in general forced to choose between them? We think that there is. To see why requires a return to the fundamental reason for there being a concern with the macro distribution of health care.

Tobin (1970) observed that a preference for "specific egalitarianism" (in, for example, medical care amongst other specific forms of consumption) seemed to characterize the distributive concerns of Americans rather than a preference for general equality of income and wealth. Moral philosophy has suggested a reason why such specificity might ethically be justified (eg. Braybrooke 1987, Daniels 1985, Gillon 1985, Lockwood 1988, Miller 1976, Wiggins 1987). This is because entities such as "good health" are regarded as more "basic" and necessary for leading a "flourishing" life[4]. If this argument is correct, then it relegates need, capacity to benefit, and so on as "relevant respects" for determining equitable specific distributions to a relatively minor status. What becomes important is the distribution of health itself. For example, if it is the ethical status of health as necessary for the leading of a "flourishing" life that conveys any moral superiority to "need" over mere "demand", then it is also the same ethical force that makes need an insufficient distributional principle: the

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resultant distribution of health may not correspond to that required (whether equal or unequal) to ensure that each has a fair chance of leading a life that is as "flourishing" as resources permit. If the fundamental imperative is maximum feasible equality of opportunities to "flourish", and health is a necessary condition for "flourishing", then greater equality of health itself dominates the other principles discussed here. This will almost certainly have to be qualified by a side condition that greater equality be not achieved by reducing the health of some as a deliberate act of policy. Moreover, it may well be supplemented by, and traded-off against, other distributional desiderata (say, to do with merit or desert). Further, it is not to say that all aspects of medical care are equally the object of equitable concern. Ineffective medical care cannot be of any equitable concern at all, save in so far as resources wasted in its provision are denied to uses that might promote equity. Nor, we conjecture, are some of the complementary services provided by hospitals, such as private or semi-private rooms (save in special cases), better than two-star hotel services in hospital, or bed-side office services. It may be perfectly satisfactory for these to be allocated according to willingness-to-pay (either directly for them or for insurance packages whose benefits include such services and up-grades).

Where does all this leave "access"? The upshot would seem to be this: since need remains a necessary condition for the receipt of medical care (though relative need is not the appropriate distributional criterion) and equity requires a judgment to be made about the amount of need that ought to be met in order to promote greater equality of health, equality of access is required (probably) at the initial diagnostic and prognostic stage at which initial needs are assessed. Utilisation of health care subsequent to this ought to be unequal and subsequent access, in our sense of maximum attainable or permitted consumption, ought to

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be determined by (macro) judgments about the contribution made to greater equality of health.

CONCLUSIONS

The main conclusions are that, once the substantive content of equitable principles has been made explicit, they do not characteristically lead to the same requirements in respect of resource allocation, nor do they have the same implications for the resultant distribution of health. Moreover, none of the principles "distribute equally per capita", "distribute in proportion to need", "distribute in proportion to initial health or sickness", "distribute in proportion to capacity to benefit", or "aim for equal access" is egalitarian in the sense of necessarily promoting a greater equality of health in the community. If the latter is, indeed, the fundamental objective of distributional equity, then it generally requires an unequal distribution of medical care (and will also, of course, require attention to be given to other socially controllable arguments of the health production function). The nature of this inequality will be determined by judgments about the effectiveness (and cost-effectiveness) of medical care and by an assessment of the contribution various programmes aimed at particular groups have to make to a reduced variance in health. This conclusion underlines the desirability on efficiency grounds of "gold standards" of medical practice that encourage concentration on procedures with relatively high marginal products in terms of health. It is also worth noting that, if efficiency is defined in terms of maximising health outcomes from available resources, the often asserted trade-off between efficiency and equity may be exaggerated, for though it is possible to imagine circumstances in which the health frontier might be endogenous with respect to changes in the distribution of health, the disincentive effects that are often believed to cause income or wealth redistribution to shrink the

commodities production frontier through a fairly obvious and direct behavioural mechanism would not appear to apply, or at least not in any direct and apparent way.

Need remains a necessary condition for the receipt of medical care, though relative need is not a sufficient condition for determining its equitable distribution. Finally, we should note that our account of equity is by no means complete. We have not, for example, considered desert-based claims (for example, that smokers deserve less or that parents with many dependents deserve more). We conjecture that final judgments about what is equitable will depend also in part upon other such considerations, against which equality in health will have to be traded off.

END NOTES

1. Le Grand (1984) attacks need as a desert-based criterion for horizontal and vertical equity on the grounds that there is little agreement as to the meaning of the "basic terminology" (viz. "need") and, following Hare (1981) that linguistic intuitions about meanings ought to be widely shared. One of the objectives of this paper is, of course, to present a meaning that will be, we hope, widely acceptable - though how "wide" acceptability has to be to pass Le Grand's test is not clear.

2. There is, for example, no evidence that tonsillectomy to prevent recurrent throat infections, or stomach freezing to treat ulcers, or intestinal bypass operations to cure obesity, are effective. In making judgments about what epidemiologists call "efficacy", it is important to consider the appropriate range of treatment outcomes. For example, prior to 1946 the outcome of tuberculous meningitis was invariably fatal. When streptomycin became available, a few US victims treated with this drug survived and efficacy was judged to be unambiguous. In the treatment of men with elevated serum cholesterol (a coronary risk factor) use of the drug Clofibrate reduced serum cholesterol relative to placebo but was actually associated with a high number of deaths per 1,000 subjects than in the control group (Sackett et al.1985, 180-1). Most medical treatments are subject to Type I and Type II errors and efficacy is consequently usually defined in terms of conventional levels of statistical significance. The range of outcomes ought also to embrace adverse side-effects. Iatrogenesis (harm caused to patients by medical practice) has today become a major concern (Taylor 1977).

3. Boulding (1966) argued that judgments of need are essentially professional, a notion that is more commonly discussed today in terms of principal-agent theory.

4. "Flourishing" seems to be the term favoured by contemporary moral philosophers for Aristotle's eudaemonia. It is redolent with significance and sufficiently imprecise to be consistent with a variety of views as to what its detailed content ought to be. All that we require is that, whatever it might consist in, it is of overriding importance (for example, more important than "satisfaction") and that health is a necessary condition for it.

5. One reason for preferring "equality of access" to "equal treatment for equal need" or "greater equality of final health status" has been asserted to be that it does not involve a radical departure from the traditional Paretian value judgments of welfare economics (Mooney et al. 1992). But the relevant test is not "which distributional principle accords most closely with the value judgments of Paretian welfare economics?" but rather "which distributional principle is most just?". The apparently widely-held policy-makers' view that the business of health services is to improve health itself violates the Paretian view of efficiency and corresponds to what one of us (Culyer 1989) has termed a "characteristics approach" to efficiency and equity in contrast with the "welfarism" of traditional welfare economics (Sen 1979). We see no particular reason why economists' views about the appropriate form of the SWF should be taken as more authoritative than those of legitimate policy-makers. For further discussion see Culyer and Wagstaff 1992.
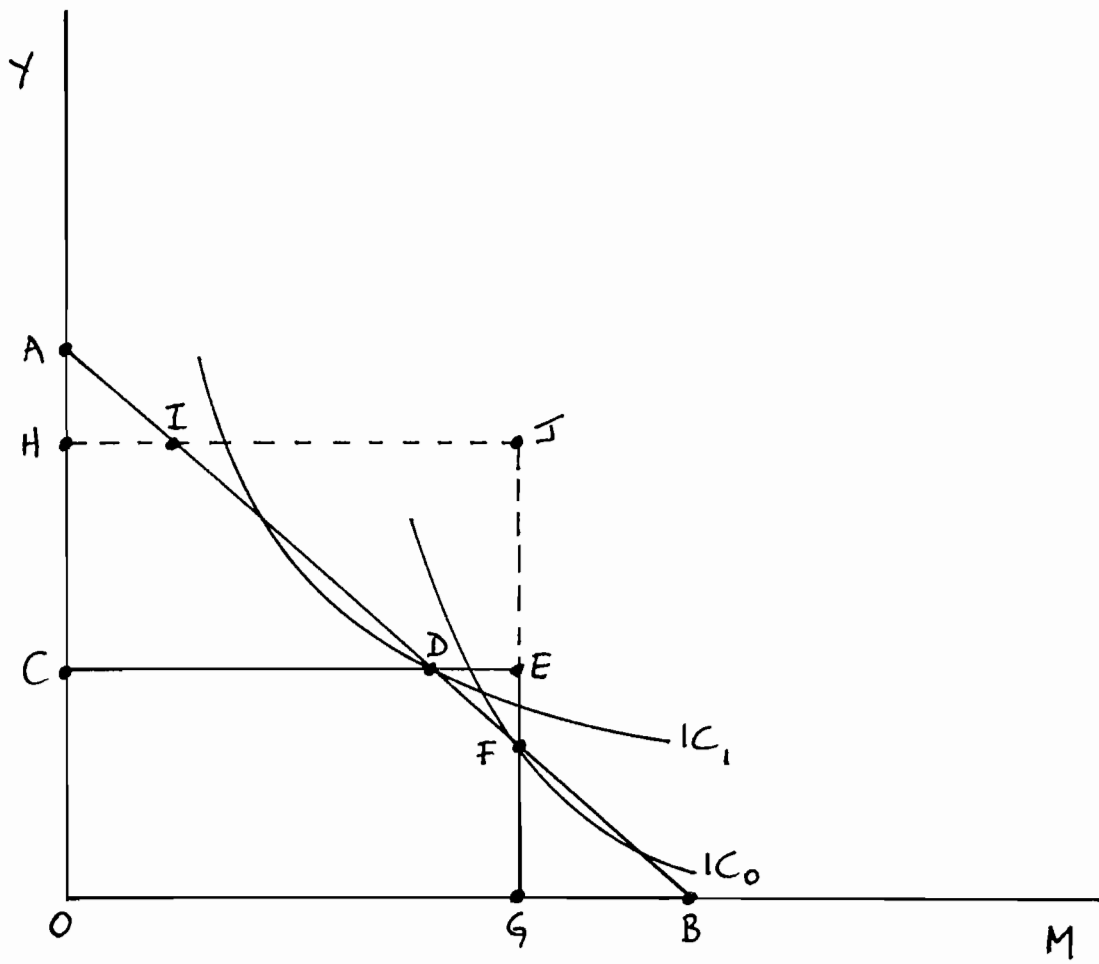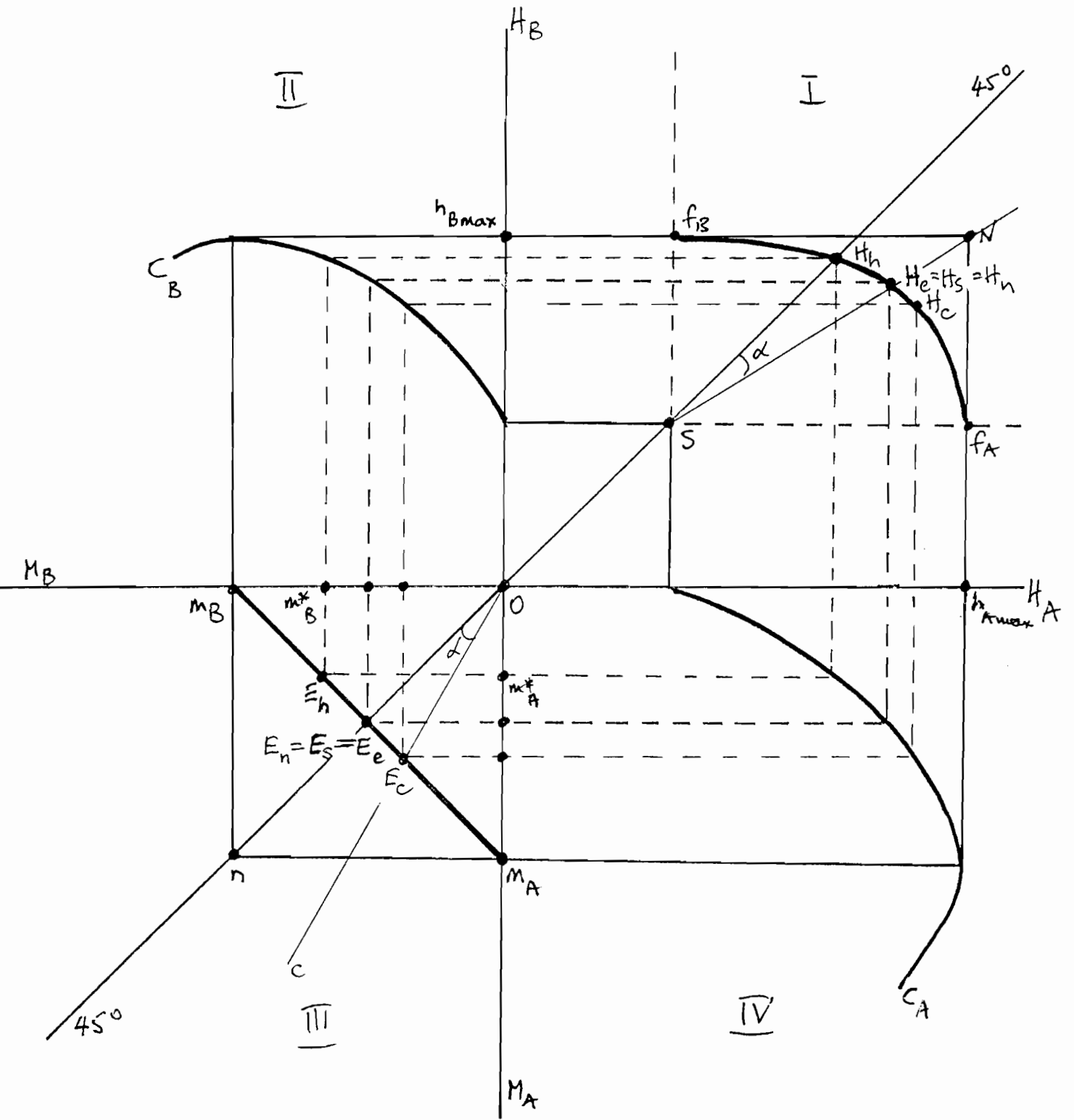
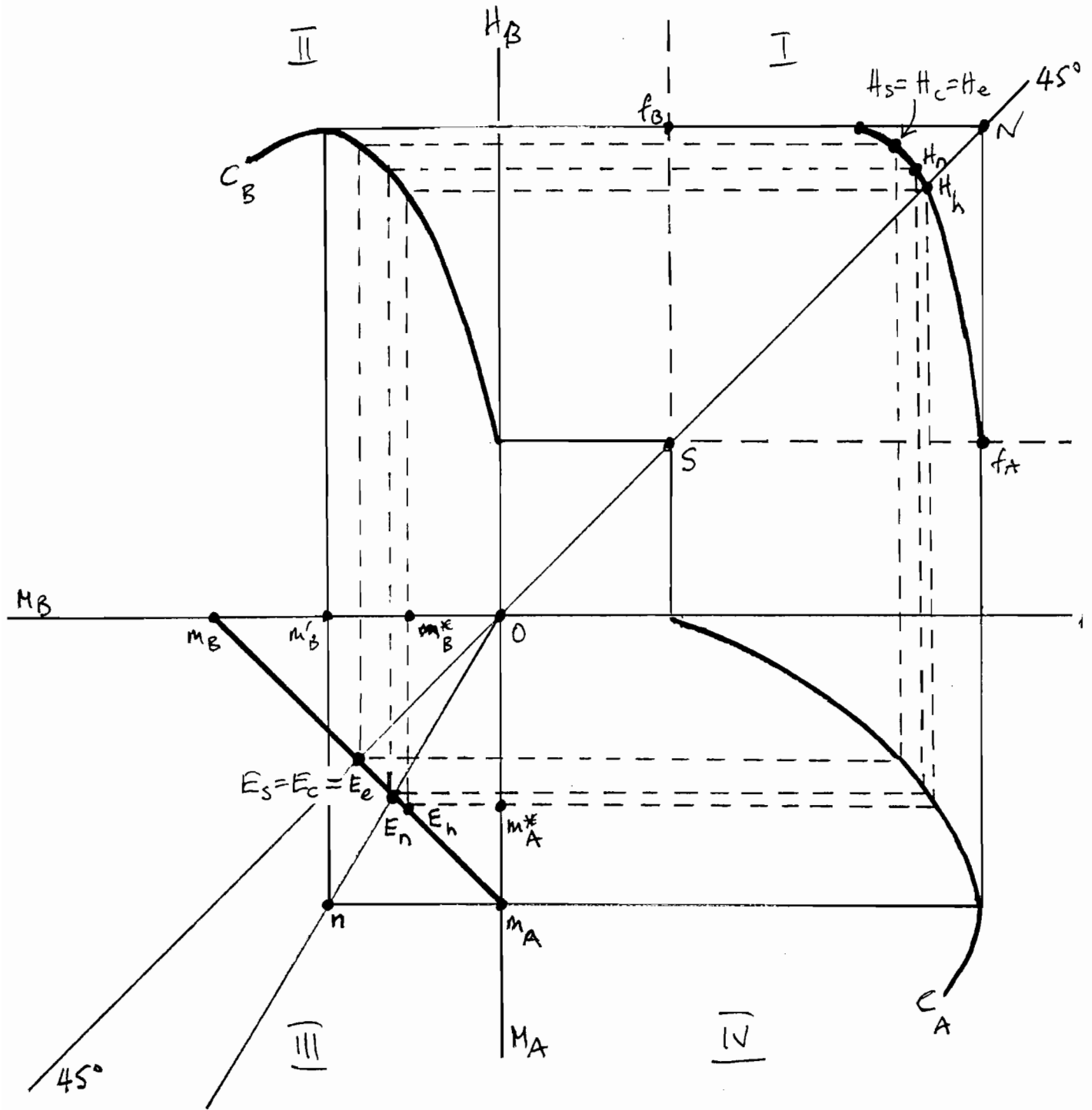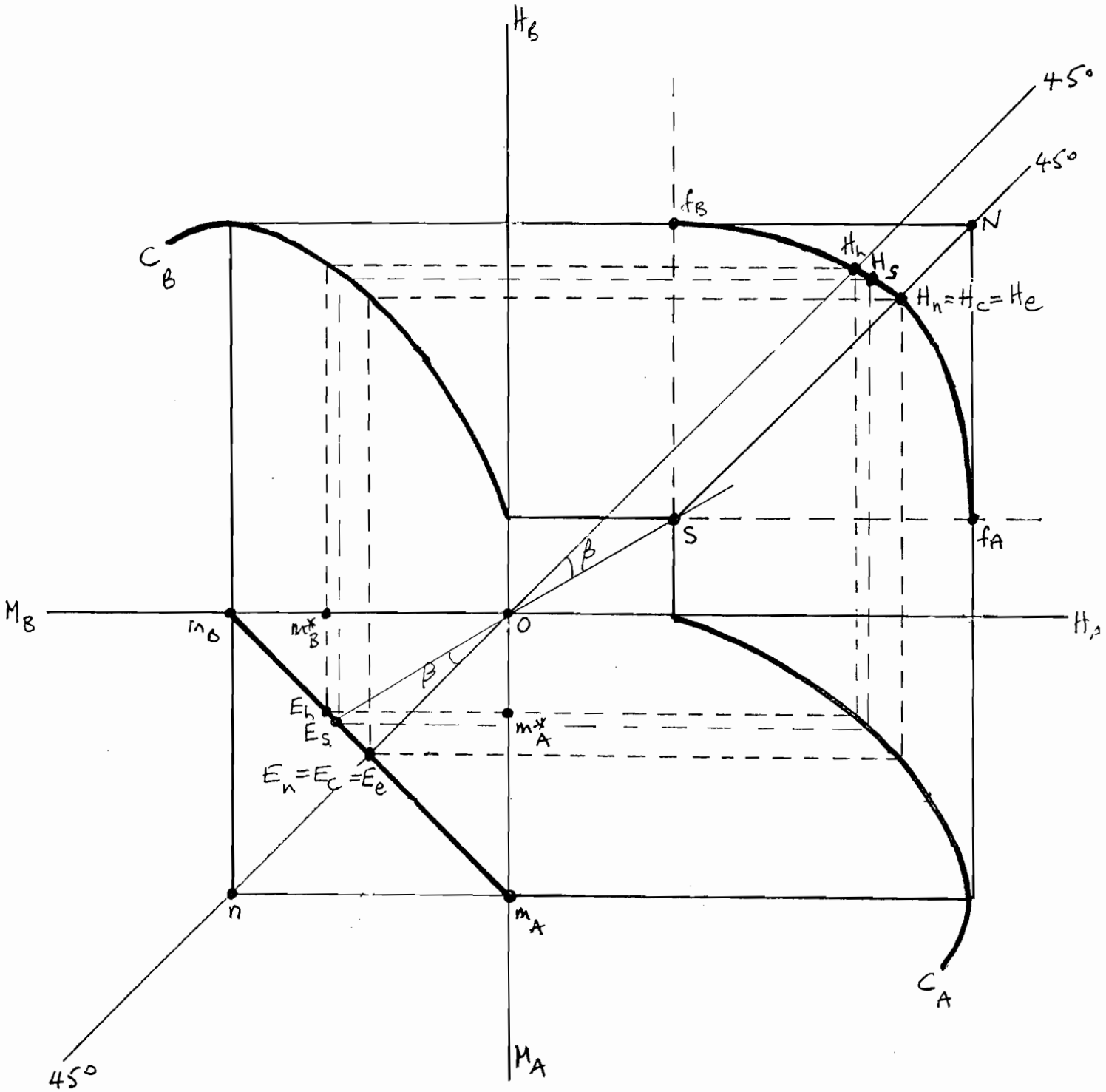**FIGURE 1**

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

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