HORIZONTAL EQUITY: MEASURES IN SEARCH OF PRINCIPLE

Louis Kaplow

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Program of Law and Economics
Harvard Law School
Cambridge, MA 02]38

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ABSTRACT

Horizontal equity, vertical equity, and efficiency are the three central normative criteria traditionally used in assessing tax policy. Horizontal equity -- the command that equals be treated equally -- has received increased attention, refinement, and application by economists, and has become ever more common in discussions of equity and fairness by others concerned with tax reform. Yet the normative foundation for horizontal equity remains almost totally unexamined, especially in contrast to the attention over the decades that has been devoted to considerations of vertical equity and efficiency.

This paper questions whether a persuasive normative justification exists for the indexes and approaches that have generally been adopted in analyzing horizontal equity. The first conclusion is that the leading attempts by economists to implement horizontal equity in any precise way are inconsistent with its supposed foundations. More thorough examination reveals that horizontal equity is already subsumed in or is inconsistent with the prevailing social welfare framework. Attempts to move beyond the traditional economic framework in order to justify horizontal equity as an independent normative concern also fail. This investigation raises serious doubts as to whether any alternative interpretation of horizontal equity reasonably consistent with common understanding of the concept can be justified.

HORIZONTAL EQUITY: MEASURES IN SEARCH OF A PRINCIPLE[1]

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1. Comments from Lucian Bebchuk, John Parsons, Larry Summers, and participants in the Harvard Law School/Kennedy School of Government Regulation Discussion Group are gratefully acknowledged.

1. INTRODUCTION

Horizontal equity (HE) is the command that equals be treated equally. HE is typically said to be violated by reforms that treat pre-reform equals unequally or that alter the pre-reform rankings of individuals by income or utility levels. The concept of HE frequently arises in discussions of tax policy[1] alongside the more frequently discussed concerns for equality -- denominated as vertical equity (VE) -- and efficiency. The structure of analysis is that each of the three criteria has independent significance and must in some way be balanced against the others. [See Atkinson (1980), Feldstein (1976a, 1976b), King (1983).]

Two familiar examples illustrate the typical application of HE. A direct affront to HE is often seen to be created by a random tax -- for example, a tax imposed on one-half of each group in the population at twice what the tax rates would otherwise have been. Another common example would be repealing the income tax exemption for interest on municipal bonds. The affront is somewhat less direct, but nonetheless clear -- repeal decreases the value of municipal bonds,[2] with the result that taxpayers' positions depend on whether they were sufficiently fortunate to have avoided investing in municipal bonds

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1. This emphasis is somewhat curious in that nothing about the basic definition of HE limits its application to tax reforms, rather than all government action. Perhaps it is because VE is most often expressly addressed in the study of taxation that HE has been considered there as well.

2. This also increases value of other bonds, and other assets more generally -- all this assuming no grandfathering, etc.

prior to the reform.[3]

Despite HE being mentioned in the same breath as VE in Musgrave's (1959) pioneering treatise on public finance, HE has generally been the step-child of the three concerns. In the past decade, however, there has been a growing interest in the concept. An often-cited article by Feldstein (1976a) exploring HE in the context of tax reform, joined by an article by Musgrave (1976) that explores all three evaluative criteria, has led the way. Additional work such as that by Brennan (1971), King (1983), Plotnick (1981, 1982, 1984), and Rosen (1978) has focused primarily on refining the measurement of HE.

This rise in prominence may seem surprising since HE is directly in conflict with the social welfare tradition, whereas VE and efficiency are included within it. The thesis of this paper is that this recent work has in an important sense jumped the gun. HE is now frequently measured and applied even though there has been virtually no exploration of why one would care about HE in the first place. Although the notion of equal treatment of equals is hardly new, it generally has been analyzed and advocated in contexts that bear little resemblance to those in which HE is now being avidly discussed. Most papers considering HE either ignore the question of its justification altogether or offer only the briefest remarks, supported by

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3. Those at the break-even bracket for investment in municipal bonds presumably were indifferent between municipal and, for example, corporate bonds, and will be affected by the reform in proportion to their investment in the former. Moreover, investors who were just below the break-even bracket presumably avoided municipal bonds altogether whereas investors just above the break-even bracket placed most (or all) of the bond portion of their portfolio in municipals. These latter groups relative positions are reversed by the reform.

little more than a few citations to the equally brief remarks of others on the subject. This stands in sharp contrast to VE, which has been explored in precisely the relevant context for centuries at a minimum, and efficiency, which, despite its more recent tradition, has been given considerable direct attention.

This lacuna concerning the normative justification for the concept of HE creates two problems. First and most obvious, the efforts directed toward applying the concept are at best a wasted effort if there is no normative basis for concern, and at worst will lead policymakers astray when they are encouraged to sacrifice other values in the pursuit of HE. Second, it is rather difficult to develop precise measures for a concept and methods for weighing it along with other objectives when it is not well understood what is being measured. As Sen (1973, p. 3) has noted in a related context: "Even if we take inequality as an objective notion, our interest in its measurement must relate to our normative concern with it, and in judging the relative merits of different objective measures of inequality, it would indeed be relevant to introduce normative considerations." This paper argues that much of past work on HE suffers from the second problem and that further study of the first reveals that the entire enterprise, at least in its current form, may be altogether misguided.

Section 2 demonstrates how traditional definitions and recently offered indexes of HE raise serious difficulties even before considering the deeper issues concerning the normative status of HE. Section 3 assesses the extent to which the persuasive force often thought to support invocations of HE can be understood better in the traditional social welfare framework that the concept of HE attempts, at least in part, to reject. This discussion will allow one to assess the truth of the assertion by Feldstein (1976a) and Rosen (1978) that the traditional utilitarian/SWF approach offers no procedure for factoring considerations of HE into the analysis [see also Atkinson and Stiglitz (1980, p. 355)] and to determine whether this claim indicates a weakness in the traditional approach or in the concept of HE itself. In the process, the connection between HE and VE first emphasized by Musgrave will be explored, and the analysis of HE will also be extended to consider its connection with the study of risk. Section 4 explores whether the concept of HE can be rescued either by attributing normative significance to the status quo distribution or by reference to other intrinsic theories of justice. It will be argued that direct normative defense of the status quo is most difficult and that reliance on other theories of justice may be defensible but is insufficient to justify the concept of HE as it has generally come to be understood. Concluding remarks assess the residual usefulness of HE in light of this criticism.

2. DEFINITIONS & INDEXES OF HORIZONTAL EQUITY

It seems backwards to criticize definitions and indexes of HE before exploring the motivation for the concept. Stiglitz (1982, p. 28 n.23) has aptly characterized some past studies as "ad hoc approaches defining an index of horizontal inequity and an index of vertical equity, and positing a social welfare function giving trade-offs between the two[, which] seems close to assuming what is to be analyzed." And Sen (1973, pp. 506) has noted that "a measure can hardly be more precise than the concept it represents." Yet closer analysis suggests, surprisingly enough, that traditional definitions of HE are fundamentally problematic, and that HE indexes do not follow from these definitions and are almost certainly inconsistent with virtually any reasonable normative basis for HE one can imagine.

2.1 Problems with Simple Definitions of Horizontal Equity

Most generally, and most commonly, HE is said to require the equal treatment of equals. [Musgrave (1959, p. 160; 1976, p. 4), Atkinson and Stiglitz, 1980, p. 353.] Most often cited is Feldstein's definition (1976a, p. 95) of HE for evaluating tax reform: "if two individuals would have the same utility level if the tax remained unchanged, they should also have the same utility level if the tax is changed." In contrast, VE calls for an appropriate pattern of differentiation (inequality in treatment) among people who are not equals. [See Musgrave (1959), Musgrave (1976), Musgrave and Musgrave (1973).]

Equal treatment by itself is an insufficient guideline. First, it provides no measure at all of the degree to which HE is violated by any action. Second, it only has application to precise equals, which is highly incomplete; for example, it provides no information whatsoever if no two individuals are exactly alike. Third, even an infinitesimal difference in treatment is sufficient to increment such a measure, and any further deviations, no matter how significant, are ignored. Thus, once it is recognized that virtually all effects of any action are on individuals who are at least somewhat unequal -- either initially or after an infinitesimal change -- it appears that HE simply has nothing more to say.[4] All further analysis is by definition in the realm of VE, which addresses the appropriate treatment of unequals. One might have expected HE to have vanished from discussions by economists, who are accustomed to ignoring sets of events of measure zero and to assuming, at least a priori, that most phenomena -- particularly objective functions -- behave in a continuous manner.[5]

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4. Schmalensee (1984) accepts half of this argument. He admits that his measure of horizontal inequity is zero if no two individuals are exactly alike, yet attributes significance to the magnitude of inequality in treatment among those who are identical, and insists that this magnitude is of a different normative order than similar differences arising between individuals who initially are different, regardless of how small that initial difference might be.

5. Atkinson and Stiglitz (1980, pp. 353, 355, 391) suggest that imposing HE as a constraint that cannot be violated in reaching other objectives may in fact be the most appealing interpretation of HE. First, their reason -- that it wholly avoids interpersonal utility comparisons -- amounts to the selection of one normative principle over others totally on the basis of ease of measurement: it neither indicates any reason why the interpretation is normatively appealing or why modifications of it are not. Second, this lexicographic preference, in addition to being subject to the criticism developed below, has little intuitive appeal in that it seems implausible that the slightest inequality in treatment of status quo equals would be thought more important than even substantial gains in overall welfare levels, including to the two individuals treated unequally, and significant improvements in equality or other objectives. Similarly, this lexicographic approach would accord no weight to inequitable treatment of whatever magnitude to individuals that were not precise equals in the status quo. These latter arguments are the direct analogues of the arguments of this Section that the simple commands of equal treatment or to avoid order reversals are in themselves of little use because they do not translate into a meaningful measure of the degree of inequity that results from any given reform. Finally, Atkinson and Stiglitz seem unaware that many typical reform proposals inevitably involve at least <u>some</u> violation of HE, as later examples will demonstrate -- and, admitting various differences among individuals [see Feldstein (1976a, pp. 87-89)] or unavoidable administrative error, this would be true of all reforms. Their proposed interpretation of HE, therefore, virtually forbids reform, and the prohibition holds regardless of any conceivable benefits a reform might offer.

Interpreting HE as a side constraint may have some force in terms of

2.2 Failures of Modified Definitions and Indexes of Horizontal Equity

Instead of dying out almost completely, the concept of HE has gained new prominance in recent work in public finance, particularly in studying tax reform. The implicit assumption has essentially been that there is something worth measuring, although what is being measured typically can be seen only by examing the conclusion of the analysis -- i.e., the index itself. Any such implicit concept will, of course, reflect some value judgment concerning the proper treatment of unequals. One of the most common approaches is to offer measures counting the number of order reversals or relying on the rank correlation between the pre- and post-reform distribution. [See Atkinson (1980), King (1983), Plotnick (1982, 1984), and Rosen (1978); also noted by Feldstein (1976a).] These elaborations, however, are subject to virtually the same criticism as the initial definition: minute movements leading to cross-overs count in full and substantial movements resulting in no cross-over are ignored.[6]

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prohibiting arbitrary discrimination, for example among individuals of different race or having different eye color. [See Musgrave (1976).] Affirmative justification for such an approach would probably rest on assumptions concerning the fallibility of human institutions, since nondiscrimination would typically be implied by social welfare maximization in any event. The critique that the side constraint imposes an unjustifiable lexicographic ordering and that the constraint is generally violated by making virtually any reform would be less powerful since the constraint would typically be satisfied in such cases at no -- or little -- cost in social welfare. It is the application of the side constraint approach to any changes in income or wealth resulting directly or indirectly from changes in government policy that leads to crippling implications.

6. Part of this problem has been noted by Plotnick (1982, p. 383) and Rosen (1978, p. 315 & n.16). Yet Rosen's distance-sensitive measure (p. 315) has

The basic problem is that these measures do not vary continuously with the magnitude of the effect on each individual (or groups of individuals). A concrete example is King's (1983) index which, although distance-sensitive, fails to overcome this problem due to its continued reliance on rerankings. He measures affronts to HE by using a scaled order statistic (s_i) for each individual, defined as follows:

$$s_i = \frac{/y_{pi}-y_{ai}/}{y},$$

where y_{ai} and y_{pi} denote, respectively, "the _ex post_ income levels corresponding to the rank of individual _i_ in the ex ante and ex post distributions," and _y_ denotes the mean income. This measure has some remarkable properties that are not noted by King. First, consider two individuals, A and B, such that A has one cent more income in the ex ante income distribution than B, but two times the income of B in the ex post income distribution. Since there is no rank reversal, $s_A = s_B = 0$. Contrast this with the same situation, except that in the ex ante distribution, A has one cent less than B rather than one cent more. Now, $s_A = s_B = .67$! This large jump (in a two-person example, the maximum value of the indicator is 2) demonstrates how his proposed indicator is discontinuous in ex ante income levels. Moreover, it should be clear that, except at the point of the

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some bizarre properties -- for example, a complete reversal in the income distribution registers no loss in HE. Essentially, only the absolute value of the distances, measured before and after the reform, not the total change in distance, is used; his approach sharply differs from a direct distance measure when there are crossovers. Moreover, in connection with the discussion to come in subsection 3.1, it is interesting to note that Rosen's index has the general property that the loss in HE increases as the paired individuals in his index are moved closer together, but decreases as they are moved further apart (until they are as far apart as initially), which is almost exactly an inverse of the measure of the effect of a reform on VE.

discontinuity, the indicator is totally unaffected by ex ante income levels. Therefore, the derivative of the indicator with respect to changes in the ex ante income level of A, holding constant the income of B, is always either zero or infinity. The indicator also has surprising properties in terms of changes in ex post income levels. Until there is a cross-over, $s_A = s_B = 0$. After the cross-over, the s_i's increase smoothly as the gap in income increases. The latter is not surprising, but the discontinuity in the derivative at the cross-over point (the derivative jumps from zero to a strictly positive number) is hard to reconcile with any persuasive equitable intuitions I can imagine.[7] In various ways, the analysis and indexes of many others have reflected a very similar approach.[8] It is hard to conceive of

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7. It is also worth noting how these properties might be interpreted. Essentially, negative weight is only attached to any "overshooting," i.e., movements apart after the reform has reached the point of equality in ex post income. This might be viewed as a sort of VE measure since, as will be discussed in subsection 3.1, HE and VE give the same indications when individuals are moved further apart in the distribution. This does not fully hold, however, since movement apart absent a cross-over is ignored by King's index, and the index also places no beneficial weight on movements together up to the cross-over point.

8. For example, Feldstein (1976a, p. 82) simply asserts that "the introduction of a tax should not alter the <u>ordering</u> of individuals by utility level" (emphasis added) and later criticizes one possible measure of order reversals because it "would be distorted ... if the utilities were altered by a nonlinear function" that preserved ranking perfectly, not noticing the somewhat bizarre judgments implicit in such criticism. Feldstein's implicit defense of a discontinuous index is most surprising in light of his criticism (1976a, p. 84) of Rawls' (1971) difference principle on the basis of its discontinuity.

Plotnick explicitly advocates the need for distance measures (1982, p. 383 & n.17, p. 388; 1984, p. 5). But elsewhere, Plotnick (1984, n.7) explicitly states that: "Useful measures will <u>not</u> be concerned between initial and actual final levels of well-being, nor between initial and final rank-preserving levels. These comparisons may also be of interest, but they are not appropriate for assessing horizontal inequity." [See also (1984, p. 11).] His articles never resolve this tension. Four of the five indexes Plotnick (1984) examines exhibit precisely the character of King's index.

the normative intuition that could justify such measures.

2.3 Inconsistency Between Horizontal Equity and Concerns for Economic Mobility

This subsection explores economic mobility (MOB) because the striking contrast between prior analysis of this concept and of HE reinforces the arguments previously developed concerning the weaknesses of the conceptual foundations of HE. Despite the substantial sophistication devoted to measuring MOB, little attention has been given to why we care about the concept in the first place -- a problem emphasized in Shorrocks' (1978) investigation. MOB has been said to be valued for a variety of reasons; these must be distinguished because each implies different definitions and measures. The most relevant interpretation,[9] offered by Atkinson (1981),

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The fifth, based on the Spearman rank correlation coefficient, takes no account of distance, which Plotnick agrees makes it less satisfactory.

9. There exist others as well. MOB may be desired because, as stated by Atkinson (1981), "it is instrumental in leading to greater efficiency." From this perspective, MOB is primarily seen as a symptom of a freely functioning economy or as a policy instrument that can be directly manipulated (increased) in order to improve the efficiency of the economy, either interpretation being wholly consistent with the traditional social welfare framework and thus of no further interest here. This should be contrasted with a decision to place intrinsic value on greater equality of opportunity. Of course, observed MOB would only be a symptom of such equality, as MOB can also be generated, for example, by arbitrary fiat or random events, neither of which would indicate that opportunities are more equal in the relevant sense. This interpretation of MOB, therefore, calls more for a direct evaluation of the processes by which individuals' positions are endogenously determined before and after a reform, rather than measurement of the actual change in welfare positions directly resulting from a reform. In particular, equal opportunity in this sense can be understood as a preference for equality in ex ante positions, where ex ante refers not to before a particular reform, but to before the processes permitted as a result of any

would simply consider MOB to be a good thing in its own right. Basically, this view of MOB is simply the mirror image to traditional notions of HE: change from the status quo is preferred for its own sake. It turns out that many past attempts to examine MOB more precisely have implicitly adopted this characterization: measures simply capture changes from the status quo distribution, which are assumed to be desirable.

The most obvious, yet most startling point is simply that, under a variety of interpretations, HE and MOB are direct opposites. The simple example of a reform that gives everyone an equal probability of taking the position of any individual in the income distrubution is a massive affront to HE and, at the same time, the maximum possible degree of MOB (according to some measures). This opposition can be seen most clearly by examining King's article (1980, 1983) entitled "An Index of Inequality: With Applications to Horizontal Equity and Social Mobility." In one section, he offers and explores a particular index for HE. In the next, he claims (1983, p. 108) to overcome prior difficulties in developing a satisfactory index for MOB by constructing "a normative index along the lines pursued above [i.e., in developing an index for HE]. The only diffeence is that it is usual _in the context of social mobility_ to _favor_ changes in the ordering of the distribution. ... _F_ is now an _increasing_ function of _s_." Thus, he simply adopts his HE index as his MOB index, just changing the direction of the effect. [Compare conditions 1-3 (1983, pp. 105-06) with conditions 1'-3' (p.

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reforms have produced an actual outcome for different individuals. Similarly, MOB can be interpreted as a dynamic analogue to VE, the idea being that the greater the movement within the income distribution over an individual's lifetime, the more likely highs and lows average out in some manner.

109); equation 23 with equation 30; and Theorem 2 with Theorem 3.] If he had attempted to combine VE, HE, and MOB into his total equity index all at the same time, the HE and MOB terms would collapse into each other.

This connection is not as apparent as it might be because King discusses VE and HE in one section, and pairs VE and MOB in the next. Immediately thereafter, he uses his approach to consider optimal taxation and offers an empirical application of his indexes; in both instances he measures overall inequity by using his combined index of VE and HE, making absolutely no comment indicating why the just-derived MOB index has been left out of the computation. [See King (1983, pp. 109-11, 111-14).] King's conclusion (p. 114) suggests that his proposed index allows "horizontal equity <u>or</u> social mobility to be taken into account," although the comment is made in passing, with no emphasis on the importance and exclusive nature of the "or" in avoiding normative contradiction.[10]

The idea that there is some connection between HE and MOB has not gone unnoticed by others. For example, Atkinson's exploration of HE (1980, p. 5) notes that the question of "how much 'mobility' is induced by taxation" is "related to the concept of horizontal equity." Atkinson (1981) also has written separately on the question of MOB; there MOB is taken to be desirable whereas his HE study (1980) takes such mobility to be undesirable.[11]

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10. In addition, King notes the partial congruence of MOB and VE, but fails to note the direct corollary concerning the conflict, to be explored in subsection 3.1, between VE and the component of HE that addresses movements together.

11. He uses the same sort of mobility matrix in both articles to help summarize mobility effects.

Plotnick (1982), in one of his works on HE, does offer some suggestion that MOB violates HE. In another (1981), he explicitly uses a Gini coefficient/Lorenz curve approach to measure HE, which has been previously understood by those who study income inequality as measuring MOB.[12]

But the idea that those writing about HE and those writing about MOB were writing the same things, just switching signs whenever switching terminology, seems to have remained quite far from sight. Yet this connection between MOB and HE measures should hardly be surprising if some of the simplest motivations for the two concepts arise, respectively, from the ad hoc assumption of social preferences for and against changes from the status quo distribution. This suggests that all who use one measure or the other when evaluating proposed reforms are implicitly advocating one of these preferences at the expense of the other, although this underlying value choice typically remains hidden.

2.4 Toward a Working Definition of Horizontal Equity

Resurrecting HE -- even after redefining it to refer to the treatment of unequals -- requires at a minimum an index with prima facie plausibility. I will assume that any reasonable measure will in some way reflect the number of individuals affected, weighted by the degree of the effect (i.e., distance

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12. In addition, as with HE (see subsection 3.2 below), MOB indexes have previously been linked to measures of probability distributions and dispersion. [See Atkinson (1981).] Given that MOB and HE indexes are often one in the same (except for their sign), this connection should not be surprising in light of the preceding analysis.

of movement). The following is one such example:

$$I_{HE} = \tfrac{1}{2}\sum_{i}\sum_{j}[(y_{ai}-y_{aj}) - (y_{pi}-y_{pj})]^2,$$

where y_{ai}, y_{aj}, y_{pi}, and y_{pj} refer to the incomes of individuals *i* and *j* before (ante) and after (post) a reform. This measure sums the change in distance separating all pairs of individuals.[13] The following discussion can be simplified by analyzing the five ways a pair of individuals can be affected by a reform:

1. They can move further apart (if initially unequal).

2. They can move closer together (still remaining unequal).

3. They can move apart from an initially equal position.

4. They can move together, ending at an equal position.

5. They can begin apart, cross over, and end up apart.

First, possibility 5 is simply the combination of others (4 and 3).[14] Second, there seems to be no compelling reason to attach much significance to 3 or 4, as distinguished from 1 or 2, since the latter pair encompass the former except for an infinitesimal movement either at the beginning or the

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13. One could weight the index by the inverse of the population to compare relative inequality among societies of differing sizes. It may be noted that the expression for I_{HE} includes the terms for where i=j, but since those terms equal zero, they can be ignored.

14. This is not to say that any particular measure will be separable in that each of the two movements can be weighed without regard to the magnitude of the other. Rather, my claim is that the character of the measure -- i.e., whether a movement is good or bad and why -- in instance 5 can be understood from how one evaluates instances 3 and 4.

end. This reinterpretation of HE suggests, therefore, that no particular significance is attached either to starting or ending at precise equality, or to the cross-over point itself. Finally, attaching negative weight to movements in both directions is central to HE. Since unequal treatment of equals most clearly violates HE, moving apart (1 or 3) must be registered by any HE index. But if HE were limited to being an objection to moving individuals further apart, it would solely be an objection to increased inequality -- i.e., it merely would be an aspect of VE; hence, moving together (2 or 4) is also assumed to violate HE -- a characterization directly contrary to VE.

3. HORIZONTAL EQUITY AND THE WELFARIST APPROACH

Feldstein (1976a, p. 82) has stated that "equal taxation of equals is implied directly by utilitarianism and does not require a separate principle of horizontal equity" when all individuals are assumed to have the same preferences. [See also Atkinson and Stiglitz (1980, p. 354), Stiglitz (1982, p. 3).] This is generally true because, for example, in the case of random taxation, it would often be better to apply the average tax rate to pre-tax equals since greater equality in the final distribution of income will yield higher social welfare because the marginal utility of income is assumed to be declining.[15] To the extent that HE is simply a by-product of social welfare

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15. Also, since adverse incentive effects are typically nonlinear, there are additional reasons to prefer equal treatment at average levels.

Exceptions to this general proposition due to diversities in tastes [see maximization, the concept can be wholly abandonded as redundant. Giving HE operational content is thus in direct conflict with the social welfare tradition.[16] This Section argues, however, that much of the intuitive force behind past considerations of HE is already accounted for in a traditional SWF.

Feldstein (1976a, p. 82), Musgrave (1976, pp. 13-14)], offsetting the incentive to substitute labor for liesure [see Weiss (1976)], or nonconvexities in the feasible set [see Stiglitz (1982)] need not detain us here.

16. Technically, HE can be seen as violating the social welfare tradition in two ways. First, it introduces nonwelfare information [see Sen (1977)] -- in this case distributional positions in a state (the status quo) other than the one being evaluated. (In social choice discussions, this would be termed a violation of the anonymity condition.) Second, as discussed in a later footnote, increases in an individual's welfare, ceteris paribus, can reduce social welfare. Analysis in Section 4 suggests, moreover, that existing conceptions of HE also seem inconsistent with the notion of optimization more generally.

This conflict is important only if maximizing social welfare can readily violate HE, but this is often the case. For example, purely random taxes can be avoided, but some randomness due to imperfect enforcement or mistakes in administration is unavoidable, and often significant. In the example involving repeal of the municipal bond interest exemption, equal treatment of equals is simply impossible without a complex compensation or grandfathering scheme, which for the present will be assumed to be prohibitively costly. (More generally, the issue arises so long as perfect compensation involves some cost, for then it would be necessary to consider the magnitude of the HE violation and the weight to be attributed to HE in order to determine whether the compensation was justified.) The problem is that, operating within the relevant status quo for Feldstein's definition, "equals" will not necessarily have behaved identically. And if one expands to broader definitions of HE encompassing order reversals or a distance measure, it is clear that even if equals had behaved identically, some loss in HE would be unavoidable if the interest exemption were to be repealed. A multitude of reforms have this character. See also note 15.

3.1 Horizontal Equity as an Implicit Appeal to Vertical Equity

Feldstein's (1976a) major example illustrates how HE collapses into the traditional social welfare framework. He considers a tax reform that imposes costs in terms of HE as follows: 1000 taxpayers gain $10 each, at a cost of $1000 to each of 9 taxpayers (a net gain of $1000, but the losses are concentrated). All taxpayers begin with equal incomes and have identical utility functions. He demonstrates that the unequal treatment offsets part of the benefit of the reform, and that the greater the rate at which the marginal utility of income declines and the lower the initial level of income, the less desirable is the reform (and the more desirable is its postponement). But this result is all too familiar: the reform increases aggregrate income but causes inequality in the distribution. A utilitarian SWF is sensitive to income inequality in the manner Feldstein's example illustrates: the greater the loss in welfare due to the resulting inequality, the less desirable the reform. The only difference is that we generally refer to this effect under the rubric of VE, not HE.[17]

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17. This example is interpreted further in Section 3.2 as illustrating the imposition of risk. It will then be argued that both these interpretations are interchangeable since both arise from the assumed concavity of the utility function. Feldstein (1976a, pp. 100-101) claims that "[t]he concavity of the utility functions together with the assumption that everyone should be treated as if they had the same utility function and the same initial income imply that the optimal tax change may be smaller than if horizontal equity is ignored." The important point here is that concavity alone is what drives his conclusion -- i.e., the concept of HE is superfluous. To prove that it is a necessary condition, simply consider (1) where utility functions are linear, in which case his social welfare measure simply reflects the net gain of $1000, independent of the distribution, and

Note that in this example the choice of the status quo -- which is the centerpiece of most definitions of HE, including Feldstein's -- is clearly irrelevant to the comparative evaluation of the two states. In particular, if one considered the unequal state as the status quo and imagined moving back to what was originally considered to be the initial state, the SWF approach would lead to the same evaluation of each state -- which is what it means for the status quo to be irrelevant. Yet movement in either direction equally offends HE using the index I_{HE} offered above, and similar indications would follow from other definitions if his example were modified even slightly.[18] This suggests that the persuasive force behind Feldstein's example is captured in the standard social welfare framework whereas his

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(2) where utility functions are convex, in which case the unequal treatment actually would improve welfare under his measure. Concavity will often be sufficient as well, for even if individuals had different initial incomes and/or different utility functions, the unequal incidence would in general lower social welfare. The exception would be where the losers happened to be those with the lowest marginal utility of income and the gainers those with the highest -- which typically would be a redistribution effect from the rich to the poor. But that is precisely what VE is all about. The assumption that all should be treated as if they have the same utility function is usually justified either as an approximation for an unmeasuraable reality or as dictated by egalitarian principles, which are directly linked to economist's references to VE. The "as if same initial income" assumption is discussed further toward the end of this subsection.

Yet, in addition to the fact that this equal income assumption does not really drive the analysis, I believe that it is also the case that the assumption is wholly unwarranted, particularly in the context of tax policy. Feldstein's argument that, for example, courts often ignore unequal income (1) seems beside the point for tax policy, which is explicitly concerned with the allocation of tax burden according to income level; (2) is not wholly true, e.g., damage awards do reflect the income level of the victim; and, (3) where true, is typically capable of independent justification -- ignoring the income level of the injurer is often supported by administrative concerns -- or (4) may be simply wrong.

18. Consider, for example, moving back to Feldstein's initial situation, but overshooting by 1 cent for each person. There would be complete order reversal between the two groups.

definitions of HE are inconsistent both with that framework and with his example. HE would register a loss from implementing both changes consecutively, while the SWF indicates no net effect.[19]

This example can be generalized as follows. First, consider two individuals who are moved further apart in the income distribution as a result of a reform. I_{HE} will register some loss, and the loss will vary directly with the significance of the movement. Thus, the greater the increase in inequality caused by the reform, the greater the loss in HE. But, just as was the case with the initial discussion of Feldstein's example, we again find that HE seems to be measuring just what we are accustomed to considering under the guise of VE. HE and VE have the same sort of measure (distance-related)[20] for the same sort of change (moving apart) <u>and</u> both call it a bad thing.

Next, consider two individuals who are moved closer together in the

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19. Consider the well-known example in which there exist two groups of individuals with different abilities. The utilitarian solution may well entail a reversal in ranking from the pre-tax status quo. [See Atkinson and Stiglitz (1980, sections 11-3 & 11-4), Mirlees (1971), King (1983, pp. 99-100, 109-11).] Achieving VE in this example clearly affronts HE. Plotnick (1984, pp. 4-5) advances the general argument that "[u]nless the socially optimal distribution is one of full equality, those earning more initial well-being should surely have greater final well-being than those earning less." Yet one might ask why the status quo distribution should be given normative weight. Since it is assumed in the example that individuals did not determine their own abilities, it seems no more unfair for the less able to be better off due to accident of birth than for the more able to be better off due to the same accident. The problem of justifying normative weight being attributed to the status quo is pursued further in subsection 4.1.

20. Both HE and VE could be interpreted as being concerned not with absolute changes, but relative changes, measured for example by proportions relative to the mean. All the same analysis would follow.

income distribution as a result of a reform. Just as in the preceding instance, our measure of HE will register some loss, and the loss will vary directly with the significance of the movement. Thus, the greater the increase in equality caused by the reform, the greater the loss in HE. We again find that HE seems to be measuring just what we are accustomed to considering under the guise of VE. HE and VE again have the same sort of measure (distance-related) for the same sort of change (moving together). But here, HE indicates that the equity impact of the change is negative whereas VE indicates a positive evaluation. Section 4 will address whether there exist any apparent normative justifications for this implication of HE.

Quite frequently, examples offered to illustrate violations of HE begin with the assumption that all individuals initially have equal incomes, as was the case in Feldstein's illustration as well as those offered by others [see Brennan (1971), Zodrow (1981)].[21] This starting point is hardly surprising given the frequent description of the HE concept as requiring equal treatment <u>of equals</u>. The separation of changes into movements together and movements apart, however, suggests that this set of examples has largely missed the issue since by starting with all being equal, all movements are apart; hence, HE yields the same verdict that VE would in any event.[22] It is revealing that those exploring HE, in attempting to motivate their analysis, have not

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21. A modification with very similar effects is when the population is divided into large groups, all perfectly equal within each, as is the case with White and White (1965).

22. At most, HE can be said to give added weight to this preference, but when there are no movements together being considered and no explicit formula being offered to combine the HE judgments with other factors, the difference in weighting has no operational significance.

chosen examples involving increasing equality, which has been shown to be the central application if HE is to have independent significance.

3.2 Horizontal Equity as an Implicit Appeal to Risk Analysis

HE arguably could be reinterpreted as an expression of a concern for avoiding the imposition of risk. Consider again the example of the random tax. It is clear that the arbitrary unequal treatment of equals resulting from a random tax is welfare reducing, even setting aside for the moment the earlier argument that VE provides a basis for this conclusion. In particular, the random tax can be compared with a certain tax on each group that raises the same revenues. Both taxes produce the same expected income in the post-reform state (and both raise the same revenue[23]), yet the random tax is associated with a lower expected utility precisely because of the risk that is imposed.

Unlike the purely random tax, Feldstein's (1976a) example of the reform producing benefits of $10 to most individuals but a loss of $1000 to a few is similar in its affects to many realistic reforms. Yet it too can be seen as a gamble, the uncertainty being resolved at the point where particular individuals know in which group they fall (just as a lottery is uncertain until the winning numbers have been announced). Therefore it should come as no surprise that Feldstein finds that he must specify the degree of risk

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23. A strictly random tax might not, but one can similarly imagine a tax that is random as to each individual but designed to raise a specified amount of revenue overall.

aversion (he assumes a constant RRA utility function as an approximation) and the level of ex ante income in order to evaluate the proposed reform and various modifications thereof, just as must be done in quantifying the impact on social welfare of imposing any risk. It might be argued that risk is not really implicated here because it was clear from the beginning who the gainers and losers would be. Yet if an earlier announcement had been made describing the general distributional impact of the reform, but not indicating who the gainers and losers would be, followed the next day by a revelation of the complete proposal, our judgement as to the equities or impact on social welfare surely would be unchanged. Thus, most government reforms, which have the characteristic that they impose both benefits and losses, can be analogized, for example, to a change in climate that results in substantial benefits but imposes significant losses through changes in asset values.[24] Whether imposed by the government, nature, or a casino, there is risk all the same. The connection between risk from uncertainty concerning future government policy and other sources of risk is the subject of Kaplow (1985a, 1985b).

In this connection, it is worth noting that the statistical measure of variance can be used to describe the probability distribution that characterizes an uncertain prospect or as a summary statastic to describe the distribution of some attribute of a population -- e.g., income -- after the results of some event (even one not embodying any uncertainty) have been experienced. The frequency interpretation of probability presents a

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24. The closeness of the analogy is revealed by considering such a climate change that is within the government's control -- which technology is making more possible. Then the climate change would itself be a government reform.

well-known connection between ex ante uncertainty and resulting distributions. One can describe the relevant situations from either an ex ante or ex post perspective without changing the underlying phenomenon -- the former perspective is more in accord with risk analysis, the latter with VE.[25]

Previous discussions of HE contain a number of clues suggesting the connection between HE and risk, although the claim that there is a direct linkage has never, to my knowledge, been asserted. In addition to Feldstein's use of the Arrow-Pratt measure of relative risk aversion, he also sometimes talks of gambles and future risks (1976a, pp. 92-93). Similarly, Rosen (1978, pp. 315-16) and Stiglitz (1982) use a random tax as their primary example. King (1983) notes that his HE index bears some resemblance to a risk premium. Hettich (1979, p. 696) uses a variance measure to capture the loss in HE. Brennan's (1971) discussion of HE frequently refers to variance and related characteristics of probability distributions, and the arguments he uses to motivate his HE measure resemble those often used in

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25. That the same phenomena can be interpreted equally well in terms of risk or VE should hardly be surprising. At least in the utilitarian framework, concerns for VE traditionally have been justified by reference to the decreasing marginal utility of income, which is precisely the source of risk aversion. In fact, Harsanyi (1953, 1977) has modeled the VE issue by using the methods of decisionmaking under uncertainty, taking as the starting point a hypothetical situation in which individuals do not know which person they will be in any possible social state. This framework suggests that each would chose states by maximizing expected utility, implying unanimous agreement upon the utilitarian criterion. In addition, Harsanyi (1955, 1977) has shown that acceptance of the axioms for rational choice under uncertainty for both social and individual preferences leads to the same conclusion. The resulting utilitarian prescription concerning the appropriate measure for evaluating VE is thus directly connected to the traditional formulation for decisionmaking under uncertainty. States with greater inequality (lower in VE) are opposed because of the risk to each that they would be one of the individuals at the low end of the income distribution.

motivating statistical measures of dispersion. Moreover, he derives the result that a government choosing among a variety of tax sources -- each of which affronts HE to some degree -- will always be best off using a combination of all of them, including those causing the greatest affront to HE. Brennan fails to note, however, that this is _precisely_ the well-known diversification result of standard portfolio theory. In the end, however, none of these authors comes close to suggesting that HE amounts to little more than another way of talking about risk in a particular context.

It might be argued that this conclusion is of no great significance, because it matters little whether tax policy analysts use one term or another so long as the phenomena being described are understood clearly and characterized accurately. In addition to the concession that we might just as well proceed without referring to HE any longer, this defense is unpersuasive on its own terms. Risk is a concept that has long been carefully studied by economists (and others) whereas HE has not. Using the terminology associated with risk and uncertainty invokes certain intuitions, as well as particular measures, that aid in one's analysis. In contrast, HE at most invokes various conflicting indexes all of which fail to provide even a remotely accurate measure or judgment concerning risk, if that is really the basis of concern.

4. HORIZONTAL EQUITY OUTSIDE THE SOCIAL WELFARE FRAMEWORK

4.1 Normative Significance of the Status Quo

This subsection considers attempts to accord direct normative significance to the status quo distribution, independent of the welfare consequences in the post-reform state. A major justificatory problem posed by any such formulation concerns why the status quo is to be intrinsically valued and thus support a preference against all changes in position when the status quo was itself the product of countless such changes throughout history. This can be seen as a definitional problem -- i.e., what is to be used as the status quo in evaluating changes, or, similarly, how is the status quo to be defined in a constantly changing society. It should be emphasized, however, that this definitional problem is closely connected with the normative basis for deriving any preference for the status quo since the very thing to be defined is, from the HE perspective, to be given direct normative significance.[26]

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26. Plotnick (1981, p. 283 n.6) advocates using the status quo -- despite philosophical objections -- "on pragmatic grounds [since] it may not be too bad. If, despite the contrary arguments that can be offered, most persons tacitly accept the fairness of the preredistributive rankings when making judgments on redistributive equity, a useful measure of [horizontal] inequity must also accept this ranking." First, redistributive judgments usually reject the preredistributive situation -- almost by definition. Second, by this analysis, violations of HE from past reforms are ignored. Similarly, if

The issue is well illustrated by the previous example that involved considering a reform (moving, say, from State A to State B), followed by a later reform that had the effect of restoring the initial situation. For the latter reform, the status quo is B, producing the effect of a double loss in HE from changing, and then moving back again. A more extended example helps make the point. Consider a parent raising two children. One child starts our story with 10, the other with 8. The parent periodically has some discretionary income that can be used to benefit the children -- by purchasing books, sending them to summer camp, taking them to the dentist, and the like. As it turns out, the discretionary income usually becomes available 4 at a time, and most relevant purchases are lumpy, also costing 4 each. On the first occasion, the father decides to spend the 4 on the child who started with 8, thinking that such treatment is more fair since that child is then less well off and the resulting distribution is more equal that way. Sometime later when 4 more is available, it is spent on the other child, for the same reasons. This pattern continues over the years as follows:

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a reform were enacted over Plotnick's objections on HE grounds, even that post-reform distribution would be given normative significance in evaluating the next reform -- including the repeal of the reform just (inappropriately) enacted! Finally, whatever norms provide the basis for any such tacit acceptance of the fairness of the status quo should provide the foundation for equity measures, as discussed later in this Section.

Plotnick (1984, p. 12) discusses how different initial positions should be selected for analyzing various policies. He concedes (1984, n.15) "that whatever the initial measure selected by the analyst, he or she is implicitly assuming the initial ranking to be fair." The problem, however, is that in each of his examples a different initial position is selected, and thus the set of implicit fairness assumptions are directly contradictory. He does not explain how inconsistent normative assumptions can simultaneously be maintained in analyzing a single normative concept.

Child I	Child II
10	8
10	12
14	12
14	16
18	16
.	.
.	.
.	.

I doubt anyone would describe the parent's decision rule as remotely inequitable. Yet the effect at each stage is a loss in HE by any reasonable measure.

The most obvious response if one hopes to preserve a place for HE is to describe this not as an ongoing sequence of actions but rather as a single action: the adoption of a decision rule for the period during which the children are cared for by the parent. This recharacterization essentially treats the situation (10,8) as the status quo throughout. But how is this definition to be justified? Because the decisions were anticipated at the outset? Would the HE measure then change if it turns out that the parent either did not anticipate the future discretionary income, or simply employed a myopic decisionmaking process? Because there is one decisionmaker in any event? But then, if the parent dies and a relative takes over custody, and ends up making a similar sequence of decisions for the same sorts of reasons, do we find an affront to HE that was not said to exist previously? Because little time passes between the periods? In fact the duration was not specified, and not that much time passes between many reforms. Finally, would we feel the same way if the status quo, instead of being (10,8), were (100,1)? Or if the status quo, regardless of the income levels, has arisen as a result of theft? Or if one of the children was extremely sick and needed medical care for five periods in a row? Finally, if all these problems were overcome, the question would then become one of determining which point in the past decade, century, or era corresponds to the place of (10, 8) in the above example.

These problems concerning the difficulty of defining the status quo are hardly matters of detail. Rather, they suggest that one first must determine why it is that some pre-existing (or never-existing) "status quo" is important and then analyze what relationship such a hypothetical state bears to the actually existing status quo. As to the latter concern, it seems likely that the answer for virtually any starting point would be very little.

The best fallback would be to rely on arguments that seek to portray the status quo as the result of an intrinsically justified <u>process</u>. Thus, the status quo can be operationally defined as that distribution which has resulted from this process. This gambit, however, is subject to essentially the same problems just described. First, there must be some prior status quo from which that process began, again raising the definitional problem. Second, in dealing with the never-ending sequence of changes that occur in any society, one would have to isolate all those that violated the process and presumably recompute what the world would have been like had those changes never occured, modified by any desire to accord some respect to actions that arguably were justified given the second best circumstances in which they were made.[27] Thus, the status quo as conventionally defined, and

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27. Nozick (1974) is often referenced for such an argument. Yet his process theory is applicable only if original entitlements and all transfers have

as traditionally used in measuring HE, would only by the most extreme of repeated historical coincidence be even remotely relevant under this intrinsic process approach. The appropriate comparison would much more closely resemble the comparison of the post-reform state with some externally specified distribution -- or at least results that could be speculatively derived therefrom -- than it would resemble any notion of the status quo. It would then raise all of the issues addressed in the next subsection.

Third, even if the external distribution from this process perspective were specified, it is not clear how violations of HE would be measured. Arguably, all reforms would have to be prohibited (which apparently is Nozick's (1974) position) -- an extreme approach criticized earlier [see note 5], and one in contradiction with prior attempts to develop indexes of HE. Moreover, in a second best world where such an absolute constraint had often been violated, it might be thought appropriate to adopt reforms that made the resulting distribution closer to the ideal. But such an approach also has little to do with traditional notions of HE. The status quo is now devalued; reforms can increase HE. This final set of problems will be seen in the following subsection to plague broader attempts to justify HE outside of the traditional social welfare framework.

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been in accord with his justifications. If not, he supports rectification to account for past injustice, and willingly notes that such reparations could justify substantial government action that disturbs the status quo distribution. (1974, pp. 152-53, 230-31.) The argument in text suggests, however, that most process approaches one can envision would be subject to precisely these limitations in attempting to justify giving weight directly to the status quo distribution.

4.2 Horizontal Equity and Distributions External to the Status Quo

There is a way to avoid some of the difficulties just described. Much of the confusion arose from our attempt to give intrinsic significance to the *status quo* itself. The final sequence of questions posed following the illustration involving two children -- status quo distribution, how the status quo was produced, and varying needs -- suggest that it may not be the status quo we care about after all, but rather some *external* distribution that itself has some *intrinsic* justification; a pre-existing normatively significant status quo would be one example of this more general class of external distributions. Some authors discussing HE in the context of tax reform in fact use as their reference point not the status quo, but some other distribution such as that existing if the ideal tax system were in place.[28] Departures from the status quo would no longer be deemed relevant,

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28. An important alternative would be to specify the no-tax world as the external distribution. [See Brown (1983), King (1983, p. 100), Plotnick (1982, p. 376).]

Their approaches raise the distinction sometimes made in the HE literature, most notably by Feldstein (1976a), between tax *design* and tax *reform*. Reform, which has been referred to throughout, defines the status quo as that which exists prior to the change, which, subject to the numerous above problems, admits of some definition, even if lacking in normative significance. By contrast, design takes as the reference point not the status quo itself, but a hypothetical world in which no tax exists.

Choosing the perspective of design versus reform is not a matter that should be taken lightly since the two definitions can lead to contradictory results -- i.e., design A can have better HE than design B, yet reforming from B to A can only diminish HE by the reform-oriented definition. Similarly, one would not simultaneously advocate that, in the case of a "reform," the status quo (in particular, characterized by the existing tax system) has great normative and some reforms could be seen as increasing HE.[29]

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significance whereas in the case of greater change -- tax (re)design -- the normative significance of the status quo would disappear altogether (to be replaced by some other reference point). Choosing among such reference points is not a simple matter of convenience, but rather requires deciding among quite different implicit normative positions.

In addition, adopting the tax design approach requires determining whether it is intended that no taxes exist, no laws exist, taxes and laws exist, but not the form of tax in question, or at least not that form of the tax at that level of government, etc. Some possibilities that come to mind including returning to the pre-revolutionary days in the United States when the British taxes were opposed as inequitable, to the Middle ages or much earlier, to ancient civilizations, when the first taxes existed, or all the way back to the state of nature, although implicit social arrangements in even the most primative societies could easily be interpreted as including what we now classify as taxes and transfers in a larger society. Moreover, it is hard to understand why any of these alternative reference points would be particularly relevant. Many of these states never existed. If they did, it is often a long time in the past, when countless other relevant parameters were different as well. This is just a special case of the previous problem of the need to defend the status quo at some initial point. More important, any of the choices suggested by the tax design way of thinking are purely arbitrary in normative terms, except to the extent they refer to some independently justified external ideal world and the corresponding distribution thereby implied, in which case the discussion in text would apply. For example, if the purpose of taxation were to rectify existing inequity, the no-tax world is the direct subject of attack, not a baseline for normative judgment.

29. For example, it is not completely clear why Hettich claims that his index is an index of HE and not a measure of VE. His external reference distribution is chosen based on preferences concerning progressivity (1979, pp. 700-06) and his index measures departures from that distribution. [See also Hettich (1983).] His argument that partial expansions of a less-than-comprehensive tax base may rationally be rejected based on pursuit of the goals of HE and VE (704) can surely be supported based on VE considerations alone. (His argument is a simple application of the theory of second best.) In fact, his index registers a substantial loss in HE when equals are treated perfectly equally, but unequals are taxed in proportions that deviate from the optimal distribution of the tax burden, which is clearly a VE concern. If his measure were truly to capture VE, however, it would measure VE directly rather than measuring departures from a distribution derived in part based on VE considerations. Hettich's conclusion (1979, p. 709; 1983, p. 422) that VE and HE cannot be separated in making policy judgments is not a "result" of any analysis, but rather simply a direct interpretation of his arbitrarily selected aggregrate equity index that was not derived from any clear statement of the basis for or meaning of VE and HE concerns.

Yet any approach relying upon an external distribution is hard to reconcile with the concept of HE as traditionally understood. The status quo generally would be irrelevant; social welfare -- including all equity concerns -- would be measured solely by reference to the final distribution; the existence of a constant external reference point against which to judge all situations allows it to be incorporated directly into the social welfare function. In addition, there would be no particular reason to expect the idea of equal treatment to have special significance -- if the post-reform state is not ideal, there would be no a priori implication following from the fact that the shortcoming arose from unequal treatment rather than, for example, equal treatment of unequals.[30] It might well be an improvement if two "ideal world equals" that were treated in a less than ideal manner, and unequally, were instead treated equally, by taking the average treatment that both received, but gains from moving individuals closer together are already encompassed in VE.[31]

While it is true that in general an index of HE such as that suggested in

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30. One could imagine, for example, a caste system, which might entail giving special weight to the extent individuals' incomes deviate from the average incomes of other caste members -- independent of concern for the average welfare of the caste. The arguments to follow would still be applicable.

31. It is rarely clear why upward deviations are deemed undesirable in the HE context. With VE, this is the case only to the extent that others at lower points in the income distribution are made worse off. In contrast, the HE concept would attach independent <u>negative</u> weight to gains regardless of their adverse effects on others. Hettich (1983, p. 420) is typical: "With regard to [horizontal] equity, no cancellation occurs, <u>of course</u>. According to the principle of equal treatment of equals, paying too little [tax] is as undesirable as paying too much." Similarly, Plotnick (1982, p. 383 n.18) simply asserts that "[b]oth <u>gains</u> and <u>losses</u> of welfare indicate horizontal inequities; they cannot offset each other." Apparently, no further motivation or justification for this normative approach is thought necessary.

subsection 2.4 (where the external distribution is substituted for the status quo distribution) would be positively correlated with the degree to which a state fell short of the external ideal, it would be more natural to measure deviations in terms of the objectives used in generating the external distribution. Moreover, even if such an index were used as a proxy, such an index would hardly be indicating a value to be traded off <u>against</u> optimal achievement of the objectives that generated the external distribution. Rather, it indicates the degree to which these other stated goals have been <u>achieved</u>. Finally, to the extent one's reference distribution was derived in a second-best framework that balances a number of factors -- as is often the case -- it would be inappropriate to base a measure of inequity on deviations from that distribution rather than from the unattainable first best (for the usual second-best reasons). For all of these reasons, therefore, HE would be a totally derivative concept, not an independent normative consideration. To the extent HE departs from such a role, it is not only outside of the traditional social welfare framework, but inconsistent with more general notions of optimally achieving any set of stated objectives.

In sum, the closer one gets to a plausible independent justification -- regardless of the strength of its normative appeal -- the further one moves from any notion of HE as traditionally understood and measured. This suggests that further pursuits of HE measurements along traditional lines are misdirected. Instead, it seems appropriate to consider more carefully various concepts of equity that appear to merit attention and develop pragmatic measures tailored directly to those concepts.

5. CONCLUSION

Focusing upon normative approaches rather than concrete examples, the overall conclusion concerning HE can be seen as follows. Section 2 demonstrated that the very definition of HE seems inconsistent with attempted applications and that more elaborate indexes often produce paradoxical results. Section 3 focused on the traditional social welfare framework, where HE was seen to be a redundant or contradicted concept. Section 4 cast serious doubt on whether the concept of HE could be based upon attempts to attribute normative significance to the status quo or derived from other intrinsically valued distributions. In either case, the command for equal treatment was seen to be a <u>by-product</u> of the optimization process, not an independent factor to trade off <u>against</u> whatever normative principle is represented by the external distribution, which might in some circumstances call for other than equal treatment, however defined. The question at this point must be whether the desire to capture our intuitive sense of justice <u>merely</u> requires deriving a measure for HE far more complex than we previously realized necessary, or whether the problem is more that <u>we do not even know what intuition we are attempting to capture in the first place</u>.

From a practical perspective, however, HE can be seen to have some uses despite these criticisms; most have been noted previously although they are not those generally emphasized in the literature. First, as suggested by King (1980), Atkinson (1980), and Plotnick (1984), political advisors would certainly care about HE. Much of Hettich (1979) is directed toward determining when political agreement may be possible. This of course is true, since how people are treated is highly relevant to how they will react.[32] It is a bit surprising that this justification for the concept would be offered without further explanation amidst what appear to have been intended as normative discussions.

Second, to the extent that equal treatment of equals is often implied by the maximization of any quasi-concave objective function, unequal treatment may indicate that the existing situation can be improved upon. For example, in much of the tax reform debate, various arguments invoking HE are essentially flags of wedges that create inefficiency or indications of the appropriate relative income determinations in comparing individuals that are necessary to determing the degree of inequality for application of VE norms.

Third, it is well known that violation of horizontal equity on a repeated basis can have effects on incentives.[33] Of course, this effect is just like that resulting from the imposition of risk. Both interpretations of this aspect require substantial further study. Independent of the effects on

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32. Moreover, since the concept of equal treatment of equals has so much appeal, the unequal treatment in itself may have intrinsic political significance even if it lacks intrinsic normative significance. People are often quite attached to the status quo, regardless of the degree of justice present in producing it. Independently, the cry of unequal treatment derives much rhetorical power from its force in unrelated contexts, such as racial discimination.

33. Stiglitz (1982, p. 28 & n.24) suggests a concern that permitting unequal treatment may make arbitrary discrimination favoring certain interest groups more likely <u>in practice</u> given imperfections in governmental institutions. He is correct that this view implies that analysis of HE such as that "contained in Feldstein, Rosen and King may not be focusing on the critical issues" since his argument, like those noted here in text, relates to determining the likely effects of government action, not evaluating them.

behavior, the simple imposition of risk (or increase in dispersion of the income distribution) is generally undesirable, so we should be attentive to unequal treatment to the extent it is connected to these effects. Finally, Atkinson (1980) has noted that in attempting to measure the degree of equality (VE) resulting from a reform, one can be misled by examining the post-reform averages for groups of pre-reform equals to the extent equals are not treated equally.

The existence of these reasons to pay attention to violations of HE may explain the attention the concept has received. It should be remembered, however, that these reasons have one thing in common: they are not reasons why HE in itself is valued in any normative sense. Rather, each are reasons why unequal treatment may provide information or at least clues as to the actual effects of a given reform, whether such effects are to be evaluated by a maximizer of social welfare (who cares about risk, incentives, and VE), a politician on the move, or anyone else using whatever criteria are justified in those contexts.

It would be wrong for me to assert that this paper conclusively demonstrates that HE as currently interpreted cannot be defended on direct normative grounds. Such impossibility results are obviously infeasible in a context such as this. It does seem fair to claim, however, that the existing basis for the study of HE, which has remained virtually unquestioned and unexamined from the outset, is quite shaky indeed. Thus, to the extent HE as now understood is to remain a central consideration, it would first be appropriate to clearly articulate and defend some reasonable argument in support of the concept.

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