WP 2007-03
February 2007

Working Paper

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SHOULD EGALITARIANS EXPROPRIATE PHILANTHROPISTS?

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Should Egalitarians Expropriate Philanthropists?[•]

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12 July, 2006

Abstract

Wealthy individuals often voluntarily provide public goods that the poor also consume. Such philanthropy is commonly perceived as legitimizing one's wealth. Governments routinely exempt the rich from taxation on grounds of their charitable expenditures. We examine the logic of this exemption. We show that, rather than reducing inequality, philanthropy may actually exacerbate absolute inequality, while leaving the change in relative inequality ambiguous. Additionally, philanthropic preferences may increase the effectiveness of policies to redistribute income, instead of weakening them. Consequently, from an egalitarian perspective, the general case for exempting the wealthy from expropriation, on grounds of their public goods contributions, appears dubious.

JEL Classification No. D31, D63, D74, Z13.

Keywords: Community, Public goods, Inequality, Distribution, Philanthropy, Egalitarianism.

[•] We thank Richard Cornes, Amrita Dhillon and Prasanta Pattanaik for helpful discussions, and The Pew Charitable Trusts for financial support.

1. Introduction

Andrew Mellon had been accused of being tardy in his tax payments. In 1937, Mellon decided to build the National Gallery of Art in Washington D.C., donating his private art collection to it. The Roosevelt administration lowered its tax demands. Should it instead have forced Mellon to pay up?[1]

The question is general. Rich individuals often voluntarily contribute large amounts towards the provision of public goods that are intrinsically important for the well-being of individuals, but have limited impact on their incomes. Examples of such public goods that routinely acquire rich patrons include places of worship, ethnic festivals, literary and cultural activities, sports clubs, civic/neighborhood amenities (including parks, museums, theatres, community halls, libraries), facilities for scientific research, etc. Poor individuals who share some intrinsic extra-economic characteristic (typically religion, ethnicity, language, race or residential location) with such rich patrons can benefit from these public goods without having to incur any major expenditure. Indeed, one may think of these 'local' public goods as instrumental in creating ties that build a 'community' out of an economically heterogeneous group of individuals who share some extra-economic characteristic (Dasgupta and Kanbur (2006)).

Faced with a particular income distribution, suppose one agreed, for some normative reason, to support redistribution of income from the rich to the poor, if the rich were to spend all their earnings on private consumption. Should such a person then oppose redistribution if the rich spent part of their earnings on public consumption instead? To put the matter differently, if one is convinced that the income rights that the rich claim in the status quo are illegitimate when exercised solely for private purposes, should one then consider them legitimate when they are exercised partly for public purposes? Should the *use* to which private fortune is voluntarily put have any bearing on its acceptability?

There appears to be a surprising degree of consensus across the political spectrum that it should. An important strand of conservative political thought seeks to legitimize large inequalities in income or wealth by emphasizing public functions performed by

[1] It is widely suggested that a deal was struck. Since then, Federal and State governments in the U.S. have come to encourage the wealthy to donate art to reduce tax liability as a matter of policy. See D'Arcy (2002).

private wealth. At ethical, programmatic and propagandist levels, political formations on the right typically counter-pose 'duty' to 'justice', or private charity to large-scale redistribution.[2] Even governments on the left routinely provide large tax deductions for charitable contributions. Thus, even avowed egalitarians reveal a marked preference for compromise with inequality, conditional on the willingness of the wealthy to compromise their selfishness.[3]

In recent years, this policy thrust has also become prominent in many developing countries. The earlier emphasis on state-organized redistribution of income and wealth has largely been supplanted by attempts to encourage the rich to voluntarily contribute to local public goods. While tax rates have been brought down and land reforms abandoned, private and corporate sponsorship for the provision and maintenance of local public goods is being increasingly encouraged. The explosive proliferation of charity intermediation professionals in developing countries is in part a reflection of this process.

Having decided, for whatever reason, to expropriate the selfish rich, exactly why should consistent egalitarians spare the selfless ones? One possible argument is that any redistribution of income from the rich to the poor, by reducing the supply of public goods, would actually make the poor worse off. However, this argument obviously lacks general validity: greater inequality is not necessarily Pareto-improving.[4] A more plausible case may however be constructed along the following lines. Standard measurement of inequality typically concentrates on the distribution of consumption expenditure. If the rich spend much of their income on public goods that are also consumed by the poor, standard inequality measures would overstate inequality in the distribution of welfare. Thus, 'civic-mindedness' on part of the rich would (at least partially) counteract inequality in access to income or wealth. Since inequality in the distribution of welfare would be significantly less than inequality in income or wealth in the status quo, the case for prioritizing equality

[2] Benjamin Disraeli, the leading Conservative ideologue of 19th century Britain, argued that "the tenure of property should be the fulfillment of duty" (Scruton (2001, p.109)). Thus, Disraeli's position, which echoed a core ethical principle of feudalism, justified wealth inequality provided the rich performed social functions, i.e., generated public goods in a broad sense, but not otherwise. A similar idea underlies the Gandhian view of property-ownership as trusteeship, as well as much of Catholic and Islamic social thought. Traditional political hierarchies in many developing countries continue to base much of their ideological appeal on such notions of public function.

[3] One may also commonly notice this trend in public perception of rich individuals. Andrew Carnegie is remembered today far more for his philanthropy than for his ruthless union-busting and competition-restricting business practices. Having made his money in Africa through methods many contemporaries (quite reasonably) considered criminal, Cecil Rhodes bought himself respectability through his charitable munificence.

[4] See Dasgupta and Kanbur (2006), Cornes and Sandler (2000), and Nozick (1974, pp. 265-268).

over other values (e.g. individual freedom, self-ownership, respect for property rights, social stability) would be accordingly weakened. Furthermore, the income gain that the poor would make from a given redistribution would be largely negated by the adverse impact on their welfare from a reduction in public good provision by the rich. Thus, a given reduction in income inequality would actually entail a far lower reduction in welfare inequality. Philanthropy would reduce the marginal gain from redistribution (in terms of reduction of welfare inequality), to an extent that the latter would be outweighed by the marginal cost of redistribution (say, in terms of infringement of individual freedom, self-ownership and property rights).[5]

If correct, this argument would constitute a plausible and important objection to egalitarian policy interventions, one which egalitarians themselves might find persuasive. Thus, a rigorous examination of this claim, from a broad egalitarian perspective, is of considerable interest. Exactly how does a given pattern of inequality in incomes translate into inequality in welfare outcomes, when mediated through private charity, in the sense of voluntary public goods provision by the rich? Is the latter inequality necessarily lower than the former? Is a given redistribution of income necessarily less effective in reducing welfare inequality when the rich voluntarily provide public goods? The purpose of this paper is to examine these issues.[6] The thrust of the literature on voluntary provision of public goods has been on investigating how (income) inequality affects voluntary provision.[7] Our focus is on addressing the exact opposite question: how voluntary provision affects (welfare) inequality.

We model a community in terms of a game of voluntary contributions to a public good, among agents with identical preferences, who vary in terms of their personal incomes. In the Nash equilibrium, all rich agents contribute to the public good, while all non-rich individuals completely free-ride. As in standard measurement of inequality, we

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[5] "The egalitarian … will defend taking from some to give to others, … on grounds of "justice". At this point, equality comes sharply into conflict with freedom; one must choose" Friedman (1974, p.195). Nevertheless, the rate at which a pragmatic egalitarian would choose to trade away freedom for equality can reasonably be expected to depend on her assessment of the relative mix of freedom and equality in the status quo, and of the marginal impact of redistribution on equality. See Section 2 for a formalization.

[6] Community–mediation of income inequality, through voluntary contributions to local, or community-specific, 'club' goods is also likely to have important implications for distributive conflicts among economic classes and identity groups, as well as for organizing measures to combat poverty. On these themes, see, respectively, Dasgupta and Kanbur (2006, 2005a, 2005b).

[7] See Cornes and Sandler (1996) for an overview.

wish to focus on a money-metric measure of welfare outcomes. However, since individuals can freely access the public good contributions of others, their personal earnings can no longer provide such a measure. Instead, we utilize the standard notion of equivalent variation to develop a money-metric measure of welfare outcomes that incorporates the benefits of the public good. Inequality in welfare outcomes is then measured in terms of pair-wise gaps in such 'real', or 'equivalent' incomes, instead of differences in personal incomes. Aggregation of absolute gaps leads to absolute measures of inequality, while aggregation of the gaps normalized by the average or the maximum of the income distribution leads to relative measures of inequality.

We show that, under standard restrictions on preferences, the following must be true. The mediation of philanthropy makes the absolute gap in real (or welfare) outcomes between two non-contributory members larger than that in their nominal incomes. Thus, philanthropy *exacerbates* the welfare consequences of income inequalities among the non-rich. If the non-rich are sufficiently poorer than the rich, this is true of the gap between rich and non-rich individuals as well. Thus, according to absolute measures of inequality, the community may in fact be made more unequal, rather than less, by philanthropy. This result is driven essentially by the fact that any given amount of the public good is worth less to the poorer individual. Thus, our results suggest that absolute inequality egalitarians should maintain an attitude of strong skepticism vis-à-vis the claim of equality-enhancement via philanthropy. We also show that the result with relative inequality measures is ambiguous — even here, there can be no guarantee that philanthropy reduces inequality. We then show that a given, efficient, redistribution of monetary income may reduce absolute inequality in real outcomes more, rather than less, when the rich contribute to the public good. The same may also hold for relative inequality. Hence, egalitarians should also cultivate agnosticism regarding the claim that philanthropy on part of the rich makes income redistribution less effective in reducing welfare inequality.

Section 2 formalizes, and thereby further clarifies, the intuitive argument we seek to contest. Section 3 lays out the basic model. Section 4 presents our results regarding the relationship between inequality in personal incomes and inequality in welfare outcomes. We discuss the effects of nominal redistribution on real inequality in Section 5. Section 6 discusses some extensions. Section 7 concludes.

2. Formalizing the Questions

We first formalize the intuitive motivation for our analysis discussed in Section 1. To fix ideas, suppose a rich individual with income, say, \$100, is allowed to keep only \$50, post-tax, when her entire consumption is private. However, if she reports some charitable contribution, she receives a tax concession. Her taxable income is now assessed at less than \$100, so that she ends up paying less than \$50 in taxes, thus keeping more than \$50. Why *should* she be allowed to do so?

To examine this question somewhat more rigorously, we first require a formal set-up. Consider a community consisting of $n \geq 2$ individuals. Individual *i* has monetary income $I_i, i \in \{1,2,...,n\}$. Let I_C be the maximum monetary income in the community: all individuals who earn this amount will be termed rich. Each individual derives utility from the consumption of a private good and a public good. All rich individuals voluntarily provide some amount of the public good. However, no other individual (i.e., no individual with income less than I_C) does so. Thus, non-rich individuals completely free-ride on the public good provision of the rich. If, somehow, the public good were to turn exclusive, so that individuals lost access to contributions by others, *i* would need a nominal income of r_i to be as well off as before. Thus, r_i is the 'real', or 'equivalent' income of individual *i*. Let I^0, r^0 be, respectively, the nominal and real income distribution vector in the status quo.

Suppose now a social planner is considering whether to impose a tax *t* on every rich individual, and distribute the proceeds among the non-rich according to some (given) sharing rule. She chooses to measure income inequality according to some measure $e(I_1,...,I_n)$, or $e(r_1,...,r_n)$, reflective of her prior ethical intuition regarding inequality. Taxes impose some cost according to the increasing function $F(t)$, whereas inequality imposes some cost according to the strictly convex and increasing function $E(e)$. The social planner would support a marginal redistribution at the status quo if it reduces $[aE(e(r)) + bF]$, *a, b >0,* where *a* and *b* are the relevant weights in the social welfare function. A marginal redistribution would reduce inequality of nominal incomes by some positive amount Δe_I, and inequality of real incomes by Δe_r. Since the tax on the rich would reduce their spending on the public good, Δe_I need not be equal to Δe_r.

Suppose that $\left[bF'(0) < aE'\left(e\left(I^0,0\right)\right)\Delta e_I\right]$. Then, if all consumption in society were private, the social planner would support the imposition of a tax on the rich at the margin in the status quo. Notice now that, if $e\left(I^0,0\right) > e\left(r^0,0\right)$, and $\Delta e_I \geq \Delta e_r$, then $\left[E'\left(e\left(I^0,0\right)\right)\Delta e_I > E'\left(e\left(r^0,0\right)\right)\Delta e_r\right]$. Thus, if philanthropy makes real inequality lower than nominal inequality at the status quo, and additionally reduces the effectiveness of income redistribution in addressing real inequality, the social planner who advocates redistribution when the rich are selfish need not do so when the rich happen to be philanthropic.

This, then, is the simple formal specification of the argument we wish to critique. We shall show in subsequent sections that neither of the two priors in this argument need hold, in general.

3. <u>The Model</u>

Our first step is to model the provision of the public good. Let a community consist of $n \geq 3$ individuals. The set of individuals is $N = \{1,...,n\}$. Each individual consumes a private good and a public good. For any $i \in N$, x_i is the amount of the private good consumed, y_i is the amount of the public good provided by *i* herself, whereas y_{-i} is the amount of the public good provided by all other agents. Preferences are given by a strictly quasi-concave and twice continuously differentiable utility function $u(x_i, B_i)$, where $B_i \equiv y_i + \theta y_{-i}$, $\theta \in (0,1]$. Thus, agents may be concerned only with the total amount of the public good. This possibility, the so-called 'pure' public good (e.g. Cornes and Sandler (1996), Bergstrom *et al.* (1986)) case, implies $\theta = 1$. The public good may also be 'impure' - agents may derive greater utility from an additional unit of the public good if they themselves provide it (e.g. Andreoni (1990), Cornes and Sandler (1994)), say because of the 'warm glow' from the act of giving. In this case $0 < \theta < 1$.[8] We assume agents have identical preferences.

Agent $i \in N$ has own money (or nominal) income, $I_i \in [0, I_C]$. Thus, the highest income in the community is $I_C \in \Re_{++}$. Let $C = \{i \in N \mid I_i = I_C\}$, $n > |C| = n_C$. Thus, C is the set of rich members of the community; who all earn I_C; the community contains n_C such individuals. The community also contains some non-rich individuals, who earn less than I_C. Define $P = [N \setminus C]$, and let $\bar{I}_P = \max\{I_i \mid i \in P\}$. Thus, P is the set of non-rich individuals, i.e., all individuals who earn less than I_C; $\bar{I}_P$ is the second-highest income level in the community.

Community members simultaneously choose the allocation of their expenditure between the two goods.[9] For notational simplicity, we shall assume that all prices are unity. Thus, incomes in our analysis are all implicitly price-deflated. A community member's maximization problem then is the following.

$\underset{x_i, B_i}{Max} \; u(x_i, B_i)$ subject to the budget constraint:

$$x_i + B_i = I_i + \theta y_{-i},$$

(3.1)

and the additional constraint:

$$B_i \geq \theta y_{-i}.$$

(3.2)

The solution to the maximization problem, subject to the budget constraint (3.1) alone, yields, in the standard way, the unrestricted demand functions: $[B_i = g(I_i + \theta y_{-i})]$, and $[x_i = h(I_i + \theta y_{-i})]$.

Our main assumptions are the following.

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[8] The lower the value of θ, the stronger the marginal 'warm glow' benefit from giving. Preferences can also be equivalently represented by $U(x_i, y_i, y)$, where *y* is the total amount of the public good, and $\frac{\partial U}{\partial y_i} \Big/ \frac{\partial U}{\partial y}$ is some non-negative constant, this term being *0* for the pure public good case. Lower values of θ evidently correspond to higher values of $\frac{\partial U}{\partial y_i} \Big/ \frac{\partial U}{\partial y}$.

[9] Individuals sometimes contribute time, rather than money, towards public goods. So long as time contributions can be substituted by purchased inputs, including labour, such contributions are formally equivalent to monetary contributions. See Dasgupta and Kanbur (2005b).

A1. $g', h' > 0$.

A2. $\underset{[I_i+\theta y_{-i}]\to\infty}{Lt} h(I_i + \theta y_{-i}) = \infty$.

A1 is the assumption that all goods are normal. By A1, there must exist a unique and symmetric Nash equilibrium in the voluntary contributions game.[10] In any Nash equilibrium, it must be the case that:

$$B_i = \max[\theta y_{-i}, g(I_i + \theta y_{-i})] \text{ for all } i \in N.$$

(3.3)

A2 implies that demand function for the private good is unbounded from above, i.e., one can generate any arbitrary level of demand for the private good by suitably choosing the nominal income level.[11]

Agent *i* is *non-contributory* in a Nash equilibrium if and only if, in that Nash equilibrium, $[\theta y_{-i} > g(I_i + \theta y_{-i})]$, and *contributory* otherwise. By a non-contributory agent, we thus mean one who, given total contribution by others, would prefer to convert some of the public good contributions by other agents into her own private consumption, if she could do so. Since agents cannot divert other people's contributions into their own private consumption (3.2), non-contributory agents choose to spend nothing on the public good. Given total contribution by others, contributory agents, however, would not wish to reduce their spending on the public good, even if they could do so. Given any $\theta y_{-i} > 0$, by A1, $[\theta y_{-i} > g(\theta y_{-i})]$; thus, agents with income sufficiently close to 0 must be non-contributory.

As discussed earlier, our interest lies in a situation where, in the Nash equilibrium, the rich contribute to the public good, whereas the non-rich free-ride. We ensure this by assuming $[\theta g(I_C) > g(\bar{I}_P + \theta g(I_C))]$. Intuitively, this implies all non-rich agents earn so much less than the rich that the former are all non-contributory even when there is only one rich individual in the community. It is easy to check that, given A1, this suffices to ensure that only the rich, i.e. agents belonging to the set C, will ever be contributory in the Nash

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[10] See Bergstrom, Blume and Varian (1986) and Andreoni (1990).

[11] For convenience of exposition: we only need the upper bound on *h* to be greater than I_C.

equilibrium, regardless of the number of rich individuals. We shall denote the contribution of a rich individual by y_C; thus, in the Nash equilibrium, $y = n_C y_C$.

Due to philanthropy on part of the rich, individual $i \in N$ acquires consumption access to y_{-i} amount of the community's public good. A natural way to measure the monetary value of this gain is in terms of the standard notion of *equivalent variation*, i.e., in terms of the additional money she would need to achieve the same utility, if she did not have this access.[12] Let the *real income* of agent *i* in a Nash equilibrium, where she consumes (x_i, B_i), be defined as: $\left[r(x_i, B_i) \equiv V^{-1}(u(x_i, B_i))\right]$; where V is the indirect utility function. Thus, if all consumption were somehow privatized, *i* would be as well off as before only if she is given an additional $\left[r(x_i, B_i) - I_i\right]$ dollars, over her own nominal income I_i. Evidently, an agent would be better off in one Nash equilibrium rather than another, if, and only if, her real income is higher in the former. We define:

$$f(I_i, y_{-i}, \theta) \equiv \theta^{-1}\left[(I_i + \theta y_{-i}) - r(x_i, B_i)\right].$$

(3.4)

The function f provides the monetary equivalent of the welfare loss generated by the in-kind, rather than cash, nature of philanthropy. When all other agents together spend y_{-i} on the public good, it is as if *i* receives a transfer, in kind, of that amount of the public good. When *i* is contributory, the public good contribution by all other agents is evidently equivalent, in terms of its effect on *i*'s welfare, to a cash transfer of θy_{-i}. The equivalent variation is therefore simply θy_{-i}. However, when *i* is non-contributory, the in-kind nature of the transfer generates a welfare loss. The equivalent variation in this case is consequently less than θy_{-i}. Recall that an agent is non-contributory if and only if $I_i < \bar{I}_P$. Thus, money value of the individual gain from philanthropy is the equivalent variation $\theta[y_{-i} - f(.)]$; where:

$$f(.) = 0 \text{ if } I_i = I_C, \text{ and } f(.) \in (0, y_{-i}) \text{ if } I_i \in (0, \bar{I}_P].$$

(3.5)

[12] For a related approach to measuring individual gains from public good provision, see Cornes (1996). The questions we address are however quite different.

Consider now a non-rich (and thus, non-contributory) agent. For such an agent, how does the gain from philanthropy, i.e., the equivalent variation, change with changes in (a) the agent's own (nominal) income, and (b) the magnitude of public good provision by rich agents?

Lemma 3.1. *Given A1, if* $I_i \in \left(0, \bar{I}_P\right]$*, then: (i)* $f_{y_{-i}} \in (0,1)$*, (ii)* $f_{I_i} < 0$*, and (iii)* $f_{y_{-i}I_i} < 0$, $f_{I_iI_i} > 0$.

Proof: See the Appendix.

By Lemma 3.1, an additional dollar of public good provision is worth a positive amount, but less than θ, of cash income to non-contributory individuals. Their valuation of a given amount of the public good, and of an additional dollar of it, both rise with their cash income. The former rises at a decreasing rate.

Lastly, the total amount of the public good provided by the rich must increase as the rich become more numerous. However, individual contributions must fall as the number of rich individuals increases.

Lemma 3.2. *Given A1-A2, the Nash equilibrium level of the public good, y, is increasing in* n_C*, while* y_C *is decreasing in* n_C*, with* $\underset{n_C \to \infty}{Lt} y_C = 0$.

Proof: See the Appendix.

4. <u>Inequality</u>

In our community, rich members provide collective goods, whereas the non-rich free-ride. Does this imply that an egalitarian should consider the distribution of real income within the community less unequal than that of nominal income? To address this question, one needs to first choose a measure of inequality: a choice that is inescapably value-laden (Kolm (1976), Sen (1997)). Which class of inequality measures should an egalitarian opt for? The presence of the public good, in effect, generates some additional income. There are two common views in the literature on what distribution of this increment would leave inequality unchanged. From one point of view, inequality remains unchanged if and only if this additional income is divided equally. Thus, one should opt for absolute inequality measures, i.e., inequality measures that aggregate absolute income gaps. This perspective appears to correspond closely with egalitarian intuition regarding inequality. Indeed, it was precisely this idea that led Kolm (1976) to coin the term 'leftist' to characterize such measures of inequality. Standard examples of absolute measures are the variance and the Kolm absolute measure.[13] From the other point of view, inequality is unchanged if the increment is divided in proportion to current income. Kolm (1976) coined the term 'rightist' for this perspective, which leads to the adoption of relative inequality measures, i.e., inequality measures that aggregate relative income gaps — specifically, income gaps normalized by either the average or the maximum of the distribution. Standard examples of relative measures include the Gini measure of inequality.

Let the real income gap between individuals *j* and *l* in the Nash equilibrium be denoted by R_{jl}, and let M_{jl} denote the corresponding nominal income gap. Using (3.4), we can write:

$$R_{jl} = M_{jl} + \theta\left(y_l - y_j\right) + \theta\left[f\left(I_l, y_{-l}\right) - f\left(I_j, y_{-j}\right)\right], \tag{4.1}$$

where y_j denotes the Nash equilibrium contribution by *j* and $y_{-j} \equiv y - y_j$ denotes total Nash equilibrium contribution by all agents other than *j*; y_l, y_{-l} are defined analogously.

Proposition 4.1. *Let A1 hold. Let* Π *be the set of all* $n^* \in \{1,2,...\}$ *which satisfy the following: for every* $n_C > n^*$*, there exists* $\tilde{I}(n_C) \in (0, g(I_C))$ *such that, if* $I_l < \tilde{I}(n_C)$*, then* $\lfloor R_{jl} > M_{jl} \rfloor$ *for* $(j,l) \in C \times P$*. Then the following must be true.*

(i) *For all* $(j,l) \in P \times P$ *such that* $M_{jl} > 0$*,* $\lfloor R_{jl} > M_{jl} \rfloor$.

(ii) *If A2 holds, or if* $[u(0,y) = u(0,0)]$*,* Π *is non-empty.*

(iii) *If* $[u(0,y) = u(0,0)]$*,* $\min(\Pi) = 1$.

Proof: See the Appendix.

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[13] Chakravarty and Tyagarupananda (1998) show that these two are the only absolute decomposable inequality measures that satisfy some other standard properties.

First consider the non-contributory (i.e. non-rich) segment of the community. By Proposition 4.1(i), the real gap between every pair of individuals belonging to this segment is higher than the corresponding nominal gaps. Intuitively, this happens because the public good is worth more to wealthier individuals. Thus, the public good technology magnifies nominal gaps within the non-rich section of the community.

How do nominal and real gaps compare between the rich and the others? Contradictory effects are at work here. A rich individual, say *k*, benefits all non-rich individuals through her spending on the public good. Since the non-rich do not contribute, the nominal income gap will necessarily overstate the real income gap between *k* and any non-rich individual if *k* is the only rich person in the community. However, when the community also contains other rich individuals, *k* will benefit more than the non-rich from public spending by such individuals. Proposition 4.1(ii) implies that, above some threshold number of rich individuals, the second effect will dominate the first, whenever the non-rich individuals have sufficiently low nominal incomes. Thus, whenever the number of rich individuals is above this threshold, one cannot rule out the possibility that the nominal income gap will understate the true magnitude of differences in real income between the rich and the others.[14] If the public good is worthless when one has zero nominal income,[15] an additional, but intuitively reasonable, assumption, such understatement can occur in every community with more than one rich individual (Proposition 4.1(iii)).

Notice that the assumption that private consumption is unbounded from above (A2) plays a rather minor role in our results. It is not required to support the claim that, between two non-rich individuals, philanthropy makes real inequality greater than nominal inequality (Proposition 4.1(ii)). Nor is it required to support the corresponding claim for the gap between a rich and a non-rich individual, provided the public good is worthless when one has no nominal income (Proposition 4.1(iii)).

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[14] The basic point is that, Bill Gates, for example, attains a larger hike in real income from the $31 billion donation to the Gates Foundation by Warren Buffet, than the average American who values the Gates-Buffet objective of poverty alleviation in developing countries, but not enough to contribute. Consequently, Buffet's donation may make real inequality between Gates and this average American higher than the nominal inequality.

[15] Intuitively, this captures the idea that, at the edge of survival, the public good has a negligible impact on the individual's well-being. Formally, multiplicative functional forms such as the Cobb-Douglas imply this property.

Since $\frac{\sum_i \sum_j \left(z_i - z_j\right)^2}{2n^2} \equiv Var\left(z_i\right)$, Proposition 4.1 immediately yields the following.

Corollary 4.2. *Let A1 hold. Then, if A2 holds, or if* $\left[u(0, y) = u(0,0)\right]$, *there exists* $n^* \in \{1,2,...\}$ *such that, in every community with more than* n^* *rich individuals, the distribution of nominal income exhibits a lower variance than that of real income when* $\bar{I}_P$ *is sufficiently close to 0. When* $\left[u(0, y) = u(0,0)\right]$, *this is true for every community with at least two rich individuals.*

Thus, Proposition 4.1 and Corollary 4.2 run counter to the view that voluntary public spending by the rich necessarily compensates for prior inequalities in income or wealth. Our results show that, in general, wealthier individuals are likely to benefit more from such contributions. Consequently, the distribution of real income within the community may be more (absolutely) unequal than that of nominal income, rather than less, according to a measure that, arguably, should appear natural to egalitarians.

Absolute measures of inequality violate the property of scale invariance. Scale invariance requires that equal-proportion changes in all incomes should leave the inequality measure invariant. Both normative and pragmatic considerations are invoked to justify this property. The normative, 'rightist', a priori position appears to contradict egalitarian intuition. The pragmatic justification is based on the idea that inequality rankings should not change when all incomes are measured in a different unit, say pounds rather than dollars. Since our analysis is based on price-deflated incomes, this consideration is not germane to our conclusions. Notice nevertheless that the variance is 'unit consistent': inequality rankings between different distributions are unaffected by equal-proportion changes in all incomes, though the Kolm measure is not (Zheng (2005)). Thus, our claim, that the real distribution may be more unequal than the nominal one (Corollary 4.2), is unaffected by the additional restriction that the inequality measure that accords with egalitarian intuition used should also satisfy unit consistency.

Relative measures of inequality incorporate the property of scale invariance. It can be shown that pair-wise real inequality between the rich and the non-rich will, in general (though not always), be less than the corresponding nominal inequality under such measures.[16] Thus, 'rightists' should, on a priori ethical grounds, choose inequality measures that are *likely* to lead them to conclude that real inequality is lower than nominal inequality. Hence, a priori 'rightists' are likely to perceive their case against redistribution as strengthened by philanthropy, in marked contrast to a priori 'leftists'. However, as already discussed, the normative case for using relative measures does not appear stronger than that for absolute measures. Intermediate, 'centrist' measures have also been discussed (e.g. Bossert and Pfingsten (1990)). Our conclusions will hold for particular parameterizations of these measures.

5. <u>Real Effects of Nominal Redistribution</u>

It remains to address the issue of effectiveness of nominal redistribution in reducing inequality when the rich provide public goods. Even if philanthropy actually exacerbates welfare inequality, rather than attenuating it, a marginal redistribution of nominal income from the rich to others will induce the former to reduce their spending on the public good. Thus, the redistribution will directly increase real incomes of the non-rich, but the cutback in public good provision by the rich will reduce them. What would be the net effect on inequality? Does philanthropy by the rich *necessarily* make redistribution of nominal income less effective in reducing inequality? We now show that there should not be a general presumption in favor of this view. Depending on preferences and the initial nominal distribution, a marginal redistribution of nominal income may in fact turn out to have a greater inequality-reducing impact on the real distribution than the nominal one, in

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[16] For example, suppose that $\frac{B_i}{x_i}$ does not increase along the income expansion path. Homothetic preferences are evidently a special case of this restriction. Then, as can be easily checked, for every $(j,l) \in C \times P$, $\left[\frac{r_l}{r_j} > \frac{I_l}{I_j}\right]$. This in turn yields: $\left[\frac{r_l}{r_l + r_j} > \frac{I_l}{I_l + I_j}\right]$. Thus, expressed as a proportion of a rich person's income, or as a proportion of mean income, pair-wise nominal inequality between the rich and the non-rich is *always greater* than the corresponding real inequality in this case. This conclusion however need not hold for preferences where $\frac{B_i}{x_i}$ increases along the income expansion path.

addition to making the poor better off. Thus, philanthropic preferences may make redistribution more effective in reducing inequality, rather than less.

We establish our claim by means of an example. Let preferences be given by the symmetric Cobb-Douglas form $x_i y$, and suppose $|P| = n_C \geq 2$. Thus, the number of rich individuals is identical to that of non-rich individuals. In line with our earlier analysis, we assume $\frac{I_C}{2} > \bar{I}_P$; then A1 implies that, regardless of the value of n_C, all P agents must be non-contributory in the initial Nash equilibrium.

Consider a marginal redistribution of nominal income: each rich individual loses one dollar, while every non-rich individual gains this amount. Public good provision must fall subsequent to the redistribution, and rich individuals must necessarily become worse off. The tax-transfer policy will reduce the nominal income gap between a rich and a non-rich individual by \$2, while the nominal income gap between any two non-rich individuals will stay invariant. What happens to real income gaps?

First consider any pair of non-rich individuals with dissimilar nominal incomes. By Lemma 3.1, the real income gap between these individuals must fall, even though the nominal gap stays invariant. Thus, the marginal redistribution must necessarily reduce real inequality within the non-rich segment of the population. What happens to real inequality between the rich and the others?

Observation 5.1. *Suppose every C individual loses \$1, while every P individual gains this amount. Suppose further that all P individuals remain non-contributory in the post-redistribution Nash equilibrium. Then, in the post-redistribution Nash equilibrium,*

(i) *all P individuals must be better off, and*

(ii) *there exists $\vec{I} \in \left(0, \frac{I_C}{2}\right]$ such that, if $\bar{I}_P < \vec{I}$, then [for all $(j,l) \in C \times P$, R_{jl} must fall by more than \$2].*

Proof: See the Appendix.

By Observation 5.1, our example has the following properties. First, the redistribution will benefit the non-rich, despite the fall in public good provision. Second, if the rich are sufficiently richer than the others, the marginal redistribution must necessarily reduce the real income gap between a rich and a non-rich individual by more than \$2.

Hence, in this case, the marginal nominal redistribution will reduce the real income gap between *any* arbitrary pair of individuals with dissimilar nominal incomes by an amount greater than the reduction in the corresponding nominal income gap. It follows that the fall in aggregate (absolute) real inequality (as measured by the variance) must be greater than that in aggregate nominal inequality.

It can also be shown that, if the rich are sufficiently richer than the non-rich, the redistribution must increase total real income in the community, despite the fall in public good provision. Thus, a rich person's real income must fall when expressed as a *proportion* of total (or mean) real income in the community. It follows that in this case the relative income gap between the rich and the poor must also fall, leading to a fall in measures of relative inequality of real income. Furthermore, when non-rich incomes are sufficiently low, the redistribution also increases the real income of a non-rich person, expressed as a proportion of the real income of a rich person, by more than the corresponding change in nominal income. It follows that, even when inequality is measured in relative terms, redistribution may reduce real equality more than it reduces nominal inequality.

This example shows that philanthropic preferences on part of the rich need not *necessarily* reduce the effectiveness of redistributive measures at the margin. Indeed, such preferences may actually make nominal redistribution more effective, rather than less. This conclusion holds irrespective of whether inequality is measured in absolute or relative terms. The issue therefore becomes an empirical one.

6. <u>Extensions</u>

(i) Preference heterogeneity:

We have assumed that preferences are identical across community members. This is primarily for convenience of exposition. We can generalize the analysis to the case where all rich individuals have identical preferences, as do all non-rich individuals, but the preferences of the rich differ from those of the non-rich. Our basic conclusions, as summarized in Proposition 4.1 and Corollary 4.2, will continue to hold for this extension. Counterparts of the example presented in Section 5.1 can also be constructed. If all rich individuals have identical preferences, but preferences vary within the non-rich section, then part (i) of Proposition 4.1 need not hold. However, our conclusions regarding pair-wise inequality between the rich and the non-rich (Proposition 4.1 ((ii) and (iii)) will remain unaffected.

(ii) Inferior public goods:

Our conclusions are essentially driven by the assumption that the public good is normal. If the public good is inferior, then, evidently, poorer individuals will benefit more from public good provision by the rich. Hence, philanthropy by the rich would reduce (absolute) real inequality. However, if the public good is inferior, it appears unlikely that the rich would contribute towards its provision in the first place. An exception to this might arise if ability to spend on the public good, on part of the poor, is significantly less than their willingness to spend, say due to labor or credit market imperfections. But major labor or credit market imperfections would in turn intuitively appear to strengthen the case for strengthening the private asset base of poor individuals, (i.e., in effect, provide monetary transfers), not weaken it.

(iii) Private consumption augmenting public goods:

Our analysis has focused on voluntary provision of public goods that directly improve well-being, but do not have major income (or private consumption) consequences for non-rich individuals. Religious edifices (e.g. churches and temples), cultural goods (museums, concert halls, theatres, artistic performances), ethnic festivals, parks, promenades, community centers, sports clubs, sports facilities, etc. all appear to fall in this category. So does aid to foreigners, when one considers the community to consist *only* of residents of the donors' own country. Rich philanthropists however often also provide public goods that have a significant positive impact on the private earnings of non-rich individuals, or, more generally, increase their private consumption. Cash donations, soup kitchens, homeless shelters, donation of clothing or medicine, all provide obvious examples of philanthropy that directly add to the private consumption of the poor. Charitable provision of hospitals, educational institutions, water supply, sanitation, irrigation, security, medical research, etc. may all significantly increase the earning capacity of the non-rich. If the positive private consumption effect of such philanthropy is larger for poorer individuals, then this may counteract the inequality augmenting effect we have highlighted. However, some of these private income/consumption effects may also further increase inequality. The extremely poor are unlikely to study at Oxford on Rhodes Scholarships, crop research, irrigation and local security may all benefit landowners much more than the landless, medical facilities may be more effective for those who can afford more food. Thus, for these cases, the impact on inequality appears to be ambiguous, depending critically on the magnitude and distribution of private benefits that flow from the public good.

7. Conclusion

Rich people are frequently advised by thoughtful conservatives to spend their wealth on collective goods that benefit sections of the poor. Bill Gates and Warren Buffet are merely the latest in a long line of wealthy individuals to actually end up doing so. Even politicians on the left typically allow large tax incentives for charitable contributions. In so doing, they also appear to endorse the claim that egalitarians should consider philanthropy an acceptable substitute for income redistribution.

Why should egalitarians do so? It is well known that, even with public goods provision by the rich, there are no a priori grounds for expecting redistribution to necessarily make the poor worse off. Is it then the case that philanthropy itself is likely to significantly enhance equality? Or is it that philanthropy is likely to reduce the effectiveness of income-equalizing interventions? Answers to these questions would appear to be of considerable interest in clarifying the trade-offs facing egalitarian policy-makers.

This paper has argued that both answers may be negative. Using measures of both absolute and relative inequality, we have shown that philanthropy may actually exacerbate inequality within a community, instead of reducing it. Thus, an egalitarian should reject the claim that philanthropy is *necessarily* equality-enhancing. Nor should she admit any a priori presumption that philanthropy reduces the efficacy of income redistribution. From an egalitarian perspective, therefore, our analysis appears to weaken the case for permitting wealthy philanthropists to opt out of efficient redistribution schemes. Equality-enhancing claims of specific acts of philanthropy need to be individually established – there should not be any indiscriminate presumption in their favor.

In particular, as a broad criterion, what appears to be of critical importance in assessing such claims is the magnitude of their direct impact on the private asset base of poorer individuals, i.e., on their private consumption. Philanthropic contributions to basic health, education, housing and sanitation facilities, medical research into diseases that disproportionately affect the poor, and to technologies that improve demand for low-skilled labor, seem to generally fall in this category. Such contributions reach the non-rich, directly or indirectly, largely in the form of a significant increment in private consumption, and can hence be reasonably perceived as a substitute for redistribution of private income.[17] Our analysis suggests that, in contrast, philanthropic provision of public goods that are intrinsically valuable, but have negligible income-augmenting effects on the non-rich, may be reasonably viewed as *complementary* to a policy of redistribution. Thus, from an egalitarian perspective, the case for exempting donations to, say, churches, temples, museums, art galleries, opera houses, sports clubs, community centers, public parks, universities, elite private schools, private hospitals etc., from taxation appears questionable. Automatic presumption of public benefit from all types of charities, a presumption common in Western countries both in law and in the public discourse, with its concomitant tax implications, appears open to challenge. Our analysis points to the need for further empirical evaluation of this issue in specific policy contexts.[18]

Our specification of the public good technology has however been standard — individual contributions sum to the total supply of the public good. As Cornes (1993) has analyzed in detail, other specifications overturn many of the standard results in the literature. Such alternative specifications will in general have their own implications for the

[17] Thus, the publicized priorities of the Gates-Buffet project, or those of George Soros, would appear to be broadly in accord when considered globally, but *not* self-evidently so when considered in the restricted context of, say, American society. Few Americans are likely to experience a significant rise in their private consumption from improvements in malaria medicines. Whether private charitable foundations generally meet these objectives more efficiently than public agencies is of course a different question, one on which evidence appears ambiguous.

[18] Charity policy in the U.K., for example, is going through such a rethink. The British parliament is currently debating a new charities bill that removes the automatic presumption of public benefit. This bill instead requires charities to register with a regulator, the Charity Commission, which must, in turn, apply an independent test of public benefit. Scotland passed such a law in 2005. The debate, of course, is over exactly what constitutes 'public benefit' that is adequate to merit tax concessions (see Leigh (2006)). Our contribution may be seen as adding to this policy debate. Countries such as India currently follow a much more restrictive charity policy, with some public clamour for movement towards the Western model.

relationship between inequality of incomes and inequality of outcomes. Investigation of these implications is an important task for future research.

If the general normative case for exempting rich philanthropists from expropriation is indeed as caveat-riddled as our analysis suggests, why do even political parties with egalitarian credentials so commonly accept it as a matter of course? Political-economic compulsions of electoral coalition-building may provide a partial explanation. Elsewhere (Dasgupta and Kanbur (2006)) we have examined some aspects of this issue. Further exploration of this theme appears to constitute a useful line of inquiry.

Appendix

Proof of Lemma 3.1.

Throughout the proof, we drop the subscript *i* from the variables I_i, x_i, B_i, where it is self-evident.

(i) Let $r^* = r(I, \theta y_{-i}), x^* = h(r^*)$ and $B^* = g(r^*)$. Then, $[u(I, \theta y_{-i}) = u(x^*, B^*)]$.

Noting that the agent is non-contributory, we then have:

$$\theta u_B(I, \theta y_{-i}) = [u_x(x^*, B^*)h'(r^*) + u_B(x^*, B^*)g'(r^*)]r_{y_{-i}}(I, \theta y_{-i}).$$

(X1)

Since r^* is the minimum expenditure required to generate the utility level $u(I, \theta y_{-i})$, $[u_x(x^*, B^*) = u_B(x^*, B^*)]$, and $[h'(r^*) + g'(r^*) = 1]$. Hence, (X1) yields:

$$\theta u_B(I, \theta y_{-i}) = [u_B(x^*, B^*)]r_{y_{-i}}(I, \theta y_{-i}).$$

(X2)

Now, A1 implies:

$$\frac{\partial\left[u_x/u_B\right]}{\partial B} = \left[\frac{u_B u_{xB} - u_{BB} u_x}{u_B{}^2}\right] > 0 \text{ and } \frac{\partial\left[u_x/u_B\right]}{\partial x} = \left[\frac{u_B u_{xx} - u_{Bx} u_x}{u_B{}^2}\right] < 0.$$

(X3)

Noting that: $\left[\frac{du_B}{dB}\Big|_{u=\bar{u}} = \left[\frac{u_{BB}u_x - u_{xB}u_B}{u_x}\right]\right]$, we then have from (X3):

$$\frac{du_B}{dB}\Big|_{u=\bar{u}} < 0\,.$$

(X4)

Noting that $B^* < \theta y_{-i}$, and that $\theta \in (0,1]$, we have, from (X4),

$$\theta u_B(I, \theta y_{-i}) < u_B(x^*, B^*).$$

(X5)

Together, (X2) and (X5) imply:

$$r_{y_{-i}}(I, \theta y_{-i}) \in (0,1).$$

(X6)

Lemma 3.1(i) follows from (3.4) and (X6).

(ii) By an argument exactly analogous to that used to establish (X6), one can show that:

$$r_I(I, \theta y_{-i}) > 1\,.$$

(X7)

Lemma 3.1(ii) follows from (3.4) and (X7).

(iii) Our first step is to establish the following.

There must exist a positive monotone transformation of u, $\tilde{u}$, such that the indirect utility function corresponding to $\tilde{u}$ is linear in income.

(X8)

For every positive monotone transformation of u, $\tilde{u}$, such that the indirect utility function corresponding to $\tilde{u}$ is linear in income, [$\tilde{u}_{xB} > 0$ and $\tilde{u}_{xx}, \tilde{u}_{BB} < 0$].

(X9)

Let *V* be the indirect utility function corresponding to *u*. Define a transformation of *u*, $\tilde{u} \equiv m(u)$, by: $\left[m'(V(r)) = \dfrac{\alpha}{V'(r)}\right]$, where α is some positive constant. Such a transformation must evidently exist. Since α, $V' > 0$, $m' > 0$: thus, $\tilde{u}$ is a positive monotone of *u*. Now let $\tilde{V}$ denote the indirect utility function corresponding to $\tilde{u}$. Since $(\tilde{V}'(r) \equiv m'(V(r))V'(r))$, by construction, $\tilde{V}' = \alpha$, establishing (X8). Now consider any $\tilde{u} \equiv m(u)$ such that (i) $m' > 0$, and (ii) $\tilde{V}''(r) = 0$, where $\tilde{V}$ is the indirect utility function corresponding to $\tilde{u}$. First note that, since $[\tilde{u}_x(h(r), g(r)) = \tilde{u}_B(h(r), g(r))]$, and $[h' + g' = 1]$, $[\tilde{V}'(r) = \tilde{u}_x(h(r), g(r)) = \tilde{u}_B(h(r), g(r))]$; hence:

$$\tilde{V}'' = \tilde{u}_{xx}h' + \tilde{u}_{xB}g' = \tilde{u}_{BB}g' + \tilde{u}_{Bx}h'.$$

(X10)

Suppose $\tilde{u}_{xB} \leq 0$. Then, by A1, the exact analogue of (X3) for $\tilde{u}$ implies $\tilde{u}_{xx} < 0, \tilde{u}_{BB} < 0$. By (X10) and A1, we then get $\tilde{V}'' < 0$, a contradiction. Hence:

$$\tilde{u}_{xB} > 0.$$

(X11)

Noting $\tilde{V}'' = 0$ by construction, A1, (X10) and (X11) together yield (X9).

Now, noting that the real income function is invariant with respect to a positive monotonic transformation of the utility function, we have $[\tilde{u}(I, \theta y_{-i}) = \tilde{V}(r^*)]$, implying $[\theta\tilde{u}_B(I, \theta y_{-i}) = \tilde{V}'(r^*) r_{y_{-i}}]$. Hence, noting $\tilde{V}'' = 0$,

$$\theta\tilde{u}_{Bx}(I, \theta y_{-i}) = \tilde{V}'(r^*) r_{y_{-i}I}.$$

(X12)

Analogously,

$$\tilde{u}_{xx}(I, \theta y_{-i}) = \tilde{V}'(r^*) r_{II}.$$

(X13)

Since $\tilde{V}', \theta > 0$, (3.4), (X9), (X12) and (X13) together yield part (iii) of Lemma 3.1.

◊

Proof of Lemma 3.2.

That *y* is increasing, and y_C decreasing, in n_C follow directly from A1. Suppose $\underset{n_C \to \infty}{Lt} y_C \in \Re_{++}$. Then, $\underset{n_C \to \infty}{Lt} [I_C + \theta(y - y_C)] = \infty$. In light of A1-A2, this implies $\underset{n_C \to \infty}{Lt} x_C = I_C$, a contradiction. Hence $\underset{n_C \to \infty}{Lt} y_C = 0$.

◊

Proof of Proposition 4.1.

(i) Since, by construction, *j* and *l* are both non-contributory, (4.1) reduces to:

$$R_{jl} = M_{jl} + \theta\left[f(I_l, y) - f(I_j, y)\right].$$

Since $I_j > I_l$, $\theta > 0$, part (i) follows from Lemma 3.1(ii).

(ii) Since, by assumption, *l* is non-contributory, using (4.1) we get:

$$\left[R_{jl} - M_{jl}\right] = \theta\left[f(I_l, y) - y_C\right].$$

Let $\underset{I_l \to 0}{Lt}\,\theta\left[f(I_l, y) - y_C\right] = \Gamma(n_C)$. Suppose A2 holds. Then, by Lemma 3.1(i) and Lemma 3.2, $\Gamma(n_C)$ is increasing in n_C, with $\underset{n_C \to \infty}{Lt}\,\Gamma(n_C) > 0$. It follows that there must exist $n^* \in \{1,2,...\}$ such that $\Gamma(n_C) > 0$ for every $n_C > n^*$. Noting continuity of *f*, we get part (ii). The proof for the case [$u(0, y) = u(0,0)$] is given in part (iii) below.

(iii) If [$u(0, y) = u(0,0)$], then $\underset{I_l \to 0}{Lt}\,\theta\left[f(I_l, y) - y_C\right] = \theta(n_C - 1)y_C > 0$ for all $n_C \geq 2$. ◊

Proof of Observation 5.1.

It can be easily checked that, in the Nash equilibrium,

$$\text{for all } i \in C,\ r_i = I_C + \left(\frac{n_C - 1}{n_C}\right)y = \left[\frac{2}{1 + n_C^{-1}}\right]I_C;$$

(X14)

$$\text{for all } i \in P,\ r_i = 2\sqrt{I_i y} = \left(\frac{2}{\sqrt{1 + n_C^{-1}}}\right)\sqrt{I_i I_C}\ .$$

(X15)

By (X15), the impact of the marginal tax-transfer policy on the real income of a P individual is given by:

$$\text{for all } i \in P,\ \left[\frac{\partial r_i}{\partial I_i} - \frac{\partial r_i}{\partial I_C}\right] = \left(\frac{1}{\sqrt{1 + n_C^{-1}}}\right)\left[\frac{I_C - I_i}{\sqrt{I_i I_C}}\right] > 0.$$

(X16)

(X16) yields part (i). Now let $I_i \equiv \lambda_i I_C$ for $i \in P$. Then we can rewrite (X16) as:

$$\text{for all } i \in P, \left[\frac{\partial r_i}{\partial I_i} - \frac{\partial r_i}{\partial I_C}\right] = \left(\frac{1}{\sqrt{1+n_C^{-1}}}\right)\left[\frac{(1-\lambda_i)}{\sqrt{\lambda_i}}\right].$$

(X17)

Since the RHS in (X17) is decreasing in λ_i, and approaches infinity as λ_i approaches 0, it follows that:

$$\text{there must exist } \underline{\lambda}(n_C) > 0 \text{ such that } \left[\frac{\partial r_i}{\partial I_i} - \frac{\partial r_i}{\partial I_C}\right] > 1 \text{ iff } \lambda_i < \underline{\lambda}(n_C).$$

(X18)

Noting that, since $n_C \geq 2$ by assumption, (X14) implies $\frac{\partial r_i}{\partial I_C} > 1$ for all $i \in C$, part (ii) follows. ◊

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