

Associational Redistribution: A Defense

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I.

One of the most important conclusions of recent theoretical work on the economics of inequality is the recognition that equity and efficiency represent complementary policy goals in many contexts. Samuel Bowles and Herbert Gintis have, in "Efficient Redistribution: New Rules for Markets, States, and Communities," written a masterful survey of the possibility that egalitarian redistribution policies will improve aggregate productivity.¹ The underlying theme of their analysis in that article, as well as in other work, is that highly unequal distributions of assets or income can create incentive problems which militate against the efficient employment of available resources.² Intuitively, a wide range of economic activity, ranging from workplace effort to contract fulfillment, contains the potential for principal-agent conflicts as the goals of economic actors diverge. Such divergence may be lessened by egalitarian redistribution, due to the confluence of interests between economic actors which are thereby induced.

In this essay, I examine possible complementarities between equality and efficiency from the perspective of the redistribution of memberships in various socioeconomic associations. Associations refer to those units into which agents organize themselves. Examples of such associations include firms, neighbor-

This article was prepared for the Real Utopias Project Conference on Equality and Efficiency held at the University of Wisconsin, November 1995. I thank Ann Bell, Samuel Bowles, William Brock, Kim-Sau Chung, Glenn Loury, Alexandra Minicozzi, Susan Nelson, Paula Voos, Michael Wiseman, Erik Wright, and especially Donald Hester for comments on earlier drafts and the National Science Foundation for financial support. Some of this work was completed while I was visiting the Santa Fe Institute, whose hospitality I gratefully acknowledge. All errors and opinions are mine.

hoods, and schools. From the perspective of inequality, the critical feature of associations is that they define (at least partially) isolated socioeconomic environments for their members. Differences across socioeconomic environments in turn produce differences in socioeconomic outcomes for individuals across groups. This link suggests that policies which alter the private market determination of associations can ameliorate inequality. Examples of policies which directly alter the formation of associations include affirmative action admissions and hiring policies, school busing to achieve racial integration, and location decisions for public housing.

The role of associational interactions in creating and perpetuating inequality has been the focus of a number of recent theoretical papers in the economics literature. Roland Bénabou and Steven Durlauf have shown how neighborhood interactions can lead to persistent inequality across generations; Michael Kremer and Eric Maskin have shown in joint research how worker interactions within firms can explain growing wage inequality; Shelly Lundberg and Richard Startz have shown how neighborhood and employment interactions can interact to explain racial income differences.³

What distinguishes this new research from much previous work on inequality is its emphasis on the role of interaction environments in determining inequality. In particular, rather than focusing on individual characteristics in isolation, this body of theory focuses on the ways in which the endogenous organization of individuals determines how these individual attributes translate into economic achievement. Hence the role of an individual's education in determining his labor market prospects cannot be known without understanding who his coworkers are and the sort of firm in which he is employed.

This emphasis on group-level determinants of inequality in turn leads to a different perspective on redistribution policies. While conventional redistribution schemes such as progressive taxation (and even the more exotic policies advocated by Bowles and Gintis) focus on the transfer of income or wealth across individuals, the sorts of redistribution suggested by this new literature lead to a consideration of interventions in the market determination of socioeconomic interaction environments for individuals. I therefore refer to such policies as attempting to achieve *associational redistribution* to distinguish them from other types of equality-enhancing policies.

I will argue that associational redistribution can lead to substantial increases in the average productivity of the economy. Building on previous work of Bénabou and Durlauf, which has described the role of local interactions on inequality and efficiency, powerful channels are identified through which policy interventions can promote equality and efficiency as complementary goals. Complementarity occurs because market forces produce assignments of individuals to associations which are stratified beyond the level dictated by economic efficiency. Intuitively, the presence of interaction effects within an association creates incen-

tives for more able or more affluent or more educated individuals (depending on the association in question) to isolate themselves from others. One obvious case of such stratification occurs in neighborhood formation. In this case, since the distribution of incomes across families in a neighborhood helps determine school quality, neighborhoods become economically stratified as affluent families seek out affluent neighbors. The interaction structure underlying various associations, however, means that when individuals sort themselves without considering the consequences of their actions on others, the isolation of agents with high levels of these attributes can have adverse aggregate consequences.

While capable of producing substantial efficiency and equity gains, associational redistribution policies are much less likely to be politically appealing than the class of redistribution schemes envisioned by Bowles and Gintis. As a result, while efficiency considerations may be useful, a politically efficacious defense of associational redistribution will need to rely largely on ethical considerations. I therefore consider the ethical justification for associational redistribution as well.

II.

Much of the justification for considering associational redistribution policies stems from the growing recognition in economics that socioeconomic interaction environments produce powerful effects on the economic prospects of individuals. A distinguishing feature of the new economics of interactions is the emphasis on those interactions which occur directly between individuals rather than through the mediation of markets.

An important class of association-level influences is often referred to as social capital, a term introduced by Glenn Loury.⁴ Social capital has been characterized by James Coleman as “the set of resources that inhere in family relations and in community social organizations and that are useful for the cognitive or social development of a child or young person.”⁵ Since social capital is intangible and exists only in the context of relationships between one individual and others, the level and allocation of social capital are directly determined through association formation. Components of social capital can range from labor market connections to role models. Notice that while the emphasis in the economics and sociology literatures has usually been on intergenerational issues, social capital effects can also be contemporaneous. For example, when one considers the interactions of workers within a firm or students within a school, the social norms within either group can determine the way in which actions are coordinated. In other words, distinct configurations of otherwise identical workers across firms will induce different productivity effects through social capital-type mechanisms. Within a firm, workplace attitudes are interdependent both with each other and with each worker’s social capital; within a neighborhood, group behavioral characteristics such as out-of-wedlock birth rates will be influenced by social capital as well.

Interaction effects are important for reasons beyond the influence of social capital per se. In many socioeconomic contexts, an individual's payoff from a particular behavioral choice directly depends on the actions of members of one's reference group. For example, dropping out of school may be more desirable when one's classmates do the same. In this case, social capital, if constituted as a social norm favoring education, can militate against this effect. Other examples of direct interdependence of payoffs include team production, where each member of a team of workers receives an equal share of a common effort.

Finally, association composition matters for the distribution of the stocks of physical and human capital. One obvious case is the assignment of workers to firms, which implicitly allocates the stock of human capital across production functions. The link between the allocation of capital stocks and group formation provides an additional reason to focus on the role of associational redistribution in overcoming inequality. For example, within a firm each individual's productivity is affected by the educational level of coworkers. In this case, individual-level interactions are at least partially mediated through labor markets as the wage mechanism determines worker assignments. Nevertheless, the process of worker allocation across firms has critical implications for the distribution of wages.

This perspective on income determination thus embodies several potential links between group membership and inequality. Appendix 1 outlines a formal model of interactions and inequality. The intuition behind the model is straightforward when one considers the different interaction structures in the economy. Association-based interactions help determine inequality at two levels.

An initial level of interactions occurs at the level of a neighborhood. Neighborhood composition matters for inequality in two contemporaneous respects. First, the level of educational expenditures is determined by the preferences and incomes of neighborhood members, as aggregated through the political process. Further, social capital represents a collective neighborhood-level resource whose nature is determined by the characteristics of the neighborhood's population. Components of social capital that are relevant at the neighborhood level include role models and attitudes towards work, each of which will influence individual choices on school and job market effort. Each of these neighborhood influences partly determines the skill and productivity levels of neighborhood offspring when they become adults.

A second level of interactions occurs at the level of the firm. The assignment of a particular worker to a particular firm is based upon productivity-related characteristics, which were determined by the human and social capital obtained while young. In particular, an individual's social capital embodies characteristics such as social norms and information, which help determine both productivity and access to job opportunities; neighborhood-level influences during youth determine firm-level interactions as an adult. There is thus an intertemporal link between neighborhood and firm associations. In turn, the allocation of workers

across firms determines incomes, and by implication neighborhood memberships of families. Once families are located across neighborhoods, those group level forces come into play which help determine the distribution of human capital and income for the next generation of adults.

In response to the presence of interactions, economic actors in many contexts attempt to organize themselves in order to produce environments with favorable social capital allocations. A standard example of this is the pursuit of "good" neighborhoods by parents. As shown by Bénabou and Durlauf, the presence of associational spillover effects creates incentives for families to stratify themselves by income.

Stratification and interactions combine to produce persistent inequality. This is most clear in the case of neighborhoods, where the differences in the social capital and per capita educational expenditures between rich and poor communities transmit inequality across generations: children in poor neighborhoods grow up to be poor due to educational and labor market handicaps. In particular, Durlauf provides an example in which the equilibrium configuration of families across neighborhoods is that which maximizes (in a well-defined sense) intergenerational inequality between the richest and poorest families in the economy.⁶

Many empirical studies have produced evidence consistent with the claim that interaction effects are significant determinants of economic success. Most of these studies have focused on neighborhood interactions. In one study, Jonathan Crane shows that the percentage of managerial and professional workers among adults in a community correlates negatively with both the high school dropout and teenage pregnancy rates.⁷ Mary Corcoran et al. find that the percentage of families on public assistance in a neighborhood lowers the expected adult wage of children in the neighborhood.⁸ Linda Datcher finds that black economic status is sensitive to the degree of segregation experienced in youth.⁹ Additional evidence may be found in the context of so-called natural experiments, which examine the consequences of exogenous changes in neighborhood sorting rules. In a study of the Gautreaux program in which a number of inner-city families from Chicago were provided with public housing in adjacent suburbs, James Rosenbaum and Susan Popkin found that a number of socioeconomic outcomes of the transplanted families were greatly improved.¹⁰

It is important to recognize that this empirical work is far from decisive. The empirical literature on interaction effects has been subjected to powerful criticisms concerning the way in which the studies have dealt with identification issues, as discussed by Charles Manski.¹¹ In addition, there appears to be some lack of robustness of the findings of neighborhood feedbacks, as found, for example, by Christopher Jencks and Susan Mayer.¹² A fair reading of the empirical literature seems to be the following: while the evidence is very suggestive of substantial interaction effects, the evidence is sufficiently plagued by statistical problems that one's prior beliefs ought to be strongly affected by the body of

existing empirical work. However, because the interaction effects are consistent with the formal evidence and are furthermore very plausible, their implications for redistribution are worth examining.

The basic interaction structure described above illustrates how the sorting of individuals has important implications for the study of productivity-enhancing redistributions. In particular, different levels of interaction—neighborhood, school, and firm—suggest the importance of focusing on redistribution policies that attempt to alter associational structures rather than attempt to alter the contemporaneous distribution of wealth through direct monetary transfers. One obvious case is educational opportunity. An interactions-based perspective alters the redistributive focus away from policies designed to equalize per-student expenditure to those that attempt to equalize the total school environment. Even if expenditure equalization is important in producing equality of education opportunity, the efficacy of such policies may depend on the available social capital in a school, again suggesting the need for associational redistribution.¹³

III.

The relationship between persistent inequality and stratification does not address the implications of stratification for the productive efficiency of the associated allocation of economic actors. In fact, one might even expect that there exist broad conditions under which stratification is required for productive efficiency. In particular, a link between stratification and efficiency might be expected when complementarities exist between agents, that is, when the marginal product of a group's production function with respect to one person's ability is increasing in the ability levels of others. In this general case, it is possible that maximum productivity requires placing high ability agents together in order to take advantage of spillovers among them. These intuitions are formalized in analyses of particular economic environments by Gary Becker and Michael Kremer, each of which finds that the presence of complementarities is a sufficient condition for the efficiency of stratification.¹⁴

However, Durlauf shows that stratification may be inefficient even in the presence of complementarities across all agents when one considers a broader range of economic environments than those studied by Becker and Kremer.¹⁵ In particular, it is demonstrated that the link between complementarities and the efficiency of stratification depends on the additional assumptions, first, that all groupings are constrained to be of equal size and, second, that the productive input supplied by each individual to a group is independent of the composition of that group.

Neither of these assumptions holds when one considers neighborhoods or firms. Such groups obviously can vary in size. Feedbacks from the allocation of agents across groups to the level of productive inputs will occur whenever the composition of groups affects individual effort. Such feedbacks occur when

school effort is affected by the presence of neighborhood role models or worker effort is affected by the skill level of coworkers. The important implication is that even in the presence of positive interaction effects, stratified configurations can fail to be output maximizing, relative to some integrated alternative.¹⁶

To be sure, under some configurations of technologies and ability distributions, stratification will be efficient. The point is that the connection between stratification and efficiency is not a necessary consequence of some qualitative set of features of the economy such as the presence of a particular type of interaction structure—that is, complementarities—among all agents. On the other hand, for a much wider range of economic environments than those in which stratification is efficient, the equilibrium allocation of agents will nevertheless be stratified. Thus there exist cases where the gains from productivity-enhancing associative redistribution may be considerable.

The adverse productivity consequences of stratification may be associated with analogous welfare effects. The model of binary choices with spillovers studied by William Brock and Steven Durlauf, which directly applies to phenomena such as out-of-wedlock births, dropping out of high school, and entry into crime, exhibits precisely this feature.¹⁷ In that model, individuals choose between a pair of possible actions in order to maximize a utility function which includes both a private component, corresponding to individual economic payoffs from a course of action, and a social component, corresponding to the desire to conform to the behavior of one's community or reference group. When the private utility difference between the two choices is below some threshold, the social utility component allows the existence of multiple equilibria in community choice levels. However, if the private utility differences are large enough, these conformity effects cannot induce multiplicity. From the perspective of that model, social capital within a community may coordinate individual choices in a way that leads to a socially efficient equilibrium. The model implies that by rearranging individuals across communities in order to reduce the number of communities which exhibit multiple equilibria, it is possible to improve average utility in the economy. The model also shows that poor economic fundamentals and a culture of poverty constitute complementary rather than alternative explanations of underclass behavior.

It is possible for a reorganization of an initially stratified configuration of communities to induce increases in utility for all members of the society. Bénabou describes conditions under which the economic integration of neighborhoods makes all families better off because of dynamic improvements in the quality of the labor force.¹⁸ The possibility of uniform utility improvements relies on strong intergenerational utility ties, as occurs when descendants find themselves members of a better trained workforce.

In general, associational redistribution can enhance aggregate productivity either by facilitating the solution of coordination problems resolving other market

imperfections, or by obviating the necessity to solve such problems. Some simple algebraic examples of these possibilities, where the characteristic that differentiates economic agents is ability, are given in Appendix 2. When these examples are studied from the perspective of a market equilibrium, it is easy to verify that an allocation of agents which integrates high and low ability agents across coalitions will never occur. The reason is straightforward: high ability agents always have an incentive to match themselves with other high ability agents. This phenomenon is in fact quite general. Intuitively, stratification emerges as an equilibrium phenomenon in contexts ranging from neighborhoods to firms, despite adverse output or welfare consequences because individual agents seek association configurations that maximize their own payoffs, without regard for the effects of such isolation on the total productivity of the society. However, the efficient allocation of individuals across coalitions requires that the net effect on the welfare of all agents from moving any set of agents across groups be zero or negative, which is clearly a very different condition.¹⁹ In this respect, interaction effects operate in ways either analogous or equivalent to externalities.²⁰

A concrete example of the general claim that associational effects create a tendency towards stratification is the allocation of families across neighborhoods. While affluent families have an incentive to isolate themselves from the poor in order to maximize school quality, the desirable consequences for poor families who were placed in such a community may nevertheless outweigh any deleterious effects on the affluent (in the sense that the affluent can be compensated in a way so that everybody is made better off). This inefficiency is attributable to the presence of externalities and attendant coordination problems which impede educational effort among the poor, rather than through any of the principal-agent issues emphasized by Bowles and Gintis.

The allocation of individuals across associations so as to maximize aggregate output provides a productivity-based justification for a number of public policies that have fallen into disfavor in the last two decades. From the interaction effects at a neighborhood or school district-based level, integration of communities either through redistricting, busing, or through explicit public housing strategies can have potentially powerful static or dynamic efficiency effects, depending on the time horizon under consideration.²¹ Affirmative action policies may have similar consequences.²² If role model or labor market connection effects are important determinants of economic success, then affirmative action can, by altering the way in which workers are sorted across occupations and firms, be productivity enhancing.

Whether they are intended to ameliorate inequality or to increase per capita output, it is a clear implication of the new literature on neighborhood effects and inequality that redistribution schemes must deal with the questions of sorting and group formation. While equilibrium stratification by income or skill will, in the presence of positive interaction effects, typically generate substantial contempo-

aneous and persistent inequality, such stratification is justified by considerations of economic efficiency only in a relatively narrow range of cases.

IV.

In a recent body of research, Glenn Loury has argued that associational redistribution programs such as affirmative action may have adverse productivity consequences. His analysis is conducted in an economic environment in which the various interaction effects I have discussed are absent, so there is no clash *per se* in the arguments each of us makes. At the risk of doing an injustice to the depth of his work, I briefly comment on and attempt to answer the main thrust of Loury's arguments on his own terms.

In suggesting that affirmative action may have adverse productivity considerations, Stephen Coate and Glenn Loury focus on potential adverse incentives for investment in education.²³ Specifically, these papers argue that the presence of race-based quotas can lead minority workers to reduce investment in education due to the possibility of obtaining high-paying jobs through quotas rather than through education-based qualification.

My own view is that this problem is unlikely to have great empirical salience. First, this argument requires that individuals are willing to take jobs for which they know they are unqualified. This seems improbable, particularly if the commonplace argument that these policies stigmatize successful minorities is correct. After all, successful on the job performance is the one way that is certain to show that any stigma is unjustified. In the context of the Coate-Loury model, high educational investment to avoid stigma can completely eliminate any disincentive effects, because education investment is a fixed cost; when the investment costs are an increasing function of the level of education, these investments designed to avoid stigma limit the extent of the disincentives without necessarily eliminating all education investment effects. Additionally, the Loury argument supposes that affirmative action policies will not positively influence education investment by creating the perception of a fairer workplace environment. Descriptions of African American attitudes by Ellis Cose and others suggest that affirmative action policies are perceived by African Americans as partially ameliorating unjust hiring practices and that the beneficiaries do not perceive themselves as suddenly possessing a chance to succeed regardless of merit.²⁴ Such perceptions imply that education investment among African Americans ought to increase in response to some forms of associational redistribution.

Second, the economic environments which Coate and Loury study presuppose that once an individual is employed, his position and compensation within the firm is independent of his performance. Clearly, firms are able to structure internal promotions incentives in such a way as to encourage high productivity. The question raised by Coate and Loury is not whether affirmative action creates

adverse education incentives but rather how affirmative action policies ought to be structured. I read their arguments as suggesting that affirmative action policies should be primarily directed at entry-level positions; Loury in fact develops related arguments as they relate to the timing of affirmative action policies.²⁵

Third, the efficiency argument in Loury's work presupposes that sorting mechanisms in the economy are efficient before affirmative action. To the extent that the ability to succeed through family connections is diminished through affirmative action, the current beneficiaries to nonmeritocratic sorting should increase their efforts to obtain education. Put simply, if affirmative action policies reduce the incentives for minorities to work to gain admission to Ivy League schools, they should similarly increase the incentives for the offspring of alumni, whose places are in jeopardy. There is no theoretical basis for predicting whether this net effect on incentives will enhance or reduce average education investment across the labor force, when considered as a whole.

V.

The potential for associational redistribution policies to find widespread public support is questionable, however, given the widespread unpopularity of the mechanisms such as affirmative action. Productivity-enhancing redistributions are claimed by Bowles and Gintis to be relatively politically efficacious on the grounds that such redistributions can make the entire population better off. However, the indivisible nature of the burden created by associational redistribution makes it especially unlikely to produce such uniform welfare improvements, at least without a set of (implausible and unwieldy) compensatory arrangements for those advantaged-group members who lose out.²⁶ Further, because the retention of any meritocratic aspects to the allocation of societal positions are likely to protect those in the upper tail of either the skill or ability distributions, associational redistribution is likely to hurt some members of the advantaged group, in particular those who are relatively less advantaged.

Further, it is probable that associational redistribution policies will remain unpopular regardless of their productivity consequences, unless they can be shown to be just. It seems clear that much of the opposition to affirmative action is predicated on the belief that it is unfair. The standard formulation of this claim is that those affected by affirmative action policies are neither responsible for nor the victims of the discrimination which is being addressed. The assumptions of this argument are obviously correct. Certainly, the evidence in Verba et al. on American attitudes towards egalitarian policies suggests that the level of support for associational redistribution as defined by affirmative action is weaker than that for other forms of income redistribution. Associational redistribution policies thus face a much higher hurdle to public acceptance than the policies studied by Bowles and Gintis.²⁷

My own view is that the most likely prospect for a politically successful defense of associational redistribution lies in the development of an ethically based defense on equality of opportunity grounds. From an ethical perspective, one appropriate goal of redistributive policy is the reduction of the dependence of forecasts of adult socioeconomic outcomes, when defined over all factors, on those variables over which the adult has no control. Obvious candidates for such variables include race or neighborhood of residence in youth. Such a notion emphasizes that equality of opportunity is properly defined relative to the salience of particular causal explanations of inequality. This formulation has the benefit of forcing explicit consideration of the way in which different variables affect outcomes, which is likely to be as politically contentious as the determination of what variables should be considered to be under an individual's control. In addition, the conditional probability structure forces explicit consideration of how to handle unobservable variables such as effort. Of course, appropriate notions of equality become difficult to define in the presence of nontransferrable attributes such as genetically determined ability.

This formulation of equality of opportunity is based on an important series of papers by John Roemer.²⁸ Roemer argues that equality of opportunity requires equalization of the performance of different societal groups when compared percentile by percentile, when these groups are defined by characteristics which are beyond individual control. An obvious case where this analysis applies is that of opportunities such as school admission or employment when affected by circumstance of birth. Notice that one need not take a stand on the propriety of rewarding differences in genetic endowment to argue that neighborhood-based or ethnic group-based effects should have no independent role in determining the allocation of opportunities in a society. One important contribution of Roemer's analysis is the demonstration of how performance-based notions of equality of opportunity may be reconciled with requirements of personal responsibility.

The concept of equality of opportunity resonates strongly across political boundaries in American society, especially when applied to the prospects of children. Given this resonance, associational redistribution policies may be required to achieve accepted notions of justice and fairness and therefore may be defended as necessary actions despite the ethical concerns raised above. Such policies will be defensible even when associational redistribution increases some contemporaneous inequality among adults.

An ethical defense of associational redistribution must rest to a large extent on a particular view of the mechanisms that explain the cross-section and intertemporal income distribution. In particular, following Roemer's reasoning, associational redistribution is defensible when it acts to reverse the influence of factors which are beyond an individual's control in producing unequal outcomes. Such reasoning immediately applies to affirmative action policies that are implemented

to counter current discriminatory behavior, because any redistribution is merit-rewarding and equality-enhancing.²⁹ Similarly, to the extent that neighborhood-level differences create substantial persistence in economic status, the equalization of neighborhood influences by interventions in the private market allocation is again defensible because neighborhood membership is imposed upon a child.

This argument does not require that past discriminatory behavior is responsible for consigning a subset of the population to environments with low social capital. For example, if an ethnic group is admitted as refugees, do the current members and future offspring of that group have a lesser claim on society's resources because our society bears no past responsibility for their parents' condition? Clearly not, because the act of admission to our society presumes admission as a fully equal member.

The argument also does not require that effects of low social capital be permanent. Even if market forces are certain to eventually eliminate the effects of contemporaneous social capital imbalances on inequality, interventions to equalize social capital across groups may still be justified because of the harms to the current young. In this respect, I disagree with Glenn Loury who argues that irreversibility of the effects of past discrimination is important in justifying government remedies to group inequality.³⁰ The degree of persistence of cross-group inequality is germane only when one is accounting for competing dimensions of equity and efficiency which are adversely affected by associational redistribution. As a practical matter, irreversibility is virtually impossible to verify through formal statistical procedures; some of the reasons for this are described in Andrew Bernard and Steven Durlauf.³¹ So it seems that Loury's condition is very unlikely ever to be met empirically, ethical issues notwithstanding.

The strength of ethical objections to associational redistribution must be sensitive to the relative importance of different determinants of inequality. First, if one accepts the argument made by John Rawls and others that differences in talent or productivity have no implications for the justice of compensation differences per se, inequality due to differences in ability versus inequality due to differences in tastes need to be distinguished.³² Second, even if one accepts that some differential rewards due to differential ability are ethically defensible, the question of the fairness of the reward scheme currently observed in society remains. If the financial rewards to high education are due to monopoly rents, then the income distribution induced by meritocratic admissions criteria cannot be said to be just.³³ To the extent that associational redistribution ameliorates an unjust income distribution induced by the compensation rules of society, the argument that the reward of merit is a competing claim on the design of institutions is, of course, weakened. Certainly, the recent work of Robert Frank and Philip Cook on the rise of winner-take-all compensation schemes is suggestive that this is more than a theoretical possibility.³⁴

VI.

An ethically based equality of opportunity argument for associational redistribution differs from a number of previous defenses. For example, it does not rely on any notion that associational redistribution represents just compensation for previous discrimination. As a number of authors have emphasized, such as Robert Amdur and John Roemer, such a defense fails for several reasons, including the absence of identity between victim and recipient.³⁵ These arguments appear to be persuasive, although it should be noted that current members of disadvantaged groups are suffering the consequences of previous discrimination. Second, it does not rely on, but of course would be strengthened by, the claim that overt contemporaneous discrimination is influencing the sorting mechanisms of the private economy.

A criticism of the equality-of-opportunity argument could be made, however, on the grounds that associational redistribution itself violates a prior right of individuals to pursue private lives; an extreme version of this argument is made by Robert Nozick.³⁶ Ethical limits on the right of government to interfere with private interactions must imply bounds on the degree to which associational redistribution may be implemented. An obvious example (due to Glenn Loury) is marriage, where no one would seriously propose that the observed patterns of segregation should be explicitly interfered with by the government.

For two reasons, neither work nor education represents a case where the right to private association may be deemed to be absolute.³⁷ First, the social interactions embedded in such institutions are in large measure auxiliary to their goals, as opposed to something such as private social clubs or marriage. The primary goal of a firm is the generation of profit, not the creation of a workplace in which individuals can socialize; similarly, the primary goal of schools is the education of students, not the creation of a social environment per se. From this perspective, the inviolability of private associations such as friendships and families is irrelevant to the question of government interventions in the workplace or education environment. Little qualitative difference exists between the regulation of an industry with pollution that creates production externalities and the regulation of an industry with employees who provide role models to the young. Second, the fundamental relationship between education, economic success, and one's perceived value as a member of society, as defended by Judith Shklar, provides a compelling reason to interfere with private social interactions in these cases.³⁸ As argued by Thomas Nagel, while a persuasive defense of egalitarianism would seem to require a concession that equality is only one of many desiderata for a society, equality of opportunity is not necessarily subordinate to other values, such as those embedded in a natural right to all private associations.³⁹

The case of neighborhood formation is somewhat more problematic, because a neighborhood's interaction environment is an objective of community formation. However, any right of adults to private neighborhood formation will conflict,

due to spillover effects, with the right of all offspring to equal opportunities, as manifested in equality in neighborhood influences. Unless the parents of all offspring have equal initial opportunities, justice would seem to require that the latter's rights take precedence.

Further, if individual neighborhood choice is made on the basis of the desire for a particular school composition, then it is unclear what weight should be assigned to adult associational preferences, because it is the offspring whose social interaction environments are being defined. In forming neighborhoods for schools, parents are acting (at least partially) as agents for their offspring. Preferences of the parents for certain types of neighborhood composition which do not promote their children's interests create a tension between the parent's right to private association and the interests of their offspring which needs to be adjudicated. Therefore, the right to private neighborhood associations is not absolute in this case. Can a parent's pursuit of a racially homogeneous neighborhood ever coincide with a child's interests? If this pursuit is based on prejudice, then the answer is presumably no, since minors cannot be said to possess full powers of moral reasoning. On the other hand, if racial homogeneity avoids racial conflict, then the answer is not so clear.

A possible ethical limitation on arguments for associational redistribution does arise in the broader context of the question of the justice of rewards to individuals (in this case memberships in schools, neighborhoods, etc.) for characteristics which are not choice variables. The difficulty arises from the need to define what is an "essential" person (to use a word employed by John Roemer in this regard) whose attributes are those which may be justly rewarded. An overwhelming ethical consensus exists that one should not be penalized on the basis of race or gender, given ability, in labor market outcomes. In this context, race or gender is inessential. Conversely, a relationship between an individual's effort and compensation is, by consensus, justified because effort reflects individual preferences, which are clearly essential. On the other hand, one's genetic ability endowment is difficult to disassociate from the "essential" person in any meaningful context, which is one reason why arguments in favor of eliminating this factor as a source of inequality differences through associational redistribution are often rejected, even in the writings of liberals such as Michael Walzer.⁴⁰ Associational redistribution alters the rewards to a number of individual characteristics, ranging from family and group background to genetic endowment, not all of which are necessarily on a comparable ethical footing. In this respect, associational redistribution is typically a second-best policy.

VII.

In summary, it is important to recognize the extent to which associational redistribution may be necessary to achieve a substantially more egalitarian income distribution. Equalization of school expenditures may be unlikely to produce

much equalization of human capital without attendant changes in the unequal distribution of social capital. The development of an ethically based defense of social capital redistribution is, in my view, an essential corollary to achieving the politically efficacious defense of the redistributive policies suggested by Bowles and Gintis.

At the same time, one must acknowledge that the importance of associational redistribution policies says nothing about how such policies ought to be designed. Any interference in the private market sorting process may create behavioral responses in associational choice that will undermine the original policy. Such responses are potentially serious in two respects. First, the policies themselves may be rendered ineffective. The white flight out of school districts which implemented racial integration plans is a prominent example of this possibility. Similarly, even if school populations are integrated, within-school segregation can emerge in response to interschool integration. Second, associational redistribution policies, by providing insurance against adverse background, might undermine mechanisms by which family-level and neighborhood-level investment in offspring occur. The challenge to economists (at least in terms of comparative advantage) is to identify specific associational redistribution mechanisms with equilibrium consequences that will contribute to the joint goals of equality and efficiency.

APPENDIX 1. FORMALIZATION OF DYNAMIC INEQUALITY MODEL

To see how associational interactions collectively influence inequality, I briefly outline a model based upon ideas developed by Roland Bénabou, Steven Durlauf, and Michael Kremer and Eric Maskin. The model characterizes the joint determination of human capital and income. The interested reader is advised to consult the research of these to see how the various behavioral equations can be justified.

In this model, the evolution of a stable population of individuals is studied. The population consists of I family dynasties. Individual $i, t - 1$ denotes the member of dynasty i born in period $t - 1$. Each individual is assumed to live two periods, corresponding to youth and adulthood. Individual $i, t - 1$ possesses adult human capital $H_{i,t}$, which is determined by four components: the human capital of his parent, $H_{i,t-1}$, the educational investment level of the neighborhood in which he grows up, $ED_{n,t-1}$, sociological spillovers such as role model effects, with consequences measurable by the income distribution among adults in the individual's neighborhood during youth, $F_{Y,n,t-1}$, and random individual-specific effects such as genetic endowment, $\xi_{i,t-1}$. These arguments interact to produce a human capital equation,

$$H_{i,t} = \phi (H_{i,t-1}, ED_{n,t-1}, F_{Y,n,t-1}, \xi_{i,t-1}). \quad (1)$$

The direct contribution of $F_{Y,n,t-1}$ to $H_{i,t}$ proxies for such social capital effects as role models. In this context, social capital interacts with educational expenditure, parental background, and individual ability to determine an individual's human capital.

(continued)

APPENDIX 1 Continued

An adult individual's income is determined by the particular firm in which he works. An individual's productivity and compensation are determined by the number of and skill levels of coworkers as well as through his own human capital. If individual i, t is employed by firm f , then his income may be modelled as

$$Y_{i,t} = \xi(H_{i,t}, H_{j,t} \text{ for all agents } j \neq i \text{ employed by firm } f \text{ at } t). \quad (2)$$

In order to close the model, it is necessary to specify the mechanisms by which families are sorted into neighborhoods and individuals are sorted into firms. Denoting $n(i, t)$ as the equilibrium neighborhood assignment of the family containing the adult $i, t - 1$ and child i, t , then

$$n(i, t) = \gamma(Y_{i,t}, Y_{j,t} \text{ for all agents } j \neq i). \quad (3)$$

This equation captures the idea that neighborhoods are determined by the entire cross-section distribution of family incomes. This occurs because family-level preferences over neighborhood configurations are converted into actual neighborhoods through the interactions of families in housing markets. Embedded in this equation is the determination of the number of distinct neighborhoods. Typically, the dynamics implied by this equation lead to substantial stratification of neighborhoods by income, as wealthier families attempt to isolate themselves from poorer ones due to associational spillovers and local public finance effects.

To complete the model, it is necessary to specify the assignment of workers across firms. Individual i, t 's firm assignment, $f(i, t)$, as a function of the hiring decisions of all firms in the economy, which will in turn depend on the human capital distribution for workers across the economy.

$$f(i, t) = \zeta(H_{i,t}, H_{j,t} \text{ for all agents } j \neq i). \quad (4)$$

This holds because the value of a particular worker to a firm depends on the coworkers at the firm, which in turn depends on the supply of workers of different human capital levels. This equation will determine the degree to which individuals possessing high and low human capital levels are isolated from each other. It implicitly contains incentives for the formation of large firms due to increasing returns from specialization, as well as incentives for the formation of small firms if the productivity of high human capital adults is reduced through interactions with low human capital coworkers. For a wide range of technologies and compensation rules, this equation will produce stratification of firms by human capital.

This framework thus unifies the allocation of families across neighborhoods and workers across firms in a way which can produce complex income distribution dynamics. Observe that in this framework relating intergenerational inequality and associational spillovers, no explicit account has been taken of race or gender. These factors can be added to the rules for firm and neighborhood formation to generalize the stratification induced by income and human capital, which the model already embeds. Notice that if a self-reproducing demographic group is the victim of past discrimination, the associational effects in this model mean that consequences of this discrimination will persist.

APPENDIX 2.
INEFFICIENCY OF STRATIFICATION BY ABILITY

The possibility that stratification can be inefficient (where efficiency is defined as maximizing per capita payoffs) is illustrated in the following example. Suppose that a group of individuals must be assigned to coalitions of size two. Each coalition has a set of rules which determine the compensation for each coalition member which exhaust the coalition's output. Hence average compensation is $\frac{1}{2}$ of the total output of each coalition, so that aggregate output can be studied by looking at average compensation across individuals. Each individual has an ability level $a_i \in \{1,6\}$ and makes an unobservable effort choice $e_i \in \{1,2\}$. Suppose that the compensation rule within a coalition comprising agents i and j is

$$\phi_i(a_i, a_j, e_i, e_j) = 10 + a_i a_j e_i e_j - 5e_i + 1000(e_i - 1)(e_j - 1). \quad (5)$$

It is straightforward to verify that any agent matched with a high ability agent will choose $e_i = 2$; similarly, a high ability agent will always choose $e_i = 2$ even if matched with a low ability agent. On the other hand, when two low ability agents are matched together, the joint effort levels $e_i = e_j = 1$ and $e_i = e_j = 2$ both constitute noncooperative equilibria. Therefore, the average payoff when the agents are stratified by ability is 1074 if the less able agents coordinate on $e_i = e_j = 2$, or 575 if the less able agents coordinate on $e_i = e_j = 1$. On the other hand, integrated coalitions which match high and low ability agents will produce an equal payoff of 1024 for each agent.

Two features of this example are worth noting. First, the success with which a pair of agents is able to coordinate on the high payoff equilibrium can be influenced by the presence of social capital related to work norms. Second, integrating high and low ability agents can maximize average per capita payoffs, if the probability of a coordination failure among low ability agents is high enough. Thus, if a deficit of social capital leads to coordination failure, in the sense that low ability workers are matched and choose $e_i = e_j = 1$, integration can eradicate this effect by eliminating the potential for a coordination problem.

Observe that if the less able agents were able to coordinate on $e_i = e_j = 2$, then stratification would again maximize per capita payoffs. For this example, associational redistribution, in the form of requiring integration of ability levels, is therefore a second-best policy from the perspective of maximizing per capita output. However, it is straightforward to construct examples where integration maximizes per capita payoffs. For example, if the individual payoffs are altered so that

$$\phi_i(a_i, a_j, e_i, e_j) = 10 + a_i a_j e_i e_j - 5e_i + 1000(e_j - 1)^2, \quad (6)$$

then $e_i = e_j = 2$ is ruled out as an equilibrium when two low ability agents are matched. In this case, integration will be the unique (average) payoff maximizing allocation of agents. Notice that in this second case, multiple equilibria in individual behavior no longer exist because the effort levels of low ability agents are uniquely determined. This indicates how associational redistribution can lead to productivity increases due to other market frictions beyond those which prevent economic agents from coordinating actions. In the present example, the friction consists of the fixed compensation rules.

NOTES

1. An alternative argument suggesting a negative relationship between inequality and productivity has been made by Kevin Murphy, Andrei Shleifer, and Robert Vishny, "Income Distribution, Market Size, and Industrialization," *Quarterly Journal of Economics* 104 (1989): 537-64, who show that high degrees of inequality can lead to a demand structure inconsistent with high production.

2. Samuel Bowles and Herbert Gintis, "Escaping the Efficiency-Equity Tradeoff: Productivity Enhancing Asset Redistributions," (Department of Economics, University of Massachusetts at Amherst, 1994, mimeographed).

3. Roland Bénabou, "Workings of a City: Location Education and Production," *Quarterly Journal of Economics* 108 (1993): 619-52, "Equity and Efficiency in Human Capital Investment: The Local Connection," *Review of Economic Studies*, 62 (1996): 237-64, and "Heterogeneity, Stratification, and Growth: Macroeconomic Implications of Community Structure and Educational Finance," *American Economic Review* 86 (1996): 584-609. Steven Durlauf, "A Theory of Persistent Income Inequality," *Journal of Economic Growth* 1 (1996): 75-93, "Neighborhood Feedbacks, Endogenous Stratification, and Income Inequality," in *Dynamic Disequilibrium Modelling*, ed. W. Barnett, G. Gandolfo, and C. Hillinger (Cambridge, UK: Cambridge University Press, 1996), and "Sorting, Stratification and Efficiency," (University of Wisconsin, 1996, mimeographed). Michael Kremer and Eric Maskin, "Segregation by Skill and the Rise in Inequality," (Massachusetts Institute of Technology, 1995, mimeographed). Shelly Lundberg and Richard Startz, "On the Persistence of Racial Inequality" (University of Washington, Seattle, 1993, mimeographed).

4. Glenn Loury, "A Dynamic Theory of Racial Income Differences," in *Women Minorities and Employment Discrimination*, ed. P. Wallace and A. LaMond (Lexington, MA: Lexington Books, 1977).

5. James Coleman, *Foundations of Social Theory* (Cambridge, MA: Harvard University Press, 1990), 300.

6. Steven Durlauf, "Neighborhood Feedbacks, Endogenous Stratification, and Income Inequality," (1996).

7. Jonathan Crane, "The Epidemic Theory of Ghettos and Neighborhood Effects on Dropping Out and Teenage Childbearing," *American Journal of Sociology* 96 (1991): 1226-59.

8. Mary Corcoran et al., "Effects of Family and Community Background on Men's Economic Status," NBER Working Paper no. 2896, 1989.

9. Linda Datcher, "Effects of Community and Family Background on Achievement," *Review of Economics and Statistics* 64 (1982): 32-41.

10. James Rosenbaum and Susan Popkin, "Employment and Earnings of Low-Income Blacks Who Move to Middle Class Suburbs," in *The Urban Underclass*, ed. C. Jencks and P. Peterson (Washington, DC: Brookings Institution, 1991).

11. Charles Manski, "Identification Problems in the Social Sciences," in *Sociological Methodology* 23, ed. P. Marsden (Cambridge: Basil Blackwell, 1993); "Identification of Endogenous Social Effects: The Reflection Problem," *Review of Economic Studies* 60 (1993): 531-42.

12. Christopher Jencks and Susan Mayer, "The Social Consequences of Growing Up in a Poor Neighborhood," in *Inner-City Poverty in the United States*, ed. L. Lynn and M. McCreary (Washington, DC: National Academy Press, 1990).

13. A great deal of empirical controversy exists over the effects of increased capital spending on educational and economic outcomes. Without assessing the controversy, it seems fair to say that a possible explanation of the lack of strong empirical evidence for these links is the failure of the relevant empirical work to adequately control for social capital effects. At a minimum, it is simple to choose parameterizations of equations (1) to (4) in Appendix 1 such that educational expenditures have significant human capital effects that become unobservable due to their interaction with social capital levels.

14. Gary Becker, "A Theory of Marriage: Part I," *Journal of Political Economy* 81 (1973): 813-46; Michael Kremer, "The O-Ring Theory of Economic Development," *Quarterly Journal of Economics* 108 (1993): 551-75.

15. Durlauf, "Sorting."

16. See Shelly Lundberg and Richard Startz, "Private Discrimination and Social Intervention in Competitive Labor Markets," *American Economic Review* 73 (1983): 340-7, for an alternative perspective on the efficiency gains from affirmative action policies that alter equilibrium labor market allocation based on the effects of imperfect information on hiring decisions.

17. William Brock and Steven Durlauf, "Discrete Choice with Social Interactions I: Theory" (Department of Economics, University of Wisconsin, 1995, mimeograph).

18. Bénabou, "Heterogeneity."

19. Again, it is important to emphasize that efficiency is being equated with maximization of per capita payoffs, which is different from the usual procedure in economics of equating efficiency with Pareto Optimality. The integrated allocation does not Pareto dominate the stratified allocation for either of the payoff functions I consider, because the high ability agents are made worse off in both cases by integration.

20. For example, no market exists to compensate good role models and thereby induce their efficient allocation across neighborhoods.

21. Douglas Massey and Shawn Kanaiapuni, "Public Housing and the Concentration of Poverty," *Social Science Quarterly* 74 (1993): 109-22, illustrate how the location strategy for public housing projects in Chicago since 1950 has been a contributing factor to the concentration of poverty within the inner city. The contribution of government policies in explaining the current level of residential racial segregation in the United States is explored by Douglas Massey and Nancy Denton, *American Apartheid* (Cambridge: Harvard University Press, 1993).

22. This possibility is explicitly recognized by Glenn Loury, "Why Should We Care About Group Inequality?" *Social Philosophy and Policy* 5 (1987): 249-71; "The Economics of Discrimination: Getting to the Core of the Problem," *Harvard Journal of African American Public Policy* 1 (1992): 91-110. Unlike the present discussion, though, Loury focuses on the role of social capital in perpetuating inequality, rather than on productivity issues. One aspect of these spillovers, role model effects, figured in the defense of affirmative action argued on behalf of the University of California, Davis, in the Bakke case, which led to the Supreme Court rejecting numerical quotas as unconstitutional as discussed by Ronald Dworkin, *A Matter of Principle* (Cambridge: Harvard University Press, 1985).

23. Stephen Coate and Glenn Loury, "Will Affirmative Action Policies Eliminate Negative Stereotypes?" *American Economic Review* 83 (1993): 1220-40; Glenn Loury, "Conceptual Problems in the Enforcement of Antidiscrimination Laws" (Department of Economics, Boston University, 1995, mimeograph).

24. Ellis Cose, *Rage of a Privileged Class* (New York: Harper Collins, 1993).

25. Loury, "Conceptual Problems."

26. Erik Wright (private communication) has suggested that the creation of additional slots in organizations such as schools through redistributive tax policies can overcome the indivisibility aspect of associational redistribution.

27. Sidney Verba et al., *Elites and the Idea of Inequality* (Cambridge: Harvard University Press, 1987).

28. John Roemer, "A Pragmatic Theory of Responsibility for the Egalitarian Planner," *Philosophy and Public Affairs* 22 (1993): 146-66; "Equality of Opportunity: Theory and Examples" (Department of Economics, University of California at Davis, 1995, mimeograph); "Equality of Opportunity and Affirmative Action" (Department of Economics, University of California at Davis, 1995, mimeograph).

29. The failure to consider the specific mechanism by which ability differences are translated into income differences indicates the vacuousness of the apparent view of Richard Herrnstein and Charles Murray, *The Bell Curve* (New York: Free Press, 1994), that a society that rewards the more able over the less able is somehow self-evidently just. If the entire GNP in the United States were annually rewarded to the citizen with the highest recorded IQ, the resulting distribution would be putatively meritocratic, though obviously indefensible.

30. Loury, "Why Should We Care?"

31. Andrew Bernard and Steven Durlauf, "Interpreting Tests of the Convergence Hypothesis," *Journal of Econometrics* 71 (1996): 161-74.

32. John Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1971).

33. This argument is inspired by Thomas Nagel, "The Policy of Preference," in *Mortal Questions* (Cambridge: Cambridge University Press, 1979).

34. Robert Frank and Philip Cook, *The Winner-Take-All Society* (New York: Free Press, 1995).

35. Robert Amdur, "Compensatory Justice: The Question of Costs," *Political Theory* 7 (1979): 229-44; Roemer, "Equality of Opportunity"; Roemer, "Equality of Opportunity and Affirmative Action."

36. Robert Nozick, *Anarchy, State, and Utopia* (New York: Basic Books, 1974).

37. This line of reasoning followed here and below is supported by the brilliant critique of Nozick developed by Gerald A. Cohen, *Self-Ownership, Freedom, and Inequality* (Princeton, NJ: Princeton University Press, 1995). In particular, Cohen gives a broad defense of government interventions to alter private market-determined income distributions based on the argument that a set of individual economic transactions, each voluntary and putatively just, can lead to an unjust outcome due to interaction effects. The interaction effects discussed in the present article are a clear example of this phenomenon.

38. Judith Shklar, *American Citizenship* (Cambridge: Harvard University Press, 1991).

39. Thomas Nagel, "Equality," in *Mortal Questions*.

40. Michael Walzer, *Spheres of Justice* (New York: Basic Books, 1983). Walzer specifically argues that self-realization is too closely connected to the objects of associational redistribution to justify these policies, but such an argument is powerful only to the extent it is the "essential" person who is under discussion. I believe John Roemer would disagree with my assessment of the role of genetic endowment in what constitutes an essential person, from the perspective of labor market outcomes.