A Dynamic Theory of Racial Income Differences

by Glenn C. Loury
In *Women, Minorities, and Employment Discrimination*, ed. Phyllis A. Wallace
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Introduction

- The conventional wisdom regarding equal opportunity policy is that the elimination of racial discrimination will result in the eventual elimination of racial economic inequality.

- This view derives from traditional economic analyses of labor markets and racial income differences.

- The thesis of this paper is that traditional theory does not adequately reflect the impact of an individual's family and community background on his or her acquisition of labor market skills.

- Racial income differences will persist to the extent that the low level of education and earnings of blacks in today's labor market inhibit their children's ability to convert natural abilities into skills valued by employers.

Conventional Theory and Its Problems

- Traditional economics suggests that two approaches can be taken to attack racial income differences.

- The first is to close the earnings gap by prohibiting the expression of discriminatory tastes, or at least, to neutralize the deleterious effects of discriminatory preferences.

- The second looks to the racial differences in the acquisition of market-valued characteristics.

- If these differences can be narrowed, further progress would be made toward the elimination of income disparity.

- The complex problem of differences in the acquisition of market-valued characteristics, however, is not recognized in the traditional analysis.

- While economists have analyzed the impact of investment in human capital on earnings, the socioeconomic process underlying its acquisition has generally been ignored.

- As long as the social class and racial background of an individual influence the process by which he or she acquires marketable skills, group differences in the supply of market-valued characteristics will tend to persist.

- These socioeconomic effects are likely to be evident even in the presence of equal opportunity.

- Thus, the ability of the equal opportunity laws to guarantee (eventual) racial economic justice must be questioned.

- The conventional analytical framework used to study racial income differences is inadequate for forecasting the long-term consequences of particular policy alternatives.

- First, the traditional theory does not take into account the intertemporal consequences of racial discrimination which stem from the effect of parental economic status on opportunities available to offspring.

- Second, the theory is an individualistic one, ignoring group processes, that is, it conceives of discrimination as an act perpetrated by one individual against another.

- As such, the traditional theory views race relations in individual terms rather than social group interactions.

A Socioeconomic Model of Income Determination

Economic Opportunity

- Because society is composed of people with different innate capabilities, individuals will not offer equal qualifications for all jobs.

- The differences in qualifications or characteristics that justify differences in individual opportunity are termed "critical characteristics."

- The situation where any two individuals with identical holdings of critical characteristics are faced with the same set of employment possibilities is described as equality of opportunity.

- Let "α" denote a young individual's innate capabilities and "x" the bundle of productive characteristics possessed by a mature individual.

- Equal opportunity characteristics, innate or productive, may be conceptualized in two distinct ways, depending on whether α or x are considered to be critical characteristics.

- Current equal opportunity policy is characterized by the second of the two definitions.

Racialism

- May be said to exist whenever the community environment of individuals with equivalent family environments but of different racial groups differs.

- No normative connotation is intended.

- The word simply means that people tend to group themselves socially along racial lines, a tendency that affects the opportunities of their offspring.

- It should be noted that equal opportunity, as interpreted here, is perfectly consistent with the notion of racialism.

- However, it will be demonstrated that the long-run success of equal opportunity laws in eliminating group economic differences depends on whether racialism prevails.
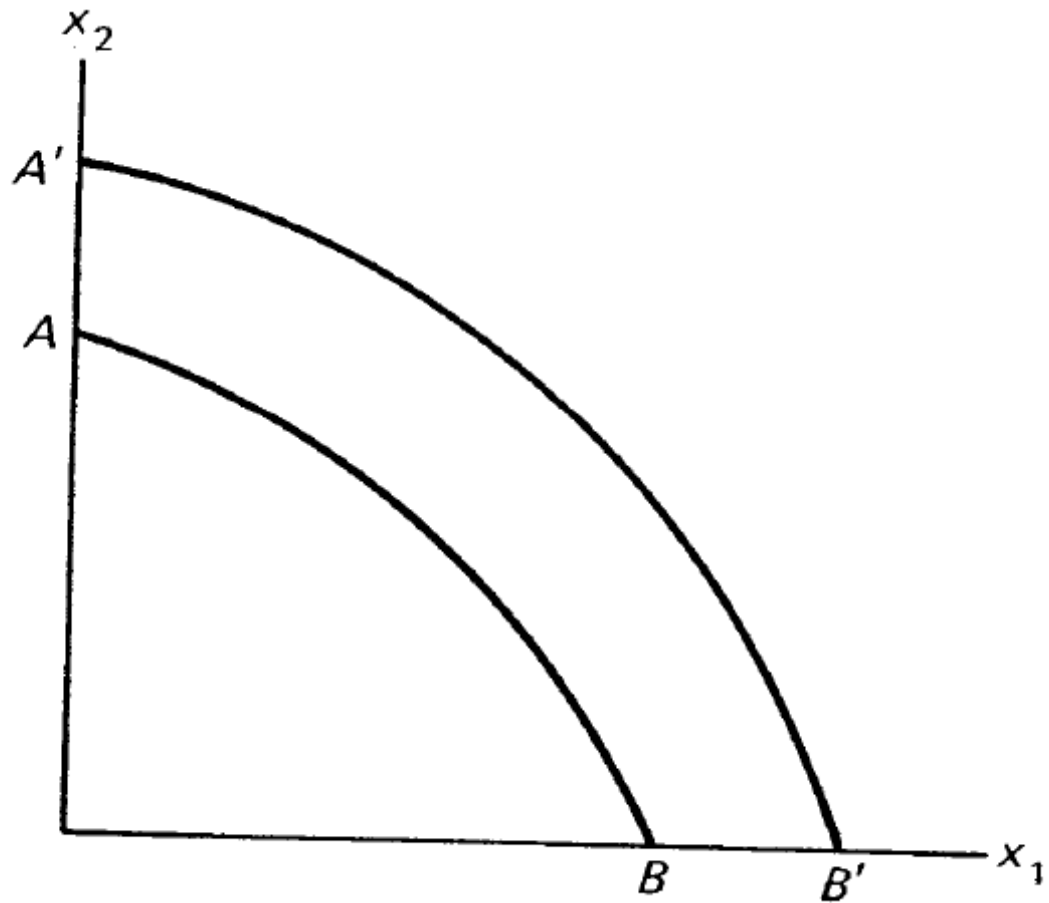
Market-Valued Characteristics and Earnings

- It is assumed that innate capability, α, may be measured as a non-negative number.

- This capability will vary among individuals, one person being "more able" than another if his or her innate endowment is greater.

- The distribution of innate capabilities among the young people of each generation is also assumed to be identical to, though independent of, that which prevailed in the previous generation.

- A third assumption is that the distribution of innate capability is the same for each racial group.

- Thus, the innate endowment of an individual is independent of his or her socioeconomic background.

- For simplicity, the market-valued characteristics that an individual acquires in the first period of life is represented by a pair of non-negative numbers, $x = (x_1, x_2)$.

- As such, there are effectively only two types of characteristics, and the quantities of these characteristics acquired are represented by x_1 and x_2.

- The acquisition of characteristics during youth may be described as an abstract interactive process involving the home, community, and social environments.

- The young individual decides the outcome of this process, within limits determined by his or her innate endowment and social and educational environments.

- These constraints may be expressed by a set of attainable characteristic bundles from which the individual chooses.

- Two sets, representing the opportunities of two different individuals, are illustrated in Figure 1.

- The first individual, A, may choose among all characteristic pairs (x_1, x_2) that lie on or below the locus AB.

- The other individual, A', can select any pair that does not lie above $A'B'$.
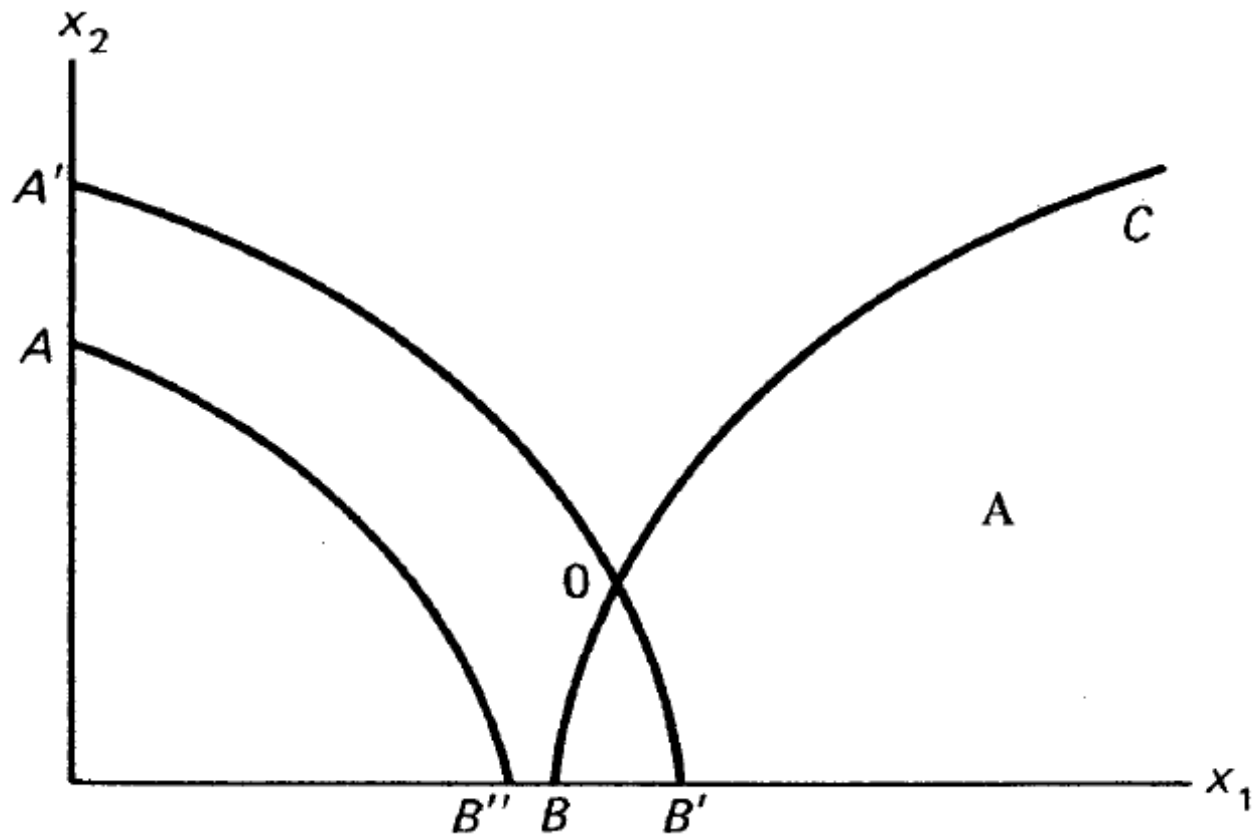
Figure 1. Characteristic Opportunity Sets

- It is apparent that the opportunities of A' are broader than those of A. This may occur for several reasons.

- First, A and A', though facing identical social environments and educational institutions, may differ in their innate capabilities (that is, $\alpha_{A'} > \alpha_A$).

- Even if A and A' have the same innate endowment and are part of the same community, A' may have a "better" home environment than A (that is, a higher family income).

- Finally, opportunities may vary for otherwise identical young individuals living in different communities; that is, A' may come from a community with a higher quality educational institution or more favorable environmental influences than A.

- The last effect assumes that social stratification exists.

- Social stratification by income implies that families with similar incomes will gravitate to the same communities.

- This reinforces the influence of parental income on the child's opportunities.

- If social stratification also occurs on the basis of race, the community environment would depend on the average income of an individual's racial group as well as his parental income.

- Accordingly, two individuals—one black and one white—who are otherwise identical would face different opportunities, unless the economic positions of their respective groups were the same.

- The extent to which these opportunities diverge, as measured by the "distance" between AB and $A'B'$ in Figure 1, would depend directly on the magnitude of existing racial income differences.

- The extent of racial income differences is indexed by the ratio, r, of mean black income to mean white income; r is assumed to lie between zero and one.

- Factor markets are assumed to be competitive with workers receiving their marginal products.

- Skilled employees earn more than unskilled employees, but wages are the same for all workers within a given occupational class.

- $\overline{w}$ denotes the wage of a skilled worker and $\underline{w}$ the wage of an unskilled employee.

- $w = \overline{w} - \underline{w}$ represents the wage differential.

- In Figure 2 the acceptance set A is given by the collection of characteristic pairs on or below the locus BC.

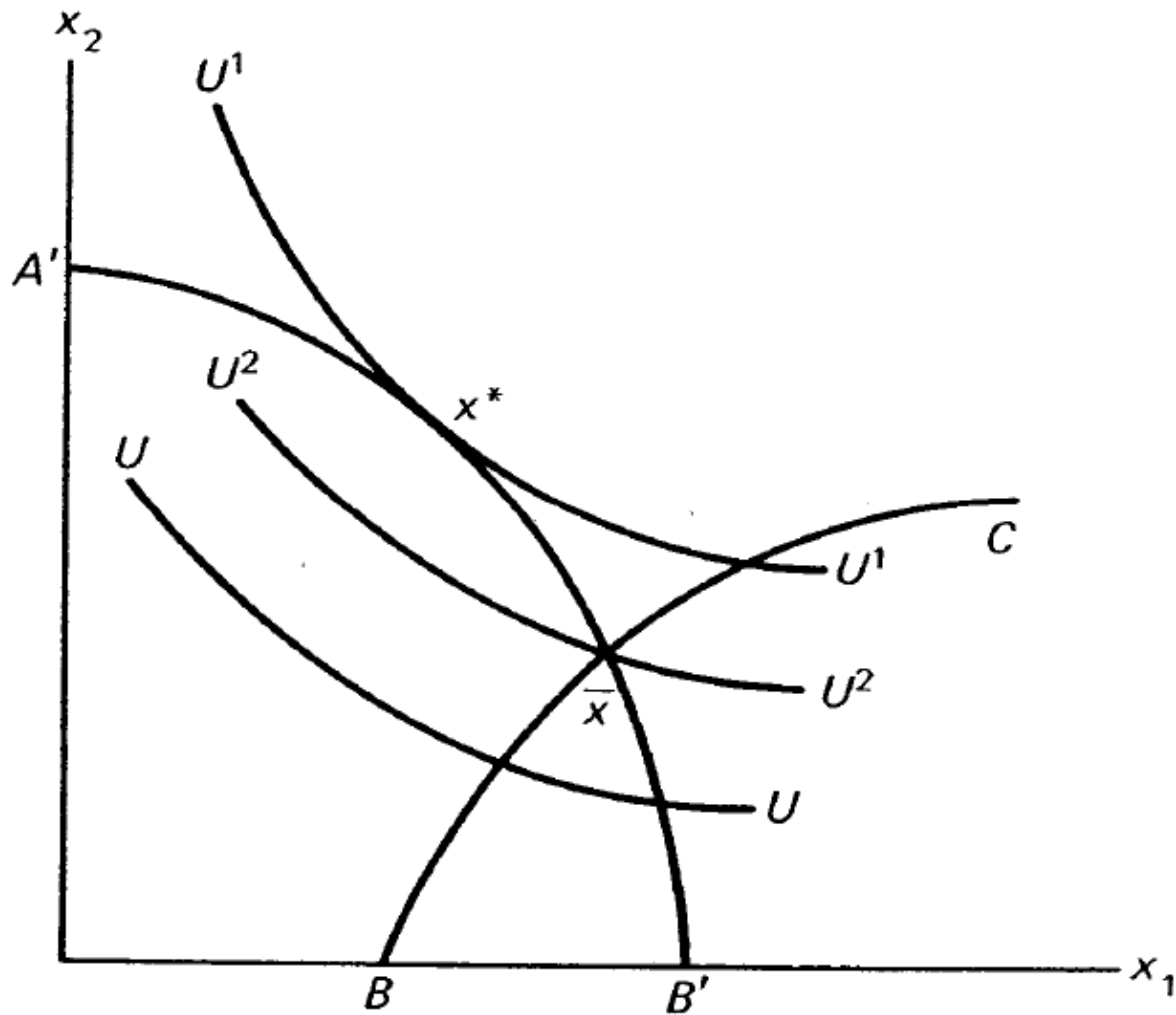Figure 2. Individual Opportunities and the Acceptance Set

- Whether an individual obtains skilled employment depends on the characteristics acquired during youth.

- Figure 2 illustrates a case where an individual with possibilities AB'' cannot obtain acceptable characteristics for skilled employment, while the person with opportunities $A'B'$ can acquire the requisite skills by choosing a pair in the "triangle" BOB'.

- Because the array of possible characteristics varies with an individual's innate capabilities and socioeconomic background, these factors affect his or her chances of becoming a skilled worker, and hence earnings.

- To determine which people become skilled workers requires a consideration of the criterion used by young individuals in selecting characteristics.

- Because an individual's socioeconomic background is defined by his or her parents' income and race, only four different backgrounds are possible for the members of a given generation.

- Each individual is assumed to possess a set of preferences by which he or she evaluates his state of well-being.

- It is further assumed that these preferences are identical for all individuals.

- A person's well-being is determined by two factors:

  1. The bundle of characteristics acquired in the first period of life

  2. The level of income obtained in the second period

- Each characteristic bundle may be assigned a value that represents its dollar equivalent to all individuals.

- An individual's well-being may then be measured in dollar terms as the sum of the value of characteristics acquired during youth plus the wages earned in employment during maturity.

- An individual chooses a bundle of characteristics that will maximize his or her state of well-being, given the bundles attainable.

- This choice is illustrated in Figure 3 for an individual with a set of attainable characteristic pairs given by all points on or below the locus $A'B'$.
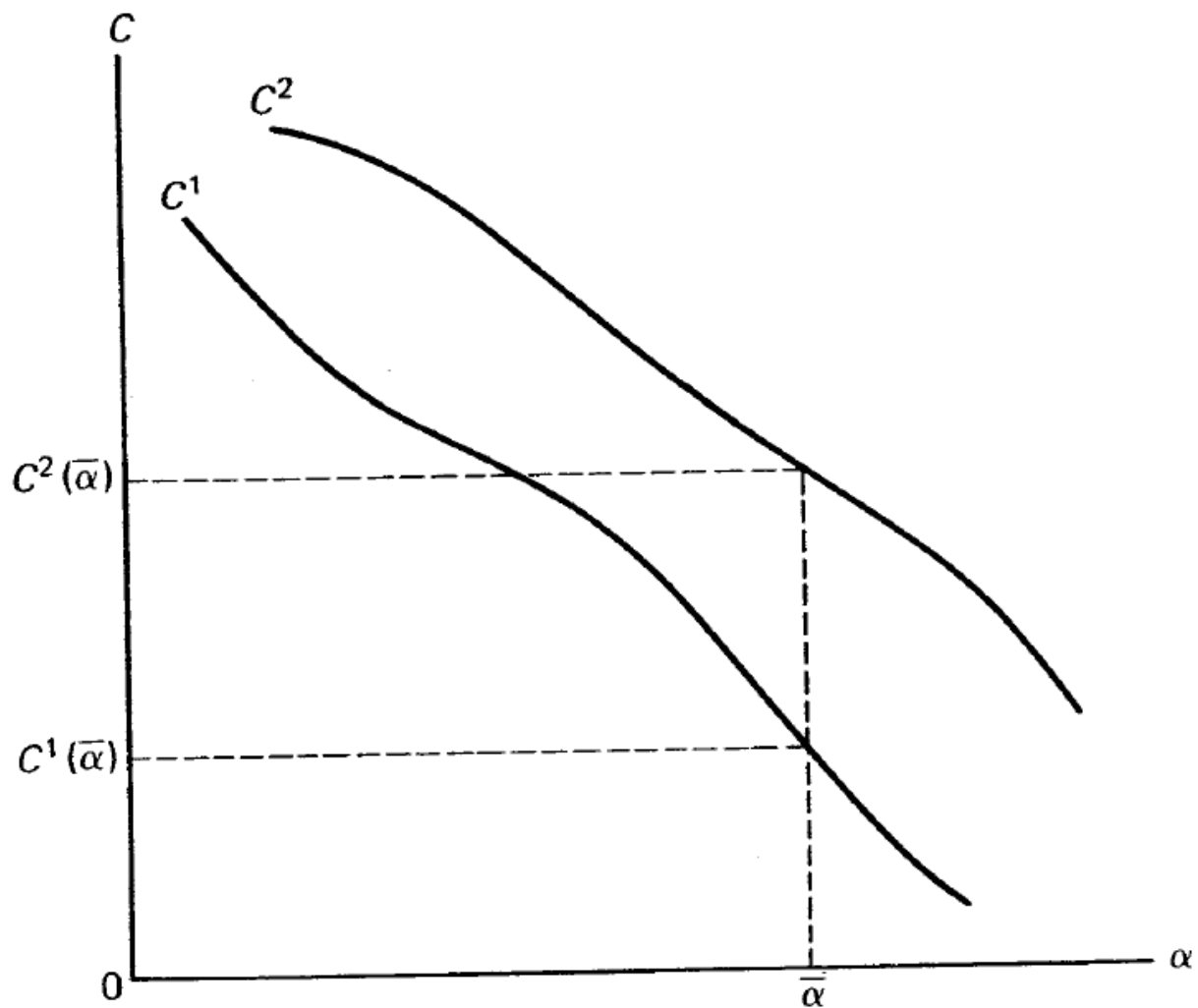
Figure 3. Selection of Optimal Characteristics

- The acceptance set A is bounded from above by the curve BC.

- The individual's preferences among characteristics are depicted by a collection of indifference curves.

- The locus UU is a representative indifference curve.

- A young individual makes his choice in two stages.

    1. He or she decides whether or not to become skilled.

    2. Given the decision, he or she chooses an appropriate bundle of characteristics.

- Given the set of attainable characteristics, the individual considers the bundle of characteristics whose dollar value is the greatest of all attainable bundles.
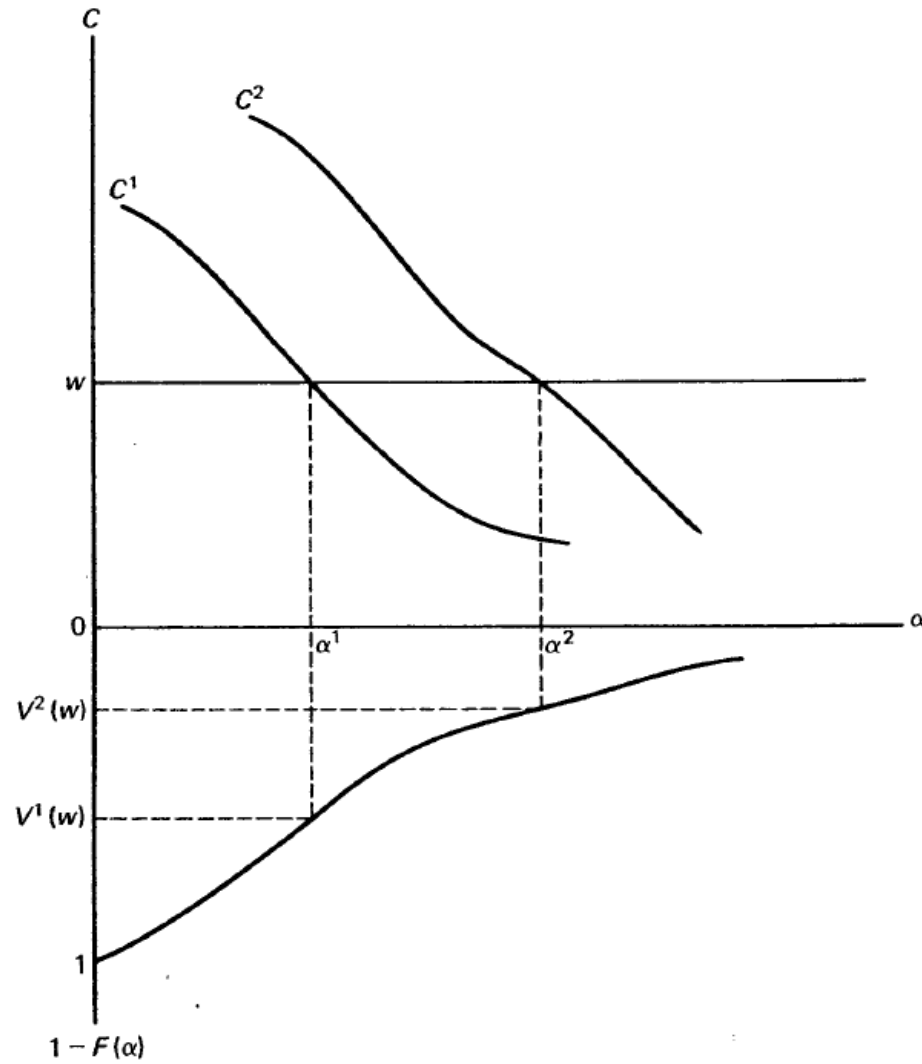
- It is apparent from this analysis that the cost to a young person of becoming skilled depends only on his or her attainable set of characteristic bundles and preferences for characteristics during youth.

- Preferences are identical across individuals, but the cost of acquiring skills varies with individual opportunities for acquiring characteristics.

- Higher parental income, with other things being equal, implies lower costs.

- When there is racialism, blacks will generally have higher costs than equally able whites with the same family income.

- Figure 4 depicts the cost of acquiring skills as a function of innate capabilities for individuals of two different socioeconomic backgrounds.

Figure 4. Cost of Becoming Skilled

- A young person's choice of characteristics involves considering the most valuable of all his or her attainable characteristic bundles, and then considering the best bundle he or she can acquire that also qualifies him or her for skilled employment.

- The cost of becoming skilled is represented by the difference between the values of these two bundles.

- Only if the extra wages the person could earn by becoming skilled exceed this cost will he or she choose the bundle qualifying him or her for skilled employment.

- This situation is illustrated in Figure 5 where cost is measured on the vertical axis and capability on the horizontal axis.

- Figure 5 depicts cost curves that are representative of two distinct socioeconomic backgrounds.
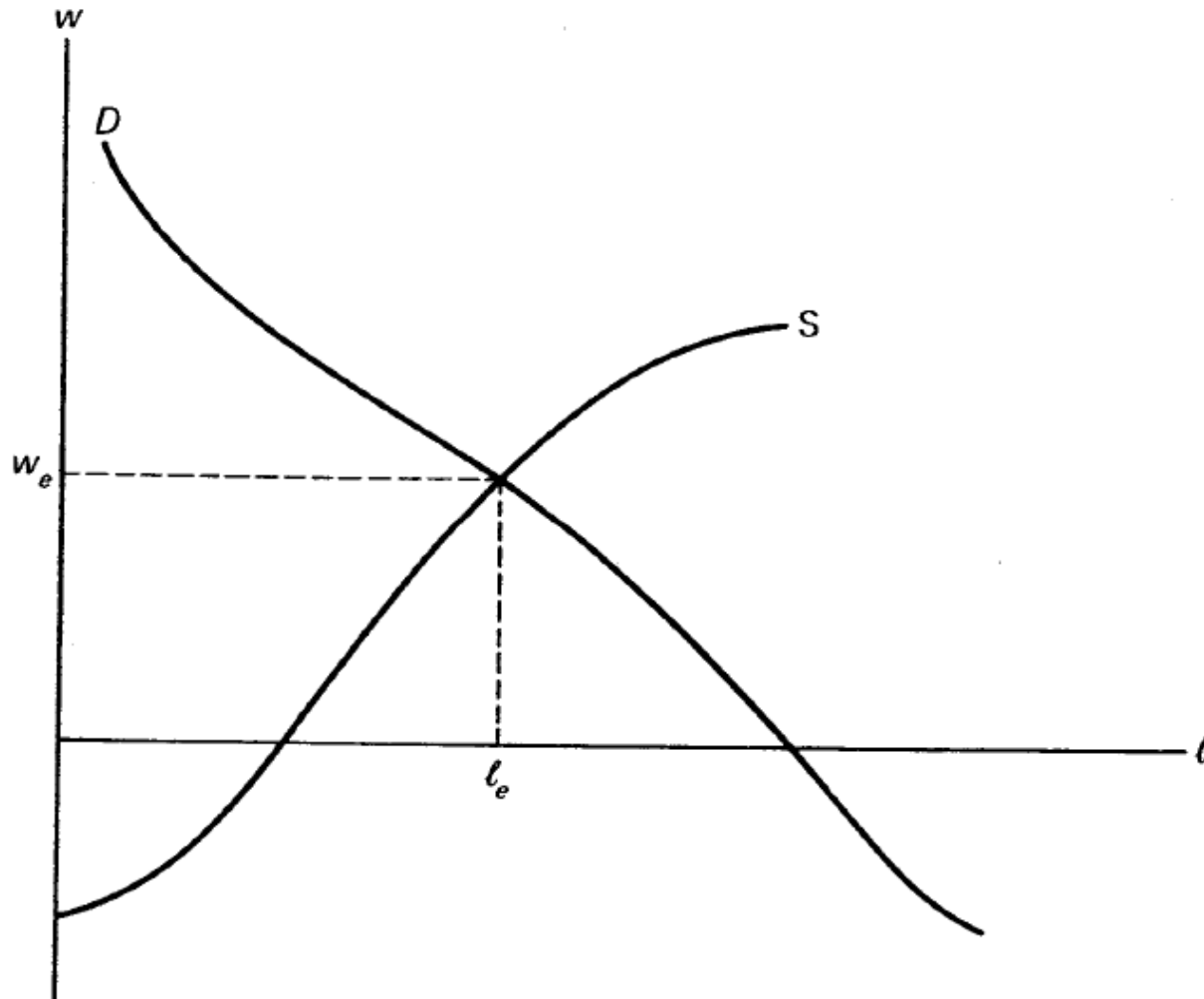
Figure 5. Critical Capability Levels

- Obviously, this critical level of capability is determined by the requirement that the cost of becoming skilled to a person of the given socioeconomic background endowed with the critical level of innate capability be equal to the
- wage differential offered by firms.

- α_1 and α_2 satisfy this requirement for the socioeconomic backgrounds represented by cost functions C_1 and C_2, respectively, in Figure 5.

- Hence, given an offered wage differential, in each generation young individuals with the same socioeconomic background (that is, race and parental income) will or will not become skilled on the basis of innate endowment.

- The dividing point-or critical level of capability-is determined once the cost function for this group and the wage differential are known.

- Because the distribution of innate capabilities in the population is identical for each generation, race, and social class, the number of individuals from this group who will become skilled workers can be determined.

- This process is also illustrated in Figure 5.

- The fractions of these groups that acquire skilled characteristics depend on w, the skilled/unskilled wage differential.

- These fractions are depicted by $V^1(w)$ and $V^2(w)$ in Figure 5.

Static Equilibrium

- Equilibrium occurs when the supply of and demand for both skilled and unskilled workers is equal.

- Although two kinds of labor are involved, the assumptions made earlier permit the equilibrium in the simple supply-demand framework pictured in Figure 6 to be analyzed.

- In Figure 6, the wage differential between skilled and unskilled workers is measured on the vertical axis while the aggregate ratio of skilled to unskilled employment, denoted by l, is given on the horizontal axis.

- The assumptions of competitive factor markets and constant returns to scale imply a downward sloping demand curve D.

- Firms can be on their demand curves for both types of labor if and only if the corresponding wage differential and employment ratio is on the curve D.

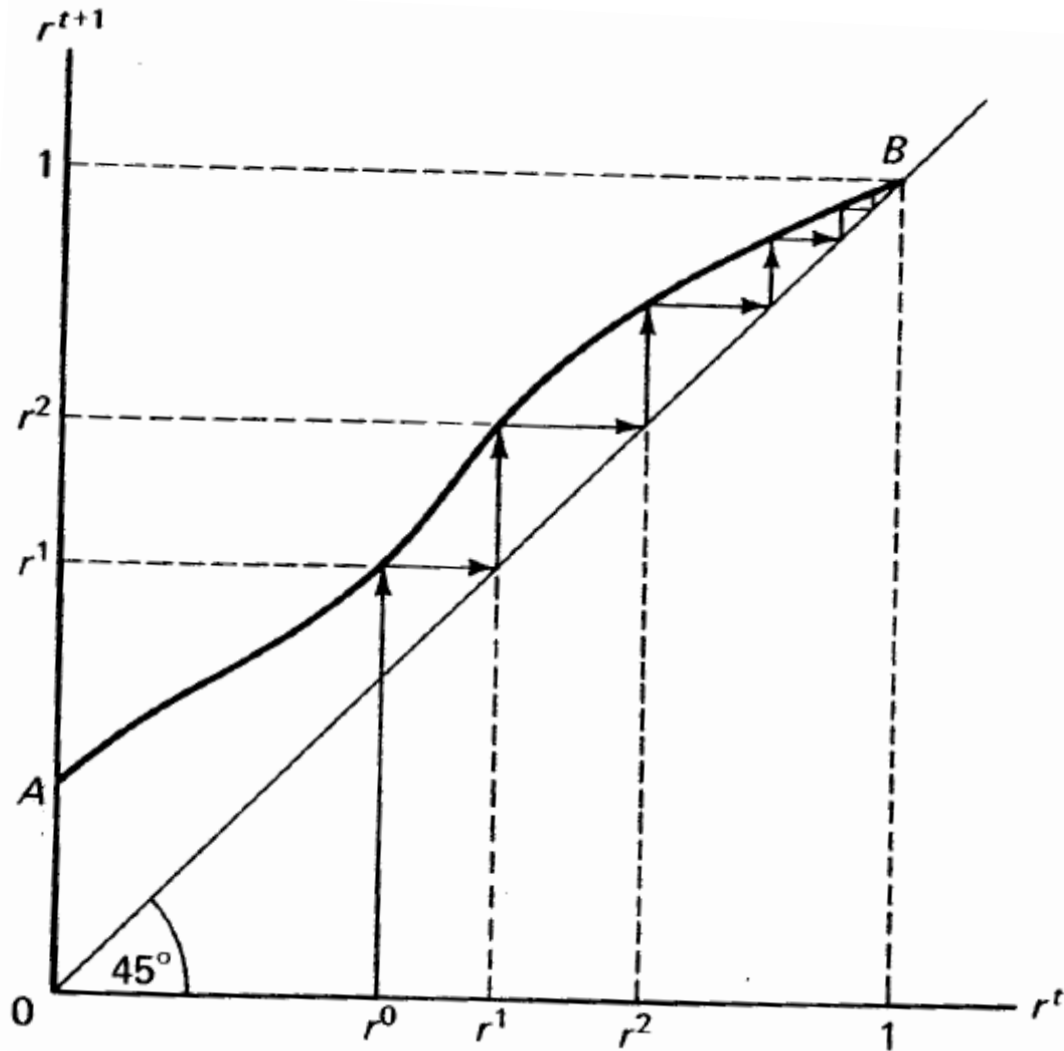Figure 6. Labor Market Equilibrium

Dynamic Analysis of the Model

Equal Opportunity and Racial Income Equality

- Equilibrium is determined by the fractions of black and white workers employed in skilled occupations in the previous generation.

- Analysis of equilibrium where equal opportunity prevails reveals a dynamic relation determining the fractions of blacks and whites in skilled employment in subsequent generations, knowing only the state in which the economy started.

- The current observed earning differential between the races may be represented in the model in terms of a smaller initial fraction of blacks than of whites employed in skilled occupations.

- Accordingly, the future path of the black and white economic position can be traced.
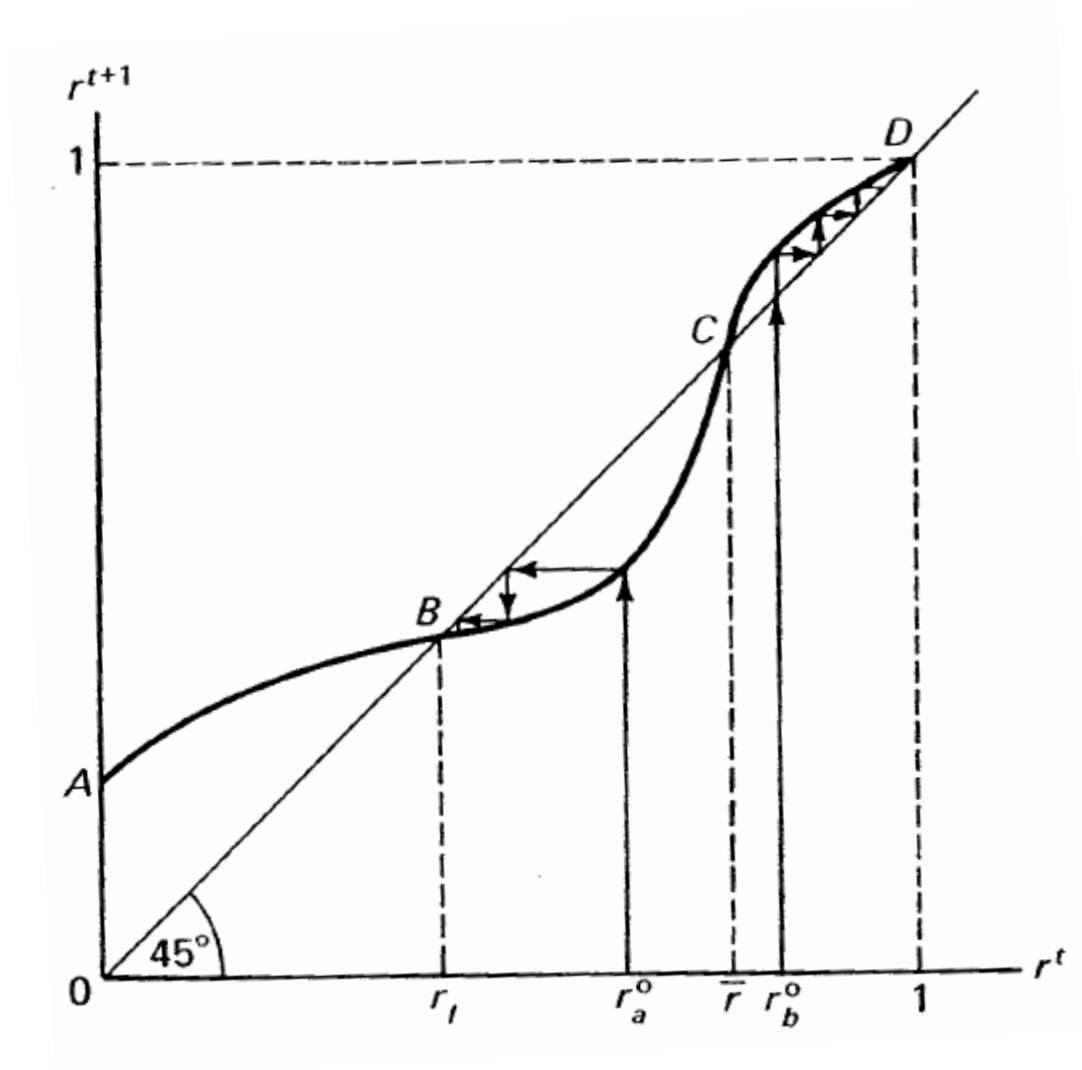
- In each subsequent generation (the tth), the index of racial income differences takes on a value($r^t \cdot r^t$ represents the ratio of the average income of blacks to the average earnings of whites in the tth generation).

- This ratio may be determined once the fractions of blacks and whites employed in skilled occupations in that generation are known.

- Because blacks have been discriminated against in the past, r^o will be less than one.

- As r^t approaches one, racial economic differences become negligible for t sufficiently large.

- This analysis is illustrated by Figure 7, which summarizes the dynamic relation of labor market equilibria across generations.
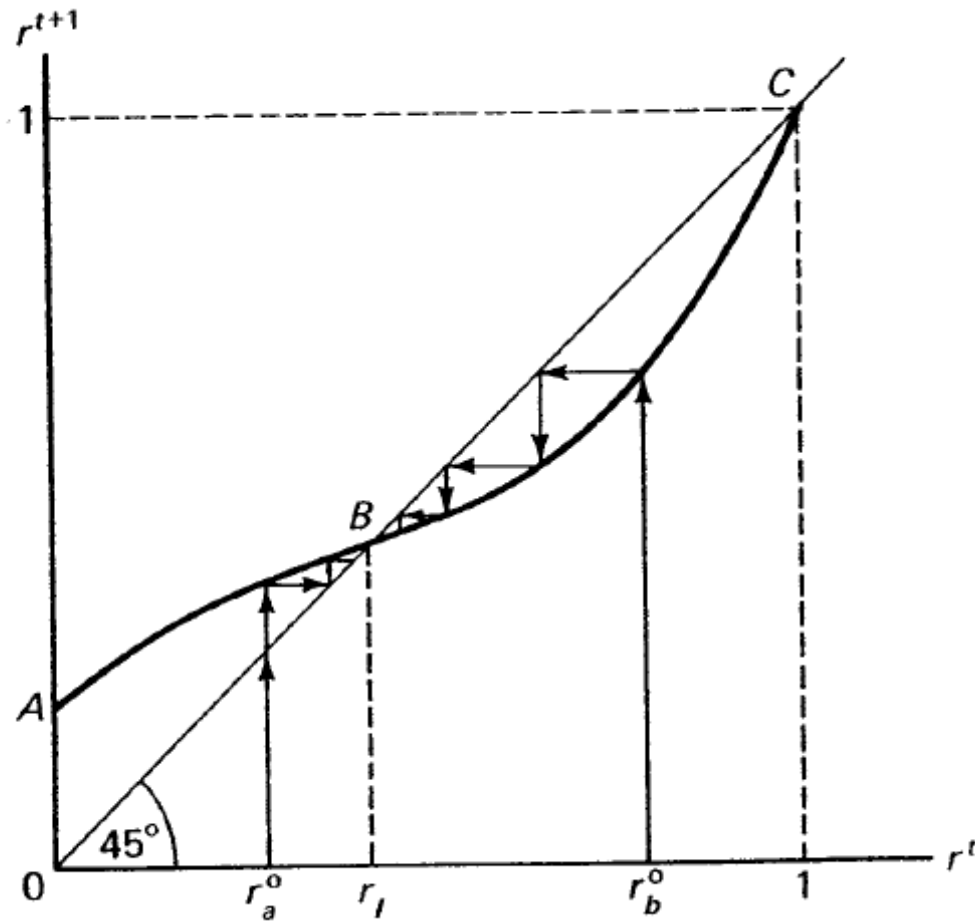
Figure 7. Long-Run Income Equality

- Another possibility is illustrated in Figure 8.

- Here the intergenerational relation of relative economic positions is depicted by the locus AD.

- Inspection of the diagram reveals that the long-run evolution of racial income differences critically depends on the starting position.

- If past discrimination has not been too severe, so that the initial index of racial earnings disparity is greater than $\bar{r}$, eventual equality may be expected.

- However, if the initial earnings gap is represented by r_a^o. black-white income differences will persist indefinitely and may even increase over time.

- As can be seen, an initial earnings ratio less than $\bar{r}$, in the long run, will lead to the ratio r_I, which represents permanent inequality.

- An extreme example of the failure of the equal opportunity to eliminate racial income differences is illustrated in Figure 9.

- If the locus AC characterizes the relation of relative economic positions across a generation, the slightest degree of initial inequality is sufficient to guarantee a permanent earnings gap.

- The social structure underlying the relationship depicted in the figure exhibits an inherent tendency toward inequality.

Figure 9. Long-Run Income Inequality

The Limits of Equal Opportunity

- What are the reasons for these drastic differences in the long-run performance of a laissez-faire economy with no racial discrimination?

- What factors determine whether a benign structure such as that illustrated in Figure 7, or an inequality-preserving relation as in Figure 9, will hold?

PROPOSITION I

- Suppose there is no racialism in the society, so that social stratification occurs only along income lines.

- Assume that whenever a parent's income is increased by one dollar, the cost to his or her offspring of acquiring skilled characteristics is reduced by less than one dollar.

- Assume further that the greater a parent's income, the less a dollar increment to that income will reduce the offspring's cost of becoming skilled.

- Under these conditions enforcement of equal opportunity laws means that historical differences in earnings between blacks and whites will diminish and tend to zero over time.

PROPOSITION II

- Suppose there is no social stratification by income, and that family environment does not affect a young person's opportunities.

- Imagine, however, that social stratification by race is prevalent and that community external influences are present.

- In such a situation, equal opportunity laws need not ensure that any initial difference in group earnings will eventually become negligible.

- Further, eventual equality will result from establishing equal opportunity only if the relative economic position of blacks improves continually over time.

Conclusion

- This discussion has considered the problem of income distribution in an explicitly intertemporal framework.

- By doing so it has shown that, even in the absence of transfers of physical wealth within families, the economic achievement of an individual will only partially reflect his or her innate productive capabilities.

- The overlapping of generations and the influences of the prevailing external environment on individual development mean that the present pattern of ownership of resources will influence the distribution of productive capabilities among succeeding generations of workers.

- It thus follows that the creation of a skilled work force is a social process.

- The merit notion, that in a free society each individual will rise to the level justified by his or her competence, conflicts with the observation that no one travels that road entirely alone.

- The social context within which individual maturation occurs strongly conditions what otherwise equally competent individuals can achieve.

- This implies that absolute equality of opportunity, where an individual's chance to succeed depends only on his or her innate capabilities, is an ideal that cannot be achieved.

- It has been shown here that the limited version of equal opportunity that is attainable does not have the desirable properties of the impossible ideal.

- Traditional economic theory teaches that earnings differentials among workers may be understood on the basis of individual differences in amounts of education and work experience.

- The notion of "human capital" has been used to describe these investments in individuals.

- This focus on objective determinants of earnings disparities, while providing, a convenient rationale for existing inequalities, ignores the process by which such investments are made.

- Thus, human capital theorists can accurately predict the consequence that an individual's dropping out of high school will have on his or her lifetime earnings, but such theorists have not analyzed why a given per capita expenditure yields a lower quality education in the ghetto than in more affluent communities of the same school district.

- An individual's social origin has an obvious and important effect on the amount of resources that is ultimately invested in his or her development.

- It may thus be useful to employ a concept of "social capital" to represent the consequences of social position in facilitating acquisition of the standard human capital characteristics.

- While measurement problems abound, this idea does have the advantage of forcing the analyst to consider the extent to which individual earnings are accounted for by social forces outside an individual's control.

- However, for precisely this reason such analysis is unlikely to develop within the confines of traditional neoclassical theory.