THE URBAN PROBLEM AS AN EXERCISE IN THE THEORY OF EFFICIENT TRANSFERS

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ABSTRACT

This paper explores the diverse manifestations of an unchanging degree of income inequality on urban life. We conclude that the failure of the size distribution of income to show any tendency toward convergence in the post-war period underlies a large part of the market failure which is the urban problem.

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I. Introduction

The screeches of pain emanating from the large cities are dominated by the agonized and organized howls of center city realtors, specialty shop owners, ward hacks, high income lawyers with a taste for live concerts, city planners, newspaper publishers, and others who want their burns salved with generous dollops of green jelly made from the contents of the public purse. Now the roar of the bull-publisher in heat is no more evidence to an economist than to Spiro Agnew that there are, in fact, social problems requiring government action. Yet there can be no doubt that something is wrong with the cities and that government intervention is required. To separate out the schemes of special interest groups organized to plunder the Treasury from the real social problems, economists employ a well-known strategy. Avoiding facts wherever possible, they turn one by one to each alleged problem and ask, "Have I an a priori reason to believe that the activity involved is one in which markets can be expected to fail?" That is, is there a natural monopoly involved? Can long-run marginal cost be expected to be below long-run average cost in the relevant range? Is there a government regulation which restricts entry into the industry? Or, they ask if the consumption of this commodity by one person raises the real cost to a second person without that fact being reflected in the price paid by the first person? Alternatively, does the consumption of the commodity by one person leave the consumption possibilities of others unaffected? If market failure is likely on a priori grounds then the economist is willing to believe that there indeed may be a bona fide social problem which could, perhaps, be ameliorated by government action. Whether government action will or will

not improve the situation is an empirical matter, so it is at this point that the economist plugs in his Fortran compiler and goes on to stage two.

The players have been at it for a decade and they have passed through awkward, professionally ungainly, adolescence into fully acculturated manhood so that now is almost the appropriate time to ask if the findings reached, problem by problem, suggest some higher level generalizations.

From many possibilities we have selected one potential generalization. It's not a very bold one. Nor is it a very comprehensive one. What it is, to tell the truth, is an easy one. It is easy, or relatively easy, because right at this moment lots of work seems to be focusing on this theme, yet no one has taken conscious cognizance of its being the object of much research. We will explore here the diverse manifestations of an unchanging degree of income inequality on urban life. Our generalization is that the failure of the size distribution of income to show any tendency toward convergence in the post-war period underlies a large part of that market failure which is the urban problem.

This generalization will not be reached by the most direct of all routes. First we shall meander through a taxonomy of the economic literature. (By publicly admitting that we care about what happens to income distribution over time, we intend to secure for ourselves a place of honor among that small but growing band whose members share this concern as economists and not just as citizens.) Then we develop the case

for our generalization by asserting and illustrating the proposition that what the poor choose to buy reduces the welfare of those who are not poor, especially when the poor and the rich are piled upon one another in cities. We take from elementary economics the implication that the poor would consume more of what would make the wealthier happier, if the poor were not so poor. This implication leads rather directly to the conclusion from the theory of Pareto Optimal Redistribution that redistributing income in a way that does not lower the welfare of the poor while maximizing the consumption by them of those goods which others want them to consume, would be an efficient and hence desirable social policy. Some facts are then adduced to show that government policy has been consistent with a constrained attempt to effect Pareto Optimal redistributions. We stop short of calling for a more vigorous, less constrained policy to reduce income inequality because we do not now know that such a policy is superior to all others even over the restricted domain of urban problems traceable to negative externalities in consumption.

II. The Economists on Size Distribution

In general there appear to be three classes of reasons which have led economists to interest themselves in the size distribution of income. These we shall categorize as technical, humanitarian, and egalitarian. Our interest stems primarily from the egalitarian impulse, but let us briefly explain what we mean by technical and humanitarian in this context.

By the technical concern with the size distribution, we mean the use of the distribution as a body of data which offers an opportunity to test economic theory and econometric technique. Very few studies of the size distribution have completely avoided serious questions of both economic and statistical theory and even fewer have been devoid of humanitarian and egalitarian significance so the distinction is a matter of emphasis and is somewhat arbitrary. Perhaps some examples will make the taxonomy meaningful. Among the technical studies, we would include first those efforts that have been primarily intended to describe the function that best fits the distribution. Aitcheson and Brown's use of the size distribution as an example of a log normal distribution would be such an instance.[1] A second technical concern has been to improve the data base. We would, therefore, also include in this category those studies which have examined the sensitivity of the distribution to alternative accounting conventions such as whether we exclude realized capital gains, or attribute a flow of income to durables such as automobiles, or compute calendar year or permanent income. Volume 13 of the National Bureau's Conference on Research in Income and Wealth would be an example.[2] Another class of primarily technical studies takes some parameter of the distribution of income as an independent variable affecting the behavior of other variables.[3] So there have been studies which have attempted to explain the consumption function by taking account of the size distribution of income: Kuznets' Shares of the Upper Income Group in Income and Savings would be an example. Others have tried to relate the size distribution of income to the determinants of investment.[4] For the most part, however,

most economists who have concerned themselves with the distribution of income, whether motivated by technical, humanitarian, or egalitarian motives, have been interested in its determinants. Those with a technical concern use the income distribution as a test of one model or another. Thus Kuznets in his presidential address to the American Economic Association explained the size distribution by a country's stage of economic development.[5] Dorothy Brady has made the life cycle a determinant of the evolution of the distribution of income over time.[6] Gary Becker and Barry Chiswick have used their theories of education and human capital to explain the shape of the size distribution of income.[7] Charles Metcalf has made the moments of the distribution a function of the stage in the business cycle.[8] Champernowne explained the size distribution of income by chance, really as an attempt to illustrate the important role a stochastic process might play in influencing a particularly important economic variable.[9]

The humanitarian interest, as we have called it, is not a concern with the size distribution of income as a whole, but only with the lower tail. Interest turns on comparing the level of income of the poor with some definition of minimum need. The most important studies of this kind are in the unbroken line of administrative research in support of charity, public and private, from the English poor laws through the city workers budgets to the War on Poverty. These studies were required because administrators had to determine who was to be eligible for public assistance or they were more generally charged with the responsibility of monitoring the quality of life of the laboring classes. It was not until 1915 that a U.S. government agency, the

United States Commission on Industrial Relations, set out to measure the incidence of poverty in the U.S. as a whole, but the U.S. Commissioner of Labor, the U.S. Census Bureau, the New York Bureau of Labor, and the Massachusetts Bureau of Statistics each directed periodic attention to practical definitions of poverty, if not to measuring the extent of the affliction, in the period after 1880 and before the Second World War.[10] When during that War the federal income tax came to affect the bulk of U.S. families, a consistent if biased data source for studying the income distribution as a whole became available on a regular basis.

Studying the poverty population as a whole still requires special surveys, however. The latest of these are the Surveys of Economic Opportunity for the years 1965 and 1966. There have also been academic studies which compare income to need. Many are associated with the Survey Research Center at the University of Michigan.[11] More recently, several such studies have emanated from the Institute for Research on Poverty at the University of Wisconsin.[12]

Our own interest is egalitarian. That is, we are concerned with the moments of the size distribution as a whole because, ceteris paribus, we prefer a distribution with a small relative variance and one which is more rather than less peaked. (We do admit, however, to liking some skewness to the right, but we would prefer much less than is currently evidenced.) In other words, the present income distribution in the United States has its mode too far to the left, has too high a variance, is not peaked enough, and is skewed too far to the right.

For economists to argue from personal preferences about the income distribution used to be common enough, but became extremely unfashionable after the emergence of the "new welfare economics."[13] The change was more apparent than real. Generally, there was a tendency to study the distribution or its moments without explicitly stating a normative preference but nevertheless the impression was conveyed that a declining trend in inequality would be a good thing.[14] There were even a few who wrote perfectly neutral prose,[15] but the era of pretended normative neutrality is passed. Benefit-cost analyses in which distributional changes are explicitly evaluated are already commonplace, and we look forward to a renewed upsurge in frankly egalitarian research.

III. The Size Distribution and Urban Problems: A Hypothesis

Many economists believe that a set of market failures which drive the economy away from Pareto efficiency are responsible for contemporary problems. We share that view since it can be made to be simply tautological, but we think it is important to go a step further. To a considerable degree market failure in the cities is caused by income inequality, and it is for that reason that we would like to see a more egalitarian distribution of income. That is, we expect that people are more likely to behave, individually and collectively, in a way that satisfies one another's tastes for how people ought to behave if there is less rather than more income inequality, and, as a consequence, that cities would be more desirable places to live. Hence, we come to our preference out of utilitarianism rather than any religious or similar value system and we arrived at this expectation primarily on a priori grounds, although our reasoning is supported by casual empiricism.

(It must be said, however, that no firm empirical research findings support our expectations. Such tests are possible. For example, by studying migration flows to determine if cities with less income inequality are preferred to cities with greater inequality, ceteris paribus.)

Reductions in income inequality are good in our view because, within obvious limits, it is desirable to get individuals in an urban setting to restrict the range of differences in their consumption bundles. For those activities which we assign to the private sector, some chosen consumption bundles lead to significant negative externalities for everyone, but particularly (at least over significant time intervals) middle income groups. Consider the slums which lie between the Central Business District (CBD) where we work and the suburbs where we live. The immediate market failures are costly, but the adjustments which are made to overcome them may be more costly. If we live in the suburbs because of those slums, and we build freeways so that we don't have to ride the trains with those slum dwellers, etc., then the indirect costs of adjustment are obviously very high. These adjustments not only take place through the private sector but also through the private nonprofit and public sectors. These adjustments use real resources and also involve significant pecuniary transfers.

Differences which arise in purchased market baskets, it is traditional to say, are the result of differences in tastes, relative prices, or incomes. We are willing to take tastes as exogenously determined and to accept differences which arise from that source as being desirable, although many economists are obviously unwilling to accept that

consumer tastes are exogenously determined[16] or even that consumer sovereignty is a good thing.[17] Real income varies across cities not only because money incomes vary but also because relative prices, especially the price of land relative to all other goods, vary across space. What we wish to do is to reduce the differences in consumption bundles within a single community due to differences in real income, due to differences in money income. We would accept any remaining negative externalities due to differences in tastes.

A hypothetical example illustrating our concern might be useful at this point.[18] First some background. Consider the externality in consumption due to slums. Satisfaction flows from two separate aspects of a house. One is the quality of service the house itself provides to its occupants. The other is the quality of the neighborhood in which the house stands. The existence of substandard housing can, therefore, reduce the satisfaction of some of those who do not live in them, which is exactly what we mean by a negative externality. It follows, therefore, that since low income is generally a precondition for slums, the elimination of poverty, and with it slums, will raise the real incomes of some who are not poor, thereby reducing the consequences of the negative externality.

Now to the example. Imagine an absurdly dictatorial community in which no one may change his address. Income in this community is distributed unequally, much as in the U.S. today. The economy is growing and as incomes rise, individuals want both the quality of their own housing to be improved and the proportion of substandard dwellings occupied by

others in their immediate neighborhoods to decline. Only the former, however, can be directly affected through the market by each family; the latter depends upon the actions of others. The change in the quantity of substandard housing will therefore depend in large part upon the income elasticity for housing of those who live in substandard housing and upon the change in their income. The welfare of the whole community is, therefore, tied, first, to the ratio of the growth of income of the poor to the growth in income of the rest of the community and, secondly, to the desires of the community for raising the quality of its neighborhoods relative to the desires of the poor to raise the quality of their own housing. Simple income growth could eliminate the problem. For example, suppose, contrary to fact, that the definition of a slum was fixed over long time periods so that anytime a dwelling unit acquired a fixed set of physical attributes it ceased generating negative externalities. Then, if each family's income elasticity of demand for improving its own housing were finite and positive (and the costs of marginal improvements were constant), the problem would eventually be overcome. Even in this instance speeding the process might be desirable policy. However, growth alone is probably not sufficient. The non-poor's income elasticity of demand for improved neighborhoods appears to be higher than the income elasticity of the non-poor for improving their own dwellings.[19] Hence, only if the income of the poor grows rapidly enough relative to the income of the non-poor to offset this difference in elasticities will the problem be solved by the normal operations of the market even in the long-run.[20] These considerations taken together suggest what we want to happen to the distribution over time. The

decline in income inequality should be such that at minimum the poor would, by voluntary market actions, satisfy the evolving desires of the remainder of the community due to changes in its income level for those things in which there are externalities in consumption. Elsewhere a small amount of evidence has been given that in fact no such convergence of incomes has occurred during the recent past.[21]

Two important results follow from this quite artificial example. First, since the problem is an example of a market failure, it is important to go further and note that its root cause is income inequality. Secondly, there will be a predictable set of public and private responses to this failure in the market whose real and pecuniary consequences could be far more destructive to the general sense of well being than a government engineered trend toward convergence in incomes. The example assumes no one may move; in the real world many do move.

Consider the vast range of consequences which are potentially attributable to the unchanged income distribution in the post-war period.[22] What, for example, would the rate of urban extension in space have been, had the post-war rise in income been accompanied by a substantial decline in income inequality? The prior logic suggests that greater reliance would have been put on maintenance and re-modeling expenditures and less on new construction. We have no data to offer in support of that deduction, but it seems to us incontrovertible that greater income equality would have produced a more compact city.[23]

However, even if the spatial extent of the sprawl had been the same, its consequences would have been less serious. Among the problems

initiated or exacerbated by urban sprawl are certainly the following: deterioration of the Central Business District, the proliferation of political jurisdictions and the preservation of one party rule (albeit rule by different parties) in both the cities and their suburbs, racial segregation between the city and its suburbs, and the peak-load freeway congestion problem.

What would the significance of less income inequality have been for each of these manifestations of urban sprawl? The fall in center city capital values is directly traceable to the relative decline in center city incomes relative to suburban incomes, for the market area of the CBD has not declined over time, but demand per acre in that market area has fallen.[24] The relative fall in sales has forced a compensating decline in capital inputs which has been accomplished in part by running down the structures. If declining property values in the Central Business District simply meant capital losses, then there would be no efficiency consequences, only the re-distributive effects would be of significance and it's not clear whether they should be judged bad. However, the decline of the CBD has resulted in deteriorated structures, many of which have been abandoned, and it has produced vacant and unsightly parcels of land. The consequence has been the creation of those negative externalities we all experience from center city blight.

The proliferation of political jurisdictions within cities is not solely the result of segregation by income class. Special single purpose districts, for example, have multiplied because of differences in the extent to which different activities exhibit scale economies and

the differences from function to function of demand densities over space.[25] Nevertheless, the fact that the effective demand for public services is a function of income certainly constitutes an additional factor leading to political jurisdictions proliferating. Tiebout and Margolis have made us all quite aware of both the private gains and social costs of taxpayers with the same effective demand locating together and excluding those with the same desires but smaller incomes.[26] The larger number of political jurisdictions has its advantages, of course, but there are undoubtedly further economies which would accrue from coordination. Perpetual segregation by party affiliation impedes coordination and prevents the optimal exploitation of scale economies. Communities also vary less than they might and hence renters are denied the right to live in communities which more precisely reflect their tastes.

We need not discuss the pernicious effects of confounding low income and housing segregation by race, but we would like to say a word about income inequality and the peak-load congestion problem. Economists are uniformly agreed that marginal cost pricing would go a long way toward reducing the external costs and resource mis-allocation associated with the journey-to-work.[27] This solution is also almost always rejected by policymakers. The reason is obvious to us: marginal cost pricing is rejected because it is a regressive tax while queues are a proportional in-kind tax. For that reason, rationing via congestion is preferred despite the fact that it is associated with a significant deadweight loss.[28] If we started with a more equal distribution of income, the nation would be more likely to tolerate an additional regressive tax

in the interests of efficiency. Levying user charges are now being urged as an anti-pollution weapon. They will be rejected because of their innate regressivity.[29]

Not levying user charges, then, is a public policy which, loosely speaking, leads to less income inequality than would exist if we sought merely to remedy some manifestation of market failure in the city in the most obvious way. This suggests to us not only that income inequality is a factor which causes and amplifies the urban problem, but that the contribution of income inequality to the urban crisis was recognized by politicians before it was recognized by economists.

Numbers of recent articles, however, have had as their primary objective to formalize the justification for public intervention in pursuit of the egalitarian objective and to specify the appropriate form of that intervention. The theory of efficient transfers,[30] or of Pareto Optimal redistribution,[31] has narrowed the application of a long-standing theorem which holds that money transfers are superior to in-kind transfers. The new view accepts the old theorem as true on the condition that the purpose of the transfer is to maximize the welfare of the recipients. The theorem is no longer thought to hold in all cases, however, for it is now widely recognized that the purpose of the transfer may be to maximize the welfare of the givers under the constraint that the recipients not be harmed.[32] In particular, if our welfare depends upon your consumption of a particular commodity in a particular quantity then an in-kind transfer will in general be superior to a cash transfer. The transfer is Pareto Optimal because both parties benefit. A symmetrical argument could undoubtedly also be made on the

tax side, thereby substantially broadening the set of taxes we could call sumptuary taxes. Since a considerable part of the private transfer system is to adjust consumption levels among groups in order to reduce the negative real externalities which arise from interdependent utility functions, perhaps as much as fifteen percent of GNP is being reallocated in the U.S. to meet the egalitarian impulse.[33] Perhaps given, first, the trade-off between own consumption and the consumption of others, and, secondly, the other dynamic adjustments to negative externalities that have been made, the U.S. has now achieved the Pareto efficient income distribution and is experiencing an optimal amount of urban crises.

We cannot now rule that possibility out. It may be true that income inequality is responsible for some significant part of urban problems. It may also be true that there has already been an optimal policy response to that source of distress. It certainly does not violate our sense of economics to conceive of the optimal amount of urban crises as being some large positive quantity. Rather more concretely, there is some evidence in support of the proposition that governments have at least moved in the appropriate direction. That support comes from Gillespie's pioneering study.[34]

Gillespie has examined the effect of the full range of government expenditures and taxes, by all levels of government, on the size distribution of income. Though he found the effect to be relatively small,[35] Gillespie found the lower end of the distribution gained on net, the middle range was unchanged, and the upper end lost. (See Table 1.) That the vast majority of all families who are in the income class

TABLE 1

Gillespie's Results Summarized

	Family Money Income Brackets							
	Under $2,000	$2,000 2,999	$3,000 3,999	$4,000 4,999	$5,000 7,499	$7,500 9,999	$10,000 & Over	Total
Pre Tax and Expenditure Distribution								
Broad Income Concept: (1,000,000)	$6,302	10,034	16,187	29,493	106,799	77,475	151,700	397,998
% Distribution	1.58%	2.52	4.06	7.41	26.83	19.47	38.12	100.00%
Post Tax and Expenditure Distribution								
Adjusted Broad Income Concept: (1,000,000)	$13,420	17,525	19,504	28,827	103,224	78,314	131,711	392,530
% Distribution	3.42%	4.46	4.97	7.34	26.30	19.95	33.55	100.00%

Source: Computed from Table 13, p. 174

from $3,000-$10,000 should arrange to have their incomes unchanged by government while raising the incomes of those below them and lowering that of those above them, is consistent with our hypotheses and not many others. (Most other models we can think of also require a rise in the share of income going to the middle group.)[36]

The aggregate data then gives some evidence in support of the idea that the transfer system is working toward reduced income inequality and that, presumably, has resulted in some reduction in negative externalities in consumption. A similar conclusion can be reached concerning one in-kind transfer program which we have examined, public housing in the United States.

A priori, it is reasonable to expect that if there are any efficient in-kind transfers that public housing is a member of that set. The resource cost of a public unit has averaged $109 per month. Since rental payments have averaged $44, the cost to the taxpayer has been $65/unit/month. The cash value of the subsidy to the tenant, on the other hand, has been estimated to be $26.[37] If we have been willing to spend $65 to transfer $26 worth of utility to the tenants in a program which has been growing for more than thirty years, then it seems obvious to us that the objective of the program is not simply to maximize tenant welfare under a budget constraint. One reasonable supposition is that the major purpose of the program is to minimize the negative externalities due to slums, subject to a budget constraint and the requirement that the tenant's welfare not be reduced. Many attributes of the tenant population are in fact consistent with this supposition. For example, as Table II indicates, public housing is disproportionately to be found in central cities where negative externalities

TABLE II

Tenant Population as a Percentage of the Eligible Population* by Location

Location	Tenant/Eligible
Outside SMSA	0.7%
Urban Fringe	1.4
Central City of SMSA	6.1
Total Population	2.9

*The eligible population is as defined by the local housing authorities.

Source: Special Tabulations of the Survey of Economic Opportunity.

due to dilapidated housing are more costly simply because more people live in proximity to it. As Tables III and IV indicate, public housing tenants are disproportionately black and disproportionately in large families, which, it seems safe to conclude, means that the people who get located in public housing are disproportionately generators of negative externalities.

There are, however, two related attributes of the program which taken together suggest that the administration of the program has not embarked upon a single-minded attack on the negative externalities which flow from slums. First, the program is pitifully small. In thirty years the various public housing authorities all together have built about half as many units as the private residential construction industry builds in a single good year! Nothing relevant can be deduced from the small number of units considered alone. However, given the small addition to the stock, a maximal contribution to reducing negative externalities would have required that construction be concentrated in space. Reducing the number of dwellings in a single slum by ten, twenty, or even thirty percent doesn't reduce the flow of negative externalities one whit. Secondly, public housing is widely distributed across the U.S. In fact, the spatial distribution of the housing is roughly proportional to the distribution of the eligible population among regions and cities. There are roughly 2500 localities with public housing. Each authority administers roughly 260 dwelling units. In short, the administrative or political process or both have worked to keep this transfer program from the contribution it could have made to reducing negative externalities in cities.

TABLE III

Tenant Population as a Percentage of the Eligible Population* by Race

Race	Percent of Eligible
White	1.1%
Non-white**	11.7
Total Population	2.9

*The eligible population is as defined by the local housing authorities.

**There is some evidence that this percentage is biased upward, but not so as to affect the conclusions qualitatively.

Source: Special Tabulations of the Survey of Economic Opportunity.

TABLE IV

Tenant Population as a Percentage of the Eligible Population*
by Family Size

Family Size:	1	2	3	4	5	6	7	8+	TOTAL
Percent of Eligible	0.8%	1.9	4.9	7.1	6.9	8.0	10.2	9.7	2.9

*The eligible population is as defined by the local housing authorities.

Source: Special Tabulations of the Survey of Economic Opportunity.

IV. Summary

The consumption bundles chosen by the poor reduce the welfare of those who are not poor. This is especially true of the housing choices of the poor in central cities. (Negative externalities also flow from the poor to those who are not poor because of the ways the poor choose to spend their leisure and because of what they want in the way of collective consumption goods, but we have not had the time to develop these examples.) The market response to these externalities is segregation by income class of which the most important form may be suburbanization. The resource costs of striving after social segregation have been enormous, and the effort may be de-stabilizing and self-defeating since, in the process, other market failures such as peak-load congestion and less-than-optimal scale for public investments may be necessary by-products.

A variety of public responses to the negative externalities flowing from the consumption bundles of the poor are possible. For example, governments could and have fostered segregation through the placement of highways and other investment policies, public pricing and lending practices, zoning, and even the creation of political jurisdictions. Since higher income per se leads the poor to consume more of what those who are not poor want them to buy, another governmental response has been to transfer cash to low income families. A more efficient strategy than cash transfers is to raise the income and to alter the relative prices faced by the poor simultaneously. Governments have pursued that course also through in-kind transfers of housing, food, and education.

Our examination of one such program, public housing, suggests that such in-kind transfer programs are being subjected to too many constraints. We think that in-kind transfers may be the optimal route to solving the class of urban problems we have explored if the constraints can be loosened or eliminated, but we don't know that for sure. We intend to pursue that conjecture and we invite you to join us.

NOTES

[1]J. Aitchison and J.A.C. Brown, The Lognormal Distribution (Cambridge: University Press, 1957).

[2]Conference on Research in Income and Wealth, Studies in Income and Wealth 13 (New York: National Bureau of Economic Research, 1951).

[3]Robert Ferber, A Study of Aggregate Consumption Functions (New York: National Bureau of Economic Research, 1953), presents several examples.

[4]The emphasis has been primarily on functional shares, however. Especially seminal has been Joan Robinson, The Accumulation of Capital (Homewood, Illinois: Richard D. Irwin, 1956).

[5]Simon Kuznets, "Economic Growth and Income Inequality," American Economic Review 65, no. 1 (March 1955):1-28.

[6]Dorothy S. Brady, Age and Income Distribution, Social Security Administration, Research No. 8 (Washington: U.S. Government Printing Office, 1965).

[7]Gary S. Becker and Barry R. Chiswick, "Education and the Distribution of Earnings," Papers and Proceedings of the American Economic Association 56, no. 2 (May 1966):358-369.

[8]C. Metcalf, "The Size Distribution of Personal Income During the Business Cycle," American Economic Review 59, no. 4 (September 1969): 657-668.

[9]D. G. Champernowne, "A Model of Income Distribution," The Economic Journal 63, no. 250 (June 1953):318-351.

[10]The key early studies of poverty in the U.S. are the following: Robert Hunter, Poverty (New York: The Macmillan Co., 1905); John A. Ryan, A Living Wage: Its Ethical and Economic Aspects (New York: The Macmillan Co., 1906); and Frank H. Streightoff, The Standard of Living Among the Industrial People of America (Boston: Houghton Mifflin Co., 1911).

[11]J. N. Morgan et al., Income and Welfare in the United States (New York: McGraw Hill Book Co., 1962), for example.

[12]Robert J. Lampman, "Transfer and Redistribution as Social Process," reprint #49, University of Wisconsin Institute for Research on Poverty, 1970, reprinted with permission from Social Security in International Perspective, ed. Shirley Jenkins (New York: Columbia University Press, 1969), for example.

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[13]R. H. Tawney, Equality (London: George Allen & Unwin, Ltd., 1931), for example.

[14]Dennis J. Aigner and A. J. Heins, "On the Determinants of Income Equality," American Economic Review 57, no. 1 (March 1967):175-184, for example.

[15]Selma Goldsmith et al., "The Size Distribution of Income Since the Mid-Thirties," Review of Economics and Statistics 36, no. 1 (February 1954):1-32.

[16]John Kenneth Galbraith, The Affluent Society (Cambridge, Mass.: The Riverside Press, 1960).

[17]J. de V. Graaff, Theoretical Welfare Economics (Cambridge, England: The University Press, 1957).

[18]Eugene Smolensky, "Investment in the Education of the Poor: A Pessimistic Report," Papers and Proceedings of the American Economic Association 56, no. 2 (May 1966):370-378.

[19]Ibid., note 3, 372.

[20]The elasticities may converge, however, as incomes rise.

[21]Smolensky, "Education of the Poor."

[22]For much of what follows we have tacitly assumed that the distribution of income within the central cities has been as stable as in the nation as a whole.

[23]Of course, the spread of the city in space was certainly due in considerable part to population growth, rising income, and the automobile, as well as the relative deterioration of the housing stock in some areas of the central city due to the passage of time and the concentration of new construction in the suburbs. The hypothesis is probably testable, however.

[24]Brian J. L. Berry et al., The Impact of Urban Renewal on Small Business: The Hyde Park-Kenwood Case, Demonstration Project Report, Center for Urban Studies (Chicago: The University of Chicago, 1968).

[25]Eugene Smolensky, R. Burton and T. N. Tideman, "The Efficient Provision of a Local Non-Private Good," Geographical Analysis 2, no. 4 (October 1970):330-342.

[26]C. Tiebout, "An Economic Theory of Fiscal Decentralization," in Public Finance: Needs, Sources and Utilization (New York: Princeton University Press, 1960), pp. 79-96.

(Notes cont'd)

[27]William Vickrey, "Some Implications of Marginal Cost Pricing for Public Utilities," American Economic Review, Supplement 45, no. 2 (1955):605-20.

[28]Donald Nichols, Eugene Smolensky and T. N. Tideman, "Discrimination by Waiting Time in Merit Goods," American Economic Review (July 1971), forthcoming.

[29]We assume that user charges would in part be passed forward in commodity prices and partly passed backward to labor and land. Only the last is likely not to be regressive. We are also assuming that the charge will take the form of a tax on output rather than a bribe to forestall the output of pollutants.

[30]E. O. Olsen, "A Normative Theory of Transfers," Public Choice 6 (Spring 1969):39-58.

[31]H. M. Hockman and J. D. Rodgers, "Pareto Optimal Redistribution," American Economic Review 59, no. 4, Part I (September 1969):542-557.

[32]In some of the public investment literature a weighted combination of the desires of the givers and the receivers is taken as the objective function.

[33]Lampman, "Transfer and Redistribution."

[34]W. I. Gillespie, "Effect of Public Expenditures on the Distribution of Income," in Essays in Fiscal Federalism, ed. Richard A. Musgrave (Washington, D.C.: The Brookings Institution, 1965).

[35]A money measure of redistribution such as Gillespie's is biased since no increment to the welfare of the non-poor is imputed as a result of benefits received from Pareto Optimal transfers but benefits are imputed to the recipients.

[36]See for example, George Stigler, "Director's Law of Public Income Redistribution," Journal of Law and Economics 13 (1) (April 1970):1-10.

[37]Eugene Smolensky, "Public Housing or Income Supplement--The Economics of Housing for the Poor," Journal of the American Institute of Planners (March 1968):94-101, and Edgar O. Olsen and James R. Prescott, "An Analysis of Alternative Measures of Tenent Benefits of Government Housing Programs with Illustrative Calculations from Public Housing," (mimeographed November 1969).