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Part I

Research on the Size

Distribution of Income

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A PRESENT STATUS

“Defective as they are, recent estimates of the distribution of income by size show exceedingly great disparities, but the division of the totals by the number of families indicates that a leveling of incomes would not yield a satisfactory standard of living—unless this redistribution greatly increased production, instead of reducing it, as critics have argued it must inevitably do.” Wesley C. Mitchell, ‘Empirical Research and the Development of Economic Science’, *Economic Research and the Development of Economic Science and Public Policy* (NBER, 1946), p. 15.

One sentence summarizes aptly and completely present knowledge about size distributions of income: we know little more

than that the data are deficient in both quantity and quality,¹ that income is very unequally distributed,² and that a high standard of living cannot be attained on the average income. This much we knew 30 and more years ago. If the situation in 1950 differs at all from the situation in 1920 it is only in the extent to which problems of data collection have been brought to light through the experience of a few projects of estimation and analysis.³

This situation reflects difficulties which, though met in all economic research, are especially serious in the field of size distributions of income. Here, the gulf between theory and data collection has been almost disastrous, especially since empirical research has developed few 'specialists' and has depended mainly upon a continuously changing group of amateurs.⁴ The centrif-

¹ Cf. *ibid.*, p. 14: "... especially unsatisfactory are the distributions of income by size, and the international comparisons of average income per capita bold spirits insist on making."

² The adjective used is generally chosen to express enormous differences. Mitchell's expression "exceedingly great disparities" is conservative compared with such expressions as 'incredible', 'unbelievable', and 'extraordinary', the adjectives commonly used to characterize the inequality of incomes as recorded in empirical data.

³ See, for example, Hugh Dalton, *The Inequality of Incomes* (London, 1920), pp. 351-2: "The question whether the inequality of income is increasing or decreasing in modern communities is one of the most important questions in economics. Many writers have attempted to answer it, but their answers do not generally carry much conviction. To determine whether, under modern conditions, inequality tends to increase or decrease, involves the enumeration of a large number of distinct and conflicting tendencies, and the weighing and balancing of them one against the other. In view of the discussion of these tendencies in Parts III and IV of this book, it is obvious that the result of this weighing and balancing may vary greatly both as between different communities at the same time, and as between different times in the same community. Conclusions pretending to much generality on this subject are to be mistrusted."

Whether inequality is actually increasing or diminishing in a particular community during a particular period of time is, of course, a statistical question, which may be answered independently of general argument regarding economic cause and effect, provided, first, that the relevant income statistics are known, and second, that a measure of inequality is agreed upon and applied to these statistics. But, in fact, the relevant statistics are in most cases very imperfectly known, and the difficulty of agreeing upon a measure of inequality is much greater than is commonly realized."

⁴ See Mitchell, *op. cit.*, p. 5: "Unfortunately, these specialists often worked without much benefit of economic theory, just as theorists often worked without benefit of much factual knowledge. Both types of effort were the poorer for lack of integration with the other."

ugal tendencies away from any unifying core of concepts, methods, and principles are intensified by the numerous and diverse uses of the data, ranging from the propaganda of pressure groups to incorporation in the logical system of a theorist;⁵ moreover, until recently, income distributions were always byproducts of either administrative forms or studies of family living, health, and the like. Finally, perhaps in higher degree than in other areas of research, the temptation to avoid controversy and to leave firmly entrenched concepts alone has had a stultifying effect.⁶

The study of income distribution, nevertheless, might have progressed further toward a productive integration of its various aspects had it not been for certain unique elements in its history. Perhaps no other area of research presents a comparable volume of attempts at statistical generalization and no other type of data is so widely and uncritically used by the 'profession' and the 'laity'. The well known 'laws' and techniques for measuring inequality that aroused so much interest but produced so many contradictory conclusions have caused widespread skepticism about both the analytic procedures and the data. It is, moreover, difficult to identify any generative concepts that can be traced to these experiments. As a result, statistical analysis is infrequent

In contrast to other areas of research such as population, labor force, and the national income, few names are associated with the collection and study of data on income distribution for a long period.

⁵ Joseph S. Davis, 'Whither Now?', *Economic Research and the Development of Economic Science and Public Policy*, p. 177: "We can indeed point to a still growing literature on the complex history of evolving economic thought, massive accumulations of economic data, multifarious articles and studies that few of us have time to read, and manifold terms, devices, techniques, and formulas undergoing continual proliferation or refinement. But few of our concepts are yet really well conceived, clarified, and agreed; our abundant data are still inadequate, imperfect, and ill-coordinated; and our established principles are conspicuously scarce. Even today, economists are prone to go off in all directions, to prize being different above being right, to follow fads while slighting fundamentals, and to shirk the disagreeable chore of working through to a consensus. Important as the contributions of many individuals and groups are, the grounds for justifiable attack upon economists as a profession are uncomfortably numerous."

⁶ Due less to the pressures on the government worker Mr. Davis describes (op. cit., p. 186) than to the desire of the researcher to postpone the storms of protest that might completely discredit his work. The government worker is not alone in hesitating to make a decision that may bring down the wrath of a powerful group upon his agency. There is no absolute independence from the effect of such pressures.

and cautious, almost as if it were an alchemy discredited among the scientific elite.

The rapidly spreading fashion of introducing statistics as 'evidence' has contributed substantially to the lack of confidence in any income distributions. The extent to which a single distribution, such as the National Resources Committee estimates for 1935-36, has been used to support opposite positions in discussions of programs and policies has justifiably made legislators, administrators, and executives suspicious of, and has severely dampened the interest of professional economists in, quantitative research.⁷ Unless the interest of economists is reawakened, sponsorship of new data collections may fall completely into the hands of special interest groups who are rarely dismayed by ambiguities in interpretations.

While the analytic purposes that could be served by size distributions of income cannot be easily catalogued for reasons succinctly expressed by Simon Kuznets,⁸ an attempt to list them

⁷ Economists too are guilty of the assertion, "See, these figures prove my case." The technique is illustrated in two quotations:

"Analysis of our national income in the NRPB study of 300,000 family budgets reveals wide discrepancies, wider than are comfortable in a democracy and wider than is desirable when we consider the consumption of goods as well as their distribution. With a national income of 59 billion dollars, 13 million units in 1935-36 had incomes not exceeding \$780, 13 million families had incomes from \$780 to \$1450, and 13 million families had the remaining part of the national income." C. A. Merriam, *On the Agenda of Democracy* (Harvard University Press, 1941), p. 103.

"A recent analysis of the degree of inequality based on a most elaborate study undertaken under government supervision, that was made by the National Resources Committee of the distribution of income in 1935-36, may therefore be regarded as fairly typical for all periods. This compilation showed that in 1935-36 the total national income of 60 billion dollars was distributed among nearly 40 million families and individuals living alone. Less than 10 percent of the entire income went to those having incomes of \$15,000 or more. Slightly less than 10 percent went to the moderately rich with incomes from \$5,000 to \$15,000. The great middle group, constituting nearly 17 million families and single individuals, had incomes ranging from \$1,000 to \$5,000. This middle group formed a little less than one half of the income receivers and their share in the total income also a little less than one half. In short, their average income was near the average for the country as a whole. No redistribution of income could affect this broad group. Redistribution would then seriously affect only the group we have called the 'rich' to whom 10 percent of the total income is distributed, and the 'submerged' one-fifth earning \$600 a year or less." Carl Snyder, *Capitalism the Creator* (Macmillan, 1940), p. 269.

⁸ "The purposes for which distributions of income by size may be studied therefore

would probably be more successful than an attempt to list the manifold uses made of the data by special interest groups in propaganda and polemics. Because analytic problems tend to correspond with 'propaganda' uses and because sponsors must be deferred to, the vocal 'consumers' of the data have begun to insist on having one and only one set of figures for a given date. Thus empirical work faces the handicaps imposed by the requirement to produce 'general purpose' statistics that provide only one answer to a given question, such as the relative number of the 'underprivileged'. The attempt to satisfy a wide range of 'needs' with one set of distribution data will inevitably lead to definitions and concepts that are a hodge-podge of compromises and to procedures that are determined without any controlling assumptions about the ultimate analysis. Results designed to satisfy everyone will end by disappointing everyone, especially those engaged in economic analysis.

Nevertheless, compared with the haphazard collection of data summarized in *Income Size Distributions* the idea of a single 'general purpose' body of data may be deemed a step forward, provided the conceptual framework is thoroughly examined and appraised in terms of a wide variety of problems.⁹ 'General purpose' data, in this sense, are a starting point for evolving systems of concepts, chiefly because it is so often easier to spot what is wrong with a definition for a particular purpose than to formulate the right definition. Even such a small advance depends upon the awakening of widespread critical interest. Otherwise, the 'general purpose' distributions now in preparation are unlikely to rout research out of the stalemate it has been in for many years.

The chief and ordinarily the sole reason given for the mass of depend upon the phenomena for which income receipts (or differences in them or any other aspect of the size distribution) are a significant antecedent. Such phenomena are numerous and will multiply as we come to know more about the ramifying influences of income getting and spending. Hence the purposes size distributions may serve are equally and unmanageably numerous." *Income Size Distributions in the United States* (NBER, 1943), Part I, p. 5.

⁹ The bodies of data described in *Volume Five* represent 'special purpose' data in only small degree. The differences in definition and concept cannot in general be traced to the logical requirements of the studies but are based mainly on arguments of cost and feasibility.

uncertainties and contradictions in income distributions is the paucity and poor quality of data.¹⁰ Whether the difficulties of data collection should be considered as the main stumbling block to progress in research is a question that may be settled only by appraising current activities of such groups as the Income Conference.

Since its inception, the Conference has recognized the importance of research into size distributions of income and its sponsorship has had several salutary results. First, the cataloguing of estimates and bodies of data in *Volumes Three* and *Five* brought many problems of data collection and 'estimation' into the arena for open discussion. For example, in the outline for *Volume Five* the nature of the biases in survey data was set forth as a statistical problem several years before similar discussions appeared in the general literature on survey methodology.¹¹ Secondly, the Conference was instrumental in putting the plan for integrating data collections and the preparation of estimates by federal agencies in operation. It has furthermore subsidized analyses of existing data and advised on new collections. Finally, in its meetings and publications, challenging analytic problems have been emphasized, both by the restatement of old problems and the formulation of new. Despite these accomplishments, the Conference has not yet succeeded in catalyzing growth and development in this field. Interest must be focused on the nature of empirical data required for the study of specific problems, a few of which are discussed below.

B INEQUALITY

"Is there a tendency for incomes to become more, or less equally distributed as time goes on? In particular, are short term fluctuations

¹⁰ The contrary opinion is so rare that the following is worth quoting: "As inequalities go, inequality of income is a relatively harmless kind; the mere fact that it is so easily capable of being catalogued and measured means that there are ways of keeping it in check. It is important that it should be kept in check. But it is still more important for the future of human freedom that we should not open the door to other devils in its place." Hicks and Hart, *Social Framework of the American Economy* (Oxford University Press, 1945), p. 232.

¹¹ This contribution is to be credited to the prescience of Milton Friedman in methodological problems and to the experience of Hildegard Kneeland and her staff in the construction of estimates for 1935-36.

in general prosperity—booms and depressions—accompanied by a change in the relative income shares of various population groups; and if so, in what direction? These questions call for thorough empirical study.

The ethical implications of such questions are clear: since . . . the biblical prophets we have felt uneasy about the concomitance of growing wealth and growing concentration of income. There are also economic implications, as changes in income distribution may mitigate or accentuate changes in prosperity itself." Jacob Marschak, Preface to *Changes in Income Distribution during the Great Depression*, by Horst Mendershausen (NBER, 1946).

1 *The Reference Base and the Recipient Unit*

Every measure of inequality obviously has some definition of equality as its base. Among the various measures and in their application the concept may differ considerably, and these differences may account for some of the paradoxes that have continuously embarrassed investigations of changes in income distributions. Most measures of inequality take as a standard an equal distribution of incomes to all units in the population. However this basic equality is rationalized, its meaning is bound to vary with the unit used, and as the meaning of the base changes, so also must the interpretation of the measure.

Just what is the recipient unit in the concept of an absolutely equal distribution of income among individuals? At any time the population is composed of two groups: persons who received income during a period and persons who did not.¹² The second group includes children, housewives and other dependents, the elderly and disabled, and the unemployed. In general the two groups are combined into households, each comprising one or more persons with income responsible for the support of other members with little or no income.

When the individual is the recipient unit, income distributions are usually for persons with income. Equality of income among the members of this group is an irrational and unstable

¹² This dichotomy obviously depends upon the definition of income and the period of accumulation. For the purposes of this discussion income can be considered simply as money income, or nonmoney income can be considered as accruing to the breadwinner and distributed by him to his dependents.

base for measures of inequality. First, it does not conform to any definition of equality used by the 'social philosophers' because the degree of responsibility among individuals who are income recipients for those who are not varies. Secondly, as the demographic characteristics of persons with income change, the meaning of 'equal incomes to each income recipient' changes, so that the inequality may appear to have increased when other evidence indicates a more equitable sharing of the economic product.

In short run comparisons, the unemployed without income will affect the measure seriously according as they are included in or excluded from the distribution. In the long run the changes in the age-sex composition of the labor force introduce systematic changes into the meaning of the base.

Clearly, using persons in the labor force or even all adults in their productive years as the recipient unit would likewise cause a shifting base even though such a broadening of the definition of the population covered would reduce the sensitivity of the base to changes in the characteristics of the population. In brief, no group less extensive than the total population should be the base for studying changes in the inequality of incomes. Morris A. Copeland came to this conclusion in *Recent Economic Changes in the United States*, and Kuznets has stressed its logic in 'National Income', *Encyclopedia of the Social Sciences*, and *National Income: A Summary of Findings*. Nevertheless, only by chance are some current surveys of income made in such manner that individual incomes can be tabulated for the entire population.¹³

Equal income to every person in the population goes beyond the most extreme egalitarian notions, for even in these, differences in needs associated with age, and perhaps with sex, activity, and family organization, are recognized. If the changes in the age and sex distributions of the population are small enough to be ignored, it is reasonable to compare distributions without regard to differences in 'needs'. In long run comparisons changes in the composition of the population should probably be recog-

¹³ The predilection of the Census Bureau for a 'line schedule' led to the recording of total income for every individual. Other surveys record all income except earnings on a family basis.

nized by recourse to a scale of equivalents or to income distributions standardized for these population characteristics.¹⁴

It is frequently argued that the family should be the unit for a study of income inequality. However, this unit complicates rather than simplifies the problems of measurement. Long run social and economic changes and also cyclical fluctuations may alter the manner of grouping the population into 'economic families', that is, consumer units. To the extent that the composition of the 'economic family' varies with the income situation, essential changes in the characteristics of the income distribution may be entirely obscured by comparing the incomes of consumer units in different periods. In depressions families and individuals with little or no income may disappear by merging with other families, while prosperity leads to undoubling, increasing the number of households. A definition that changes with the variable under study is certainly not desirable in the purely statistical sense, and in this connection may lead to especially unfortunate results.

The problem of definition turns on the concept of responsibility of some individuals for the support of others. Any attempt at 'objective' definitions entails arbitrary decisions and probably yields statistics that are difficult, if not impossible, to interpret. If a man is held to be responsible for only his wife and minor children, the definition will not include any family with more than two adults. If, on the other hand, a man is held to be responsible under certain circumstances for the support of his adult children, his own and his wife's siblings, and his own and his wife's parents, the definition will allow for units including an indefinite number of adults. If the conditions determining the extent to which a man actually does support adult relatives are usually economic, the second definition tends to determine the units in terms of their incomes.

A man's obligation to care for his wife and minor children may be viewed as one of the fundamental and unchanging features of our society. Responsibility for the care of the aged,

¹⁴ The history of scales of equivalents resembles that of the measures of inequality of income. The many attempts to formulate a satisfactory scheme have been interesting but have not led to any consensus, except perhaps with respect to food requirements.

the disabled, and the unemployed has, however, shifted during the last 150 years from the individual to 'society'. Comparison of periods before and after the introduction of social provision for the aged, unemployed, and other similar groups should show, other things being equal, a decrease in the inequality of incomes. This movement toward equality will not appear in the income data unless the aged and the unemployed are recorded at both dates as separate units, wherever they live. Not only for appraising the effectiveness of social legislation but also for economic analysis this narrow definition of the family unit has merits which should be explored further.¹⁵ The chief difficulty lies in determining the age boundary for minors and adults. If the age were set at 14 or 18 years, an increase in the number of sons and daughters supported through higher education by their parents might be reflected as an increase in the inequality of incomes.

The problems of defining the family will not be resolved until they have been more widely discussed. In two recent collections for the same dates the definition of the unit differs substantially enough to affect the income data. The reconciliation of such differences is not simply a matter of setting up a 'comparison concept' of the family and retabulating both sets of data; it is a more fundamental problem—to determine whether either definition fits the purpose of the particular survey and how well each serves the general needs for income data.

However the family is defined, changes in the size of the unit over time may have to be recognized in studying income changes over time. Changes in the frequency distribution of families by size can be isolated from the comparison of the income distributions for various years by some procedure for converting units to a common equivalent or by standardizing the family size frequencies.¹⁶

¹⁵ Not the least of the advantages of defining a family most narrowly is that projects for matching tax returns to obtain family income would be much simplified.

¹⁶ The paper by William Vickrey and the discussion on it in *Studies in Income and Wealth, Volume Ten* (1947) are directly concerned with the conversion to a common equivalent.

2 *The Definition of Income*

The purposes of studies of changes in income inequality may be classified into two broad groups, the 'ethical' and the 'economic'. The same definition of income may not be appropriate for both groups because, in the terms used in Kuznets' analysis of the problems of measurement,¹⁷ the dependent variable may be associated with substantially different income concepts. To proceed with the specification of income thus requires formulating the implications of the study in terms of the meaning imputed to income.

In general 'ethical' purposes relate welfare to income, and the definition of income depends upon the degree of association assumed between the two variables, welfare and income. When income is considered as a direct measure of welfare and welfare as identical with consumption (plus savings) the investigator is forced to an extremely comprehensive definition. Thus Hugh Dalton, although he characterizes income as the "means of economic welfare", extends the concept to include the use of parks, museums, and the free gifts of nature. In addition to money income and wages in kind, he includes as elements of real income four groups of benefits obtained other than by exchange: "(1) goods which men produce for themselves, services which they render to themselves and the benefits which they derive from the direct use of their own property, (2) goods and services which they receive gratuitously from other persons or private institutions and the benefits which they derive from the direct use of property of such persons or institutions, (3) goods and services which they receive gratuitously from public authorities, and the benefits they derive from the direct use of public property, (4) such free and unappropriated goods as they make use of."¹⁸

The practical difficulties in using such a comprehensive definition have been discussed at length in the literature on the concept and measurement of national income and wealth and are treated from the viewpoint of size distribution in several papers in this volume. In connection with the problem under considera-

¹⁷ *Ibid.*, *Volume Five*, Ch. 1, especially pp. 14-6.

¹⁸ *Op. cit.*, p. 167.

tion, it is necessary to stress the effect of the content of income and the methods of measurement on the degree of inequality observed in the income distribution and its changes over time. Since the distributions of receipts from different sources vary greatly, the degree of inequality observed in the distributions of total income will vary with the content of that total. When the total covers only money income, the variations in the distribution are due simply to the coverage of the different types of money receipts and of deductions. When the total covers the value of goods and services produced and consumed by the individual or family, the distribution will vary not only with the number of items included in the calculation but also with the method of assigning a monetary value to each. When the total covers, in addition to money income and the value of goods and services home-produced for home consumption, the value of benefits derived from publicly provided goods and services and the "benefits of air, sunlight and a good climate",¹⁹ the distribution of total income will differ with the number of items included, with the methods of evaluating them in money terms, and with the procedures adopted for allocating the benefits received from public property and services or from nature to the individuals or families.

The more comprehensive the total, the more arbitrary the magnitudes determined from the calculations and the greater the opportunity for directing the result toward a predetermined position. Since, by their nature, such elements as home production for home consumption, the use of parks and museums, the benefits of air and sunlight, and similar items are fairly equally distributed among income recipients, the more numerous the elements included in income and the higher the money values attached to them, the less unequal the distribution of total income.²⁰ However significant the comprehensive total may be for interpretation, calculations that depend so largely upon arbitrary decisions are not likely to be accepted as observational results, as 'facts', until the effects of observers' judgments are

¹⁹ Dalton's example, *ibid.*, p. 167.

²⁰ Defenders of slavery argued in the 1840's and 1850's that slaves' were on an equal basis with their masters because they had been given equal shares in the benefits of the Christian religion—benefits of infinite value.

reduced to a minimum by the development of procedures that can be generally accepted as rational and appropriate.

The comprehensive definition of income has been favored because of the apparent precision it gives to comparisons. As the contributions of the household, the market, and public services to consumption change over time, an income concept that omits those of the first and the third sources does not appear to offer a valid basis for comparing the changes in the inequality of economic welfare from date to date. When, in addition, the free offerings of nature are more bountiful in one situation than in another, comparisons of income distributions that do not recognize such differentials seem to omit some elements of economic welfare. The simplicity of the concept of the comprehensive total has obscured its deficiencies. Consideration of individual cases would probably lead almost universally to the conclusion that equality of total income, broadly defined, does not mean equality of total economic welfare, however defined. The self-sufficing family whose income is 80 percent 'nonmoney' and the family with the same total income most of which is in the form of money are not likely to be put in the same welfare group by an investigator who actually observes how the two families live. These contradictions can be overcome by attaching a low money value to the benefits received from home production, social services, and the natural environment, but such a procedure is in the direction of omitting nonmoney elements from the definition of income. If income is to be taken as a direct measure of total economic welfare and hence includes all nonmoney items, investigations must determine the calculation formula for total income that is most likely to express the same degree of welfare for all units with the same income. Such an investigation might well be a substitute for a welfare index along the lines suggested by Fabricant in his 'Measuring the Nation's Consumption', *Studies in Income and Wealth, Volume Eight* (1946).

A narrower definition of income may be sufficient for studies to appraise the effects of taxation and social legislation upon the distribution of income. The provision of social insurance and of public services for education, health, etc. has long been urged as the best means toward the 'redistribution of income' when

judged in welfare terms and it is only natural to inquire to what extent tax policy and the social services have actually effected such a redistribution. In his *Redistribution of Incomes Through Public Finance in 1937* (Oxford, Clarendon Press, 1945) Tibor Barna utilized only the elements of income that could be derived from tabulating tax returns and government accounts. Perhaps he fell into the error Hicks claims is prevalent—accepting the tax definition of income as valid simply because tabulations of tax return data are the sole continuous series on the distribution of income by size.²¹ On the other hand, in Great Britain the recognition of other elements of income, particularly home production for home consumption and the use by owners of homes and other durable goods, may perhaps be ignored. There is some doubt whether such elements could be ignored in a similar study for the United States for several dates simply because changes in the prevalence of these nonmoney income items may be associated with the development of social insurance and public services. At any rate, changes in the relative number of individuals or families producing some of their food or living in their own homes should probably be recognized in a study of this type. Since all the problems of allocating the benefits received from public services are concentrated in the redistribution study, the general approach is subject to the same criticisms as any analysis that relies on a comprehensive definition of income, i.e., includes a large part of the nonmoney sector of individual or family consumption.

Unless the inequality of the income distribution ceases to claim the attention of philosophers, students of politics, reformers, and the 'average citizen', and this eventuality is not likely, the theoretical problems of measurement must be studied further. The more sophisticated will probably increasingly ask for 'facts', which must be so presented that the social philosophy of their compilers and the extent to which they satisfy its requirements will be evident.²²

²¹ *Value and Capital* (Oxford, Clarendon Press, 1939), p. 180.

²² Two excerpts from letters exchanged between Justice Holmes and Sir Frederick Pollock about the time Dalton's book was published are of interest in this connection (*Holmes-Pollock Letters*, Harvard University Press, 1941, Vol. 2, p. 47).

Holmes to Pollock, July 31, 1920: "Also I have received some social theory

Various approaches should be explored from both the theoretical and the technical viewpoints and their merits and deficiencies scrutinized. Welfare indexes, for example, have been the subject of numerous experiments by sociologists;²³ and some are based on the most modern statistical techniques. Whether they could be utilized to provide a one-variable distribution of individuals or families by relative welfare is an extremely interesting subject for research. Although this approach does not necessarily require income data, it might lead to a significant contribution to our knowledge of the correlation between income and welfare, when welfare is measured in physical and psychological terms.

A related approach might utilize some kind of welfare index to establish the scale of equivalence, say in terms of money income, between groups in the population that have significantly different amounts of nonmoney income.²⁴ If satisfactory scales could be established, income distributions could be based on an income measure standardized to represent the dominant group with

books . . . the last the Webbs' *History of Trade Unionism* . . . an interesting and solid piece of work; but it seems to me inspired by sentimental and dramatic economics so far as I can guess. I should think that they, like our Croly, thought that the universal standard of living could be raised if only they could lay hold of 'the sums now withdrawn by capital', as if these sums did not now support labor. I wish the controversy could be reduced to the plain issue of fact: What do the luxuries of the few amount to? I believe them to be a drop in the bucket. The luxuries that really impinge upon the necessities are the luxuries of the many, e.g., the Churches. And if you abolished them, do you doubt that the addition would be expended at once in more population? I don't."

Pollock to Holmes, August 15, 1920: "Luxuries—yes certainly: moreover the people who are customers for them now are the war-enriched, leaving the former rich to the mercies of super-tax."

²³ For example, W. H. Sewell, *The Construction and Standardization of a Scale for the Measurement of the Socio-Economic Status of Farm Families*, Oklahoma Agricultural Experiment Station, *Bulletin 9*, 1940; and Margaret J. Hagood and L. J. Ducoff, 'What Level of Living Indexes Measure', *American Sociological Review*, IX, Feb. 1944, p. 80.

²⁴ In the files of the Bureau of Labor Statistics and of Human Nutrition and Home Economics tabulations of home owners' and renters' expenditures by income level and geographic location illustrate this problem in its simplest terms. The BLS tabulations, classified by a money income concept, showed that at every income level home owners had a higher level of living than renters. The BHNHE tabulations, which included in income the net rental value of owned homes, showed just the reverse. Clearly a method must be developed to strike the balance between these two definitions of equivalence which are in error in opposite directions.

respect to the contribution of nonmoney elements to economic welfare.²⁵

A practical substitute for the standardized income measure is afforded by the distribution standardized for the frequencies of the groups differing with respect to their receipts of nonmoney income. Distributions by money income for different periods in which the proportions of farmers, home owners, etc. are held constant might lead to a reasonably valid series recording changes in the inequality of income distribution. For no one period would such a measure represent the inequality in the distribution of economic welfare; it would perhaps be a reasonable approximation to the comparison of distributions from period to period.

All these suggestions seek to produce a calculation in one dimension. Perhaps it is time to give up the attempt to reduce a complexity of relationships to one summary measure and bow to the multi-dimensional reality. Inequality measures, as developed in the past, have not recognized differences in income level although most investigators were probably aware of this significant variable. While the index of inequality may always be relative to the level of income at any one time, comparisons over time may require a calculation in several variables to account for the significant changes in the composition of income. Some components of income might appear in distributions but others simply in averages per capita or per family.

From some points of view total income as defined by Dalton and others might be construed as an elaboration that obscures the reality of the attitude of the ultimate consumer toward the equity of the distribution of income. It may be argued that to the man on the street income means the money receipts flowing to him as a person who has certain 'rights', and to him inequality means that his money income receipts are smaller than his neighbor's. This argument makes welfare a psychological concept which would have to be tested by methods other than those in

²⁵ Obviously some kind of standardizing is required when income data for several communities that vary with respect to the price level are combined into a summary distribution; see Section 5.

the economist's kit of tools. It is certainly the basis, implicit or explicit, of the inferences drawn in much of the abundant current literature on such subjects as the meaning of democracy.²⁶ Even unsubstantiated by any evidence, it offers considerable comfort to the purveyor of data on size distributions of income as he faces the almost insurmountable difficulties of allocation and estimation required by a broader concept than total money receipts.

3 Economic Implications

The economic implications of a study of changes in income distributions over time, as sketched by Marschak (op. cit., p. XIII), are derived from correlations of expenditures and savings with the income distributions for one or more years and the effect of such associations on the employment level and changes in it. This description of the type of use to be made of data on the inequality of income distribution by the economic analyst is sufficiently concrete to allow a direct attack upon definitions. In simplest terms the problem may be described as a correlation of observations for various years on consumer expenditures, savings, employment, etc. with a measure of the inequality of the income distribution such as that mentioned in 'Economic Research and the Keynesian Thinking of Our Times', NBER, *26th Annual Report*, Appendix.

Such a time series on the inequality of income would not necessarily begin with a comprehensive definition of income, as implied by Dalton, because the arbitrary elements in the deter-

²⁶ As an illustration of the discussion of inequality see Arnold J. Toynbee, *Civilization on Trial* (Oxford University Press, 1948), p. 25: ". . . how has the evil of class been heightened by technology? Has not technology already notably raised the minimum standard of living? . . . Can we not look forward to seeing this rapidly rising minimum standard raised to so high a level, and enjoyed by so large a percentage of human beings, that the even greater riches of a still more highly favored minority will cease to be a cause of heart burning? The flaw in this line of reasoning is that it ignores the vital truth that man does not live by bread alone. However high the minimum standard of his material living may be raised, that will not cure his soul of demanding social justice; and the unequal distribution of the world's goods between a privileged minority and an underprivileged majority has been transformed from an unavoidable evil into an intolerable injustice by the technological inventions of western man."

mination of the value of nonmoney income already discussed would clearly affect the results of the correlations in ways that could not be easily isolated. It would probably begin, like the National Bureau series, with the more objectively measured sector, money income, and introduce additional variables in order to assess the effects of changes in the volume and distribution of the nonmoney elements on the dependent variables.

The questions involved in defining money income are difficult enough, but relieved of the pressure to produce some grand total of money and nonmoney income, the estimators can develop methods for basing income distributions on different definitions for experimental analyses. As Kuznets noted, since "our goal is a size distribution so prepared as clearly to reflect income as cause" the best definition for this purpose should be determined by empirical tests.²⁷ It is not over-optimistic to hope that once certain difficulties of data collection are overcome, a size distribution can be based on income defined to include and exclude such items as capital gains and losses, gifts,²⁸ prizes, gambling profits, annuities, and insurance settlements. Perhaps the most serious problem concerns the deduction of taxes; and hence the most urgent need is for distributions prepared for income size classes both including and excluding income and other personal taxes.

4 *The Period*

The effect of the time unit on the form of the income distribution has received more attention than other problems of definition, probably because it is so obvious that income for a short period may be unrepresentative of an individual's usual position. Periods shorter than one year have been used in some studies yielding data on the distribution of income, but almost entirely for reasons of expediency. The customary interval for income studies, 12 months, is obviously too short for studying the inequality of the income distribution. Individuals experience a

²⁷ *Studies in Income and Wealth, Volume Five*, pp. 12 and 14.

²⁸ Whether 'regular' contributions or not. The double counting of gifts now customary should certainly be submitted to both logical scrutiny and empirical test.

substantial variation in receipts from year to year and a given year's income may deviate considerably from the norm. The income distribution for a single year taken as a measure of the norm will thus tend to exaggerate the inequality of incomes.

To overcome this difficulty, an average of several years' incomes has often been proposed. An individual's norm for a given year would then be determined as a trend value by a moving average process. But how many years should be averaged? Data on the income history of individuals are so fragmentary that there is no basis for choosing any particular number of years to cumulate. Such data could perhaps eventually be collected and the interval chosen according to the methods used in time series analysis.

This solution has considerably less merit for families than for individuals. However the family is defined, difficulties will appear in the treatment of units that are newly formed or that are dissolved during a given period. If five years were fixed, some method of estimation would have to be devised for units existing only part of the period. Furthermore, the interpretation of the 5-year average income would be clouded whenever the family composition was changed through births, deaths, etc. A cross-classification of income by family size (or composition) classes is impossible unless the size (or composition) is characterized also as an average. For analytical purposes the interpretations of the average size of the individual family over a period are not obvious, and another procedure for defining the income norm should certainly be sought.

In addition to conceptual problems the difficulties of obtaining data effectively eliminate the use of average income for a number of years from consideration. A practical procedure must be based on data collected at one time and must avoid the complications of substantial changes in the variables to be associated with income, such as family composition. This problem should be investigated; only one possibility can be mentioned here. Since the individual's income history can be thought of as a time series varying around a trend that is a composite of his life-cycle and the general movement for a given age, industry, occu-

pation, and class of worker in a given area, the trend value (i.e., the average) for a group specified in sufficient detail by the income determinants could be defined as the norm for any individual in the group. That is, the individual could be assigned the average income of a group within which the variations in one year would be attributed to circumstances such as chance fluctuations in business incomes, illness or temporary unemployment, and winning a lottery prize.²⁹ The specification of the group to which a family is assigned would probably have to hinge upon the characteristics of the head, and include the composition of the family as one determining factor. This procedure is not new; it has been used in most British social studies beginning with Charles Booth's monumental work, *Labour and Life of the People of London* (Macmillan, London and New York, 1892-97). It has not, however, been tested by any extensive experiments in this country.³⁰ The approach might be recommended for reasons other than improving the measure of income inequality. The form of the 'family consumption function' obtained by such a procedure might, for example, exhibit more stability over time than a function obtained by classifying each unit by the actual income received in a given year. These questions, like so many others, can be decided only by experiment. Fortunately such experiments do not require large scale, representative samples; e.g., Margaret G. Reid is completing a study of the continuous records of income and expenditure for certain groups of farm families which illustrates the importance of developing new techniques for describing the family income distribution and the family consumption function.

²⁹ This procedure is suggested for estimating the 'permanent component' of income, the concept developed by Friedman and Kuznets (*Income from Independent Professional Practice*, NBER, 1945, Ch. VII), which may be used as the classification variable for a size distribution in measuring the inequality of income. In estimating the 'permanent component' as the group average it is assumed that variations among individuals in narrowly specified groups are due entirely to the 'transitory component'.

³⁰ In 1942 Jerome Cornfield outlined this procedure for estimating the average income distribution among wage and salary recipients by using annual wages by industry and occupation but for lack of data in certain sectors was unable to carry through a calculation.

5 The Price Level

If the assumption that relative changes in the cost of living over time are the same for all income groups in a given locality can be accepted, studies of changes in the inequality of income distribution can ignore differences in the price level from date to date. Although the assumption has been seriously questioned by Kuznets and others, little can be done to test its validity until data on consumer prices are considerably expanded and more intensively analyzed.

When the income distribution is estimated for entire areas such as the United States, place to place differences in the cost of living have a serious effect on both the degree of inequality observed for a given date and on the changes over time. The price level shows some correlation with the income level and perhaps also with the income distribution among cities of different sizes, among regions, and between the farm and the nonfarm population. Accordingly, a summary income distribution for the entire country or for a large section, in which no adjustment is made for place to place variations in living costs, tends to overestimate the inequality of income distribution at any date and to distort comparisons between dates. Copeland discussed this problem in 1947 in 'Determinants of the Distribution of Income in the United States', *American Economic Review*, March 1947, a paper that should be carefully studied by students of income size distributions as the following excerpt bearing on the present problem illustrates.

"Let us assume for the moment that the price-and-pay-rate structure of a commodity varies with the size in such a way as to involve variations in income size distribution. If this hypothesis is correct, it requires a revised interpretation of trend, for the United States as a whole in the pattern of size distribution over the past twenty odd years. A possible interpretation on this basis is as follows—first, there has been a trend towards decreasing inequality in communities of a given size, and second there has been an offsetting increase in the proportion of our population living in communities where the price-and-pay-rate structure is such that income inequality is relatively great. This amounts to saying that the movement of the population

into metropolitan communities has been a factor making for increased inequality of incomes, and that without this population movement the inequality of incomes would have decreased during the past twenty odd years."

Collections of price and other data required to measure place to place differences in living costs are as fragmentary as the data needed to determine variations in prices for different income groups. This area of measurement requires reformation perhaps more than any other and while it is not directly the subject of this discussion, a suggestion by Kuznets is worth mentioning in that it has implications for the approach to other problems in the study of income size distributions. The determinants of place to place differences in living costs might be identified through analyzing family expenditures by income level. Establishing and testing criteria to define equivalence in the scale of living—such variables as the saving-income ratio, the quality of diets, the degree of household mechanization, and other elements common in the American standard of living—might lead to the identification of groups of substitutes and provide some information on the relation between climate, size of city, and the price structure and place to place variations in consumption patterns representing the same plane of living. The absence of studies of these factors has meant that measures of place to place differences in living costs have been highly artificial and probably seriously inaccurate.

C INCOME LEVEL

"All studies (of inequality) tend to disregard the absolute size of incomes and study only relative inequality, although most of them note the positive correlation in time between the size of average income and the extent of inequality. But from the point of view of welfare, capital formation or any other analytic implication of a frequency distribution of income the absolute size of incomes involved is of material importance. Income inequality may decline during years of depression but the welfare inequality may rise materially because of the general lowering of the absolute level of incomes. Similarly, inequality may be more conspicuous in one country than in another, but because of the difference in the absolute size of

income the capital forming power of the second country may be greater than that of the first; that is, assuming that inequality of distribution stimulates capital formation, a rather doubtful hypothesis." Simon Kuznets, 'National Income', *Encyclopedia of the Social Sciences* (Macmillan, 1933).

1 *Equivalence*

To measure the difference in the 'level' of two income distributions requires some procedure for identifying corresponding incomes in the two situations on some concept of equivalence. The measure of equivalence may be the index of the comparative costs of living already mentioned or simply, and perhaps more generally, the equating of some aspect of the use of income relevant to a particular analysis. Measures of comparative living costs attempt to determine the income necessary to maintain the same level of living in two situations, and the variation among formulas constructed for this purpose depends primarily upon the meaning attached to 'same'. The same level of living is usually taken to mean equality in economic welfare, welfare being interpreted absolutely. Other measures of equivalence based on some aspect of consumer behavior, e.g., the saving-income ratio, can also be interpreted as defining the same level of welfare, but welfare may then have to be construed relatively. The measurement of equivalent incomes in two or more situations is a subject in which there is pressing need for extensive research as illustrated by the problem under consideration as well as others in connection with size distributions of income. In particular, the question of the range of variation in the measure of equivalence among income groups is vital to the study of changes in the income distribution. The stimulating work of Frisch and of Staehle in devising methods has unfortunately not been followed by calculations extensive enough to allow any conclusions about the variability of the equivalence index by income group.

Whether the ratio defining equivalent incomes is effectively a constant or varies substantially over all income groups, the problem of comparing two distributions with respect to level

can be confined to comparing the averages by converting to the 'currency' of one situation as a base. The comparative level as a relative is simply the ratio of the averages when in the second situation the average is expressed through the scale of equivalence in terms of the first. Since the ratio will ordinarily be reversible only when the 'exchange rate' is a constant for all incomes, it might be desirable to use a double index.³¹

In view of the primitive state of our knowledge about place to place or time to time differences in living costs, it may be not only realistic but also rational to investigate procedures that start with averages. Before a scale of equivalence between incomes in different situations can be developed, income must be defined, and this may require some assumptions about equivalence in terms of welfare. Confining the problem first to a comparison of the averages might possibly avoid endless interchanging of assumptions and conclusions. Shifting the base of measurement entirely to the average means practically the construction of concepts for measuring comparative levels of income that utilize only national income totals and other time series.

The difficulties in eliminating price differences from a series of income totals, stressed repeatedly in the literature on national income, need not be recounted here. The criticisms of the simple process of deflating by indexes—essentially attacks on a concept of equivalence that is unrealistic and almost impossible to formulate—challenge the researcher to try other procedures. With the help of time series several definitions can be tested which, when first considered, may seem conceptually crude but after examination may prove analytically powerful and theoretically sound. For example, the efficacy of defining as equivalent incomes used in the same proportion for food and housing can now be tested. Such a definition, which clearly harks back to Engel, assumes a rigidity in the consumption pattern of these 'necessaries' conforming to the standards of the place or time and insists that equivalence be defined, at least to a certain degree, relatively.

³¹ The especially difficult question raised by a variable scale concerns the meaning of the average. The converted average may differ from the average of the converted figures as, for example, the square of the average differs from the average square.

The results of a procedure that thus depends upon the ratio of some variable to total income obviously depend in turn upon the content of the income aggregate and the manner of estimating the goods and services received without direct money outlay. The ratio of the average incomes in two situations might vary substantially and erratically with the number of items in each income total and the value placed on the nonmoney elements. Practically it is not possible to experiment with the most comprehensive income total that could be proposed. Experiments must be confined to comparing totals that can be constructed from national income.

2 The Recipient Unit

If, as the statement of the problem suggests, a measure of income level is to be used in conjunction with a measure of income inequality, the recipient unit must be the same for both calculations. When income is averaged from national, state, or regional totals, without reference to its size distribution, the number of recipients must be determined from the decennial censuses and annual estimates of population and, as required, annual estimates of the labor force and employment. Such sources do not afford a base for estimating the number of units in accordance with a definition that depends upon what is done with income. Population data allow a definition of the family unit that specifies living arrangements and marital status and relationship to the head of the household but do not provide for separating the related members in a household according to their manner of financing expenditures. The new family statistics of the Bureau of the Census will permit the accumulation of totals for various definitions of the family unit that depend upon age and relationship and will contribute substantially toward settling differences of opinion about definition. Information on family financial arrangements can be obtained only by special surveys. Hence the present status of data collection is such that analytically useful estimates of average income, year by year, will be based upon definitions of the recipient unit that can be derived from Census classifications long before the superiority of other types

of definition can be demonstrated. Since the materials for estimating the size distribution of income cannot be utilized without recourse to the same sources for the population totals, as explained in Parts VI and X, the practical arguments for the simpler definition of the recipient unit must be weighed seriously.

3 *Recording Income*

Examination of the problems of defining and measuring income for size distribution studies may lead, as suggested above, to the conclusion that some elements can be observed only as aggregates, that is, averages, and therefore cannot be included. Certain kinds of income even defy measurement in the aggregate yet for purposes of comparison should be taken cognizance of in some manner in the calculations.

Among the procedures that might be explored in constructing a matrix of measures of income level and inequality are (a) determining and comparing the average income from certain sources, (b) standardizing the average of the income distributed for the frequencies of groups that vary with respect to income elements not covered, and (c) applying measures of equivalence that take account of differences in certain kinds of income. The first method might be applied independently to benefits, such as governmental services, to the entire population. The problems of comparing such incomes for different places or different times might, however, eventually require some process of standardization or conversion through a scale of equivalence. Standardizing the average income, the income defined for distribution, for the proportions of different groups in the population would require knowledge not only of their relative size but also their average incomes, and thus might not be possible without reference to the sources from which the size distribution was estimated. Standardizing could eliminate the effect of variations in the prevalence of income from home production for home use and of owned homes and perhaps other durable goods, and to some extent variations in benefits received free from nature. More often some conversion factor that defines equiva-

lent incomes in the various situations will probably have to be relied upon. The procedures for defining equivalence should, for example, account for differences in the requirements for heating fuel and insulation of dwellings under different climatic conditions. These various procedures might lead to a set of measures such as the following when the size distribution is confined to money income:

- 1 Frequencies of certain population strata, differing with respect to nonmoney income, age, and family composition
- 2 The inequality of money incomes determined from distributions standardized for these frequencies
- 3 The ratio of the average money incomes determined from the standardized distributions and converted to a common base through a scale of equivalence
- 4 Average income from sources other than those covered by the procedures above, converted to a common base

Such procedures, suggested by the need to refine the measures of income level and inequality to describe relative welfare in quantitative terms, assume that realistic approaches to such comparisons will require several indexes. How far the number can be reduced to a set small enough to interpret easily will depend upon research along some such lines as here suggested.

Economic analysis might not require such elaborate methods for dealing with the sundry variables that must be recognized in comparing size distributions of income in two or more situations. Correlation studies, by using a sufficient number of variables, might be even more effective than analyses dependent upon various types of standardized totals. Such questions, like others in this area, must be left open until research and experimentation have produced a basis for more precise formulation of the problems.

Ultimately it may appear that our attempts to estimate and analyze the distributions of income for areas as large as the United States are meaningless descriptively and sterile analytically. Perhaps what is needed is a stratification of the population into groups that have some homogeneity in income experience and a determination of the level and inequality of incomes with-

in such groups. Then the measure of inequality of income among groups might become mainly a comparison of average levels.

D POVERTY

"To what extent are substandard incomes the result of the business cycle?" Milton Gilbert, in a discussion of the purposes of income distribution data at a meeting of a Conference committee, January 19, 1948, gave this problem a high 'priority'.

I *The Reference Base*

The notion of a measurable boundary marking off the range on the lower part of the income scale that can be designated substandard has crept into our thinking about size distributions of income practically unchallenged. Theorists of all persuasions utilize such a concept implicitly while proponents of various types of social policy exploit the 'poverty line' almost melodramatically. Yet, when faced directly with the problem of determining this measure for a given time and place, the theorist will deny the possibility of a unique answer and the propagandist will settle for any one of many solutions if the result suits his purposes. Despite such skepticism or lack of interest, there have been numerous attempts to locate the 'poverty line' and to relate the determinations to the income distribution.

For many purposes agreement on the position of the 'poverty line' is not necessary. In comparisons over time any one of several concepts may serve as long as the underlying rationale for the position at various dates is explicit. Studies of changes in the prevalence of poverty that emphasize the 'causes' of insufficient incomes will be profoundly affected by the degree of relativity allowed in the location of the poverty line at different dates. Consequently, the student of size distributions of income is concerned primarily with the aspect of welfare that is held constant. Rowntree and Bowley used identical 'budgets' in comparing surveys made about 1900 and in the middle 'thirties.³² With certain modifications an identical budget might be the best practical

³² B. Seebohm Rowntree, *Poverty and Progress* (Longmans, 1941); A. L. Bowley and Margaret H. Hogg, *Has Poverty Diminished?* (London, King, 1925).

Rowntree's budget for the comparison of 1899 and 1936 did not allow for transportation. The changes in American cities have decidedly modified the need for

measure of equivalent welfare for studies of changes in the proportion of the population living below the poverty line because an unchanging base for comparisons is simple to explain and interpret. The methods of determining the poverty line in different situations have, however, usually yielded a measure that varies with the general level of living. As Henry Clay noted,³³ "all the poverty lines seem to bear a close relation to the wage of unskilled labour in the country in which they are made", a fact that questions both the base of and the reasons for making the determinations. If the poverty line tends to coincide with the lowest wage rate or a particular decile of the income distribution there is no need to calculate the cost of a family budget.

Clearly a poverty line that roughly corresponds with a given position in the income distribution, such as the first quintile, is of little value in studying the effect of cyclical fluctuations or other variables on the prevalence of 'substandard' incomes. The income analyst requires a more stable gauge. Otherwise he may face the paradox that a constant proportion of the population is living in poverty while the general level of living is rising. Although a discussion of the methods of determining the minimum standard of living is outside the scope of this paper, the need for an objective approach, such as the 'break-even' point, should be stressed. The break-even point, the position on the income scale at which average consumption exactly balances average income, might prove a standard stable enough to use with data on distribution if the concepts and definitions of income and related variables were sufficiently refined. It has the advantages of simplicity and realism whereas the 'budget' approach is almost inevitably subjective and artificial in considerable degree.³⁴

transportation even among the lowest income groups; hence it would seem unreasonable to exclude some allowance for transportation in the budget for later periods.

³³ Discussion of 'The Social Survey of Merseyside' by D. Caradog Jones, *Journal of the Royal Statistical Society*, Vol. 94, 1931, p. 256.

³⁴ Such writers as F. H. Streightoff in his *Standard of Living* and G. P. Watkins in *Welfare as an Economic Quantity* (Houghton Mifflin, 1911 and 1915 respectively) were concerned about the need for including such items as beer and tobacco, and in the construction of normative budgets, expenditures for such 'necessities' must still be rationalized with considerable care.

2 *The Recipient Unit*

Much that has been said about the definition of the recipient unit for inequality studies applies to the investigation of poverty. For the latter purpose the recipient is either a family or an individual not included in a family unit. The members of a household may be considered as forming one or more families according as the definition of a family depends upon the actual living arrangements or some general concept of responsibility for support. In studying the 'causes' of poverty, there is good reason to use the narrowest definition of the family that conforms with the manner of living in our society—each married couple and each unmarried (widowed, divorced, or separated) adult is the nucleus of a family.

The advantages of the narrow definition of the family are emphasized by Rowntree's comments on the results of his comparison of the extent and causes of poverty in 1899 and 1936 (*op. cit.*, p. 113).

"At first sight, the increase from 370 to 885 in the number of these in primary poverty due to the illness or old age of the chief wage-earner seems inexplicable, since legislation providing for both old age pensions and sickness has come into force since 1899. There are, however, many reasons which account for the increase. Undoubtedly the most important is that the proportion of the population 65 years and over was more than fifty percent higher in 1936 than in 1891, viz. it was 7.35 percent as compared with 4.67 percent. Because of this and the increase in the population of the city, the number of persons over 65 has increased from 3,129 in the census year 1891 to 6,235 in 1931. But in addition to the increase in the number of old persons in the city there is the fact that in 1899 a person too old to work and having no private source of income had as a rule to choose between two alternatives—either to live, often as an unwanted guest, with a married son or daughter or go to the workhouse. Today, however, such people can manage to live, though in primary poverty, on their state pensions often supplemented by a grant from the Public Assistance Committee, or by some small additional source of income."

The absurd conclusion that social provision for old age has added to the number living in 'primary' poverty might have been

avoided if the 'family' recipient unit had counted all the elderly as separate units in both 1899 and 1936. The definition of the unit affects the interpretation of all the 'causes' of poverty listed in Rowntree's analysis—illness, old age, unemployment, irregularity of work, size of family, and low wages. In 1899 both 'unemployment' and 'low wages' as well as 'old age' may have been hidden in the classification 'large families'.

Definitions depend upon whether the study is a social one designed to be realistically descriptive or an analytic attempt to segregate and evaluate the various factors and their effects. Even in 'social studies' the need for isolating the effect of changes in the family groupings has been recognized; for example by Percy Ford, 'Family Incomes and Personal Incentives', *Economica*, August 1938, and *Work and Wealth in a Modern Post* (London, Allen & Unwin, 1934). The results of any comparisons, between places or times, will differ according as older children, parents, and other adults are counted as dependents in a family or as separate units with little or no income. An analysis of the adequacy of income upon the assumption that the adult supports himself, his wife, and his minor children, and that society should care for the aged, the disabled, and the unemployed will probably do more to produce comparable results than comprehensive definitions of the recipient unit.

As Rowntree implies, changes in the age distribution of the population and in the size of the family must be taken in account. The effects of the increase of elderly persons and of smaller families should certainly be separated in an analysis attempting to relate the causes of poverty to the functioning of the economic system. Age, and perhaps also size of family, should be considered separately in analyzing the causes of insufficient incomes, and their significance should not be obscured by definitions and procedures that tend to merge them.

3 *Income Determinants*

Any judgment on the adequacy of incomes should take account of the fundamental differences in the ability of different groups to satisfy their needs, whatever the level of economic activity.

Since the ranks of the poor have always been filled with widows and orphans, the halt, the lame, and the blind, a study of poverty must treat these groups separately if only to avoid confusing the effect of age, sex, or disability with other factors. It must begin with data that allow grouping (a) families with male and female heads, (b) single men and women; the head or the individual is further classified as either 65 or older or under 65, and the class under 65 grouped into not handicapped or disabled, handicapped, or disabled. For each group information must be assembled on the number of dependents, earnings, other income, occupation, degree of employment, and reasons for unemployment that may be further classified by employment status, size of family, and income. So far no representative collections of data on size distributions of income have yielded the information necessary for this kind of a stratification of the population, although the need has been recognized in connection with various survey plans.³⁵ Current surveys permit a less detailed stratification by size of family, age of head, degree of employment (of the head), and income bracket which does not offer any explanation of the reasons for the underemployment or unemployment that appear in the 'substandard' income group. Nevertheless, such a classification might lead to a much better understanding of the characteristics of the low income groups and thereby allay some of the criticisms rightfully leveled against the inferences drawn from the published data.

The diagnosis of the 'causes' of poverty and their importance from date to date cannot progress until our factual information is sufficient to examine the problems of the different groups in the population for which the 'cures' propose quite different types of action. It is probably not exaggerating to say that the worst misuses of income distributions occur in connection with this problem. Unless the data are clarified and the adequacy of the definitions and concepts thoroughly reviewed, the consequences of misinterpretation may be serious.

³⁵ The plans formulated by federal agencies for the collection of statistics for the 'reconversion' period included an income survey which would have supplied the data for such an analysis.

4 The Period

There has been no dearth of observations to the effect that something is wrong with income distributions in respect of the period covered. Especially when the income data are accompanied by information on expenditures are surveys deluged on every side with criticisms of the findings about the 'low income' groups. But little attention has been given the search for what might be the 'right' way to collect and present the data, probably for the simple reason that multi- or general-purpose surveys (and obviously statistics based on administrative records) are seldom, if ever, planned to satisfy completely the needs of any one type of analysis.

'Unusual' situations in the low income brackets, when classification is based on the income for a single year, have been generally recognized but the problem of identifying and eliminating them has not been solved. A classification based on average income for a period of years, often proposed, has the disadvantages outlined above, and the use of additional information on economic status, i.e., on assets and liabilities, is effectively ruled out by the difficulties of obtaining the data.³⁶ Thus the device used in British social surveys for over half a century appears to offer the only practical solution of the problem. Individual units are classified by the average for the group defined by occupation and type of employment to which the individual belongs. The income 'grades' used by Ford in the Southampton survey, which were modeled on Booth's classification, distinguished 8 classes (op. cit., p. 95).

	Income (shillings)
I Lowest class of occasional labour	
II Casual	20-30
III Intermittent and seasonal	20-40
IV Small regular earnings	30-42
V Regular standard earnings	42-50
VI Skilled	50-80
VII Supervisory and clerical	80+
VIII Middle class	100+

³⁶ The current Surveys of Family Finances sponsored by the Federal Reserve Board may be developing the necessary techniques for data collection and analysis that will permit classification in terms of both current income and asset holdings.

American statistical practice, which relies less on the editing and review of individual schedules and more on mechanical processes, would require a more detailed description of the income 'grades' to carry out this classification. The merits of placing the individual unit with its group are nevertheless well illustrated by these brief descriptions. Families of skilled or clerical workers with less income than 'usual' due to some contingency such as illness would not be classed, perhaps below the poverty line, with those who depended for their livelihood upon intermittent or casual work. How many groups there should be and how narrowly specified can be determined only by experiment. The answer is certain to vary with the geographic area covered as well as the procedures used to eliminate the variations in the meaning of the income measure within the area.

5 The Universe and the Price Level

The British social surveys, which have been confined to single communities, usually an industrial city, have not been troubled by the problem of variation in the purchasing power of the monetary unit within the area of study. Before the problems introduced by variations in the price level within large areas are solved, the utility of summarized data for a vast heterogeneous population is certain to be questioned. To be able to say that a certain fraction of the families in the United States are living in poverty because of old age, disability, unemployment, and other specified 'causes' would not serve any purpose unless the group could be located 'geographically'. If a geographic stratification is recognized as indispensable for analysis and interpretation, the problems arising from area differences in the price level and other factors may be considerably simplified. Within reasonably homogeneous areas the poverty line may be within the income range and the number and characteristics of the families with insufficient incomes summarized without any need for combining the income measures in different communities.

The incomes defined by the poverty line in various communities might be taken as the base on which to convert data for various communities to a common base if a single figure for all types of community could have an intelligible meaning. But

since the level of an adequate income varies within communities with the type of family as well as between communities with the price level, it is impossible to say what the poverty line is in the United States or even in New York City. But with some trouble we might be able to say how many units do not have enough income. Relieved of the responsibility of combining income data for various areas, the investigator can adapt his methods to the local situation while maintaining as far as possible the same concepts.³⁷

6 *The Definition of Income*

The problems of measuring income in studying poverty are simplified by confining the area of observations to communities, for the content of the income totaled and of the expenditures specified at the poverty line can be allowed to vary from community to community with circumstances. The base may vary because a measure that would, for example, express the sunshine of Hawaii in terms of a fuel bill in Maine is not attempted. Variability in the content of the standard and hence in the average income in certain respects must be accepted even within a community. Since the young need more than the old, 'adequate' inventories of consumer goods, for example, vary with age. The income deemed adequate for the latter might be less than that for the former, who are building up a stock of household and personal goods. The contrasts in 'needs' among the various strata in the community are probably too wide ever to be equated in a literal sense through some conversion formula.

Income, which in studies of poverty measures economic welfare as command over goods and services, may be expressed in the form of one, two, or more dollar totals or simple frequencies, and these together must comprehend all the 'needs' specified in the concept used in the standard for appraisal. As long as the accounting is complete for the purpose of the analysis, the method of measurement may vary from group to group without distorting the results as much as an attempt at uniformity might.

³⁷ The chief difficulty in developing area studies arises from the sampling problem of coverage. Unless all the totals for the entire country are ruled out as not having any significance, there will be some need for generalizing the findings for a set of communities that can be considered as a sample.

E PARITY

"Mr. Stine has suggested that parity should be made to indicate equality of opportunity as between urban and rural communities. This, I take it, is a longer run meaning of 'parity'. I am not sure how income measurements can be made to reveal equality of opportunity as distinguished from equality resulting from taking advantage of opportunity. Something about opportunity would be revealed if fuller attention were given to a comparison of the distributions of incomes by size as between urban and rural communities. I see no reason to assume that we should desire on ethical grounds anything approaching equality between the upper ends of the income scales. On the other hand, there is good reason to hold that a common national minimum of living should prevail as between city and country. A statistical measurement of income might be made to reveal whether parity in this sense has been attained." Morris A. Copeland, Discussion of 'The Concept of Income Parity for Agriculture', *Studies in Income and Wealth, Volume Six* (1944) p. 136.

1 *Meaning of the Comparison*

The comparison of the economic level of the masses, excluding the favored few, in two populations, has been implicit in much of our thinking about relative welfare but little attention has been given the quantitative aspects of the problem. To contrast the 'lower' part of the income scale in two situations in a single summary measure a dividing point must be fixed between 'lower' and 'upper' that will minimize, if possible, the degree to which the comparison depends upon arbitrary judgment. If the lower part of the income scale is determined by a particular percentile, the contrast in income between the groups thus segregated will very likely vary with the percentile chosen. Or if the lower part is defined as the group receiving a given percentage of the aggregate income, the relative characteristics of the groups will depend upon the percentage chosen. In both procedures the degree of variation introduced by the choice of the dividing line will depend upon differences in the degree of income inequality in the two situations. Even when the groups compared comprise those living below a certain level the results will hinge upon the

choice of the level. For the parity study the level pitched at the poverty line as fixed in British social studies does not seem as appropriate as the concept of a minimum standard launched by William F. Ogburn twenty-odd years ago. Even if that concept were not so elastic in the hands of different investigators, its use might still present difficulties in interpretation, especially when, say, the proportions of the two populations compared differ widely.

Since no dividing line yet proposed is free from the arbitrary element of selection, the attempt to summarize the comparison in a single ratio might be abandoned for a set that would offer a systematic comparison of the income distributions in the two populations. The complete group of comparisons, decile by decile, between farm and nonfarm populations would, for example, afford substantial information for analysis and interpretation, especially in relation to the meaning attached to any one comparison. Combined with the relative position of each group above or below the 'national minimum of living', such a set of ratios might open the way to a broader understanding of the problems of comparing the economic situations of two dissimilar classes in the population, provided the basic measurements satisfy the requirements of the comparison.

2 *The Definition of Income*

A definition of income that offers a basis for comparing farm and nonfarm populations has yet to be formulated. While the accounting problems as well as those relating to nonmoney income and wealth are fairly familiar, there is little agreement about even the approach to constructing suitable concepts. Here again the core of the difficulty may be the concept of economic welfare itself and the degree to which it is correlated with income. Parity income comparisons are being given considerable attention by competent analysts and it may not be over-optimistic to expect that some significant contributions will be forthcoming.

The difficulties are essentially the same: to get comparable income totals. Since one of the most significant differences between areas is likely to be in the urban-rural composition of the

population, the solution for rural and urban populations in the same region might point the way to comparisons between whole areas, states, and nations.

For the parity comparison, as for others, it may be futile to attempt to base any measure simply on *a priori* arguments. In any case, research would not be hampered by recognizing some of the significant variables as factors to be analyzed separately. The dollar income to be distributed by size might be confined to the portion of 'total' income that can be given the same meaning in both the rural and the urban situation. The definition could be as limited as, say, net money income minus expenditures for food, housing, fuel, and utilities; in this way, the farm and the nonfarm family with the same amount to spend after being housed and fed would be in one category.³⁸ Among the receipts usually included in income, the nonmoney elements in food and housing present the major problems for comparative purposes. Eliminating the consumption of housing and food from the comparison would thus avoid the dilemmas that arise in the choice of procedures of allocation (between the farm and the family) and valuation of nonmoney income.

If the comparison of dollar incomes were thus confined to 'comparable' segments, the aspects of well-being that center in housing and food consumption could be described, quantitatively, as another dimension for analyses, possibly in such non-monetary terms as calories and BTUs. The decile groups or the groups below some predetermined level of consumption would then have to be defined through a two or three dimensional frequency distribution, a process which, though not customary, is feasible.

The separation of income elements into groups that are measured in different ways is essentially a process of scaling subject to the requirements of some rationale of comparison. The definition first of appropriate concepts for each population, then of a conversion scale between the measures for the two groups

³⁸ This suggestion simply carries to a logical conclusion the concepts now used in income studies. Net money income as calculated for the farm family excludes effectively the entire cost of housing and a large part of the cost of the family food supply.

might eventually prove more fruitful. A line cannot be drawn between farm expense and family expenditures in the financial accounts of farm families that corresponds with nonfarm transactions unless many absurd assumptions are made.³⁹ If an income definition that satisfies certain general requirements could be devised for each group in the population the analyst might substitute other methods of comparison for the deceptively simple correspondence between purposes classed as production, consumption, and savings. The general requirements imposed upon the income definition would specify only such properties as relative homogeneity within classes, differentiation in the degree of economic welfare (or other factors) between classes and, perhaps, the applicability of the procedures at different times. If only general requirements of this kind were imposed on the definition, gross farm income or some measure between gross and net farm income as now defined for income surveys might provide the 'best' measure for studies of the distribution of farm income.⁴⁰

If definitions satisfying general requirements were devised for the farm and the nonfarm area, comparison between areas would be a matter of setting up 'exchange rate' scales of equivalence. A feature of scales of equivalence, in addition to those noted above, is that their definiteness can be considered a real advantage in some comparisons since a conversion scale that equated farm and nonfarm families with respect to certain specified aspects of consumption would prove easy to describe and interpret.

The main virtues of divorcing the problems of defining income in the two areas can be held to be analytical. The sub-

³⁹ The same problems apply to the nonfarm business in which family consumption and business operating costs are intermingled. Partly because such nonfarm businesses are not numerous but chiefly because they have seldom been subjected to intensive statistical investigation, they are ignored in most discussions of measuring income.

⁴⁰ It is especially important to encourage experiments in this area along the lines suggested by Kuznets in *Volume Five*. The data on farm income include enough information about the original schedules to allow a considerable range of tests with various definitions of income for classification. Although the results of tests with farm data could not be regarded as literally applicable to nonfarm situations, they would doubtless considerably extend our understanding of the more general problems.

stantial difference in the economic behavior of the two groups has been recognized in the main data collections by tabulating farm family income and consumption separately. If all studies of income distribution and family consumption recognize the differentiation there is fundamentally no reason for trying to force exactly the same set of definitions into both situations. The analysis might indeed be accelerated if concepts were constructed for each area that would maximize our understanding of each group separately.

3 *The Income Recipient*

No meaning can be attached to the distribution of individual incomes in the farm population unless an elaborate process of allocation is undertaken to assign the income earned to the unpaid family worker. The family is the natural unit to use in studying farm income from the viewpoint of both production and consumption. The difference in this respect between the farm and the majority of the nonfarm population is so fundamental and constant that definitions and concepts continuously flounder in the attempt to force the figures for the one situation into the pattern mold designed for the other. It is probably not exaggerating to assume that all estimates have understated the number of workers engaged in producing the farm family income when contrasted with an urban situation.

Although the family is the recipient unit best suited to income comparisons that are essentially appraisals, the membership implied is neither obvious nor easy to define. Only a social study of farm families designed to elicit their concept of earnings, income, property rights, and responsibility for dependents would furnish a foundation for deciding whether the same or different concepts of the family should be used in describing the income situation of farm and nonfarm populations. Nevertheless, it may not be unreasonable to assume that in the United States, where persons move freely between city and country, the attitudes toward the responsibility of the productive members of the group for dependents are basically similar. If the narrow definition of the family proposed above were tested in the farm

situation, the results for any one date might appear unrealistic and highly artificial, although for a series of dates they might yield the most valid comparisons. To allocate the farm income among the adult members of the household who own a part of the farm or assist in its operation is certainly not realistic unless there is an increasing trend toward such accounting among the farm families themselves. To make a satisfactory comparison with the nonfarm population, nevertheless, some concept must be found, whether artificial or not, that avoids the distortions introduced by taking farm families as they come.

The treatment of 'retired' persons affords perhaps the best illustration of definitional problems. If in farm areas old age 'security' means subsistence on the family farm whereas in non-farm areas an elderly couple can live in its own home on social insurance and relief, the farm situation may appear relatively more favorable than it actually is in terms of the standards prevailing in city and country. This and other situations should be explored thoroughly in terms of the fundamental meaning of parity comparisons.

After the problems of definition are solved it will be necessary to determine the manner of recognizing differences in the family size distribution when comparing the income positions of the two populations. The arguments for a literal balance through cross-classification or some standardizing process are obvious. They rest on the assumption of *ceteris paribus*, reducing the comparison to one and only one difference, living or not living on a farm. Whether the sense of parity comparisons should be refined to this degree is a question that should be settled before more collections of data are planned and before further analyses of existing data are undertaken.

4 *The Accounting Period*

The effects on the distribution of farm family income of using the income of a single year as a basis for classification have been generally recognized. The possibility that a given year's income may deviate far from the 'norm' is doubtless greater among farm than among nonfarm families and such deviations have been

exaggerated by the crude accounting schemes adopted in various surveys. To estimate the norm or trend value by averaging the income of several years appears *a priori* a good basis for eliminating the effect of these large deviations on the income distribution but, as noted above, the method should be appraised as well in terms of the other variables to be associated with income. The difficulties of collecting data from the same families over a period of years argue for developing procedures that require only representative samples for single periods. The method of group averages would be easier to test at present with farm family income than with nonfarm because the data collections usually specify some of the income determinants, e.g., tenure, size and value of the farm and its equipment, and the chief product. Experiments with records from identical families might reveal whether any definition of income for a year is a satisfactory base for the income distribution and thus determine whether it is necessary to resort to such expedients as a group average for describing the 'normal' position of the individual family in the array of incomes.

5 *Comparative Living Costs*

There has been much interest in the analytical problems arising in attempts to measure the relative cost of living on farms and in cities. The techniques that may be applied will vary with the use to be made of such indexes. To compare the average levels might require one index formula; to compare the income distributions, another. In any case the form of the index will depend upon the concepts of income and related variables that are accepted for the study.

If extreme differences in the income concept are regarded as necessary, measuring the relative cost of living is the problem of the conversion scale already mentioned. If the income definitions are constructed to yield 'comparable' totals in terms of purchasing power, something like the price index may serve the purpose of deflating. The decisions in the whole structure of concepts for a parity income study like that under consideration and others in the field of income distribution are bound to-

gether by many relations, both logical and empirical. The set of definitions that takes account of these relationships must follow some order of determination. Although the comparison of farm and nonfarm population is the primary purpose of the study, the requirements of the comparison should probably be imposed only as general principles until we have learned the best way to describe each population separately. This means that the techniques for identifying equivalent groups in the two populations can be explored only after farm income and family, nonfarm income and family have been defined satisfactorily.

F THE CONSUMPTION FUNCTION

"Another way of going at the problem (inflationary pressure) is to consider prospects for the proportion of disposable income saved. Here again the econometric evidence is far from clear. There is a good deal of evidence from size distributions of income and expenditure and from interwar time series that a higher proportion of income is saved at higher national income levels; a regression for the interwar period suggests a rise of 2 percent of disposable income per \$100 per capita of disposable income in 1944 prices. But projecting this relation backward into the long-range studies of Simon Kuznets would give much lower savings than actually occurred suggesting (as Dr. Kuznets has put it in conversation) a long-run 'secular dissipation' of the tendency to save a higher proportion with rising real per capita income." Albert G. Hart, 'Postwar Effects to be Expected from Wartime Liquid Accumulations', *American Economic Review*, Proceedings, XXXV, May 1945, pp. 345 and 346.

1 Framework for Analysis

The distribution of income by size serves as a system of 'weights' in most analyses of consumer expenditures and savings. Hence the structure of concepts and definitions is determined by requirements for measuring the relation that is to be cumulated. Interest in family consumption has led to numerous investigations since the time of Engel, most of which were basically studies of workers' living costs. The data supplied by such surveys have been subjected to various kinds of statistical analysis

(such as those by R. G. D. Allen and A. L. Bowley, *Family Expenditures* (1935), and H. Gregg Lewis and Paul H. Douglas, 'Studies in Consumer Expenditures', *Journal of Business of the University of Chicago*, XX, No. 4, Part 2, Oct. 1947). Only recently, however, has it become apparent that there are essential contradictions between the general inferences that are drawn from such studies and the analyses of the time series totals. While there may be a large element of truth in the explanation offered for these contradictions—unpredictable changes in the standard of living—some part of the difficulty may be due to inadequacies in the framework for analysis.

"Such factors as income, wealth, prices, family type, occupation, age, nationality, regional location, type of community, ownership of home or automobile, etc., have been studied with a view to determining which are most intimately associated with spending patterns and in what manner. Whether these are taste factors or opportunity factors is irrelevant. If, for example, food expenditures of families of a certain group uniformly increase by 45 percent when income increases from \$1,000 to \$2,000 and decrease correspondingly when income declines from \$2,000 to \$1,000, what does it matter whether the changes reflect responses to fixed indifference functions or a concomitant alteration of tastes? *The important issues in interpreting studies of this type are the extent to which the adjustment of given families to changes in circumstances can be inferred by comparing the contemporaneous behavior of families in different circumstances, and the extent to which the observed relations are stable through time. . . .* There is much to be gained by concentrating some heavy theoretical artillery on the logical structure implicit in practical work." W. Allen Wallis and Milton Friedman, 'The Empirical Derivation of Indifference Curves', *Studies in Mathematical Economics and Econometrics* (University of Chicago Press, 1942), p. 189 (italics mine).

Much of what can be said about the search for relative stability in the pattern of consumer expenditures is quite obvious. As implied in the quotation, there is not one family consumption function but many. Even though it is not possible with the data now available to trace all the factors that might be recognized *a priori* there is no reason for ignoring those that have been iso-

lated in one or more surveys. A change in the aggregate consumption function might as well be due to changes in the 'weights' of the groups in the population whose consumption patterns differ as to fundamental alterations in consumption within one or more of these groups. It is certainly important to isolate if possible the effect of, say, a large net migration to the Pacific coast or a significant alteration in the size of the consumer unit on the aggregate change in the consumption pattern. 'Stability' in the relation between expenditures, savings, and income must be sought within fairly homogeneous subgroups of the population and in the relative differences between them. A relation between consumption and income for all groups combined that was approximately the same at two or three dates though the 'weights' of the groups had changed substantially could not be trusted as the basis for any generalization unless the alterations in the spending patterns within the groups that had balanced in toto were understood.

The framework of the analysis of the family consumption function therefore depends upon the identification of the groups whose spending patterns differ and that are likely to differ in proportion to the total population from date to date. Since the investigation hinges upon the interpretation of differences in spending patterns among groups, the definitions and concepts should be designed to display separately, if possible, the effects of the various factors that influence consumption. In theory this can be accomplished by a multiple classification table of the data for a single year which would show the significant differences between groups if there had been no variation in their income experience in the years immediately preceding the survey. This condition will, however, probably seldom be satisfied. Occupations and age groups within a community as well as communities themselves fare differently in periods of rapidly changing income. Thus the investigator cannot rely entirely upon a mechanical processing of the data for one or more years to identify the groups that should be analyzed separately. The data should be examined also to test the probable stability of an

observed difference and the effect of the particular concepts chosen on the classification of the groups; variations in the consumption patterns of the various groups should be explained.

2 *The Definition of Income*

The variations in the income experience of individual families that follow the general trend probably do not have the same influence on the observed family consumption function for a given year as those of families that deviate from it. The effect of individual variations in income due to annual fluctuations in business income, illness, temporary unemployment, and various kinds of 'chance' events should, if possible, be eliminated in measuring consumption by income level, for these variations tend to twist the consumption 'curve' toward the average and reduce the correlation between the independent variable, income, and most dependent variables, in particular, expenditures. The effect of a trend in income that has a common direction for a large proportion of the families is probably to raise or lower the consumption curve from its position in earlier years unless the changes are considerable. The elimination of the trend from the data for a single year might be attempted, but the results would probably not be a very useful analytic tool.

The various procedures suggested as means to eliminate the effect of individual variations in income on the consumption curve are of three kinds: an income concept based on the correlation with expenditures and savings; classification by average income over a period of years; and classification by some measure of expenditures instead of income. The third method, which was examined by Vickrey and others (*Studies in Income and Wealth, Volume Ten*), is the basis for most British studies of family expenditures and has often been used in this country; e.g., by E. L. Kirkpatrick, *The Farmer's Standard of Living* (Department of Agriculture, *Bulletin 1466*). The second method has often been proposed but has not been tested because few bodies of data contain the requisite information. A substitute, classifying by group averages, common in British social studies, was mentioned in Sections B and C.

In the first method the income concept that defines the most

homogeneous groups with respect to expenditures is chosen. For specific groups of expenditures different concepts might be required; as Kuznets put it:

"If . . . we wish to establish relatively stable relations between income and . . . expenditures on staple foods . . . we should perhaps confine income to service earnings and exclude not only such items as capital gains but even some property items such as dividends. If we seek to foresee short term changes in expenditures in medical care, which for a given family are intermittent and may call for emergency mobilization of all its economic resources we may deem it advisable to include under family income not only all service and property income receipts, capital gains, etc., but even amounts borrowed or proceeds from property liquidation during a given brief period."⁴¹

For more general uses some one aspect of expenditures must be chosen to test the income concept. Total expenditures, including 'unusual' outlays for medical care, or the purchase of automobiles and durable goods, would seem to defeat the purpose of the entire procedure, for infrequent large expenditures may press the total far above the amount characteristic of the 'usual' level of living. That level is probably better described by the total outlay for the goods and services that appear year after year in the family budget—food, housing, clothes, films, gasoline, and so on. When some such total has been determined, the merits of various income concepts can be explored statistically.

While naturally all the income concepts that might be considered cannot be tested with existing data the original records, the schedule forms, are in many collections sufficiently detailed to permit an examination of a fair range of income definitions. This range, unfortunately, does not include any variants of the definition of income for the nonfarm entrepreneurial group, for the recorded data are probably a mixture of concepts that cannot be sorted out.⁴² In this case the tests are dependent upon the data on farm income and expenditures. Though the impu-

⁴¹ *Studies in Income and Wealth, Volume Five*, p. 14.

⁴² The brief schedule on nonfarm entrepreneurial income in practically all surveys of income and expenditures does not lead to uniformity of concept in reporting. Those in charge of the various surveys have suspected that 'withdrawals' are frequently reported as income but the sole way of segregating the reports would be by the answers to the question about 'investment in own business', on the assumption that the absence of an entry meant that income had been reported as withdrawals for family use and savings other than in the family business.

tation of findings for farm to nonfarm entrepreneurial families may be questioned, they offer a sounder base for many decisions than pure conjecture—at present the sole alternative.

3 *The Recipient Unit*

Such experiments designed to elucidate the problems of choosing the income concept could contribute also to an understanding of the influence of the definition of the family on the form and stability of the consumption function. In studying expenditures the family must be defined realistically as the consuming unit; that is, the definition should not require an extensive and necessarily arbitrary allocation of household expenditures among various groups of household members. The definitions that have been used or proposed for surveys differ essentially only with respect to the adults related to the head of the household who have their 'own' incomes in the form of earnings, pensions, annuities, or various types of property income. The most comprehensive definition of the family counts all related members in a household as members of the consuming unit; the narrowest definition considers each married couple and other adults as separate units. Between these extremes are various definitions which hinge upon the degree of dependence of the secondary family or adult on the head of the household for support or on the extent to which incomes are pooled. As yet no easy rule has been devised to establish family membership by such criteria in individual cases, for the association of related members in a household is almost never reduced to the formal landlord-lodger basis.

In analyzing consumer behavior it is important to separate the more stable type of consuming unit from those that are likely to change in relative importance with the ups and downs of the business cycle, or the availability of housing, as at present. This means that units with adults other than the head of the household and his wife should be examined separately, whether the definition of the family counts such groups as one or several consuming units. Experimentation with various definitions of income would inevitably encounter the problem of handling these groups.

Definitions of income and family unit in terms of relative homogeneity in living standards will almost certainly lead to a basis for comparisons that will show more stable differences among groups in the community than the definitions now used. Occupational differences, for example, might be clarified by a better definition of the classification variables, income and type of family. But, as already noted, it seems almost impossible to eliminate the effect of deviations from the general trend of incomes from our measure of the differences among groups at a given date. An interesting example is afforded by comparing the expenditures of the 'elderly' and of younger groups in 1935-36 and 1941. A clear tendency for couples 65 and older to spend less than couples under 65 years with the same income appears in the data for 1935-36 but not in the data for 1941. The income of the former rose less between the middle 'thirties and 1942 than that of the latter. Thus it is quite possible that, in 1941, because of the lags in the response to changes in income, the expenditures of the younger groups did not seem higher than the expenditures of the 'retired'.

4 *Type of Community*

Although it may be impossible to overcome the effects of differential trends in measuring or rather establishing the existence of differences in consumption among groups within communities, to some extent that element may be minimized as between communities by grouping those with generally similar characteristics that influence the pattern of consumption. In addition to location and type of community the relative level of prices and income should be considered. Within regions the manner of living, prices, and the general level of income are probably correlated so that a detailed cross-classification by these characteristics would not be necessary to establish the groupings. Instead, some procedure like the Guttman method of scaling might determine the small number of distinct classes predominating in the distribution of communities by such characteristics.⁴³

⁴³ In the absence of price and income measures for each community, it would be

The grouping of similar communities would eliminate some of the short run differences in the consumption pattern due to the lags and leads among localities in their response to the general trend of incomes. The effectiveness of grouping to identify the more stable differences in the pattern of living by type of community can be demonstrated only by analysis. The two studies for 1934-36 offer considerable information for such an analysis and together with earlier studies such as that made in 1918-19 supply the raw material for an indefinite number of investigations. General observation leads to the presumption that the number of groups with different consumption patterns is probably small when the consumption pattern is defined in such general terms as the percentage of income devoted to family living expenditures and the relative weight of such broad categories as food, housing, and transportation. Were these few groups identified, investigators could follow the changes in the consumption pattern with some understanding of the forces behind them.

It would be interesting, for example, to check the hypothesis that the increasing standardization of living in this country is due to a convergence of all areas toward a pattern already achieved in some. On the assumption that the standard pattern is characterized by automobiles, owned homes, few domestic servants, suburban acreage, mechanical household equipment, orange juice, green salads, and college education, communities on the Pacific coast may seem to have approached that level first, and communities in other regions have been following at a rate that was accelerated, perhaps 'forced', by wartime conditions. Could such tendencies be detected in the data for one or two periods, the forecast of consumption trends could certainly be made more realistic if the prediction of the income situation was reasonably correct. By simply studying the shift of domestic servants to industry when employment opportunities appear it

necessary to use data on housing, industry, occupation, wage rates, etc. as indexes for the stratification. The average number of dwelling units per residential structure is a fair discriminant for the manner of living and the rent level reflects differences in both income and prices.

should be possible to foretell certain fairly substantial changes in the consumption pattern due to the response of the two consumer units to the change.

Changes in the income distribution are sure to be followed by certain predictable changes in the forms of consumption, as Clark Warburton has emphasized on numerous occasions in discussions of forecasts or of calculations that purport to show the effects of 'redistributing income'. Such changes have to be observed within groups of communities and for groups within communities that can be considered reasonably homogeneous at each stage of the economy. To determine the population groups and the structure of concepts best suited to the study much more intensive analysis must be undertaken, directed by a logical system of concepts expressed in terms of the variables that can be measured.

G DEVELOPMENT OF RESEARCH

"It seems quite probable that we are on the verge of a period during which comprehensive data on the distribution of income by size and hence reliable distributions based on such data will become available. The academic student, guided by general interests only, is in a position to shape many of the evolving data and assure their greater usefulness in the treatment of the problems with which he is concerned. And this he can do by participating in the various alternatives that exist, either overtly or implicitly when the task of comprehensive coverage of a field like the distribution of income by size is initiated." Simon Kuznets, *Studies in Income and Wealth, Volume Three* (1938), p. 92.

This paper and others in this volume that have been written from the viewpoint of the data collector appeal to the 'academic student' to participate in furthering research in this area. Unless there is broader and more active cooperation between various types of specialist in exploring the meaning of the many concepts that are inextricably interwoven in the income distribution data, empirical work may degenerate to a production of distorted 'facts' on the basis of which far reaching decisions may be made. The problems here discussed are merely a few of those

that require a knowledge of the income distribution. These and other familiar and urgent questions such as 'incentives', tax policy, and social services should be examined thoroughly in terms of the basic concepts of measurement as related to the particular use to be made of the income distribution before more surveys are initiated or more analyses undertaken.

Immediate attention should be given to the projects now in operation that in essence represent the first stage in processing primary data. The framework of concepts planned for these undertakings has been set up, by and large, by the data collectors on exceedingly imperfect knowledge of the implications of various decisions for specific uses of the data. To the specialists in many fields who have joined in the chorus of complaints about the poor quality of size distribution data these circumstances should be a challenge to come forward with positive suggestions for improving the conceptual structure to be employed in survey and estimation.

For the long run development of the field intensive quantitative analyses should be undertaken both to give a basis for improving methodology and to distinguish the relatively stable from the more variable relations between income determinants and the size distribution. Only recently has the information in the continuing records of farm families sponsored by the Department of Agriculture Extension Service been utilized to attack some of the problems in connection with measuring the size distribution of farm income. Continuing records for individual nonfarm families do not exist, but there are observations in separate cities on a series of dates that could be studied for the purpose of assessing some of the problems of measurement. In a few of the cities covered in the 'samples' of the several studies undertaken between 1918 and 1940 there have been some recent surveys. These sources and the detailed tabulations from the National Health Inventory, the Consumer Purchases Study, the Wisconsin Income Tax Study, and the 1940 Census offer the analyst an opportunity to contribute to solutions of the problems of data collection and processing.

Further tabulations of the original schedules of the various

surveys could be contemplated. The problems of the degree to which household membership is determined by economic factors, for example, could be studied through tabulations similar to those prepared from the Health Survey Data (see Barker Sanders, *Family Composition in the United States*, Social Security Board, Bureau of Research and Statistics, 1941). The importance of the various elements of nonmoney income could be investigated with the data from numerous family expenditure surveys.

Of all the problems, relative living costs may be crucial. The interpretation and use of size distributions for any large area depend entirely upon a knowledge of the differences in the purchasing power of the monetary unit within the area. Until we can assert that income as the measure of well-being or command over goods is reasonably constant throughout the universe of observation, our efforts to refine the other aspects of data collection may be completely unrewarded. It is not necessary to stress the need for new research in this area, for general comment has placed work on this subject in almost as low a rank as size distributions of income.

The expert on national income as well as the student of income size distributions has an obligation to stimulate and encourage new enterprises in these related types of research.

Comment

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Discussions of research on the size distribution of income have typically emphasized the construction of nationwide estimates, preferably in the form of a continuous series giving separate distributions for important groups in the community. Studies have often been judged by the contribution they might make to such estimates, and the goal itself has been an organizing principle in planning research and data collection. Dorothy Brady's suggestive and penetrating paper is too many-sided and comprehensive to permit summary in terms of any single moral. Yet, if

I had so to summarize it, the basic moral I would choose is that this emphasis on nationwide estimates is overdone; that it is time we gave less attention to uniformity, to measuring what we neither understand nor can agree on defining, and more to specific problems, to understanding the facts of income determination, and to the development of theories and hypotheses that would put these facts into a meaningful relation one with another.

Of course, an economist least of all can expect an insistent demand not to evoke a response from suppliers, and there is no denying that the demand for nationwide distributions of income is insistent. Nor is there any denying that the demand has merit and deserves satisfaction—if only to help counter some of the crude misconceptions about the distribution of income that are so rife, perhaps by replacing them by more subtle misconceptions. The real question, however, is not whether to construct nationwide estimates—there already are some, and none of us separately or as a group either could or would want to prevent the construction of more and better distributions—but how much of our research effort should go in that direction, and whether the construction of nationwide estimates should continue to be the implicit or explicit organizing principle in planning research and data collection.

I am reminded of the conclusion I have reached at various times in the past when I have had to consider how the work of a research unit on size distribution might be organized, either because I was myself asked to join it or because I was consulted about its activity. My conclusion has been that the research unit should each year devote perhaps a week to constructing nationwide estimates by applying the Lorenz curve from the best preceding study to the particular year's estimated population and income; then, having begotten the product it was being financed for, spend the rest of its time on research into the structure of the income distribution, factors accounting for changes in it, and the like. Perhaps once every ten years a more comprehensive job might be done to produce a new Lorenz curve.

The uses appropriate for nationwide estimates are such that

quite large margins of error can be tolerated. Further, in the present state of our knowledge, wide margins of error will necessarily attach to even the most detailed, precise, and laboriously constructed nationwide estimates. Indeed, a constant Lorenz curve may well yield as accurate an estimate.* More important, still, comments like these beg the real questions raised so searchingly by Mrs. Brady. What does a 'margin of error' mean if we do not really know what we are trying to measure?

The attempt to estimate frequently conflicts with the attempt to understand. We seek to measure what we want to measure; we often end by measuring what we can and producing a convincing rationalization that this is what we 'really' want to measure. This problem is especially serious in work on income size distribution, for reasons Mrs. Brady has sketched.

Consider, for example, the objective of measuring inequality of welfare. Presumably we wish to do so both to compare distributive equity at different times and in different societies and to determine what factors account for the inequality we find, so that we may correctly judge the effects of various measures of public policy or changes in the economic environment. Essentially what we want to measure for this purpose is not really measurable. What we want to measure are states of mind, attitudes toward a specific social and economic structure. We can observe some manifestations of these attitudes; we cannot observe the attitudes themselves. When we use a number like money income or some particular composite of money or non-money income to judge the relative well-being of individuals we are really proceeding on the empirical hypothesis that, given free choice, individuals would prefer a higher value of our measure to a lower. We are not at all directly measuring their well-being. At most we are constructing indexes of some of the

* The papers in this volume are decidedly relevant to this conclusion, and seem, to me at least, to give it added support. They suggest that differences among Lorenz curves based on different, but apparently equally good, methods and sources are of the same order of magnitude as differences among Lorenz curves for different years. Further, despite the careful and highly competent work that has gone into the estimates (in particular the size distribution of income for 1944 by Liebenberg and Kaitz), the result is still admittedly subject to a very wide margin of error.

forces that move men and asserting that these are the dominant forces in the particular context. Our position is somewhat like that of the physicist who never really sees the electrons and neutrons that are at the core of his system—indeed is not quite certain whether they are electrons or probability distributions—but infers their characteristics from the derived manifestations he does see.

Let me illustrate my point more concretely by the problem of comparing farm and nonfarm income. It is tempting to think that income measurements, if we could somehow allow properly for nonmoney income, can tell us whether farmers or nonfarmers are better off on the average. In a very important sense, this is precisely the reverse of the situation. We know that over the decades farmers have steadily been converting themselves into nonfarmers at a far higher rate than nonfarmers have been converting themselves into farmers. Here is a striking and uncontested manifestation of the attitudes of farmers and nonfarmers. To both groups farming is less attractive on balance than other ways of living. Any income measures that suggest the reverse are wrong. The hypothesis in terms of which they were constructed apparently does not yield a correct index of attitudes. In this case, that is, income measures are to be judged by whether they show nonfarmers to be better off; whether nonfarmers are better off is established by other evidence and cannot be judged by income measures.

If we cannot thereby determine which group is better off, why measure the income of farmers and nonfarmers and seek to render the measures comparable? I would argue that the purpose is really to construct and test hypotheses about the forces that move men so that we can use these hypotheses to make predictions when the manifestations are less obvious. That is, our purpose is much more to advance our understanding than to attach numerical values to something we already understand. Here is a new policy that will alter the circumstances of two groups of persons. Will it make their circumstances more or less unequal? Perhaps we can answer such a question in advance of observing the reactions of the groups concerned if we have an hypothesis

that has not been contradicted by the manifestations already observed.

The working hypothesis on which our concentration on one-dimensional distributions of income rests is, at bottom, that money can buy anything, that not only every man but everything man desires has its price. On this hypothesis the problem is to find the appropriate prices. I am myself inclined to believe that this hypothesis has a great deal of validity, in the sense that it is a powerful instrument for predicting the reactions of human beings. The purpose of stating it baldly is to enable us to see more clearly where our difficulties lie and to judge better the circumstances under which the hypothesis is likely to go astray. It applies directly to goods and services that are literally available at a price in the market. There is no point to comparing individuals in the same market separately with respect to the number of pairs of shoes, toothbrushes, and the like each uses: shoes are convertible into toothbrushes at a known price and it is enough to know the total sum of money available to different individuals. But there is no similar market for, let us say, relief from blindness. We cannot, therefore, judge the relative status of individuals who are and are not blind by the money income available to each. We must impute a price, as it were, to relief from blindness in making the comparison. This example seems fantastic, yet it brings out clearly the principle involved in our attempts to correct for cost of living, size of family, farm or non-farm location, and the like. And the test of our results, to repeat, is whether the computed incomes do or do not enable us to predict the reactions of individuals when they are faced with a choice between situations differing in respect of items that do not have a straightforward market price.

In this connection it is worth noting that social changes over time have affected in very different directions the applicability of the basic hypothesis. The geographical widening of the market as a result of improvements in communication and transportation, the shift of activities from the household to the market, and similar changes have all operated to widen the area to which the hypothesis is directly applicable and to narrow the

range of items for which imputed prices are needed. On the other hand, the widening of the range of services provided by the government has directly increased the necessity of imputing prices, and the changed role of the government in economic activity has indirectly had the same effect. The latter point may need some elaboration. Rent control may perhaps illustrate it. If rigorously enforced, rent control (at a level below the price that would prevail in a free market) removes rental dwelling units from the range of items money can directly purchase. The same total sum is not directly equivalent to two individuals or families identical except that one lives in a rent-controlled apartment, while the other has, let us say, been compelled to buy a house to get a place to live. If a single money income figure is to be used, a price must be imputed to the occupancy value of the rent-controlled apartment. It is in some measure ironic that we are emphasizing increasingly differences in money income just when broad social changes are greatly enhancing the importance of differences not directly measurable in money.

To return to the basic moral I have drawn from Mrs. Brady's paper: concentration on nationwide estimates of the distribution of income leads us to think we know what we want to measure—at least to act as if we did. It leads us to resolve difficulties instead of solving them, to compromise instead of seeking to understand. It leads us to think of the problem in terms of gathering more and yet more data, instead of analyzing those we already have. Mrs. Brady's paper makes it clear that our chief need is not for additional data. We have mountains and mountains of data bearing on the problems she raises that have not yet been exploited. Our chief need is for analysis, directed not at somehow or other forcing the data into a single mold so that they can be combined into a nationwide distribution, but at the much more modest yet more fundamental problem of illuminating specific questions of narrow scope, of testing detailed hypotheses about human actions and motives.

