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MEASUREMENT AND INTERPRETATION OF THE INCOME DISTRIBUTION IN THE UNITED STATES

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I. BASIC ASSUMPTIONS

1. *Common Observation of Thoughtful Men*

American investigators' conceptions of the income distribution have changed significantly since the first estimates for this country were prepared sixty years ago. In the earliest studies the distribution of income was viewed as a statistical picture of the contrast between poverty and wealth. The extreme range of income was emphasized in a manner to convey the impression of great inequality in the distribution. Contemporary estimates emphasize the concentration of incomes in the middle income groups near the average.

Spahr [1], in 1896, described the 'distribution of incomes by classes' in a statistical table for the 'wealthy class' with incomes $5,000 and over, the 'well-to-do class', with incomes $1,200 to to $5,000, and 'the poorer seven-eighths of our people', with incomes under $1,200.

Goldsmith [2], in 1955, portrayed the 'income distribution in the United States by size' with a histogram showing the frequencies for each thousand dollar interval under $10,000 with two additional bars for the frequencies between $10,000 and $15,000 and $15,000 and over. The final form in which the estimates are presented gives a valuable clue to the structure of assumptions, often implicit, which guided the investigator in the collection and collation of data.

In the preface to his book, Spahr expressed the belief that 'social studies are only trustworthy when they show to the world at large what common observation shows to those persons familiar with the conditions described'. [3] Reviewers at the time and investigators in later years were supercilious in their criticism of this candid admission of the source of his concepts and methods. The forms of the statistical descriptions of the income distribution have, nevertheless, changed with the political and social thinking of the time and concepts have been clarified only as descriptive and statistical information about

various population groups accumulated. The data collected in surveys and censuses as well as the summary estimates based, in part, on such information reflect the views of the particular period. The common knowledge that guides studies of the resources of the population easily imputes the conditions in a few communities to the entire country.

The dividing line between the richer and the poorer classes was set by Spahr at the salary level of university teachers of lower rank in his day. This definition of a minimum adequate income was not justified by the author nor questioned by his critics. Writers and investigators in the first two decades of this century, preoccupied with the extremes of wealth and poverty, like Spahr, also cut the income range about in the same relative position. According to the Staff of the National Bureau of Economic Research in 1922 'the $2,000 line serves as well as any arbitrary line to divide families enjoying at least modest comfort from families that can scarcely be called well-to-do.' [4] While $1,200 in 1896 and $2,000 in 1922 may not have provided modest comfort in the large urban centres with which the writers on income distribution were acquainted, much lower incomes in the smaller communities over the country assured a comfortable standard of living in those years. Spahr in 1900, after a wide tour of the country suggested that the type of distribution presented in his first book gave an exaggerated description of inequality in the distribution of income. 'In the present volume, which deals with distribution of well-being in this country, he (the writer) has occasion to emphasize the fact that the meagre wealth of the rural districts, by reason of its even distribution, brings a higher level of comfort, and culture and character, than is realized in the cities. The ownership of a farm brings to the family as much comfort and culture as the ownership of a fortune in the cities, quite as much of independence and mental vigour, and a far greater breadth of sympathy and strength of devotion to American democratic ideals.' [5]

2. *The Diffusion of Well-Being*

The first estimates of the income distribution were intended to convey a realistic impression of the welfare of all population groups in the country. There were many problems in 1912, according to Streightoff which had to be 'considered, both by legislative committees and by individuals, largely with reference

to the distribution of incomes,' and, in his opinion, there was little doubt 'that the majority of influential Americans are in ignorance of the actual amount and diffusion of well-being in their own country. . . . The attitude of many people on the great social questions of the day is to a large extent influenced by their conception of the present distribution of well-being and of the tendency towards improvement or the reverse.' [6] In his opinion incomplete statistics on income distribution would be useful. 'The wage-earners, . . . are those whose interests are most in need of protection in the crises of life; so, if it is impossible to secure returns from the men who are eminently qualified to take care of themselves, the social reformer may find a sufficient working basis in data covering the other classes in industrial society.' [7]

King stated a few years later that his study was intended 'to give an impressionistic picture of the subject under consideration and to convey a correct idea as to the general supply and distribution of wealth and income.' [8] According to the publisher's announcement in 1915, King's study threw 'the searching and uncoloured light of statistical inquiry' on such questions as –

> 'Why are some of the people so very rich and others so very poor?
>
> If wealth and income were more equally distributed could everyone live in luxury?'

The second of these questions could not be answered without a complete income distribution. Strict accuracy in the statistical answers to such questions was not necessary in the author's view for the 'primary value of statistics is usually due to relative rather than to absolute accuracy. It is believed that the figures cited are . . . sufficiently accurate to justify the conclusions made concerning relative sizes, amounts, or changes.' [9]

Realistic studies of income began to replace the impressionistic with the work of the National Bureau of Economic Research in the 1920s. Empirical analysis has replaced persuasion as the purpose for constructing an estimate of the income distribution. In the transition from income statistics constructed to serve as evidence bearing on particular political and social questions of the day to comprehensive and accurate statistics for the economic and business analysts, the close connection be-

tween income and well-being has been lost. The most recent estimates of the income distribution have been presented, like actuarial functions, as tools for market analysis and forecasting consumer demand. The connection between the income and the well-being of individual families is recognized rather regretfully or apologetically, as a correlation with a substantial variance from one-to-one correspondence in the lower and perhaps in the upper part of the income range. Thus, 'One of the most striking features' of the distribution is the 'relatively high proportion of consumer units located near the bottom of the income scale. To a substantial extent these figures indicate those of our Nation's families whose economic status is relatively low, but the following considerations will show that a complete identification between low income consumer units and low living standards cannot be made.' [10] (Economic status is an expression that has replaced welfare and well-being in the older literature on income distribution.) Among the reasons cited for the lack of correspondence between low income and low economic status are youth, temporary sickness, unemployment, and business reverses. A connection between low income and low living standards cannot be made because consumption expenditures may be charged against future earnings or financed out of past savings.

3. *Responsibility for family support*

Income statistics present a greatly simplified and conventionalized view of the variation in economic circumstances among the individual units in a large population. Individual situations have to be considerably normalized in process of statistical description in order to construct the fairly simple frequency tables that are called income size distributions. The model situations which have guided the general design of income surveys have changed as information bearing on the distribution and utilization of income has accumulated over the years.

The 'normal' family situation, in which a man bore the responsibility for the support of his wife, children and other dependent relatives, served as the model for the first studies of income distribution in the United States. The incomes of the heads of such families provided for family living expenditures and were not supplemented by the earnings of women and children from employment outside the home. The economic

position of the family could be measured by the average income of the head over some period of time.

In recent years the annual income account of a group of related persons who live in the same dwelling has provided the conventional pattern for surveys and compilations of statistics on the distribution of income. The members of the family share the goods and services owned or acquired for consumption during the calendar year and pay for their purchases with the receipts from earnings or other sources of income. The total income of the members of the family accounts for their expenditures for consumer goods and services, their tax payments, their outlays for insurance and their saving. It is not hard to detect the element of appraisal that guided the studies of income distribution thirty or more years ago. The diffusion of well-being over the population could be measured by the incomes of adult males or of men who were heads of families, for the employment of women and children outside the home was an index of the inadequacy of the earnings of the men who were heads of households. Since the family responsibilities of a man extended over his working lifetime, it was quite natural to view them in terms of expectations or averages. Spahr's estimate of the distribution of income in the 1890s represented a population uniformly distributed in families of five persons which were not clearly located either in time or in space. Streightoff in 1912 and King in 1915 both recognized that households headed by women should be included in the statistics on income distribution. Streightoff merely stated that a special investigation of 'fatherless households' should be included in collections of 'ideal income statistics'. King showed the incomes of families with incomes under $1,400 in 1910 according to whether the recipients were single men, single women, men or widows with families.

Macaulay in 1922, chose the individual rather than the family as the income recipient because the individual, not the family 'comes into direct economic relationship with the machinery of production'. [11] In his opinion, 'if we are going to improve appreciably upon the individual, even as a need unit, we cannot stop with actual biological families with their great variations in size and constitution, but must introduce the concept of the theoretical family – father, mother, and three children, for example. This last concept is, in its raw form quite unusable. The population is not made up of such theoretical families. We

may discuss what a family of five *ought* to get to maintain a decent standard of living, but we cannot divide the actual population into families of five and discuss what these non-existent hypothetical families actually do get.' [12] Macaulay was nevertheless unwilling to include all persons with income in the distribution, as the Australian Census of Incomes in 1915 had done. 'Both practically and theoretically we are interested in the incomes of persons who, though they be minors, have "economically come of age" and have entered into certain definite relations to the machinery of factorial distribution. They are "breadwinners" or "persons gainfully employed", and the concept back of such expressions, though like many economic concepts somewhat of a compromise, seems a good compromise for our purposes.' [13] Macaulay thus extended the universe of breadwinners to all persons regularly attached to the labour force.

It is difficult if not impossible to identify the normative and subjective elements in the concepts and generalizations used in contemporary studies. Economic and social phenomena tend to be viewed in much the same way by all scholars in a field at the same time and differences in opinion relate more to technical details than to basic concepts. Although King's study and Macaulay's analysis marked a real transition away from normative concepts in statistical descriptions of the income distribution, statistical surveys of family income and expenditure continued to be limited, for nearly two decades, to 'normal' family situations unaffected by personal contingencies or economic recessions. The Social Science Research Council's proposed survey of consumption according to income in 1929, was restricted to the 'classic normal family' [14] as the universe of study. Only since 1940 have statistical surveys and estimates of the income distribution related to the entire population outside institutions and military establishments, counted, as a camera might, by clusters of persons found dwelling together at a particular date or over some brief period.

The statistical elegance of present day estimates of the income distribution in the completeness and consistency of the accounting for the total population and the total income during a given year does not guarantee their usefulness in economic analysis and projection. Judged by the model situation underlying the survey designs, statistics on income distribution in a given year

are very difficult to interpret. The definition of the self-supporting unit to be counted in income statistics will certainly change as current collections of data on the distribution of income and outlay are subjected to various types of analysis. The identification of the income recipient through the dwelling place may ultimately be regarded as an operational convenience posing as a basic concept.

II. STATISTICAL THEORIES

1. *Income and economic status*

Surveys of the distribution and utilization of income prior to 1940 attempted to identify families with incomes near their 'usual' level by specifying the situations in which the income was 'abnormally low or irregular'. Since 1940 economic status has come to be viewed as a kind of average to be defined by a statistical theory that explains the variations in income and outlay in a given year and accounts for the changes that take place over time. Testing particular theories involves empirical evidence of the relative stability of correlations between current income and other variables from year to year. The interpretation of the income distribution must be based on consistencies to be found in the relation of income to such characteristics of the income recipient as age, sex, and occupation. The uses of the income distribution in economic analysis depend on the discovery of uniformities in the correlations between income and other variables over time.

Investigation in the past assumed stability in the consumption functions of normal families with fairly regular incomes and defined, a priori, the situations in which the spending was 'distorted' by the circumstances of a particular year. The data on income and expenditure both from the surveys restricted to families in 'normal circumstances' and from later surveys of all consumer units, have indicated much more variability in income experience and consumer behaviour than was ever assumed in the definitions of a typical income situation.

The first estimates of the consumption in relation to income based on data relating to a specific period were published by the National Resources Planning Board [15] in 1939. The cross-section survey on which the estimates were based covered a wide range of incomes and occupational groups, but it was restricted

to normal families without income from public or private relief. Although these limitations on the population groups surveyed were presumed to eliminate families whose spending was affected by unemployment during the survey period, 1935–36, the summary data on the use of income at different income levels revealed negative saving at all income levels below the median income. The deficits of the lower income brackets belie the assumption that income and other factors, such as family composition and locality, explain the pattern of consumer spending and saving, among the families that maintained independent households in the survey period. The dissaving meant, according to the National Resources Committee, that the families in the lower income brackets must have resources accumulated in earlier years, or must be able to obtain credit on the prospects of future years or they may incur debts that are never paid.

The high level of saving in the upper income brackets was questioned only after estimates of aggregate personal consumption expenditures and personal saving had been prepared for a number of years. Changes in the level and distribution of income combined with the 1935–36 pattern of consumer expenditures and saving by income bracket, projected a much higher level of personal saving than was shown by the national estimates for later years. The difference between the increase in personal saving with increase in income implied by the cross-section surveys and the actual changes shown by the national accounts suggested the presence of 'transients' in the upper income groups. The average level of saving exhibited by the individuals and families with incomes within a particular bracket in a given year is assumed to be higher than among families with the same incomes year after year, because the consumption expenditures of the 'transients' and 'newcomers' are likely to be much below the general standard of the income class. When the general income level increases and remains at a higher level, the 'newcomers' who remain in the upper income groups presumably raise their consumption expenditures to conform to the standard prevailing among those accustomed to such incomes. Such attempts to explain the dissaving of the lower income brackets and the relatively high saving of the upper income brackets have naturally influenced the analysis of data on the income distribution.

The study of the income distribution in relation to consumer expenditures and saving involves no loss of generality, for the explanation of the association between other variables and current income also requires an understanding of the year-to-year variability of individual or family income. The interpretation of data on the incidence of illness, within different income brackets, for example, would lead to much the same kind of questions for study. A statistical theory that explains the distribution of income, consumer expenditures and saving, in a given year would certainly be applicable to the distributions of many other variables related to economic status.

The effect of year-to-year variation in the incomes of individuals or families on the distribution of income and outlay can be studied in three different ways. One type of analysis assumes that the influence of changes in the relative income position of individuals or families within sub-groups of the population is the same in different years. A second approach assumes that the variation in income within a homogeneous occupational group is a measure of the variation to be expected in individual incomes over time given no radical changes in the economic situation. A third type of study attempts to separate the systematic and the random elements of income by means of a component or factor analysis.

2. *Similarities within income groups*

Studies of the first kind treat the income distribution as a weighted composite of distributions within population groups that may be differently affected by economic developments. These distributions change in level from year to year but otherwise remain substantially the same. Hence, individuals of the same social and economic characteristics are found in the same relative income position within the population group at different dates. The element of chance in individual incomes is always present but its influence on the distribution of income and outlay does not change from time to time. Empirical demonstration of the first of these propositions would require comparisons of the distributions of income, age and size of family within the population groups differentiated for separate study and analysis. The validity of the second proposition depends on the success of studies which use it as an operating assumption in statistical analysis. Stability or systematic changes in the cross-section

consumption and savings functions over time would certainly offer a strong indication of uniformity in the response of individuals or families to changes in income from year to year.

An excellent example of this view of income variability is offered by Kuznets' study of the income and saving of the upper income classes. [16] The analysis shows a marked stability in savings as a percentage of income at high incomes, relative to the mean, in various years between 1929 and 1950. The upper income classes in a given year include an unknown but large proportion of families whose incomes had been lower in the immediate past. Since the heads of families in these classes are predominantly business and professional men between 35 and 65 years of age, many younger men have reached this level for the first time. The incomes of older men may have been as high many times in previous years. Through some bit of good fortune, families habitually in the lower income brackets may appear in the upper income brackets in a single year. The trend of income with age and experience, the fluctuations characteristic of the business or professions, and simple chance, account for the presence of individuals that move in and out of these classes from year to year.

Stability in the savings functions implies that the disposition of income among families whose incomes have increased is independent of the reason for the change or that the relative frequency of the increases associated with age, occupation, and chance events is the same in different years. The first of these implications can be rationalized for the individuals or families whose incomes fluctuate within the range of the upper income groups but not for those customarily in the lower income groups. The alternative implication could be argued only for periods of general economic stability.

A similarity in the savings-income ratio among families likely to move in and out of a particular class in the upper part of the income range several times in their lives, combined with a constant or a low percentage of families brought to this position from the lower income groups by rare good fortune, would explain the stability of the savings-income ratios. The relative number of families from the lower income classes with high incomes in a single year must be almost insignificant. The Kuznets' study gives two kinds of evidence on this point. The information on income variability from year to year offered by

some special studies of tax returns, shows that a limited number of tax units in the upper income brackets, in a particular year, are found in substantially lower income brackets in each of a number of subsequent years. The exclusion of capital gains and losses from the income defining the classification means that individuals with small incomes who realize substantial gains, are not counted in the upper income groups and large losses do not place individuals with high incomes in the lower classes.

The level and variability of incomes in the upper part of the range can therefore be considered characteristic of certain occupations, age groups, and localities. These factors influence consumption and saving in the same way at different dates because the individuals or families have the same expectation of income and the same probability of income variation from year to year. If similar stabilities could be found within sub-groups of the population in the lower income brackets, the utility of the income distribution for analysis and projection would be assured.

This approach to the study of the distribution of income and outlay is essentially demographic. Economic status can be described as an expectation, the 'money value of a man'. It deals with population cohorts, defined by age, occupation, and other factors, and relies on the empirical demonstration of uniformities in the response of the different groups to variations in income.

3. *Variability within occupational groups*

Occupation accounts for a significant fraction of the variability of incomes in a given year and also for some considerable part of the changes in the income distribution from year to year. If the deviations of individual incomes from the average for a specific occupational group could be construed as random variation, the occupational averages could serve as a measure of economic status. The analytic possibilities to be derived from equating the average over a homogeneous group at a given time and the average for an individual over a period of years, have not been explored for want of income data for a large number of specific occupations. Such information has become available only recently with the publication of the Census of 1950. The first studies based on the Census data suggest that the economic status of the greater part of the population might be measured

through the occupational group. Miller's study reveals 'that with the exception of some of the professional, managerial, and sales occupations, there is a very close correspondence between the mean and the median for most of the occupations. In addition, the quartiles are quite symmetrical about the median. These facts tend to substantiate the conclusion that the great majority of detailed occupations are characterized by symmetrical rather than skewed curves. The distributions for the professional, managerial, and sales workers, also show considerable symmetry about the median; however, they exhibit a greater divergence between the mean and the median reflecting a greater concentration of income in the upper ranges of the distribution.' [17]

The analysis shows that the relative dispersion of income, measured by the ratio of the interquartile range to the median, was very low for such occupations as policemen and mail carriers, and quite high for occupations in which the incomes received in a given year are affected by irregularity of employment or uncertainty of the receipts. For the greater number of occupations comprising the majority of workers, the relative dispersion of incomes ranged from 30 to 80 per cent. The variation would be reduced somewhat if the differences in wage and salary levels among age groups and among localities were eliminated.

The relative symmetry of the distribution of income within a specific occupational group suggests a random variable. The interpretation of the dispersion as a measure of the year-to-year variability of individual incomes to be expected within the current economic situation must, however, wait for two kinds of empirical demonstration. A comparison showing the equivalence of dispersion among income recipients in a given year and the variation in the incomes of the same individuals over a space of four or five years, would certainly support such an inference about the variation remaining after the elimination of the effects of occupation, age, and locality. A few comparisons of this kind will surely be made as the Census data are more extensively analysed. The most convincing check of randomness in the dispersion of income within homogeneous occupational groups would come from correlation studies which incorporate this interpretation as an assumption. Such studies seem only remotely possible at the present time, principally because they

would require, initially, either much larger bodies of data on consumer income and outlay than have been collected, or a number of special surveys of particular occupational groups. The few studies of particular occupations in this country have not been large enough to provide for a study of the effects of age, size of family, and income, separately.

If the deviations in income and in expenditures for some or all categories of consumption from the means for the occupational group were found to be uncorrelated, the variation in income could easily be attributed to random factors affecting individual incomes in a given year. If, on the other hand, the income and expenditures were found to be correlated, the association would suggest some systematic element in the variation of income not already taken into account.

The distributions of income for certain occupational groups display a considerable departure from symmetry in the upper part of the income range. This kind of distribution, according to Friedman, could arise in a society in which there are people who 'like' risk. The income distribution is a combination of two component distributions, one for losers, and one for winners in the outcome of choices involving risk. [18] If the first component distribution is much more heavily weighted than the second, the distribution may appear unimodal because the second mode is obscured in the merging of the two distributions. The combined distribution would have a long tail in the direction of the higher values. The income distributions for professional, managerial, and sales workers meet this description and these are occupations in which individuals choose among alternatives involving risk. This interpretation of the distributions of income within particular occupational groups means that the skewness of these distributions would not disappear with further refinement of the classification. Although the elimination of the effects of age and locality might reduce the dispersion around the mode of the distribution, the submerged distribution of the 'winners in the lottery' would remain. Some kind of discriminant analysis would have to be used to separate the distributions into the two components.

The distribution of the median incomes of the occupational groups weighted by their numbers, is of the same form as the distributions within the occupations which display the skewness in the upper part of the income range. This distribution for the

male experienced civilian labour force in 1949 has a dominant modal class, $2,500–$3,000 and is strikingly symmetric between $1,500 and $4,000. Beyond $4,000 the distribution stretches out to $8,500. The occupations with relatively high medians are, in general, those with skewed income distributions. The income position of these occupations might also be interpreted in terms of choice and chance. Whatever the interpretation, the level and distribution of incomes within these occupations accounts for most of the asymmetry in the combined distribution for all occupational groups.

A finer differentiation of the occupations that contribute to the skewness of the income distribution among men in the labour force might possibly eliminate the skewness in the 'within-group' distributions. If so, the skewness 'between-group' distribution of the occupational averages would be increased. Such a finding would certainly simplify the task of statistical analysis and economic interpretation of the variation in the incomes men receive in a particular year.

4. *Stability of individual incomes*

In their study of professional incomes, Friedman and Kuznets conclude that the 'difference between incomes in the professions and in other pursuits is larger than can be expected by the free choice of occupations by young men. . . . professional workers constitute a "non-competing" group. The number, and hence the incomes, of professional workers are determined less by the relative attractiveness of professional and non-professional work than by the number of young men in the community who can finance their training, are cognizant of opportunities and have the necessary ability, background, and connections.' [19]

Within a profession, according to this study, relative income status is fairly stable. Individuals with the same income one year are not widely dispersed around that position in another year. Through an ingenious application of the theory of observations to the regressions of income in one year on income in the preceding year, the authors show that the stability of relative income status is approximately the same for all income classes. Hence, the variability that can be identified with 'chance occurrences' in a particular year cannot account for a very large part of the total variation in incomes. The estimates of the contribution of the 'transitory component' in this study were

generally under 20 per cent of the total variance. Systematic factors determining the 'permanent components' of a man's income explain the greater part of the dispersion of incomes in a given year.

The isolation of the systematic factors associated with relative income position is one of the most important problems for research at the present time. The Census data will contribute greatly to our knowledge of the influence of education, age, and location, as determinants of income and the analyses of the information provided by the Census will certainly affect the content and coverage of special collections and compilations of income data in the future. Stability in economic status, taken either as an empirical fact or as an operating assumption simplifies the analysis of incomes of employed men and extends the possibilities for generalization of the data for a single year.

The incomes of young men, of an age to enter the labour market, and the incomes of men approaching retirement or actually withdrawn from the labour force, are influenced by many factors that have not and probably never will exhibit relative stability over time. The young man's participation in the labour force depends not only on training and ability, but also on the economic situation of his parents and other relatives. The incomes of men of retirement age depend on personal saving, retirement, and social insurance benefits.

The incomes of men with experience in the labour force may form a relatively stable frame for the income structure. The incomes of young men, old men, and the incomes of women, generally will change the form of distribution in various ways dependent on the economic climate.

The determinants of women's income are almost wholly in the realm of conjecture. The absence of a statistical theory of the variation in women's incomes cannot be attributed to lack of data, for some data would be forthcoming with specification of the types of correlation and distributions needed for analyses. Relatively few women enter the labour force to remain, as men do, throughout their productive years. Relatively few women have income from property throughout their lives. The great majority marry and assume the responsibilities of a household as a primary activity. Personal factors other than ability, aptitude and training, bulk large in the employment, earnings, and incomes of women.

The level and variability of the incomes of men is known to influence the employment and earnings of women but only the more obvious connections have been traced. Many income surveys have shown that the frequency of employment outside the home among wives and mothers is inversely correlated with husbands' incomes in the lower part of the income range. Participation in the labour force on the part of these women seems to be independent of the reason for the low incomes of their husbands, but their earnings are probably associated with the economic status of the men. The force reflected in these correlations is economic necessity and necessity is to be identified with the standard of living. Since opportunities for employment will control the degree to which wives can contribute to family incomes, neither the number who work, nor the amounts they earn, will exhibit the same relation to the incomes of their husbands in different phases of the business cycle.

The variation in incomes among consumer units is both widened and narrowed by women's incomes. The earnings of wives in established families, added to those of husbands have an equalizing effect. The earnings of young women not yet married or recently married tend to increase the variability of income because they permit the formation of new consumer units with relatively low incomes. The earnings and other income of women in their later years help maintain separate households and thus add other units to lower income brackets.

The relation of income to the formation and maintenance of households is becoming increasingly evident. The distribution of income, as now constructed, will always reflect changes that are, in essence, a regrouping of the population by dwelling places. Changes in the level and distribution of income will not be adequately explained until the effects of this regrouping can be segregated for separate analysis.

Statistics on the distribution of income based on an income unit instead of a consumption unit would, in my opinion, be much easier to analyse and interpret. Every adult in the population is potentially an income recipient. The distribution of income among married couples and among all other adults counted as separate units and classified by age, sex, and living arrangements, would provide a basis for studying the secular trends and cyclic influences that are obscured in the current complications of statistics on the distribution of income.

III. THE COST OF LIVING

1. *Variations in need*

The differences among population groups in the need for money income have not suffered from lack of attention on the part of writers on income and on income distribution. The problems of measurement introduced by variations in the purchasing power required to provide the same real income to different types of households in different localities are well-known but there have been very few advances towards their solution. Within a locality the purchases of consumer goods and services during a year depend on consumer inventories and vary with requirements connected with the pursuit of a trade, business, or profession. Production for home use influences the relative need for money income among urban and rural, particularly rural-farm families in the same geographic area. Climatic and geographic differences, alone, or in combination with variations in the price level, account for variations in the cost of the same level of living between localities in different areas.

The concept of non-money income has probably hampered the development of new techniques for measuring the comparative purchasing power of money among different types of families in different parts of the country. The value of food produced and consumed on the farm, the occupancy value of owned homes, two non-money items in the national accounts and in current estimates of the distribution of income by size, are defined through the artifice of a market transaction. The farmer as producer, sells food to his family for consumption in their home. The owner of a house rents it from himself. The limits of measurement through this kind of analogy to the market are quickly reached. The other goods and services owned or produced by the consumer and used by his family have no prototype in the market.

Without the market as a guide, it is impossible to attach a price tag to all goods and services consumers use in the course of a year. Automobiles, to take an obvious example in the American scene, are not rented like houses and apartments. It is therefore impossible to estimate the net value of the use of the private automobile by the conceptually simple procedure used to value the occupancy of owned homes.

2. *Income and the consumer unit*

The measurement of the relative cost of living in two dissimilar situations is an old and familiar problem in the literature on price indexes. Welfare agencies have tried to develop budgets that measure the relative needs of different types of families in the same locality at the same time. In general, the attempts to measure the relative cost of living, like the concept of non-money income attribute equivalence to specific goods and services. The specification of the quantities and qualities to be included in budgets to measure, for example, the relative cost of maintaining a household of five persons and a household of two persons is almost impossible without the guidance of data on family expenditures.

The use of family expenditure data in the derivation of indexes for measuring the comparative cost of living in different places or among families of different types in the same place, will always depend on some a priori definition of equivalent circumstances. The study of various definitions of equivalence in consumption levels may ultimately yield systems of indexes that can be used to deflate the incomes of different population groups to some standard unit of purchasing power.

The changes in the income distribution over time, can, however, be studied apart from any standardization of incomes for size of unit, variations in the price level and differences in the prevalence of home production, if the effects of changes in the relative size of the population groups affected were isolated for separate study. Just as the demographers use rates and frequencies based on standard age and sex distributions, income analysts could construct distributions standardized for the type and location of consumer units in describing, interpreting, and evaluating, the changes that take place over time.

The uses of statistics on the distribution of incomes by size in projections and forecasts require much more information on the incomes and expenditures of the population groups with varying needs for money income than has ever been made available from family living surveys. Empirical work has been, and still is, handicapped because advances in the study of consumer behaviour depend on prior advances in the study of the income distribution and conversely, the study of the distribution of income waits for more information on the determinants of spending and saving.

A study of the distribution of income among all primary units in the population at one date would show how the incomes received by married couples and by other adults in the different age brackets determine the number and composition of consumer units in that period. Such information would provide the basic for the separation of consumer units into population groups which differ in the need for, and hence use of, money income. A knowledge of the differences in income and outlay between the relatively stable and the unstable consumer units would certainly help the search for uniformities in the response of the population to changes in the income situation. The 'statistical economist's pipe dream', described by Kuznets, asks for data 'to trace secular income levels not only through a single generation but at least through two'. [20] Existing bodies of data on income and expenditures could yield much information on the interrelation of successive generations if it were possible to carry out detailed studies of the income structure within consumer units.

The underlying uniformities in the relations of the generations that have been revealed by a few experimental studies of the composition of income within consumer units indicate, in my opinion, that our knowledge of the distribution would be greatly increased by more intensive study of the data already in our possession. The choice of the consumer as the basic unit for the study of the distribution of income by size is based on presuppositions about the uses of individual incomes that must be submitted to empirical verification in order to assure the value of new collections and compilations of income statistics.

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