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APPENDIX E

Methods of Estimate and Limitations of the Data

Methods of Estimate and Limitations of the Data

THE expenditure data secured in the field investigation by the Study of Consumer Purchases were obtained from a selected sample of 60,000 non-relief families drawn from a random sample of 300,000 families. Data were collected in 51 cities, 140 villages and 66 farm counties in 30 states, chosen to represent different geographic regions, types of community and types of farming area.[1] The majority of the schedules covered the year ending approximately June 30, 1936, but some applied to the calendar year 1935 and others to the year immediately preceding the date of the interview—in other words, a 12-month period ending some time before or after June 30, 1936. In no case, however, did the schedule year end before December 1935 or after December 1936. The data used in this study were secured from Section XXIV of the schedule on family expenditures entitled "Changes in Family Assets and Liabilities During the Schedule Year," and specifically from items 23, 29, 31 and 32 of that section. These items have been reproduced below. Each of the 60,000 families was asked if there had been an increase or a decrease in its instalment, cash loan or charge account debt; if the family reported a change in either direction, the family was then asked by what amount the debt had increased or decreased.

[1] See National Resources Committee, *Consumer Expenditures in the United States* (1938) pp. 104-05 for a complete list of the communities covered and pp. 102-20 for a more thorough description of the Study of Consumer Purchases.

Changes in Debts Owed by Family [a]

LIABILITIES	NET AMOUNT OF INCREASE	NET AMOUNT OF DECREASE
28. Notes due to banks, insurance companies, small loan companies	$.....	$.....
29. Charge accounts due	.....	.....
31. Payments on instalment purchases made prior to schedule year (specify goods purchased):		
(a)	XXXXXX	.....
(b)	XXXXXX	.....
(c)	XXXXXX	.....
32. Balance due on instalment purchases made during the schedule year (specify goods purchased):		
(a)	.....	XXXXXX
(b)	.....	XXXXXX
(c)	.....	XXXXXX

[a] From schedule entitled "Changes in Family Assets and Liabilities During the Schedule Year," Section XXIV, employed in field investigation by the Study of Consumer Purchases.

The data—showing the percent of families having a net change, an increase or a decrease in debt, and the average amount of increase or decrease for each of the three types of debt—had already been weighted by the random sample weights when they were supplied to the National Bureau,[2] and all of the original field samples of each type of community and color-nativity group had been combined within each region to form some fifty basic tabulation units. In order to build up estimates of instalment debt, cash loan debt or charge account debt for the country as a whole, therefore, it was necessary to combine these fifty separate series into one over-all tabulation. The process of combination for the instalment debt data will be described first, since it involved a more complicated technique, and specifically the illustration will be in terms of the data showing the percentage of families increasing debt.

[2] These data were obtained from the Bureau of Labor Statistics and the Bureau of Home Economics.

In some types of community instalment debt data were available for six separate occupations; in others they were already combined into two to five occupational groupings. Data for each type of community were put on a uniform basis by combination of the various occupations into two groups, with weights obtained from the random sample of 300,000 families. One group comprised salaried and independent professional, business and clerical workers; the other included only wage-earners. The occupational status of the family was determined according to the major source of family earnings, i.e., if members of the family received earnings from two or more occupations, the family was classified according to the occupation from which the greater proportion of total family earnings was derived.

The first combination was applied to the data available from two samples of the same occupational and color-nativity group in one type of community within the same region. Data for non-relief families in each occupational group in New York and Chicago, and in small and middle-sized cities in the East Central and West Central regions,[3] were combined by an unweighted average of the frequencies of debt in each income group. Farm data for regions other than the South were combined by the weighting of each percentage by population weights provided by the National Resources Committee.[4] Data for each color-nativity and farm status group in the South [5] were combined by the use of unweighted averages. These unweighted color-nativity and farm series were then consolidated by the use of population weights, so that they yielded a single series to represent southern farms. The data for white and Negro families in each occupational group in the other types of community in the South, and in the metropolises and large cities in the North Central region, were

[3] The East and West Central regions together form the North Central.

[4] Thus the series of percentages representing North Central farms constitute a weighted average of the data for Pennsylvania and Ohio, Illinois and Iowa, and Michigan and Wisconsin farms.

[5] Separate tabulations were made for white operators, white sharecroppers, Negro operators and Negro sharecroppers in North and South Carolina and in the farm counties of Georgia and Mississippi, and for "self-sufficing" farmers in North Carolina.

then combined by weighting of the series for each color group by the appropriate population weights.[6]

The final combinations encompassed the data for each occupational group in each type of community in the five regions—metropolises, large cities, middle-sized cities, small cities, villages, farms—and the further consolidation of the six types of community produced the summary tables which show an occupational breakdown. The two occupational groups in each type of community were then combined and for each income group a weighted average of the percentage in six types of community was obtained to represent the United States as a whole. Tables showing a regional breakdown were developed separately, first through consolidation of the two occupational groups in each community within a region, and second, through combination of all types of communities within each of the five regions.

In the development of tables showing change in instalment balance due, that is, average increase or decrease, combinations were made by the use of unweighted averages in all cases where the percentages of the families having an increase or decrease in debt were initially derived in this way. Where weights were required, they were developed for both increases and decreases in debt by multiplication of the population by the percentage of families having an increase or a decrease in debt. Thus separate weights were obtained for the average increase and average decrease in instalment debt for all commodities and for each commodity group.

Those tables which show the changes in instalment debt for individual types of commodity are confined to data from middle-sized cities, large cities and metropolises. Tables which show a breakdown by type of community and by type of commodity are derived from special tabulations which cover, in addition, small cities, villages and farms in the North Central region only. The

[6] What are here called population weights are in effect the distributions of families in the United States by income level, color and nativity, type of community and region. The income distributions of various groups of farm communities within regions, although unpublished, were made available to us by the National Resources Committee. All other income distributions which we have used as weights may be found in National Resources Committee, *Consumer Incomes in the United States* (1938).

analysis of variations in the use of instalment credit for different commodities by type of community is therefore restricted to communities in the North Central region. These data on individual commodities are somewhat limited, and it is necessary to exercise some caution in extending the results to the country as a whole; as has been indicated in the text, the smaller communities have a different pattern of instalment debt from that of the larger communities.

For changes in cash loan debt and in charge account debt the tables were developed from the fifty basic tabulation units by a method very similar to that used for the tables on instalment debt for all commodities combined. In the case of cash loan and charge account debt, however, the data were not available in an occupational breakdown. The first combination, therefore, was applied to data available from two samples of the same color-nativity group in each type of community in each region by an unweighted average, and the subsequent steps were the same as those for the instalment debt data except that the occupational breakdown was not maintained. Separate weights for average increase and average decrease in cash loan and charge account debt were obtained by the procedure employed for instalment debt.

A number of difficulties involved in the preparation of this study stemmed from limitations in the data obtained from the Study of Consumer Purchases. In the first place, the expenditure study excluded all families which had received relief during any part of the year. Likewise excluded were single individuals, whether relief or non-relief. The omission of families and single persons receiving relief does not detract appreciably from the value of a study of the use of instalment credit or of charge account credit, since the low incomes and inferior credit rating of relief recipients would bar them from most instalment purchases, and probably from charge account purchases as well. One might expect, on the other hand, that relief families would use cash loan credit to a considerable extent. A sample of almost 2,500 good and bad loans from the personal finance departments of twenty-one commercial banks indicates, however, that less than 1 percent of the borrowers were on relief. It may be assumed, therefore, that even for the study of cash loan debt the omission of both families

and single individuals on relief does not constitute a serious deficiency. The exclusion of non-relief single individuals is much more to be regretted, for such persons make up a sizable body of consumers whose pattern of debt might be markedly different from that of non-relief families.

In the second place, the data took no account of foreign-born families. Separate estimates were not worked up for this group in the present study, but on the assumption that its pattern of debt would not differ enough to affect the results greatly, the foreign-born white population was combined with the native white to weight the data for the latter group. Other color groups, an insignificant proportion of population, were added to the Negro population.

In the third place, data were lacking for the lowest income groups in some types of community, and for the highest income groups in others. No figures were available, for instance, for native white families with incomes under $500 in large cities and metropolises, or for families with incomes under $250 in middle-sized and small cities and villages, though such families were covered in farm counties. In some cases the data for all small-city families with incomes of $3000 and more were combined. For villages and farms, data were generally lacking for the income groups over $10,000. When the instalment debt figures were broken down by occupations it was apparent that data were lacking also in the larger types of community for independent business and professional occupations and for salaried business and professional occupations below the $1000 level, although information was available for the income group below $1000 in the clerical and wage-earning occupations. No data were available for wage-earning or clerical families with incomes of $3000 or more except in metropolises, or for such families with incomes in excess of $2500 if they lived in small cities or villages.

The deficiencies in the data for the very low and very high income groups necessitated special estimates of the debt patterns of these groups. One possible method of arriving at such estimates was to extrapolate on the basis of the pattern for the intermediate income groups, using some mathematical equation to express a trend from which estimates for the omitted groups could be de-

rived. This method was rejected, however, for three reasons: first, the error of estimate is large, even with the best mathematical procedure; second, because of the relatively smaller number of families included in individual tabulation units, the trend in some cases was not clear, so that it was difficult to choose an equation; third, the amount of labor entailed was considered too great. Families in the income bands for which estimates for instalment debt were required constituted less than 7 percent,[7] and for cash loan and charge account debt less than 4 percent, of the total non-relief population. They accounted, moreover, for a relatively insignificant proportion of the families in the particular communities for which the estimates were made. Whatever the estimates, they could not have had any marked effect upon the pattern of instalment, cash loan or charge account debt as a whole.

The method adopted was far simpler than the one just outlined. In making estimates of the percentage of families in the lowest income band which had an increase or a decrease in instalment debt, we applied to the $250-500 band the percentage change between the figures for that band and for the $500-750 band, when at least a partial trend was evident, to obtain the estimate for $0-250 group. When no trend was evident between the next higher income classes, we arbitrarily borrowed the figure in the adjoining income group. When we could discern no trend at all, we used the average of all income levels, but only to estimate the percentage of families having an increase or a decrease in debt and not to estimate the average amount of the increase or decrease. For the latter estimates the procedure most frequently employed was to borrow the average of the next higher income level or else to apply to the $250-500 income group the percentage change between the averages for that group and for the $500-750 group. It was rarely necessary to make the estimate on the basis of the trend in another type of community or color-nativity group. A similar procedure was followed in obtaining estimates where data were lacking for the higher-income groups.

[7] The percentage is higher for instalment debt because estimates were made separately for independent business and professional families with incomes between $500 and $1000.

The final results thus obtained for the $0-250 income class, and to a lesser extent, for the $250-500 and the $5000-and-over groups are only approximate, but they are sufficiently accurate to warrant their use, in view of the relative insignificance of the groups for which these estimates were made. Nevertheless the two lowest income groups have been combined in all tables to represent the under-$500 income group. In this way we have avoided separate presentation of a somewhat inaccurate estimate for the under-$250 class. Tables which show the percentage distribution of families having a net change, increase or decrease in instalment, cash loan or charge account debt, as well as those which indicate the distribution of the gross increase, gross decrease and net increase in each type of debt among income levels, regions, types of community and types of commodity, are affected to a very minor degree by the quality of these particular estimates.

One other qualification of the data should be mentioned. When the expenditure schedule was filled out the family was asked only if there had been either a net increase or a net decrease in instalment, cash loan or charge account debt as between the beginning and the end of the schedule year. Thus the data which represent the percentage of families having a net change in debt, or what has been called the "percentage of families indebted" do not include families which during the course of the year contracted an additional amount of debt exactly equal to the amount of such debt paid off. This limitation does not present a very serious drawback, however, especially since families reported even very small increases or decreases in debt.

The nature of the data made impossible the inclusion of families which had contracted and fully paid off instalment, cash loan or charge account debt within the period covered by this study. Thus the instalment debt estimates undoubtedly fall short of the number of families actually indebted for instalment purchases during the year 1935-36 since they do not take into account all of the instalment debt of relatively short duration. It is probably true, nevertheless, that the frequency of instalment debt has not been underestimated to any appreciable extent, for this type of credit is usually applied to commodities sold on fairly long terms. Probably the extent to which the frequency of cash loan debt

has been underestimated is even less marked than in the case of instalment debt, since cash loan contracts are almost always of long duration. The use of the charge account data is, however, subject to greater qualification, since such credit is frequently extended only for short terms. It is quite likely that families using charge account credit as a personal convenience rather than as a credit device, and paying their bills in full every week or month, have not been included in the estimates of frequency of charge account debt presented in this study, and for this reason these estimates certainly underrepresent the extent of use of such credit. On the other hand, a much more adequate representation has been made here of families which used charge accounts as a real credit device, and whose indebtedness was therefore of longer duration.