AN ANALYSIS OF ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF CONSUMERS ASSOCIATED WITH EXCESSIVE INSTALLMEMT DEBT

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An Analysis of Economic and Demographic Characteristics of
Consumers Associated with Excessive Installment Debt

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<div align="right">Mary E. Ryan</div>

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CHAPTER I

INTRODUCTION

The Problem

Use of installment credit permits consumers to obtain goods
and services now and pay for them in the future. Sellers and lenders
accept credit from consumers on the basis of the expected ability and
willingness of consumers to repay. In some cases consumers assume
and are granted a debt burden beyond their ability to repay the debt
while maintaining a desired level of living. Such debt can be con-
sidered excessive since it causes financial pressures, creates stresses
within families, and may lead to defaulting. Delinquent debts bring
about collection pressures from lenders and in some instances result
in bankruptcy for the consumer. In addition to problems for the debtor,
unpaid debts are a cost for the business community and the public.
Business must allow for costs of collecting and covering bad debts as
well as expenses associated with wage assignments and salary garnish-
ments for employees who do not meet debt commitments. The public, as
borrowers, pay finance charges large enough to cover debt losses and,
as taxpayers, support courts and legal services for bankruptcy proceedings.

Objectives

The objectives of this thesis are (1) to identify and measure
factors leading to excessive installment debt burden, and (2) to
ascertain characteristics of consumers who are heavily burdened.

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Debt burden in this thesis is determined by comparing debt and income. Too much debt in relation to income or too little income to meet debt payments can cause a troublesome situation. There are many facets to the questions (1) why consumers spend as they do, (2) why they choose debt to finance their spending, and (3) what determines incomes earned by or available to consuming units. However, this study is limited to economic and demographic factors related to spending and earning.

Scope of Study and Source of Data

Only nonmortgage, nonbusiness installment debt is considered in this study. Mortgage debt is an alternative to rent as a means of purchasing shelter. Since shelter is a primary need for all consumers, the factors associated with rent or mortgage payments are assumed to differ from those associated with discretionary purchases for which installment debt is most frequently incurred.

Noninstallment debt (single payment loans, charge accounts, and service credit) undoubtedly places some burden on the debtor. But it is not considered in this thesis for measurement reasons. The burden of noninstallment debt cannot be measured by comparing debt payments to income since the entire debt comes due at one time. Therefore separate analytical techniques would be required. Furthermore, 30-day charge accounts and service credit, which account for nearly two-thirds of noninstallment debt, are used primarily as convenience and not for the purpose of deferring payment. Therefore purchases related to this portion of noninstallment debt are more like cash than credit purchases.

The data for this study came from the 1960 Survey of
Consumer Finances conducted by the Survey Research Center of the
University of Michigan. The sample is defined as:

> a cross-section of the population living in private households ·
> in the continental United States (Alaska and Hawaii are excluded).
> Transients, residents of institutions, and persons living on
> military reservations are not represented.
> . . . .
> In the Surveys of Consumer Finances, the basic unit for inter-
> viewing and for most tabulations is the spending unit--related
> people living together and pooling their incomes for major items
> of expense. All spending units at each selected dwelling unit
> are interviewed. In addition to primary spending units (or
> individuals), some 8 per cent of the dwellings contain related
> secondary units (with separate income and finances), and some
> 2 per cent contain unrelated secondary units (roomers, boarders,
> etc.).[1]

In 1960 interviews were completed with 2708 primary spending
units (SU's), 209 related secondaries, and 55 unrelated secondaries
for a total of 2972 respondent SU's. Since this study is concerned
with debtors, the analysis was confined to the 1417 SU's which had
installment debt.

Conclusions are drawn for debtor households in the United
States. The sample design does not permit inferences relating to
consumers in particular states or specific cities.

Major Hypotheses

The basic hypothesis was that consumers would be most apt
to have excessive debt if their expenditures for goods and services

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[1] 1960 Survey of Consumer Finances (Ann Arbor, Michigan:
Survey Research Center, 1961), 253-255. Additional information
concerning sampling and interviewing procedures is contained in
ibid., Chapter 14, pages 253-258.

frequently financed with installment credit or for purchases related to such goods and services were large, relative to others in their income class. Since most installment credit is for home improvements, automobiles and other consumer durables, spending pressures related to these categories of family living were hypothesized to be associated with excessive debt.

Housing and automobiles are status symbols for many Americans hence pressures exist to increase consumption of these items. Debt counselors have found that some families who expect future income increases move into higher priced housing before their incomes can sustain the expenditures incurred. In addition to the direct cost of shelter, upgrading of housing is likely to entail need for new or additional home furnishings, and create desires for higher quality clothing, automobiles and recreational activities to accompany the family's assumed status.

The specific hypotheses tested were that consumption of automobiles, other consumer durables, and housing, relative to income, were positively related to the probability of excessive debt. Furthermore, it was expected that there would be a positive relationship between the total consumption of automobiles, other durables and housing (relative to income), and the probability of excessive debt. The latter hypothesis assumed that high consumption in one or two categories could be offset by low consumption for the remaining, but that high (low) consumption in all categories would be associated with a high (low) probability of excessive debt. For example, a debtor who "overconsumed" on housing but "underconsumed" on automobiles

and other durables compared with others in his income class, would be expected to have an excessive installment debt burden according to the first hypotheses but not according to the latter.

CHAPTER II

SETTING OF THE PROBLEM AND REVIEW OF LITERATURE

In the period from 1950 through 1966 the use of install-
ment credit rose rapidly, personal bankruptcies increased markedly,
and queries concerning the quality of credit continued. A brief
discussion of these recent trends and a review of selected studies
of consumer debt are included in this chapter.[1]

Recent Trends

Use of credit. -- Consumer credit is not a new phenomenon
in the United States. One early use was by Pilgrims who borrowed
money from English merchants to pay for transportation to the New
World. But the growth in credit use, especially since World War II,
is new. The amount of short and intermediate term consumer debt
outstanding increased nearly tenfold from 1945 to 1960 -- from
$5.7 billion to $56.0 billion. And, as may be seen in Figure 2.1,
total consumer debt outstanding increased another 69 per cent in
the following six year period to $95 billion at the end of 1966.
Data upon which Figure 2.1 is based and personal consumption
expenditures for the same time period are presented in Appendix A.

Uses of all types of credit has expanded, but the greatest
growth has been in installment credit. Since 1955 installment debt

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[1]For a thorough examination of the use and quality of install-
ment credit see G. Moore and P. Klein, The Quality of Consumer Instal-
ment Credit (Studies in Consumer Instalment Financing, No. 13; New
York: National Bureau of Economic Research, 1967).

has accounted for more than three-fourths of outstanding short and intermediate term consumer debt.

Credit figures alone do not tell the whole story. Since the ability to repay debt is dependent on income, a meaningful evaluation of credit growth must take income into account. To make the comparison, disposable income is also plotted on Figure 2.1. Although different scales are used for debt and income, it may be seen that the growth of income and debt roughly parallel each other. However, the rate of increase in debt has been somewhat faster than the rate of increase in income. At the end of 1966 total consumer debt outstanding was 19 per cent of disposable income, nearly double the 10 per cent relationship of 1950. These percentages are based on aggregate figures and therefore represent an increase in credit use by the nation as a whole but not neccessarily an increase of the credit burden of debtors.

A measure of debtors' burden can be obtained by examining the relationship between their current debt repayments and current income. Since repayment data are available only for installment debt, the following estimates of debt burden are related only to that type of debt. Moore and Klein have calculated repayments as a percentage of before tax income. Their results indicated that the ratio remained at about 21 per cent from 1952 to 1963, and estimates for 1935-36 yield a 23 per cent figure.[2] The Survey Research Center computes another measure of average debt burden -- the median ratio of installment debt payments to disposable income for all debtors.

[2]Ibid., p. 24.

FIGURE 2.1

GROWTH IN CONSUMER DEBT AND
DISPOSABLE INCOME, 1929-1966

Disposable
Income

Consumer Debt
Outstanding
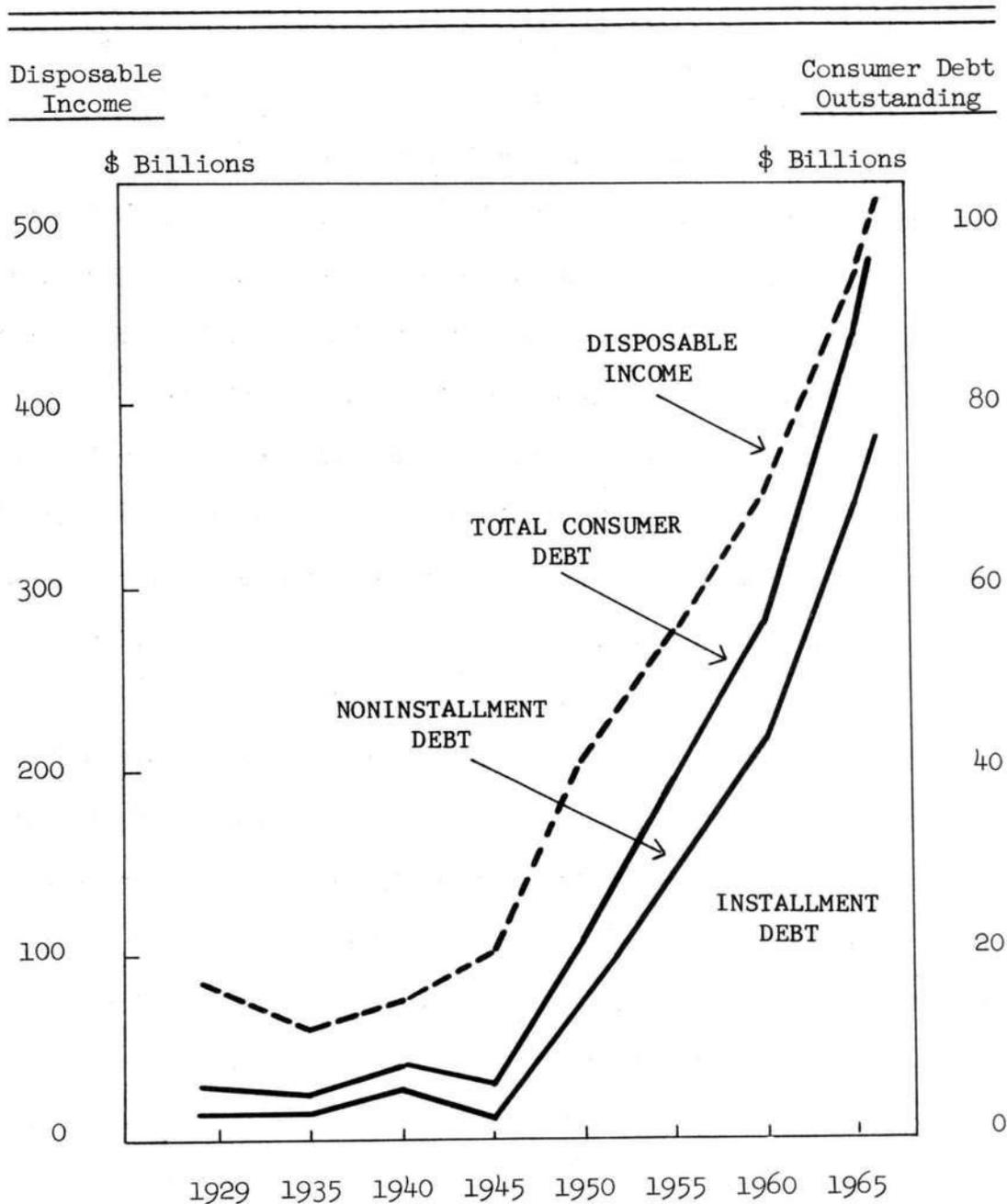
Source: Appendix Tables A.1 and A.2.

This ratio has also remained fairly constant, at 14 per cent, from 1955 to 1966.[3] Both sets of estimates indicate that the debt burden of debtors has been stable in recent years.

Consequently, the increase in the aggregate ratio of debt to income results from an increase in the proportion of debtor households in the population. According to Moore and Klein, the proportion rose from about one-fourth in 1935-36 to one-half in 1963. It has remained above 40 per cent since 1953.[4]

Installment credit is used primarily to purchase durables-- automobiles and household furnishings and appliances. Since 1950 automobile debt has accounted for approximately two-fifths of outstanding consumer installment debt. Debt incurred for purchase of nonautomotive durables has remained at about one-fourth of total installment debt since 1955, a smaller share than in earlier years. Personal loans, which include loans for bill consolidation, medical expenses, travel, and tax payments, have taken an increasing share-- rising from about one-fifth in 1950 to slightly over one-fourth in the mid 1960's. Credit is being used more and more for services and new products. Vacation packages, hotel and restaurant charges, air travel, and education costs are becoming increasingly available on the installment plan. Swimming pools, boating equipment, colored television and air conditioners are examples of new products made available to the mass market in recent years by means of credit. The amount of consumer debt outstanding by purpose appears in Table A.1.

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[3] G. Katona et al. 1966 Survey of Consumer Finances (Monograph No. 44; Ann Arbor, Michigan: Survey Research Center, 1967), 33-34; and earlier Surveys.

[4] Moore and Klein, loc. cit.

Credit quality. -- Data on delinquent loans and bankruptcies provide indications of the quality of credit.

United States District Courts report that the number of personal (nonbusiness) bankruptcy filings in 1966 was 176,000. This represented a 600 percent increase since 1950.[5] During the same period the number of households in the U.S. increased by approximately 30 percent, according to Bureau of Census estimates.[6] These figures indicate that an increasing proportion of consumers are using bankruptcy in an attempt to solve financial difficulties. But it cannot be concluded that the increase is due entirely to deterioration in credit quality; some of the increase is no doubt attributable to greater awareness of bankruptcy as a possible solution to overindebtedness. However, the fact that there was nearly one bankruptcy for every 1,000 people in the United States (approximately 3 for every 1,000 families) does mean that excessive debt poses problems for a substantial number of families.

The American Bankers Association computes a series on delinquent consumer loans held by commercial banks. The annual average number of loans delinquent from 30 to 89 days fluctuated between 1.3 and 1.8 percent of all loans in the period from 1950 to 1960 and

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[5]U.S. Bureau of the Census, Statistical Abstract of the United States: 1967 (88th ed.; Washington, D.C.: U.S. Government Printing Office, 1967), 499; and earlier editions.

[6]Ibid., p. 36.

remained in the same range during 1965 and 1966.[7] Hence no

deterioration of quality has been experienced by commercial banks.

Review of Literature

In recent years two large scale studies of consumer credit

have been carried out. The Board of Governors of the Federal Reserve

System was directed by the President to examine the role of consumer

installment credit in a growing economy. The study was initiated

in 1956 and 4 volumes containing the results were published in 1957.[8]

Advantages and disadvantages of regulating consumer installment credit

were the specific concerns. In developing the topic several sections

dealt with the use and quality of credit. The second broad range

study, scheduled for completion in 1966, was conducted by the National

Bureau of Economic Research. Grants from consumer sales and finance

companies supported the study. Publications coming out of this study

deal mostly with a description and analysis of the consumer credit

industry and the impact of consumer credit on the economy. A selected

list of publications from this and earlier National Bureau consumer

credit studies appears in Appendix B.

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[7]Delinquency Rates on Bank Instalment Loans, bi-monthly
reports compiled by Instalment Credit Committee, American Bankers
Association, data for 1950-1960 quoted in Chamber of Commerce of the
United States, Debt: Public and Private, Report of the Committee on
Economic Policy (Washington, D.C.: Chamber of Commerce of the United
States, 1961), p. 58, and 1965 and 1966 data quoted in "Consumer
Instalment Credit," Federal Reserve Bulletin, March 1967, p. 348.

[8]U.S. Board of Governors, Federal Reserve System, Consumer
Instalment Credit (4 parts; Washington, D.C.: U.S. Government
Printing Office, 1957).

Periodic data on consumer credit are published by the Federal Reserve System and the Survey Research Center of the University of Michigan. The Federal Reserve reports aggregate statistics on credit use obtained from banks and other financial institutions.[9] Survey Research Center (SRC) data are based on annual national surveys of households.[10] Together these sources provide series from which trends in consumer credit may be obtained.

SRC data are frequently subjected to detailed analysis as special studies. In addition, studies with limited populations are occasionally conducted. The following is a summary of findings from all sources which are pertinent for this thesis.

Who uses credit. -- Studies have repeatedly confirmed that installment credit use is a phenomenon of middle income, young married consumers with children. SRC data show that since 1950 well over half of spending units with the head from 25 to 44 years old have installment debt. Nearly 3 out of 5 families with incomes between $5,000 and 15,000 have had installment debt during the mid 1960's.[11] At the beginning of the decade the greatest proportion of installment credit users was among those with incomes between $5,000 and 10,000.[12]

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[9] Statistics are published monthly in the Federal Reserve Bulletin (Washington: Board of Governors of the Federal Reserve System).

[10] Results are published annually as monographs entitled Survey of Consumer Finances (Ann Arbor, Michigan: Survey Research Center).

[11] G. Katona, J. Agard, and J. Sonquist, Installment Debt (Survey of Consumer Finances, Statistical Report No. II; Ann Arbor, Michigan: Survey Research Center, 1965), p. 3.

[12] 1960 Survey of Consumer Finances, loc. cit., p. 152.

According to findings of a comprehensive study of SRC data for the period from 1949 to 1955, liquid assets were more important than stage in the family life cycle or income as an explanatory factor of the probability of having installment debt.[13] As the amount of liquid assets increases the probability of installment debt decreases. An analysis of 1956 data revealed the same relationships.[14]

Two studies using SRC data from the 1957 and 1958 surveys substantiated the relationships between installment debt and liquid assets, income and life cycle. In addition, positive relationships were found with past use of credit, size of expected expenditure and proportion of income devoted to expenditures on durables.[15]

Small scale surveys among rural and urban consumers in Indiana, Iowa and New York also suggested comparable relationships—in one 1956 study, more than three-fourths of the families with pre-school and grade school children had debt (mortgage and/or shorter term consumer debt).[16] Credit for durables and medical needs was used more often by families in middle and upper net worth classification

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[13]J. Miner, "Consumer Personal Debt: An Inter-temporal Cross-Section Analysis," Consumption and Saving, ed. I. Friend and R. Jones (University of Pennsylvania, 1960), II, 400-461.

[14]J. Lansing, E.S. Maynes, and M. Kreinen, "Factors Associated with the Use of Consumer Credit," Consumer Instalment Credit (National Bureau of Economic Research, 1957), Part II, Vol. I, 487-520.

[15]J. Fisher, "Consumer Durable Goods Expenditures, with Major Emphasis on the Role of Assets, Credit and Intentions," Journal of the American Statistical Association, Vol. LVIII (September, 1963), 648. M. Lee, "An Analysis of Installment Borrowing by Durable Goods Buyers," Econometrica, Vol. XXX (Oct., 1962), 770-82.

[16]E. G. Holmes, "Who Uses Consumer Credit," Journal of Home Economics, Vol. XLIX, No. 5 (1957), 340-42.

than those with low net worth.[17] Two studies in the 1960's

indicated the most frequent use of credit was by families in early

stages and by those fitting a definition of high rather than low

socioeconomic status.[18] Fluctuating income was associated with debt

in another study.[19]

Quality. -- Several studies have been conducted by or for

lending and financing institutions to identify characteristics of

good and bad risks. Although the research involved a variety of

financial institutions, in different parts of the country, and at

various times during the period from 1940 to 1965, common character-

istics of poor risks were noted. Delinquent payments were associated

with the young, unskilled or semi-skilled persons, those with short

term employment, and low income debtors. Persons with liquid assets

and those who had lived several years in the same locale were found

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[17]G. Bivens, "Firm-household Interdependence and Other Factors
in Relation to Use of Credit by Farm Families in Greene County, Iowa,"
(unpublished Ph.D. dissertation, Iowa State University, 1957).

[18]M. Filiatreau, "Consumer Credit and Savings Practices in 38
Selected Indiana Rural and Urban Families," (unpublished Master's
dissertation, Purdue University, 1965). H. McHugh, "Differentials in
Uses of Consumer Credit by Young Urban Families," (unpublished Ph.D.
dissertation, Iowa State University, 1965).

[19]S. Manning, "Financial Management Practices of Families with
Steady or Fluctuating Incomes," (unpublished Ph.D. dissertation,
Cornell University, 1960).

to generally make payments as scheduled.[20]

Two recent studies of bankrupts found a similar profile of the borrower in trouble. The bankrupt was younger than the population as a whole, most likely to be a blue collar worker, and had a lower than average income for his community.[21]

Attitudes. -- Attitudes toward use of consumer installment credit have varied during the past 13 years. The Survey Research Center has studied consumer attitudes toward installment buying since 1954. At that time 50 per cent of families believed that buying things on the installment plan was a good idea. The proportion of families responding favorably increased steadily to 60 per cent in 1959 but dropped to 49 per cent in 1965. At this time it is not possible to determine whether the increasing long term trend in favorable attitudes has reversed or if the decline is a temporary fluctuation. In general young families are more favorably inclined toward credit than older families.[22]

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[20] J. Myers and E. Forgy, "The Development of Numerical Credit Evaluation Systems," Journal of the American Statistical Association, Vol. LVIII (September, 1963), 799-806. D. Durand, Risk Elements in Consumer Installment Financing (Study No. 8; New York: National Bureau of Economic Research, 1941). A. Rude, "Automobile Installment Financing Delinquencies," Michigan Business Review, Vol. XIX, No. 4 (1967), 20-25. P. McCracken, J. Mao, and C. Frick, Consumer Installment Credit and Public Policy (Michigan Business Studies, Vol. XVII, No. 3; Ann Arbor, Michigan: University of Michigan, 1965), 110ff. R. Sweeney and J. McLeary, "Consumer Credit Quality--A Search for an Answer," Atlanta Monthly Review (Federal Reserve Bank of Atlanta, 1966), Vol. 51, No. 11, 85-88.

[21] R. Dolphin, Jr., An Analysis of Economic and Personal Factors Leading to Consumer Bankruptcy (Bureau of Business and Economic Research, Occasional Paper No. 15; East Lansing, Michigan: Michigan State University, 1965), 43ff. R. Hermann, Casual Factors in Consumer Bankruptcy: A Case Study (Institute of Government Affairs, Occasional Paper No. 6; Davis, California: University of California, 1965).

[22] Katona, Agard, and Sonquist, loc. cit., p. 5.

CHAPTER III

ANALYTICAL PROCEDURE

The basic analysis consists of two steps: (1) debtors were classified according to debt burden and then analyzed to determine whether or not the hypothesized relationships between excessive debt burden and consumption of housing, automobiles and other durables held; and (2) the economic and demographic characteristics of the excessively indebted were identified. Certain debtors were omitted from the analysis because of unusual spending or borrowing behavior or incomplete information. These steps in the analytical procedure are elaborated on in this chapter but findings are deferred until later.

Debtors Omitted from the Analysis

Farmers, related and unrelated secondary spending units, and respondents who did not provide data for relevant variables were eliminated from the sample. Farmers were excluded because it was practically impossible to separate their housing and automobile expenditures from farm business expenses.

Secondary spending units are family members who keep separate finances from the head of the house and unrelated individuals who live with a primary spending unit. Many secondaries use durables, such as washing machines, kitchen appliances and television, which belong to the primary unit. Also, in the case of related secondaries,

all housing expense was attributed to the primary and none to the secondary spending unit. Since these actions would result in different spending behavior for housing and durables by secondaries than by primaries, secondary spending units were eliminated.

The third group omitted contained debtors for whom information was not available which was needed for classification according to debt burden or for construction of the independent variables. Although estimates of missing information could have been made, this group was excluded since their omission did not appreciably affect the sample of debtors.

One additional respondent, who reported no disposable income, was not included. As will be discussed later, income was used in the denominator of the independent variables. Therefore, zero income posed a mathematical problem.

The groups omitted from the analysis were examined to determine if assumed behavior justified their exclusion. Results are presented in Appendix C.

Classification According to Debt Burden

Debtors were classified into three groups: (1) those heavily indebted and most likely to be in financial trouble; (2) a middle group with moderately heavy burdens which could possibly give rise to financial difficulties; and (3) those with fairly light debt burdens who presumably would be able to sustain their debt. The classifications were determined by the amount of after tax income in the year prior to the interview committed to debt payments—the greater the commitment the greater the burden. In addition, income level and liquid asset

holdings (savings accounts, checking accounts and U.S. Savings Bonds) were considered. It was assumed (1) that high incomes could support higher debt ratios than low incomes; and (2) that debt of spending units which had sufficient liquid assets to cover their debt plus $200 (for use as a reserve fund or tranaction balance) would not be viewed as excessively burdensome in spite of the proportion of income committed to repayment. Exact divisions used for classifications are presented in Chapter IV.

Two dependent variables were formed from the three groups, both of the 0,1 type. They represented two different ways of classifying debtors as excessively burdened or not. One variable combined the lightly and moderately burdened debtors into one class, coded 0, and the heavily indebted into the other, coded 1. The variable was used to form an estimator of the probability of being deeply in trouble with regard to installment debt. The second variable combined the moderately and heavily burdened debtors into the class coded 1 and those lightly burdened into the 0 class. This variable was used in the estimator of the probability of being in some trouble with regard to installment debt.[1]

Testing Major Hypotheses

Constructing independent variables. -- Variables constructed to measure relative annual consumption of housing, automobiles and other durable goods were similar in form to one another. However, data used as the values of consumption were dissimilar. The differences were due to the type of information collected in the survey

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[1] Hereafter debtors with excessive installment debt will be referred to as in deep trouble (DT) or in some trouble (ST) to correspond to the definitions above.

and in ensuing computations.

The brand, year, and model of all automobiles owned were obtained. From this information the wholesale value of the automobile stock in each spending unit was calculated. Although the best measure of annual automobile consumption would have been annual expenditures for operation and maintenance, plus depreciation, such information was not available. However, since the value of automobile stock is likely related to consumption, it was taken as the best available measure.

Gross outlay for nonautomotive durable goods purchased during the year prior to the survey and the amount received from trade-ins or sale were collected from each spending unit. From these the net outlay--expenditures less trade-ins--was computed. The latter amount was used as the measure of annual consumption of nonautomotive durable goods.

The amount of monthly rent or mortgage payments was secured from each respondent. This amount, multiplied by twelve, provided the value used as annual housing consumption.

The variables were constructed as follows: (1) the sample of debtors was divided into eight income groups; (2) the mean value for each of the three consumption categories (automobiles, nonautomotive durables, and housing) was found for each of the eight income groups; (3) the consumption value for each category, for each respondent, was subtracted from the mean value for his income class; and (4) the resulting deviation was divided by the respondent's income.

In symbolic form the automobile variable would appear as follows:

$$A_{ij} = \frac{a_{ij} - \bar{a}_j}{Y_{ij}}$$

where: A_{ij} = value of automobile variable for the ith respondent in the jth income class

a_{ij} = value of annual automobile consumption for the ith respondent in the jth income class

$\bar{a}_j$ = mean value of annual automobile consumption for the jth income class

Y_{ij} = annual disposable income for the ith respondent in the jth income class

Variables for other durable goods and housing were formed in the same fashion. The fourth independent variable, the total consumption of housing, automobiles and other durables, is called the summation variable. It was formed by algebraically summing the other three variables. The formulation appears as follows:

$$S_{ij} = A_{ij} + D_{ij} + H_{ij}$$

$$= \frac{a_{ij} - \bar{a}_j}{Y_{ij}} + \frac{d_{ij} - \bar{d}_j}{Y_{ij}} + \frac{h_{ij} - \bar{h}_j}{Y_{ij}}$$

$$= \frac{(a_{ij} + d_{ij} + h_{ij}) - (\bar{a}_j + \bar{d}_j + \bar{h}_j)}{Y_{ij}}$$

The following symbols are used to identify the independent variables:

A = automobile variable; deviation from mean automobile stock for one's income class, relative to income;

D = nonautomotive durable goods variable; deviation from annual net outlay for nonautomotive durables for one's income class, relative to income;

H = housing variable; deviation from mean annual expenditure for shelter (rent or mortgage payment) for one's income class, relative to income;

S = summation variable; A + D + H.

The expected value of each variable was zero. The more an individual spending unit's consumption deviated from the mean of his income class, the larger would become the absolute value of the variable. The deviation was taken as a proportion of income in order to minimize the income effect resulting from large deviations more likely with large incomes.[2] A large positive value would be interpreted as excessive consumption and, according to the hypotheses, expected to result in financial trouble for the debtor.

Preliminary Analysis. -- In order to determine the type (shape) of the relationship between each of the four independent variables and each of the two dependent variables, tables and graphs were constructed. However, since 0,1 dependent variables result in individual data all falling at 0 or 1, the data were grouped into class intervals and the proportion of 1's in each class was entered in the tables and plotted on the graphs. In other words, the proportions of spending units "in deep trouble" and "in some trouble" for various values of each independent variable were compared. The findings from this step (as well as those of steps described below) are presented in the following chapters.

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[2] James Tobin referred to the use of income in the denominator in "Consumer Debt and Spending: Some Evidence From Analysis of a Survey," Consumer Instalment Credit (National Bureau of Economic Research, 1957), Part II, Vol. I, 523. He wrote: "In general, it is desirable, for statistical and economic reasons, to use as variables ratios in which income is the denominator. Income is a powerful variable, with which both the dependent variable and the other independent variables in a regression are likely to be highly correlated. The use of ratios to income focuses attention on explaining, by means of other variables, the share of income devoted to some particular purpose. From a statistical point of view, the use of ratios to income diminishes heteroskedasticity in a sample of households: the variance of the dependent variable, expressed in dollars, is roughly proportional to income, and dividing by income tends to make the variance homogeneous."

In addition, a tabular examination was made of the relation-
ships for two subsets of debtors -- (1) respondents with annual
disposable incomes $1000 or more, and (2) respondents who did not
live in the southern region of the United States.

Consumption behavior of extremely low income households is
frequently erratic since households with temporary low incomes as
well as those more permanently at this extremely low level are
included. In particular, housing expenditures and value of auto-
mobiles owned would more likely be related to permanent rather than
temporary income. It was suspected that the relationship between
the consumption variables and excessive debt for the excluded group
might unduly effect the relationships for the rest of the sample.

The South was omitted on the assumption that regional vari-
ations in income and spending would make the South atypical. Debtors
with disposable incomes less than $4000 included 45 per cent of the
Southerners contrasted with 23 per cent of those in other regions.
No cars were owned by 20 per cent of southern and 12 per cent of
other spending units. Additional variations in spending were assumed
to result from the differences shown in Table 3.1.

Regression analysis. -- Simple and multiple regression were
the major statistical tools employed.[3] Regression provides additional

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[3]Probit analysis is more appropriate than regression when
dealing with limited dependent variables, but regression is computa-
tionally easier. Furthermore De Janosi has shown that results do
not vary significantly between the two measures. P. De Janosi,
"Factors Influencing the Demand for New Automobiles: A Cross-Section
Analysis" (Unpublished Ph.D. dissertation, Dept. of Economics, Univer-
sity of Michigan), pp.55-67, cited by Miner, op. cit., pp.412-13.

TABLE 3.1

SELECTED REGIONAL VARIATIONS

	South Per cent[a]	Nonsouth Per cent[a]
Rural SU's[b] not living in a SMA[c]	28	13
SU's[b] with less than 12 years education	59	42
SU's[b] headed by a woman	14	9
SU's[b] headed by a Negro	24	8

[a]Percentage of total number of respondents in the region

[b]Spending units

[c]Standard Metropolitan Area

and more refined information than is possible by graphic or tabular means. For example, regression coefficients are quantitative estimates of the net effect of changes in the independent variables on the dependent variable.

Statistics to assess the degree of relation between independent and dependent variables were also computed. Correlation coefficients (r) and coefficients of multiple determination (R^2) are used most commonly for simple and multivariate situations respectively. However, Neter and Maynes have pointed out that these statistics are less suitable when the dependent variable is of the 0,1 type than a correlation ratio, denoted as (e^2).[4] All three statistics have been calculated for these data.

Analyses were made for the entire sample as well as the two subsets of debtors which excluded respondents with incomes less than $1000 and those in the south, respectively.

Identification of Excessively Indebted

Tabular and graphic means were used to identify the excessively indebted. Relationships between several economic and demographic characteristics of debtors and the two degrees of excessive debt burden were examined. A more refined analysis of these characteristics is beyond the scope of this thesis.

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[4]J. Neter and E. S. Maynes, "On the Appropriateness of the Correlation Coefficient with a 0,1 Dependent Variable," Paper presented at the Annual Meeting of the American Statistical Association, Washington, D.C., December 30, 1967.

CHAPTER IV

BACKGROUND RESULTS

The purpose of this chapter is to provide a background for
the findings discussed in Chapters V and VI. It presents a profile
of the debt and debtors in the sample. Data were obtained from two
sources: (1) the Survey Research Center analysis of debts and debtors
in the 1960 sample; and (2) the first stage of the analysis for this
thesis, the classification of debtors according to debt burden.

Characteristics of Debts and Debtors in Sample

The following description of the debts and debtors in the
sample came from the 1960 Survey of Consumer Finances.[1] In 1960
outstanding installment debt was reported by 48 per cent of all
spending units; mortgage debt was owed by 31 per cent and 24 per
cent stated that they owed noninstallment debt. Approximately
two-thirds of the respondents mentioned owing at least one of
these types of debt. The balance of this discussion deals only
with installment debt, which is the concern of this thesis.

Debtor characteristics. -- Most debtors were young, with
medium income. Nearly two-thirds of spending units with a head
between 25 and 34 years old had installment debt. Those in the
group 35 to 44 years were also frequent users--three out of five
had debt. But large amounts of debt were most frequent among the

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[1]op. cit., Chapter 8 "Installment Debt," 149-66.

latter age group. The proportion of debtors declined as age increased
to only 16 per cent of those 65 years and over. In the youngest age
group, 18 to 24 years old, 54 per cent had installment debt. Three
out of five spending units with incomes between $5000 and $10,000 had
debt compared with only one-fourth of those with less than $2000
disposable income; debt was held by one-half of spending units in the
$2000 to $5000 range and 44 per cent of those with over $10,000 income.

Although installment debt is used most frequently by spending
units without liquid assets, approximately three out of every ten
debtors had adequate liquid assets to retire their debt. Some people
consider installment buying preferable to using liquid assets under
certain circumstances. The report mentions that "some people see
advantages in installment buying (better service or even better price);
for some people the cash holdings are [reserved] for other purposes,
and for some installment buying represents a means toward enforcing
self-discipline."[2]

Purpose of debt. -- Most debt was owed for automobiles.
Nearly half of the debtors, which would be 23 per cent of all spending
units, had automobile debt. The proportion of spending units which
owed debt for durable goods was the same as for automobiles, but the
amounts owed were smaller. Debt for all purposes was more frequent
among spending units with incomes between $5000 and $10,000 than for
those under $5000; however, the difference was more marked for auto-
mobile and home improvement debt than for debt incurred for purchase
of nonautomotive durables. Considering all purposes, the median
amount of debt was $500.

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[2]Ibid., 153.

Debt burden. -- The median ratio of installment debt pay-
ments to disposable income was .13 to 14. Heavy debt burden, debt
repayments accounting for more than 40 per cent of disposable income,
is more characteristic of low income, young spending units than among
older age groups whose incomes are larger, on the average. According
to the report, spending units with income less than $2000 contain
one of two kinds of people--the very poor, many of whom are elderly
and retired, and persons with temporary low incomes. Since debt is
infrequent among the elderly, debtors in this group are apt to be
those with temporary low incomes.[3]

A moderately heavy debt burden--20 to 40 per cent of income
committed to debt payments--is carried by approximately one-fourth
of debtors with income between $2000 to $7500. Most spending units
in this group are young, and the young anticipate future income
increases.[4] Table 4.1 shows median debt payment to income ratios by
income class and age.

A further examination of debt burden was made for this thesis.
It is discussed below.

Classification of Debtors According to Burden

The sample of 1223 debtors was divided by degree of debt
burden on the basis of liquid asset holdings, income class, and debt
payment-income ratio.[5] Each debtor was classified as being "in deep

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[3]Ibid., 152.

[4]Ibid.

[5]The Survey Research Center sample included an additional
194 debtors who were omitted from this analysis due to unusual spending
or borrowing behavior or incomplete information. See Chapter 3 for a
discussion of the eliminated debtors.

trouble" or not and as "in some trouble" or not, to form the two dependent variables. The first step was to sort out respondents whose liquid assets exceeded debt by at least $200. This criterion identified debtors who could liquidate their debt if desired and in addition had a minimum of $200 for emergencies or for a transaction balance. There were 351 respondents, 29 per cent of the sample, in this group. These respondents were considered lightly burdened and classified as not in trouble for both dependent variables.

TABLE 4.1

MEDIAN RATIO OF ANNUAL INSTALLMENT DEBT PAYMENTS TO
DISPOSABLE INCOME BY INCOME AND AGE GROUPS - 1960

	Debt payments as per cent of income
Income Class	
Under $2000	20
$2000-4999	15
$5000-7499	13
$7500-9999	10
$10,000 and over	10
Age, Head of Spending Unit	
18-24	22
25-34	13
35-44	13
45-54	12
55-64	13
65 and over	14

Source: 1960 Survey of Consumer Finances, Table 8-7, p. 161.

The remaining 71 per cent of the sample was then classified by income class and debt payment-income ratio. Table 4.2 below shows

the percentage of respondents falling into each group. For both dependent variables respondents with 40 per cent or more of their income going for debt payments were considered heavily burdened regardless of income class as well as those with 20 to 39 per cent ratios who had less than $4000 disposable income. At the lighter end of debt burden, all who had a debt payment commitment less than 10 per cent were judged as lightly burdened along with respondents who had income of at least $6000 and ratios between 10 to 19 per cent. The classification of the remaining respondents in the 10 to 39 per cent debt payment-income ranges differentiated the two dependent variables. They were included with the heavily burdened in the estimator of "in some trouble" and with the lightly burdened for the estimation of the probability of "in deep trouble." The dotted lines on the table indicate the divisions.

Table 4.3 shows the percentage of debtors which were classified as in trouble according to the above scheme. Computations were made for the entire sample and subsets.

TABLE 4.2

PERCENTAGE DISTRIBUTION OF DEBTORS BY INCOME CLASS, LIQUID
ASSETS, AND RATIO OF ANNUAL INSTALLMENT DEBT
PAYMENTS TO DISPOSABLE INCOME[a]

	RATIO: Debt payments to income					
	Less than .10	.10 to .19	.20 to .39	.40 or more	Not available	Total
A. Liquid assets are less than debt plus $200						
BY INCOME CLASS:						
Less than $4000	6	8	8	3	-	25
$4000-5999	8	11	6	b	-	26
$6000 or more	6	11	3	0	-	20
B. Liquid assets exceed debt by at least $200	18	8	1	b	1	29
TOTAL	38	38	19	4	1	100

[a] subtotals may not add to totals due to rounding

[b] less than 0.5 per cent

Note: The 11 per cent of debtors falling to the right and above the shaded area were classified in deep trouble. To these were added the 28 per cent of debtors in the shaded area for classification in some trouble.

TABLE 4.3

PERCENTAGE OF RESPONDENTS CLASSIFIED IN SOME TROUBLE AND
IN DEEP TROUBLE WITH REGARD TO INSTALLMENT DEBT

	Per cent in some trouble	Per cent in deep trouble
Entire sample	40	11
Income class under $1000	83	53
Income class $1000 and over	39	10
Income class under $2000	68	40
Income classes $2000 and over	38	9
Southern region	51	19
All regions except South	35	8

CHAPTER V

WHAT LEADS TO EXCESSIVE INSTALLMENT DEBT?

The major hypotheses of this study suggested answers to the question of what leads to excessive installment debt. The hypotheses may be paraphrased as follows: as spending units consume more (or less) housing, automobiles, and other durables than the averages for their income classes, the more (or less) likely they are to have excessive debt. In other words, spending units who overconsume housing, automobiles, and other durables are likely to be in trouble with regard to installment debt and underconsumers are unlikely to be in such trouble. Graphic, tabular, and regression analysis were used to test the hypotheses. Results are presented in this chapter.

Preliminary Analysis

The proportion of spending units in deep trouble and in some trouble for various values of each independent variable are shown in Figures 5.1, 5.2, 5.3, and 5.4.[1] Table D.1 contains data from which these figures have been derived.

Instead of the expected positively sloping curves, "U" shaped curves emerged, with the strongest relationship existing at

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[1]The extreme classes of each independent variable are plotted at the value of the median observation in each class. All other classes are plotted at the class midpoint. The median value was considered more representative of the extreme classes than the midpoint due to a skewed distribution of the observations. For each independent variable the lowest class was skewed to the left and the highest to the right.

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the extreme classes of each independent variable. This implied that
debtors who greatly underconsumed housing, automobiles, and other
durables, as well as those who overconsumed, were those in trouble.
Since the scales are the same for all variables, the wider "U's"
for the automobiles and housing variables compared with the nonauto-
motive durable goods variable reflect larger expenditures for the
former categories, which made larger deviations possible. (Expend-
iture values used in constructing the variables appear in Table C.2.)

It was speculated that the underconsumers who were in trouble
were those attempting to balance high consumption in one or two
categories with low consumption in the remaining. For example, a
debtor in trouble could have had exceedingly high consumption of
housing compared with others in his income group, but no or low con-
sumption of automobiles and other durables. He would appear in the
right hand portion of the housing curve but in the left hand portions
of the automobile and nonautomotive durable curves, since he would be
an underconsumer of the latter two categories.

If the above example were generally true, the negative relation-
ship would not appear between trouble due to debt and the summation
variable, which was formed by algebraically summing the other three
variables. However, as may be seen in Figure 5.4, a wide, shallow
"U" resulted for the summation variable. The negative slope means that
many who underconsumed in all consumption categories were in trouble
with regard to installment debt. But debt trouble for these debtors
was not due to high consumption for housing, automobiles, or other
durables. Rather it was due to variables not included in this study,
such as debt incurred for medical expenses, bill consolidation or

FIGURE 5.1

RELATIONSHIP BETWEEN AUTOMOBILE VARIABLE AND
PERCENTAGE OF RESPONDENTS IN TROUBLE[a]
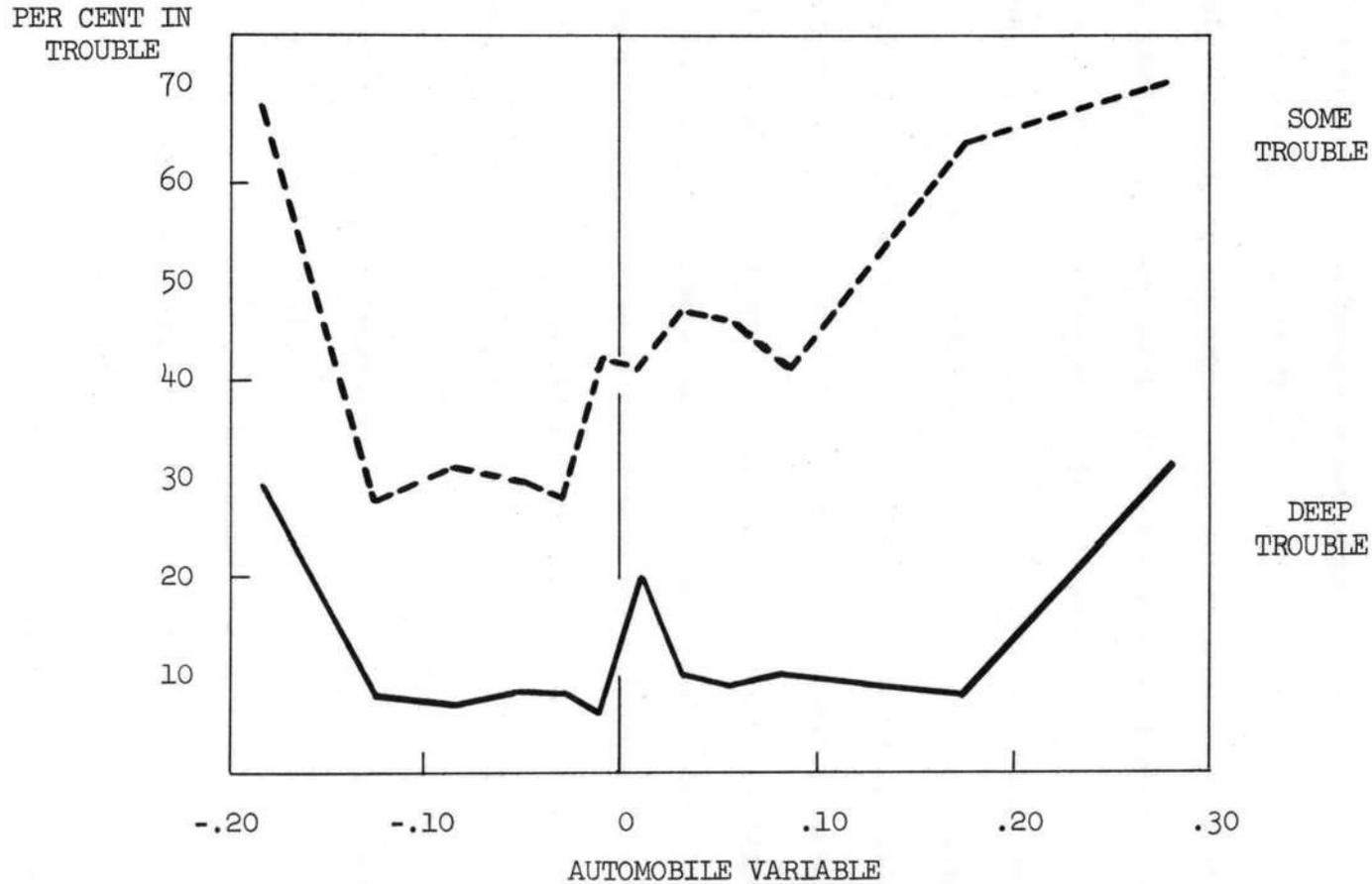
[a]Per cents are plotted at the midpoint of each class except the highest and lowest classes which are plotted at the value of the median observation.

FIGURE 5.2

RELATIONSHIP BETWEEN NONAUTOMOTIVE DURABLE GOODS VARIABLE
AND PERCENTAGE OF RESPONDENTS IN TROUBLE[a]
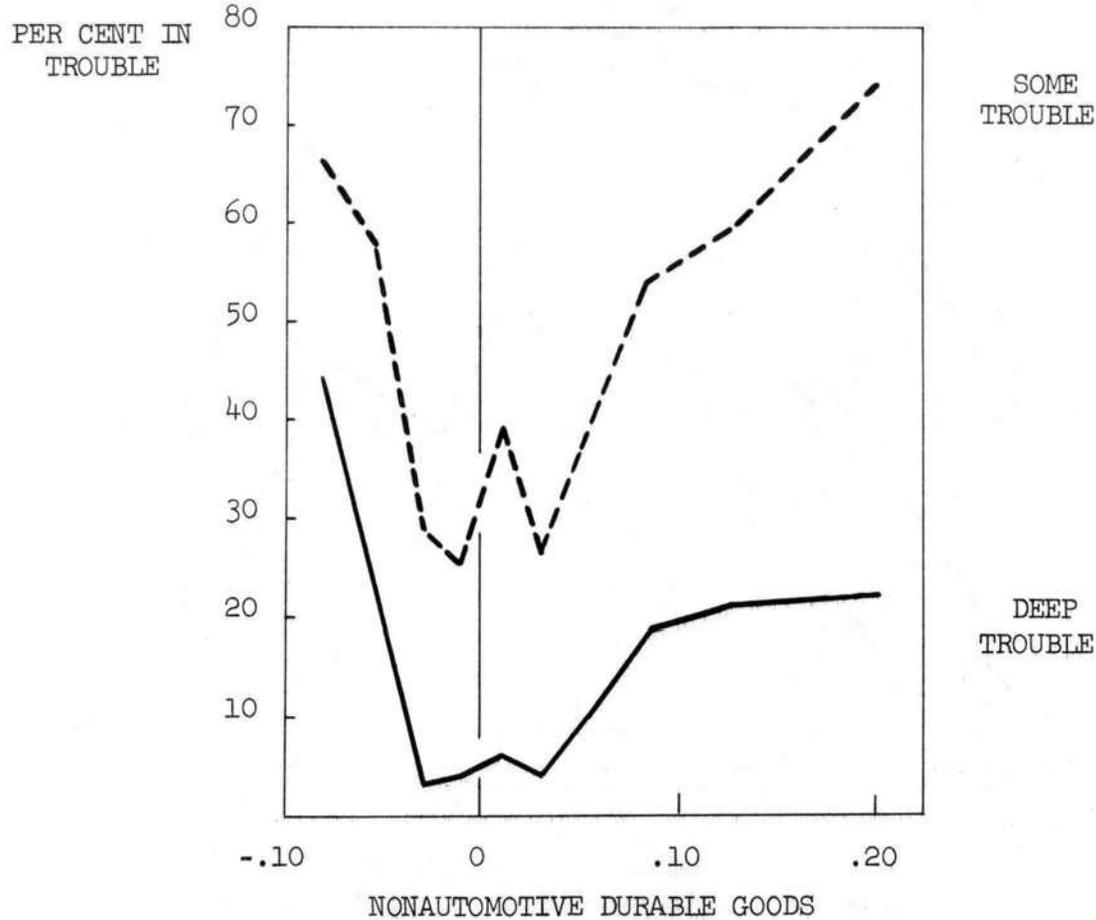
[a]Per cents are plotted at the midpoint of each class except the highest and lowest classes
which are plotted at the value of the median observation.

FIGURE 5.3

RELATIONSHIP BETWEEN HOUSING VARIABLE AND
PERCENTAGE OF RESPONDENTS IN TROUBLE[a]
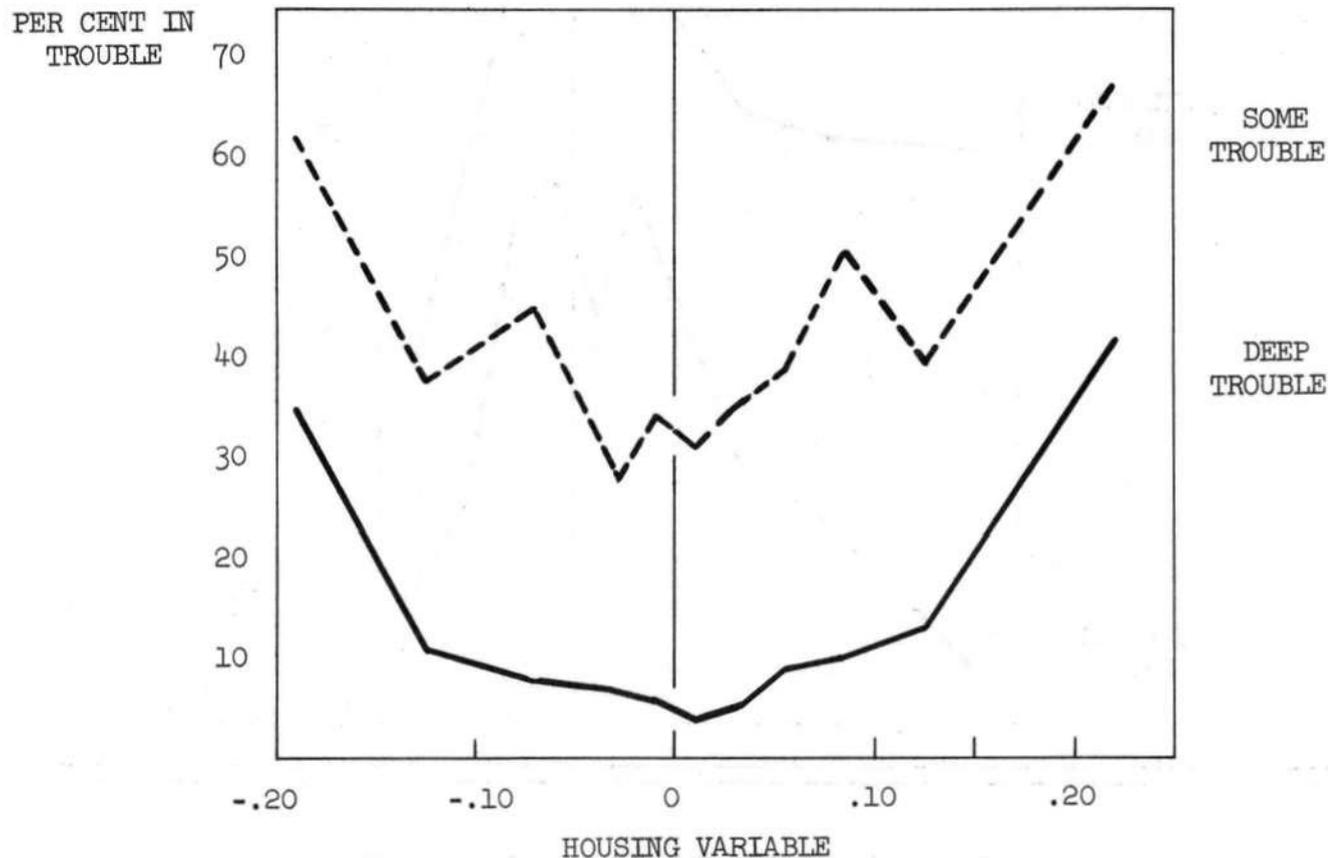
[a]Per cents are plotted at the midpoint of each class except the highest and lowest classes
which are plotted at the value of the median observation.

FIGURE 5.4

RELATIONSHIP BETWEEN SUMMATION VARIABLE AND
PERCENTAGE OF RESPONDENTS IN TROUBLE[a]
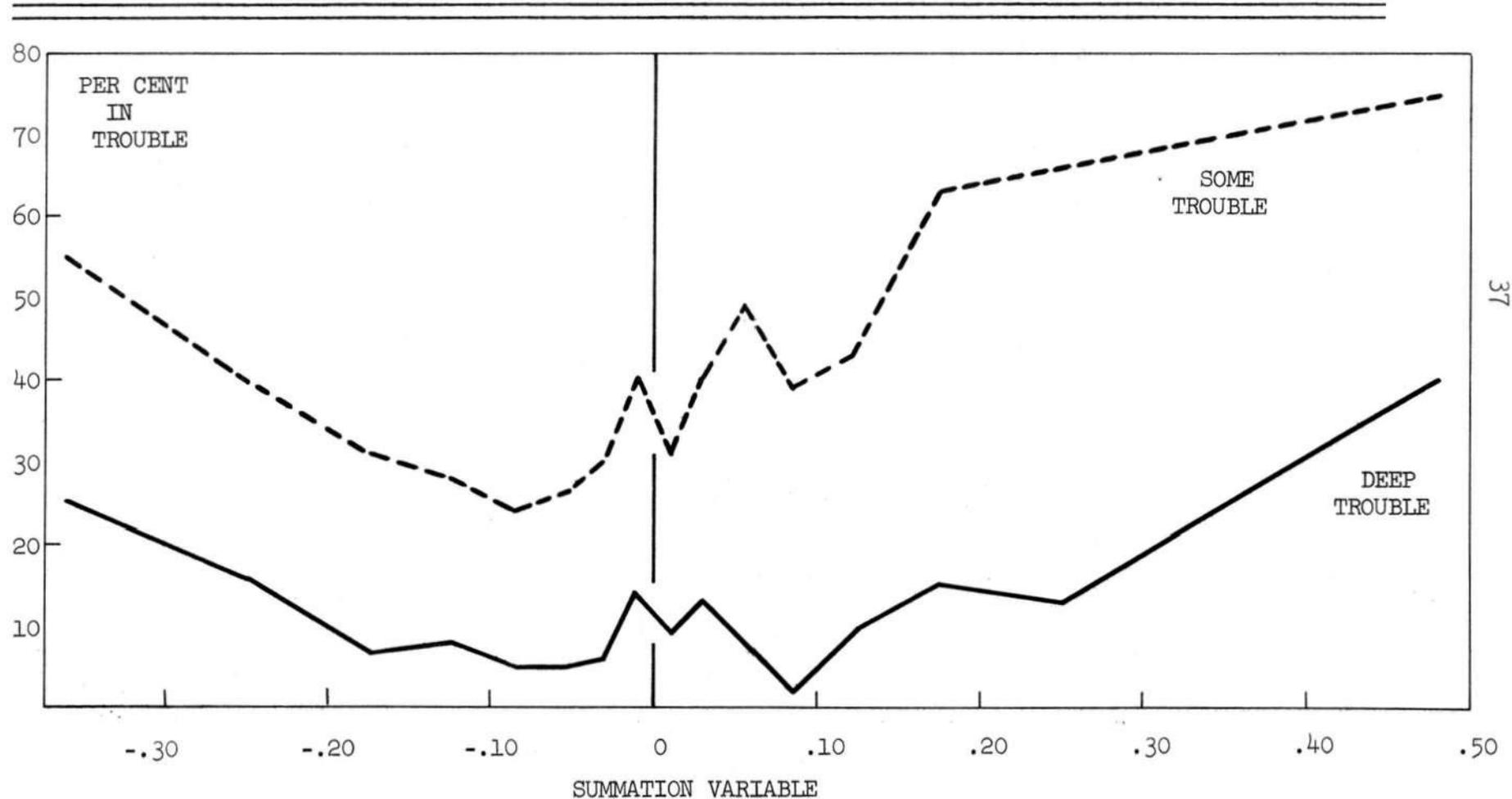
[a]Per cents are plotted at the midpoint of each class except the highest and lowest classes which are plotted at the value of the median observation.

current living expenses. The wide range of the summation variable was anticipated. It was the consequence of deviations in the same direction for two or three of the other independent variables for given respondents.

Table 5.1 was prepared to further answer the question of what characterized debtors in trouble who underconsumed housing, automobiles and/or other durables. Debtors in deep trouble were found to be more likely to have no cars and to have no expenditures for housing or nonautomotive durables than others. The difference is not as marked for debtors in some trouble, but the direction is the same. Hence the conclusion from the graphic analysis is supported: for many debtors excessive installment debt is not associated with high consumption of the three categories of family living expenditures which give rise to most installment debt.

Next two subsets of the sample were examined to see if the relationships between dependent and independent variables were affected. Respondents with incomes less than $1000 and those living in the South were alternately omitted from the analysis.[2] The negative relationships for the automobile and summation variables were less for both subsets than for the full sample of debtors. In addition, the exclusion of Southern debtors, reduced the positive relationship between the probability of some trouble and the housing and nonautomotive durable goods variables. However, the underlying "U" shapes persisted for all variables for both dependent variables. Supporting data appear in the appendix, Tables D.2 and D.5.

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[2] _Supra_, chap. iii, p. 22.

TABLE 5.1

PERCENTAGE OF DEBTORS WITH NO AUTOMOBILES AND NO EXPENDITURES
FOR HOUSING AND NONAUTOMOTIVE DURABLES BY DEBT
TROUBLE CLASSIFICATIONS

	Per cent of debtors in each trouble classification			
	In deep trouble (N = 139)	Not in deep trouble (N = 1084)	In some trouble (N = 495)	Not in some trouble (N = 728)
(1) No. housing expense	27	16	19	17
(2) No automobile value	23	13	16	14
(3) No net outlay for nonautomotive durables	56	43	46	43
(4) No for one, but only one of above categories[a]	46	43	44	43
(5) No for two, but only two of above categories[a]	22	13	16	13
(6) No for all three categories[a]	5	2	2	2
(7) No for at least one category[b]	73	57	62	57

[a]Reference is to categories of consumption on lines (1), (2), (3).

[b]Line (7) is the sum of lines (4), (5) and (6).

Regression Analysis

The "U" shaped relationships observed in the graphic analysis suggested that quadratic or parabolic functions would be appropriate for regression estimates. Equation (a) represents the model used, where Y is the 0,1 dependent variable;

$$\text{(a)} \quad Y = a + bA + cA^2 + \mu$$

A is the automobile variable; a, b, and c are intercept and slope parameters; and μ is a normally distributed, mean-zero disturbance with finite variance. To give the "U" shaped parabolas positive values of a and c were expected. If the negative relationship between the dependent and independent variables was stronger than the positive relationship, b would be negative; if the converse were true, b would be positive. Corresponding models for the housing (H), non-automotive durable goods (D), and summation (S) variables also were formed. In addition, linear and squared forms of A, D, and H were included together in multiple regression equations to obtain the net effect of each independent variable on the dependent variables. The use of quadratic functions and 0,1 dependent variables posed special interpretation problems.

Interpretation. -- First assume that equation (a) has been estimated by regression techniques. Then equation (b) would represent the estimated equation, where $\hat{a}$, $\hat{b}$, and $\hat{c}$ are

$$\text{(b)} \quad \hat{Y} = \hat{a} + \hat{b}A + \hat{c}A^2$$

parameter estimates and $\hat{Y}$ is the computed value of Y given an observation on A. The computed values of Y, indicated by $\hat{Y}$, are interpreted in this study as the probability of being in deep trouble or in some trouble with regard to installment debt.

Regression coefficients are estimates of the net change in the dependent variable, given a one unit increase in the independent variable. But, since these models are curvilinear, the estimated effect of changes in A, D, or H on the probability of having debt trouble depends upon the level of the independent variable under consideration. For example, in order to estimate the change in the probability of having debt trouble, given a specified change in the automobile variable, the following relationship can be used:

$$(c) \quad \Delta\hat{Y} = (b + 2cA)\Delta A + c(\Delta A)^2, \text{ where } \Delta \text{ indicates}$$
$$\text{change.}[3]$$

Similar relationships can be developed for equations in which other independent variables appear in quadratic form.

Interpretation of statistics to measure the degree of association between independent and dependent variables also requires special mention. Low values of coefficients of determination (R^2) were expected for two reasons. (1) R^2 measures the degree of linear relationship but perfect linear correlation is impossible between 0,1 dependent variables and independent variables. To avoid this problem, a correlation ratio (e^2) can be used since it measures goodness of fit without the linear restriction. To compute e^2 the observations are grouped according to independent variable values and the mean found for each group. For instance, debtors were grouped according to their values of A, then the proportions in deep trouble and in some trouble found for each group. e^2 is defined as follows:

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[3]The relationship follows from application of the "delta process" described in most calculus text books. For example, see W. Hart, Analytical Geometry and Calculus (Boston: Heath and Company, 1957), Chapter 5.

$$e^2 = \frac{\Sigma\, n_i\, (\overline{Y}_i - \overline{Y})^2}{\Sigma\, \Sigma\, (Y_{ij} - \overline{Y})^2}$$

where $\overline{Y}_i$ is the mean of the ith group consisting of n_i observations and $\overline{Y}$ is the mean of all observations.[4] (2) Low values of R^2 and e^2 were both likely due to response errors occurring in data obtained by personal interview. Such errors increase the variability of dependent and independent variables, resulting in reduced likelihood of explaining the variation. For the above reasons R^2 and e^2 were considered less important in interpreting the results than the regression coefficients.

Results. -- Regression results are shown in Table 5.2. In individual equations, A, D, H, and S, each showed significant relationships with the two dependent variables, "deep trouble" (DT) and "some trouble" (ST). However in most equations either the linear or squared form of the variable was not significant. The simple correlation between the linear and squared forms of a variable is often substantial. When the correlation between the dependent variable and one form of the independent variable is lower than the intercorrelation between the two forms of the independent variable, the standard error of the independent variable may be large relative to its coefficient.[5]

Larger coefficients on D^2 and H^2 compared with A^2 and S^2 reflect the stronger curvilinear effect of the former, indicated

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[4]For a detailed discussion of e^2 see Neter and Maynes, op. cit.

[5]Simple correlation coefficients among the variables are displayed in Table D.8. High intercorrelation among the independent variables was not a major problem.

TABLE 5.2

REGRESSION RESULTS

Equation[a]	Constant	A	A^2	D	D^2	H	H^2	S	S^2	Standard Error of Estimate	R^2	e^2[b]
Dependent variable = Deep trouble (DT)												
(1)	.11 (.01)	.01[n] (.05)	.05 (.02)							.32	.01	.06
(2)	.10 (.01)			-.76 (.18)	2.62 (.41)					.31	.03	.12
(3)	.10 (.01)					-.20 (.07)	.56 (.08)			.31	.05	.10
(4)	.11 (.01)							.01[n] (.04)	.03 (.01)	.32	.01	.07
(5)	.10 (.01)	.19 (.06)	-.03[n] (.02)	-.57 (.17)	1.60 (.45)	-.19 (.08)	.55 (.10)	-	-	.31		.07

TABLE 5.2 -- Continued

Equation[a]	Constant	A	A^2	D	D^2	H	H^2	S	S^2	Standard Error of Estimate	R^2	e^2[b]
Dependent variable = Some trouble (ST)												
(6)	.41 (.01)	.31 (.08)	$-.03^n$ (.03)							.49	.01	.08
(7)	.40 (.01)			$-.03^n$ (.26)	1.35 (.64)					.49	.01	.10
(8)	.40 (.01)					$-.16^n$ (.12)	.40 (.19)			.49	.01	.05
(9)	.41 (.01)							.23 (.06)	$-.02^n$ (.02)	.49	.01	.08
(10)	.40 (.01)	.51 (.09)	-.11 (.03)	$.17^n$ (.27)	$.46^n$ (.70)	-.29 (.12)	.66 (.15)	-	-	.48	.04	
(11)	.40 (.01)	.52 (.09)	-.12 (.03)	-	-	-.31 (.12)	.73 (.14)	-	-	.48	.03	

[n] nonsignificant at the .05 level

[a] equations estimated were of the following forms: $Y = a + bX + cX^2$; $Y = a + bA + cA^2 + dD + eD^2 + fH + gH^2$ where $Y = DT$ or ST and $X = A$ or D or H or S

[b] correlation ratio

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graphically in Figures 5.2 and 5.3. In equations 5, 6, 9, 10 and 11 the coefficients of the squared terms for A or S were negative. This indicates that the estimated parabolas are "∩" shaped rather than "U" shaped. In these cases, however, the vertex of the estimated parabolas are at or very near the maximum positive values of the A and S variables, see Figures 5.1 and 5.4. Thus, the strong positive relationship between these independent variables and debt trouble overrides the "U" shaped relationship that appears in the graphs.

The correlation measures, R^2 and e^2, together with the standard errors of the estimate, indicate the D and H were more reliable predictors of DT than were A or S. The three independent variables used together in a multiple curvilinear regression on DT were significant, equation 5. Together they account for more of the variation in the deep trouble variable than any one alone or the summation variable, S.

The relationships between the independent variables and ST were less strong than was true for DT. Durable goods (D) was the best predictor when independent variables were taken individually, but this variable, was not significant at the five per cent level in the multiple regression, equation 7, 10 and 11.

Predicted probabilities of DT and ST based on equations in Table 5.2 and the marginal effect of each independent variable calculated from equation (c) above, for various values of each independent variable, are shown in Table 5.3. The values of independent variables shown are those used in constructing Figures 5.1, 5.2, 5.3 and 5.4. Since the effects are strongest for very high and very

TABLE 5.3

PREDICTED PROBABILITIES OF TROUBLE $(\hat{Y})$[a], AND MARGINAL
EFFECT $(\Delta\hat{Y})$[b], FOR VARIOUS CONSUMPTION LEVELS OF
AUTOMOBILES, OTHER DURABLES AND HOUSING[c]

| | Probability of trouble | | | |
| | Deep | | Some | |
Summation Variable (S)	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
- .903[e]	.13	- .01	.19	.08
- .360[f]	.11	d	.32	.07
- .250	.11	d	.35	.07
- .175	.11	d	.37	.07
- .125	.11	d	.38	.07
- .085	.11	d	.39	.07
- .055	.11	d	.40	.07
- .030	.11	.01	.40	.07
- .010	.11	.01	.41	.07
0	.11	.01	.41	.07
.010	.11	.01	.41	.07
.030	.11	.01	.42	.07
.055	.11	.01	.42	.07
.085	.11	.01	.43	.07
.125	.11	.01	.44	.07
.175	.11	.01	.45	.07
.250[f]	.11	.01	.47	.06
.480[f]	.12	.01	.52	.06
3.245[e]	.46	.06	.95	.03

| | Deep | | Some | |
Automobile Variable (A)	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
- .850[e]	.14	- .01	.12	.08
- .180[f]	.11	d	.35	.07
- .125	.11	d	.37	.07
- .085	.11	d	.38	.07
- .055	.11	d	.39	.07
- .030	.11	d	.40	.07
- .010	.11	d	.41	.07
0	.11	d	.41	.07
.010	.11	d	.41	.07
.030	.11	.01	.42	.07
.055	.11	.01	.43	.07
.085	.11	.01	.44	.07
.125	.11	.01	.45	.07
.175[f]	.11	.01	.46	.06
.280[f]	.12	.01	.49	.06
2.607[e]	.48	.06	1.01	.03

TABLE 5.3 -- <u>Continued</u>

Nonautomotive Durable Goods Variable (D)	Probability of trouble Deep $\hat{Y}$	$\Delta\hat{Y}$	Some $\hat{Y}$	$\Delta\hat{Y}$
- .100[e]	.20	- .09	.42	- .02
- .080[f]	.18	- .08	.41	- .01
- .055	.15	- .07	.41	- .01
- .030	.13	- .06	.40	d
- .010	.11	- .05	.40	d
0	.10	- .04	.40	.01
.010	.09	- .04	.40	.01
.030	.08	- .03	.40	.01
.055	.07	- .02	.40	.02
.085	.05	- .01	.41	.02
.125[f]	.05	.01	.42	.03
.200[f]	.05	.04	.45	.05
.500[e]	.38	.17	.72	.11

Housing Variable (H)	Deep $\hat{Y}$	$\Delta\hat{Y}$	Some $\hat{Y}$	$\Delta\hat{Y}$
- .622[e]	.44	- .11	.65	- .08
- .190[f]	.16	- .05	.44	- .04
- .125	.13	- .04	.43	- .03
- .070	.12	- .03	.41	- .02
- .030	.11	- .02	.41	- .02
- .010	.10	- .02	.42	- .02
0	.10	- .02	.40	- .01
.010	.10	- .02	.40	- .01
.030	.09	- .01	.40	- .01
.055	.09	- .01	.39	- .01
.085	.09	d	.39	- .01
.125[f]	.08	d	.39	- .01
.220[f]	.08	.02	.38	.01
.994[e]	.45	.14	.64	.10

[a]Computed from equations 1-4 and 6-9 in Table 5.2.

[b]Computed from equation (c), page 41. The values used for Δ were one standard deviation for the respective variable, as follows: A, .22; D, .08; H, .14; S, .30.

[c]Consumption levels used are midpoints of class intervals used in Figures 5.1, 5.2, 5.3 and 5.4, and 0, the expected value of the variables.

[d]$-.005 \leq \Delta\hat{Y} \leq .005$

[e]Midpoint of lowest/highest class

[f]Value of median observation in lowest/highest class

low values of each independent variable, estimates were made for
midpoints of extreme classes as well as for the value of the
median observation. The values used for Δ in equation (c) were
the respective standard deviations for S, A, D and H.

An examination of the data presented in Tables 5.2 and 5.3
permit the following conclusions:

(1) the probability of <u>deep</u> <u>trouble</u> increased with a net
increase of automobile consumption, as hypothesized. But the
marginal effect on deep debt trouble of consumption increases of
other durable goods and housing was negative for most of the range
of these two variables.[6] Taken individually, and using the correla-
tion ratio as the criteria, nonautomotive durable goods consumption
was more closely associated with deep trouble than automobile or
housing consumption.

(2) the summation variable did reflect the balancing of
under- and overconsumption among the three categories of consumption
tested (A,D,H,), resulting in a positive relationship between this
variable and the probability of <u>deep</u> <u>trouble</u> for most respondents.[7]

(3) significant predictors of the probability of <u>some</u>
<u>trouble</u> were automobile and housing consumption. Automobile
consumption had the expected positive relationship and housing the
reverse, over most of their ranges. However, in individual regress-
ions nonautomotive durable goods consumption was most highly related
to some trouble.

---

[6] Approximately 95 per cent of respondents had values of D
and H which fell in negative portion of the regression curve for each
of these two variables.

[7] Only fifteen per cent of the respondents with extremely low
values of S fell in the range where DT increased as S decreased.

(4) in the prediction of some trouble, the summation
variable behaved as hypothesized, with a positive relationship.

(5) the tested independent variables were better predictors
of deep trouble than of some trouble although they accounted for
only a small amount of the variation of both dependent variables.

Table 5.4 below illustrates how equations (5) and (11)
from Table 5.2 may be used to predict the probabilities of deep and
some trouble for four respondents, all in the same income class
($4000-4999), but with various levels of housing, automobile and
other durable goods consumption.

Results of regression analysis for the two subsets of debtors--
those with incomes $1000 or more (Subset I) and those in all regions
except the South (Subset II)--are presented in Appendix D.   Neither
modification improved the explanatory powers of the independent
variables nor changed the direction of the relationships obtained in
the analysis of the full sample.   However, some differences were
observed.

In Subset I the housing variable dropped out of the multi-
variate estimation of the probability of deep trouble; and, neither
housing nor nonautomotive durable goods consumption had significant
relationships with the probability of some trouble when considered
along with automobile consumption.   Therefore, the negative relation-
ship between housing consumption and debt trouble observed in the full
sample resulted from the behavior of very low income debtors.

In multiple regression analysis of Subset II, automobile and
housing consumption were significantly related to deep trouble.   Only
automobile consumption has a significant relationship with the prob-
ability of some trouble.

TABLE 5.4

EXAMPLES OF THE EFFECTS OF INDEPENDENT VARIABLES FOR
VARIOUS VALUES OF CONSUMPTION OF AUTOMOBILES,
NONAUTOMOTIVE DURABLES AND HOUSING

	Disposable Income (Dollars)	Automobile	Nonautomotive Durable Goods	Housing	Constant Term	Probability of Trouble Deep[a]	Some[b]
Mean value for income class[c] ($4000-4999)		$ 619	$ 181	$600		.01	.52
Example (1)	4860						
Actual value of consumption		$1540	0	0			
Effect of independent variables -- deep trouble		.03	.02	.03	.10	.19	
Effect of independent variables -- some trouble		.09	-	.05	.40		.54
Example (2)	4440						
Actual value of consumption		$1453	0	$480			
Effect of independent variables -- deep trouble		.03	.03	.01	.10	.16	
Effect of independent variables -- some trouble		.09	-	.01	.40		.50
Example (3)	4871						
Actual value of consumption		$ 170	$ 556	$744			
Effect of independent variables -- deep trouble		-.02	-.03	-.01	.10	.04	
Effect of independent variables -- some trouble		-.05	-	-.01	.40		.34

TABLE 5.4 -- Continued

	Disposable Income (Dollars)	Automobile	Nonautomotive Durable Goods	Housing	Constant Term	Probability of Trouble Deep[a]	Some[b]
Example (4)	4743						
Actual value of consumption		0	$1090	$804			
Effect of independent variables -- deep trouble		-.03	-.05	-.01	.10	.02	
Effect of independent variables -- some trouble		-.07	-	-.01	.40		.32

[a]Estimates obtained from $DT = .10 + .19A - .03A^2 - .57D + 1.60D^2 - .19H + .55H^2$ (equation (5) Table 5.2)

[b]Estimates obtained from $ST = .40 + .52A - .12A^2 - .31H + .73H^2$ (equation (11) Table 5.2)

[c]Probabilities of trouble are not computed values but actual proportions of respondents in deep trouble and in some trouble in this income class.

Note: Effects of independent variables plus the constant term may not equal probabilities estimated from the equations due to rounding.

CHAPTER VI

WHO HAS EXCESSIVE INSTALLMENT DEBT?

Characteristics of excessively indebted consumers are
summarized in this chapter. The findings were obtained through
graphic and tabular analysis. The relationships between the prob-
abilities of deep trouble and some trouble and economic and demo-
graphic characteristics of debtors are portrayed in Figure 6.1.[1]
The discussion below does not differentiate between deep trouble
and some trouble except when findings differ for the two
classifications.

Personal Characteristics. -- In general, those most apt
to have installment debt were not likely to be in trouble as
infrequent users. Married, middle income spending units, between
25 and 44 years use installment credit the most, yet the greatest
proportions of debtors in trouble were found among the unmarried
(especially the widowed, divorced and separated), the poor, and
those under 25 or 65 or older. At least half of the debtor spending
units headed by a woman and/or a Negro had moderately heavy install-
ment debt burdens and therefore were classified as in some financial
trouble. Education showed an inverse relationship with debt trouble.

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[1]Table E.1 contains data from which the figure was constructed.

The relationship between the number of people in the spending unit and trouble from debt is irregular. The figure shows a somewhat larger share of one person spending units in trouble than those with two or more persons. However, the reader should consider that the same criteria were used to classify all sizes of spending units as in trouble or not.[2] It is possible that one person spending units could bear a higher debt to income ratio than larger units since income requirements for basic needs are less.

Economic characteristics. -- Trouble from debt was inversely related to income and liquid assets, not surprisingly, since these two variables were used in classifying the debtors as in trouble or not. The sharp drops in proportions in deep trouble above $4000 and in some trouble above $6000 income are due to use of these values as cutoff points in the classification scheme. It is interesting to note that 13 per cent of debtors with incomes of $10,000 or more are in some trouble. Six per cent of the sample are in this group.

As the amount of debt outstanding increased, the probability of some trouble also increased. A similar relationship existed between debt amount and deep trouble, but not as marked. The proportion of debtors in deep trouble tended to level out above $500 outstanding. This may reflect the fact that larger loans frequently have longer maturities thus the current burden (repayment size) does not increase with loan size above $500.

The higher than average proportion of debtors in trouble for those whose income was no more than 75 per cent of the previous

---

[2]See previous discussion of the criteria used to classify debtors. Supra, chap. iv, p. 27.

year's income confirmed the expectation that financial difficulties
due to installment debt result when income declines. The slightly
above average incidence of trouble for debtors with incomes 125
per cent or more than the previous year may result from the
anticipation by debtors of further income increases. In such
circumstances some debtors incur debt on the basis of expected income.

Laborers and service workers are the only employee groups
especially marked by debt trouble. Nonemployed persons--the
unemployed and the retired--also tended to have above average pro-
portions in trouble. Many in the latter two groups would have
experienced income declines, mentioned above as associated with
debt trouble. Also related to the occupation variable is the
number of weeks worked by the debtor during the previous year.
Less than fulltime employment is associated with above average
likelihood of being in trouble with regard to installment debt.
Laborers, service workers, the unemployed and the retired would
be more apt to have less than full employment than other occupation
categories. Relationships likewise exist between occupation groups
associated with debt trouble and the less educated, the young and
old, Negroes, and the poor.

Other characteristics. -- Southern debtors are more likely
than others to be in trouble with regard to installment debt. Also,
those living outside of major metropolitan areas had above average
incidence of trouble. However, incomes and living costs tend to be
lower in the South and in nonmetropolitan areas. Therefore some
debtors in these groups may have been misclassified as in trouble
according to the criteria used.

Debtors who own their own homes are less likely to be in trouble with regard to installment debt than those with other housing arrangements. The probability of trouble for the renter is slightly higher than for owners, but those who neither own nor rent are extremely susceptible. The latter category is small (4 per cent of all debtors) and includes those who live in trailers, rent part of another's dwelling, or receive shelter as part of their income. For the last group, income would be underestimated since income-in-kind is not considered in this study. The result would be to classify some debtors in trouble based on their money income when in fact their real income would permit their level of debt payments without difficulties.

There was a slight tendency for spending units who had moved into their residences within the previous year and those living there 20 years or more to be more likely than others to have debt trouble. This finding corresponds with the age relationship mentioned above.

The 14 per cent of the sample with two or more cars were less likely to have debt trouble than the others. Having no car was associated to a greater extent with deep trouble than car ownership. Undoubtedly, income, which was not held constant, affected this relationship. Income is positively related to car ownership but inversely related to debt trouble.

FIGURE 6.1

PERCENTAGE OF DEBTORS IN TROUBLE WITH REGARD TO INSTALLMENT
DEBT BY SELECTED ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS

FIGURE 6.1 -- Continued

Per cent in trouble

ALL DEBTORS

LIFE CYCLE

Under 45 years old:
  Unmarried, no children[b]

  Married, no children

  Married, youngest child
    under 6
  Married, youngest child
    6 or older

45 or older:
  Married, children

  Married, no children,
    head working
  Married, no children,
    head retired
  Unmarried

SEX OF HEAD

Man

Woman

NO. OF PEOPLE IN SPENDING UNIT

1

2

3

4

5

6

7[b]

8 or more[b]

58

FIGURE 6.1 -- <u>Continued</u>

FIGURE 6.1 -- _Continued_

Per cent in trouble

ALL DEBTORS
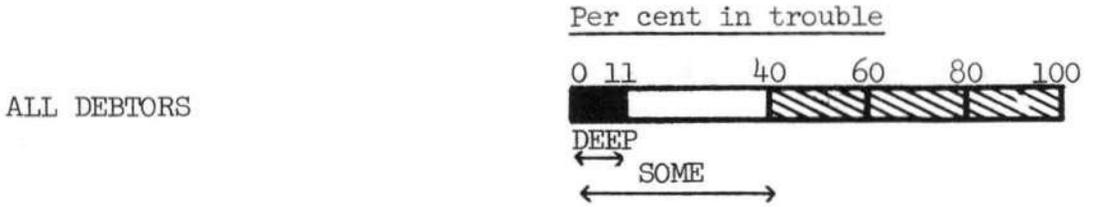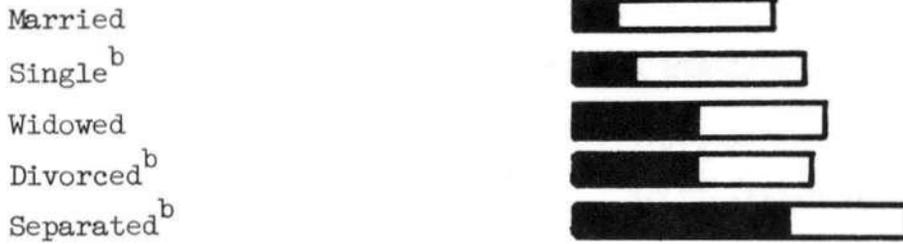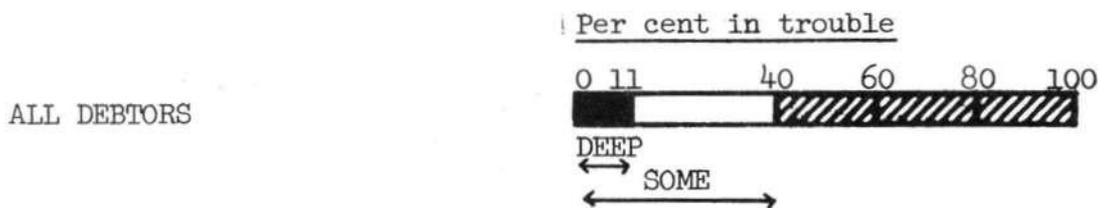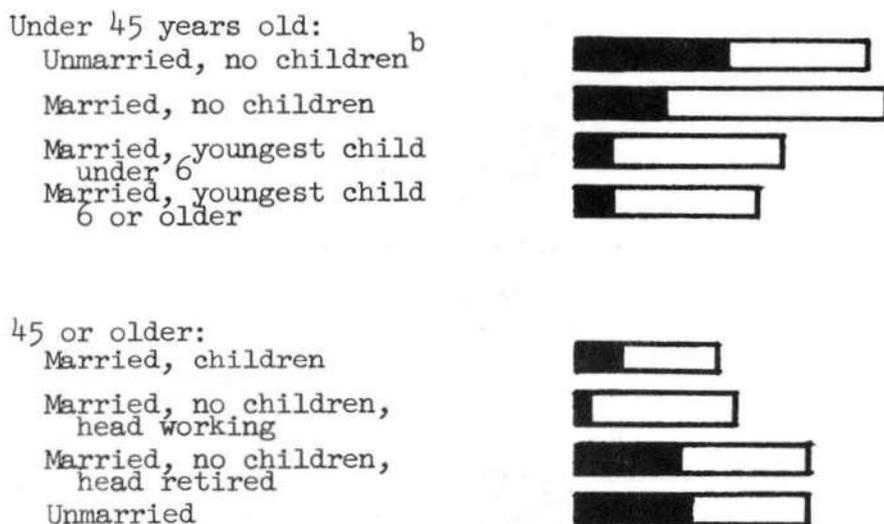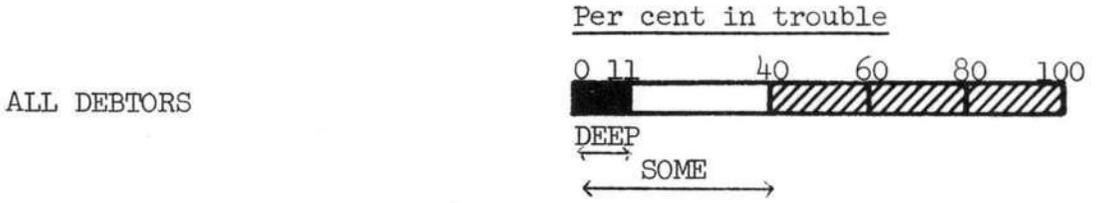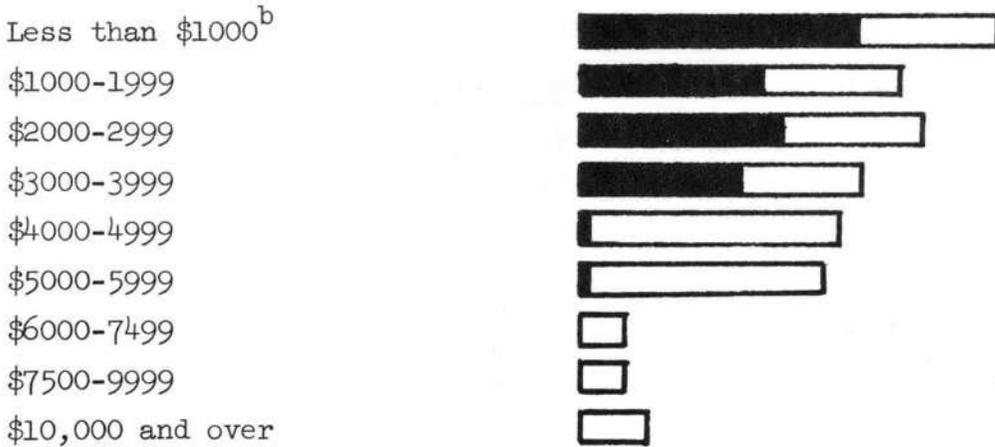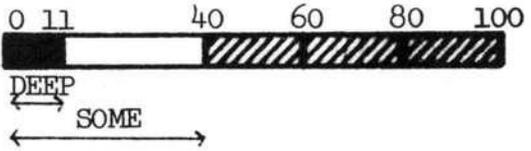
INCOME CHANGE: 1958 to 1959

125% or more
105-124%
96-104%
76-95%
75% or less

OCCUPATION

Professional, technical

Unemployed

Managers, officials,
  self employed

Clerical, sales

Craftsmen, foremen

Operatives

Laborers, service workers

Miscellaneous[b]

Retired[b]

NO. OF WEEKS WORKED FULLTIME

Less than 13[b]
14-26[b]
27-39
40-47
48-49[b]
50-52

FIGURE 6.1 -- <u>Continued</u>

ALL DEBTORS

Per cent in trouble

RACE

White
Negro

EDUCATION OF HEAD OF SPENDING UNIT

0-8 years
9-11 years
12 years
college, no degree
college, degree

REGION

Northeast
North Central
South
West

URBANIZATION

12 largest cities
Other cities 50,000 or larger
Urban: 10,000-49,999
Urban: 2500-9999
Rural: in SMA[a]
Rural: not in SMA[a]

FIGURE 6.1 -- <u>Continued</u>

<u>Per cent in trouble</u>

ALL DEBTORS

```
0 11        40    60    80    100
┌──┬──────┬─────┬─────┬─────┐
│  │      │     │     │     │
└──┴──────┴─────┴─────┴─────┘
DEEP
←→  SOME
←──────────────→
```

HOUSING STATUS

Owner, with mortgage

Owner, no mortgage

Renter

Neither owns nor rents[b]

LENGTH OF RESIDENCE IN PRESENT DWELLING

20 years or more

11-19 years

6-10 years

4-5 years

3 years

2 years

1 year or less

NO. OF CARS OWNED

None

One

Two or three

[a]SMA - Standard Metropolitan Area as defined by Bureau of Census

[b]Contains less than 5 per cent of sample

Source: Appendix Table E.1

CHAPTER VII

SUMMARY AND CONCLUSIONS

Summary

Problem. -- Increasing concern about the quality of consumer
installment credit has accompanied its rapid growth during the post
World War II period. The concern, by Congress, consumer educators
and members of the financial industry, results from possible harm-
ful effects of poor quality credit on the consumer and business
sectors of the economy. Delinquencies in debt payments and stresses
within families due to financial strains are consequences of poor
quality credit. Some research has been done on risks associated
with specific types of financial institutions and on consumers whose
debt has resulted in bankruptcy. However, little is known about
consumers who have not yet defaulted but who are "overburdened"
with debt and whose credit is therefore of poor quality.

Objectives. -- The purpose of this study was to differentiate
the overburdened debtor from the successful user of consumer install-
ment credit. Specifically, the objectives were: (1) to ascertain
and measure factors associated with excessive installment debt burdens,
and (2) to identify economic and demographic characteristics of the
excessively indebted.

Data. -- Data from the 1960 Survey of Consumer Finances,

conducted by the Survey Research Center of the University of Michigan, were used in the analysis. The sample is representative of private households in the 48 contiguous states. Farmers and secondary spending units were omitted from the analysis since their spending patterns differed from those of nonfarm primary spending units.[1] Farmers were excluded because their housing and automobile expenditures practically cannot be separated from farm business expenses. Many secondaries use household durables of the primary unit and no housing expense was attributed to related secondaries. After these exclusions 1223 debtors remained as the sample available for analysis.

Hypotheses. -- The major hypotheses tested were that debtors who overconsumed, relative to their income, for housing, automobiles, and/or other durable goods (nonautomotive) were likely to have excessive installment debt. These categories of consumption were selected since approximately three-fourths of the amount of consumer installment credit outstanding in recent years has been incurred for the purchase of automobiles or other consumer durables, or for home repair and modernization loans. Overconsumers of these three categories of family living expenditures would have put more pressures on their incomes than average- or underconsumers. The pressures were expected to lead to excessive debt; that is, more debt than could be repaid without difficulty.

Dependent variables. -- Excessive debt was determined by the debt, income and liquid asset positions of the debtor. Two degrees

---

[1] A primary spending unit is defined as one or more related people living together who share expenses and incomes. Secondary spending units consist of roomers, boarders or family members who live with a primary unit but who keep separate finances.

of excessive debt were established, forming two dependent variables. The excessively indebted were classified as in some trouble or as in deep trouble with respect to installment debt, the latter being a subgroup of the former.

The classifications were made on the basis of the ratio of installment debt payments to income, income level and liquid asset holdings. Debtors whose liquid assets exceeded debt by at least $200 were not considered in trouble according to either classification. The rest were classified by income class and debt payment to income ratio. Those with 40 per cent of more of their income going for debt payments and those in the 20 to 39 per cent group who had less than $4000 disposable income were heavily burdened and classified in deep trouble. Debtors with less than $6000 income with .10 to .19 debt payment to income ratios and those with incomes of $4000 or more with .20 to .39 ratios had moderately heavy debt burdens.

Eleven per cent of the debtors fell in the deep trouble class, specified by one dependent variable. The some trouble dependent variable included the additional 29 per cent of the debtors who had moderately heavy debt burdens. Therefore, 40 per cent of the debtors were classified in some trouble with respect to installment debt.

Independent variables. -- Three independent variables were formed to measure over or underconsumption of housing, automobiles and other consumer durables, relative to income. For each debtor, the amount he consumed in each category was subtracted from the mean value for all debtors in his income class. The resulting deviation was taken as a proportion of the debtor's income. For example, the measure of relative housing consumption would appear

as follows:

$$H_{ij} = \frac{h_{ij} - \bar{h}_j}{Y_{ij}}$$

where: H_{ij} = value of housing variable for the ith respondent in the jth income class

h_{ij} = value of annual rent or mortgage payments for the ith respondent in the jth income class

$\bar{h}_j$ = mean value of annual housing consumption for the jth income class

Y_{ij} = annual disposable income for the ith respondent in the jth income class

The types of data used for housing, automobile and other durable goods consumption differed from each other due to differences in the available data. The value of automobile consumption used was the wholesale value of automobile stock owned by the debtor spending unit. The value of other durable goods consumption was the net outlay during one year for nonautomotive durables. Annual rent or mortgage payments were used as the value of housing consumption.

A measure of the total consumption of housing, automobiles and other durables was formed as the fourth independent variable. It was the algebraic sum of the three previously constructed measures. It is referred to below as the "summation" variable.

Analytical procedures. -- Graphic and regession analyses were used to examine the association between dependent and independent variables. Graphic analysis revealed "U" shaped relationships between each of the four measures of consumption and each of the two classifications of financial trouble. Hence quadratic functions were fitted in the regression analysis. Individual regressions for each consumption category were estimated in addition to multiple regression equations. Dependent variables were of the 0,1 type--each debtor was classified in trouble or not in trouble

according to each of the two sets of criteria described previously.

Two subsets of debtors were also examined. In one subset debtors with incomes under $1000 were excluded from the full sample. This income group includes persons with temporary low incomes as well as those more permanently at such a low level. For the second subset, debtors living in the South were omitted. It was expected that distinctive spending patterns of the excluded groups might distort the analysis.

Tabular and graphic methods were used to examine relationships between several economic and demographic characteristics of debtors and the probability of being in trouble due to installment debt.

Conclusions

Significant relationships were found between each of the four independent variables--relative consumption of automobiles, other consumer durables, and housing, and relative total consumption of these three categories--and each of the two dependent variables-- the probabilities of deep and some trouble with respect to installment debt. But the extent of association was small and the directions of some relationships were not as hypothesized.

Probability of deep trouble. -- Instead of the expected increasing trouble with increasing consumption, "U" shaped relationships between each independent variable and the probability of deep trouble were found. This meant that underconsumers as well as overconsumers were those in deep trouble. Net relationships, obtained by multiple regression, also resulted in "U" curves for housing and nonautomotive durables variables, but a fully positive curve for the automobile

variable. A further examination of the housing and nonautomotive durable relationships indicated that only debtors who overconsumed these categories a great deal were likely to be in deep trouble. For most debtors the probability of deep trouble decreased as their consumption of these two categories increased. Therefore, their financial trouble did not result from relatively high housing and nonautomotive durable goods consumption, but from high automobile consumption or from factors not included in this study (such as debt incurred for medical or current living expenses).

Probability of some trouble. -- In the estimation of the probability of some trouble, "U" shaped gross relationships were also observed between the dependent variable and nonautomotive durable goods and housing variables. The automobile and summation variables behaved as hypothesized. In the multivariate analysis, consumption of nonautomotive durables was not significant. The net relationships between the dependent variable and the automobile and housing variables were in the same direction as the gross relation-ships, and the effects of each greater.

The independent variables were better explainers of the probability of deep trouble than of some trouble, but in both instances explanatory power was low even for a 0,1 dependent variable.

Subsets. -- Debtors with incomes under $1000 and those in the South were alternately removed in an attempt to determine if special behavior of consumers in these groups had resulted in the inverse relationships reported above. Neither modification improved the explanatory powers of the independent variables and most of the "U" shaped relationships observed in the analysis of the full sample remained. However, some additional insights were obtained.

When debtors with incomes below $1000 were omitted, the summation variable had the hypothesized positive relation with the probability of deep trouble. This means that underconsumers of housing, automobiles and other durables in combination, who were in deep trouble with respect to installment debt, were very low income debtors for whom such behavior was not unexpected. As was true for the full sample, significant gross relationships were observed between each independent variable and the probability of deep trouble, but housing consumption was not significant in the multiple regression equation. In the estimation of the probability of some trouble all independent variables except housing were significant when simple regressions were run, but neither housing nor nonautomotive durables were significant when combined with automobile consumption in the multivariate analysis.

Automobile and summation variables had significant positive gross relationships with the probability of deep trouble when the southern region was excluded from the sample. Nonautomotive durables and housing were also significant but the association remained "U" shaped. Nonautomotive durable goods were dropped from the multiple regression since the coefficients were nonsignificant. Only the automobile and summation variables had significant relationships with the probability of some trouble; both were positive as hypothesized.

Characteristics of debtors. -- The examination of economic and demographic characteristics of debtors indicates that debtors in trouble were apt to be those least likely to use installment credit. The greatest proportions of debtors in deep trouble and in some trouble were found among the unmarried, the poor, and those under 25 or 65 or older. At least half of the debtor spending units headed by a

woman and/or a Negro were in some trouble. Income change is also

associated with debt trouble. Debtors whose income was 25 per cent

more or less than their previous year's income were more apt to

be in trouble than other debtors. Laborers and service workers

along with the unemployed and retired were marked by above average

likelihood of debt trouble. Therefore, the typical user of installment

credit is not a candidate for trouble due to debt.

CONSUMER DEBT OUTSTANDING
($ billions)

	1929	1935	1940	1945	1950	1955	1960	1965	1966
Installment	3.2	2.7	5.5	2.5	14.7	28.9	42.8	68.6	74.7
Automobile			2.1	0.5	6.1	13.5	17.7	28.8	31.0
Other Consumer			1.8	0.8	4.8	7.6	11.5	17.7	19.8
Repair and modernization			0.4	0.2	1.0	1.7	3.1	3.7	3.8
Personal			1.2	1.0	2.8	6.1	10.5	18.4	20.1
Noninstallment	3.3	2.2	2.8	3.2	6.8	9.9	13.2	19.3	20.1
Single payment loans			0.8	0.7	1.8	3.0	4.5	7.7	7.8
Charge accounts			1.5	1.6	3.4	4.8	5.3	6.7	7.1
Service credit			0.6	0.8	1.6	2.1	3.4	4.9	5.1
Total	6.4	4.9	8.3	5.7	21.5	38.8	56.0	87.9	94.8

Note: subtotals may not add to totals due to rounding

Source: U.S. Bureau of the Census, Statistical Abstract of the U.S.: 1967 (88th ed.;
Washington, D.C.: U.S. Government Printing Office, 1967), 465; and earlier editions.

APPENDIX A. -- Historical data related to use of consumer credit

70

TABLE A.2

DISPOSABLE PERSONAL INCOME AND PERSONAL
CONSUMPTION EXPENDITURES, 1929-1966
($ billions)

	Disposable Personal Income	Consumption Expenditures
1929	83	79
1935	58	56
1940	76	72
1945	150	122
1950	207	191
1955	275	254
1960	350	325
1965	469	433
1966	505	466

Source: U.S. Bureau of the Census, Statistical Abstract
of the U.S.: 1967 (88th ed.; Washington D.C.: U.S. Government
Printing Office, 1967), 320; and earlier editions.

APPENDIX B

SELECTED LIST OF NATIONAL BUREAU OF
ECONOMIC RESEARCH PUBLICATIONS

Studies in Consumer Instalment Financing

Number
1. Personal Finance Companies and Their Credit Practices, 1940
   Ralph A. Young and associates
2. Sales Finance Companies and Their Credit Practices, 1940
   Wilbur C. Plummer and Ralph A. Young
3. Commercial Banks and Consumer Instalment Credit, 1940
   John M. Chapman and associates
4. Industrial Banking Companies and Their Credit Practices, 1940
   Raymond J. Saulnier
5. Government Agencies of Consumer Instalment Credit, 1940
   Joseph D. Coppock
6. The Pattern of Consumer Debt, 1935-36: A Statistical Analysis,
   1940, Blanche Bernstein
7. The Volume of Consumer Instalment Credit, 1929-1938, 1940
   Duncan McC. Holthausen in collaboration with Malcolm L.
   Merriam and Rolf Nugent
8. Risk Elements in Consumer Instalment Financing, 1941
   David Durand
9. Consumer Instalment Credit and Economic Fluctuations, 1942
   Gottfried Haberler
10. Comparative Operating Experience of Consumer Instalment Financing
    Agencies and Commercial Banks, 1929-41, 1944
    Ernst A. Dauer
11. Consumer Credit Costs, 1949-59, 1964
    Paul F. Smith
12. Consumer Credit Finance Charges: Rate Information and Quotation,
    1965, Wallace P. Mors
13. The Quality of Consumer Instalment Credit, 1967
    Geoffrey H. Moore and Philip A. Klein

Occasional Papers

Number
83. Cost of Providing Consumer Credit, 1962
    Paul F. Smith
85. Trends and Cycles in the Commercial Paper Market, 1963
    Richard T. Selden
86. New-auto Finance Rates, 1924-1962, 1963
    Robert P. Shay
88. Consumer Sensitivity to Finance Rates, 1964
    F. Thomas Juster and Robert P. Shay
93. Financial Adjustments to Unemployment, 1965
    Philip A. Klein

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APPENDIX C

DESCRIPTION OF OMITTED RESPONDENTS

Farmers. -- Installment debt was held by 45 per cent (thirty-
five) of the farmers in the Survey Research sample. This was
approximately the same as the proportion of all spending units who
had such debt (48 per cent). However, money income of farm debtors
was considerably lower than that of all debtors. Six out of seven
farm debtors had income less than $5000 compared with slightly more
than half of all debtors in this income group.

Expenditures for durables by farm debtors did not differ
appreciably from those of all debtors. The average wholesale value
of automobiles owned by farmers was similar to that of nonfarm
primary spending units, $641 and $695 respectively for farmers and
other debtors. Average annual net outlay for nonautomotive durables
was $169 for farmers, slightly less than the average of $208 for
other debtors. Farm housing expenditures, however, were less than
half that of the others--an average of $26 monthly compared with $56.
Nearly half of the farm debtors (15 of 35) reported no expense for
housing. Comparisons between farm debtors and others in the same
income class showed that farmers spent more on the average for auto-
mobiles, less for housing and no pattern emerged for nonautomotive
durables.

Secondaries. -- Also eliminated from the sample of debtors
were 16 unrelated and 67 related secondaries. They represented 33
per cent and 29 per cent respectively of the secondaries in the entire
sample of spending units--considerably smaller proportions of debtors
than was the case for primary spending units. The average wholesale

FIGURE C.1

MEAN CONSUMPTION VALUES FOR AUTOMOBILES, OTHER DURABLES
AND HOUSING, BEFORE AND AFTER OMISSION OF RESPONDENTS
WITH INCOMPLETE INFORMATION, BY INCOME CLASS

Mean wholesale
value of
automobiles   a.   Automobile Consumption
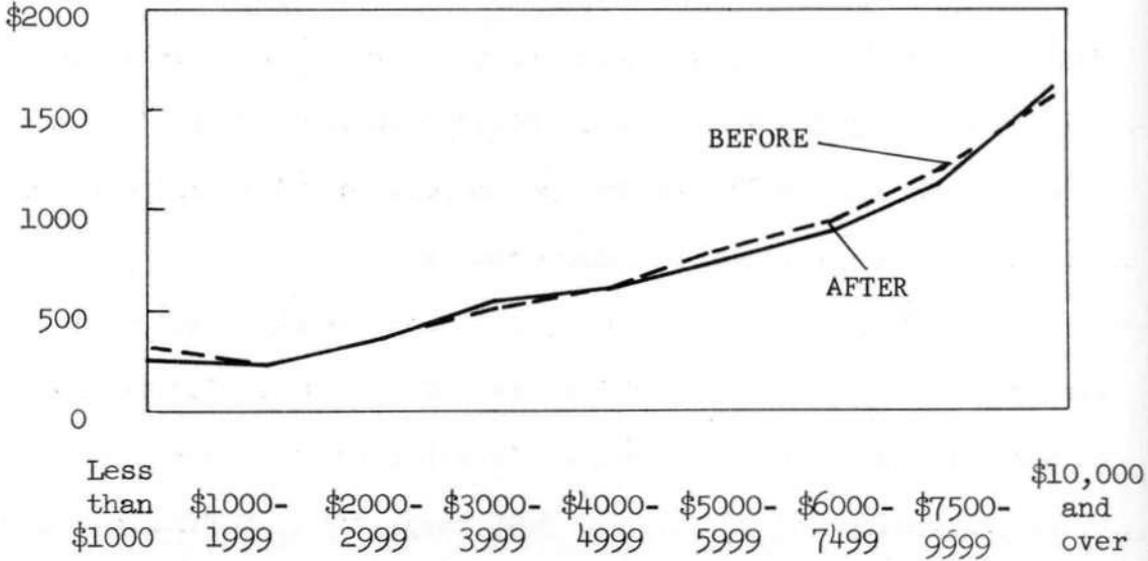
Mean annual net
outlay for
nonautomotive
durables   b.   Consumption of Nonautomotive Durables
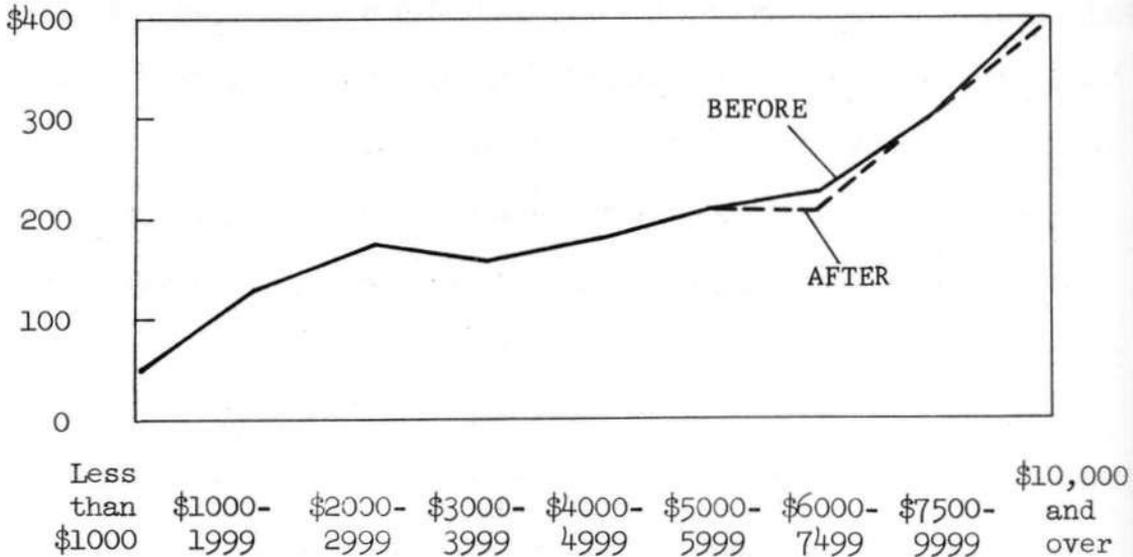
Mean monthly rent
or mortgage
payment

c. Housing Consumption

$100

80

60   BEFORE

40

20   AFTER

0

Less
than $1000- $2000- $3000- $4000- $5000- $6000- $7500- $10,000
$1000   1999   2999   3999   4999   5999   7499   9999   and
                                                                      over
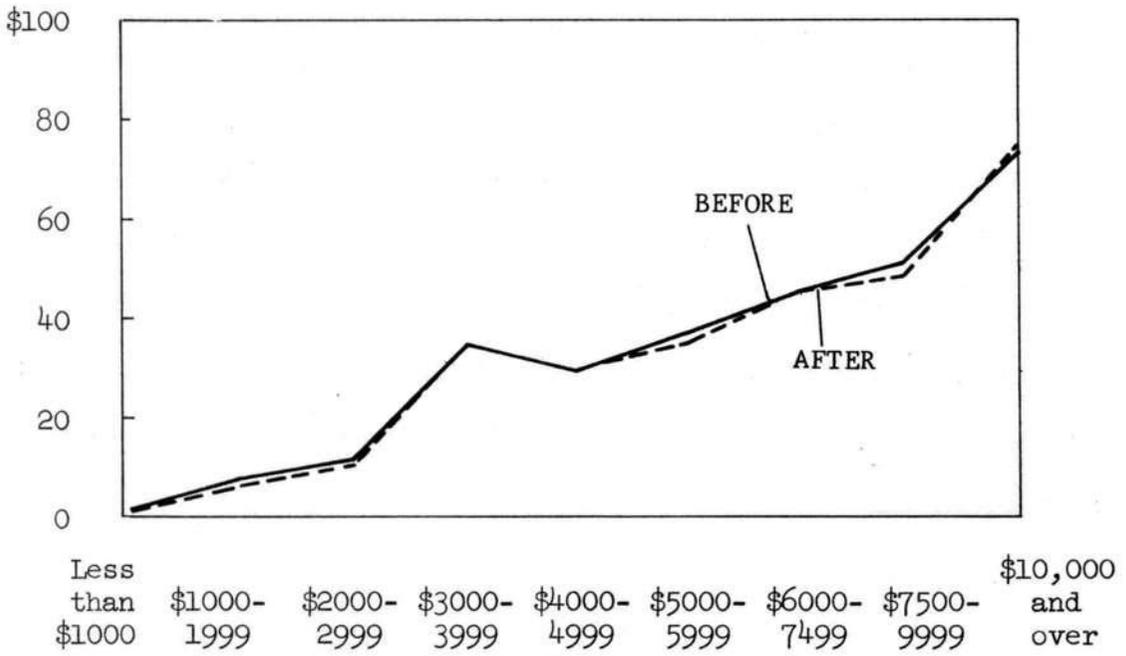
value of automobiles owned was higher and average outlays for non-automotive durables lower for all income classes of secondaries than for primaries.

Other respondents omitted. -- Seventy-five respondents did not supply all of the information needed for dependent and independent variables. One spending unit with zero disposable income was also omitted. In order to determine whether or not omission of these respondents would appreciably affect the results, Table C.1 and C.2 and Figure C.1 were constructed. It is apparent that the effect was inconsequential.

TABLE C.1

PERCENTAGE OF RESPONDENTS CLASSIFIED IN TROUBLE
WITH REGARD TO INSTALLMENT DEBT BEFORE AND AFTER
OMISSION OF THOSE WITH INCOMPLETE INFORMATION

	All nonfarm primary spending units with debt (N = 1299)	Nonfarm primary spending units with debt who supplied relevant information (N = 1223)
Percentage in some trouble	39	40
Percentage in deep trouble	11	11
Percentage unable to classify as in trouble or not	2	--

TABLE C.2

MEAN CONSUMPTION VALUES FOR AUTOMOBILES, OTHER DURABLES
AND HOUSING, BEFORE AND AFTER OMISSION OF RESPONDENTS
WITH INCOMPLETE INFORMATION, BY INCOME CLASS

Income Class	Mean wholesale value of automobiles		Mean annual net outlay for non-automotive durables		Mean monthly rent or mortgage payment	
	Before* (N = 1299)	After**	Before* (N = 1267)	After**	Before* (N = 1277)	After**
Less than $1000	254	304	53	47	22	22
$1000-1999	236	234	132	128	28	27
$2000-2999	348	351	144	178	33	32
$3000-3999	533	518	159	154	55	55
$4000-4999	618	619	183	181	50	50
$5000-5999	756	765	213	213	57	56
$6000-7499	909	923	219	213	66	65
$7500-9999	1156	1174	296	295	71	70
$10,000 and over	1589	1557	398	387	95	96

*Before--all respondents who provided the relevant information for the specific variable

**After--respondents who provided information for all relevant variables. (N = 1223)
These values were used in constructing independent variables.

TABLE C.3

SUMMARY OF REDUCTION OF SAMPLE

	No. of respondents	Per cent
All debtors	1417	100
Farm debtors	35	2
Secondary debtors	83	6
Nonfarm primary debtors	1299	92
Debtors with Insufficient information	76	(6% of 1299)
Final sample	1223	(94% of 1299)

Appendix D. -- Results of tabular and regression
analysis--supplementary tables

TABLE D.1

TOTAL NUMBER OF RESPONDENTS AND PERCENTAGE IN TROUBLE
BY INDEPENDENT VARIABLE CLASSES (N = 1223)

SUMMATION VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE DEEP	SOME
-1.506 to - .300	64	25	55
- .299 to - .200	83	16	40
- .199 to - .150	96	7	31
- .149 to - .100	128	8	28
- .099 to - .070	88	5	24
- .069 to - .040	84	5	26
- .039 to - .020	80	6	30
- .019 to 0	78	14	40
.001 to .019	68	9	31
.020 to .039	48	13	40
.040 to .069	76	8	49
.070 to .099	64	2	39
.100 to .149	81	10	43
.150 to .199	60	15	63
.200 to .299	62	13	66
.300 to .190	63	40	75

AUTOMOBILE VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE DEEP	SOME
-1.551 to - .150	73	29	68
- .149 to - .100	243	8	28
- .099 to - .070	149	7	31
- .069 to - .040	131	8	30
- .039 to - .020	98	8	28
- .019 to 0	85	6	42
.001 to .019	56	20	41
.020 to .039	51	10	47
.040 to .069	70	9	46
.070 to .099	49	10	41
.100 to .149	78	9	51
.150 to .199	53	8	64
.200 to 5.014	87	31	70

TABLE D.1 -- Continued

NONAUTOMOTIVE DURABLE GOODS VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE	
		DEEP	SOME
- .131 to - .070	71	44	66
- .069 to - .040	199	23	58
- .039 to - .020	344	3	29
- .019 to 0	155	4	25
.001 to .019	155	6	39
.020 to .039	94	4	26
.040 to .069	80	10	39
.070 to .099	37	19	54
.100 to .149	39	21	59
.150 to .851	49	22	74

HOUSING VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE DEEP	SOME
-1.095 to - .150	89	35	62
- .149 to - .100	138	11	38
- .099 to - .040	118	8	45
- .039 to - .020	102	7	28
- .019 to 0	121	6	34
.001 to .019	163	4	31
.020 to .039	140	5	35
.040 to .069	145	9	39
.070 to .099	81	10	51
.100 to .149	63	13	40
.150 to 1.837	63	42	67

TABLE D.2

TOTAL NUMBER OF RESPONDENTS WITH INCOME $1000 OR MORE
AND PERCENTAGE IN TROUBLE BY INDEPENDENT
VARIABLE CLASSES (N = 1193)

SUMMATION VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE DEEP	SOME
- .650 to - .300	45	18	44
- .299 to - .200	79	14	38
- .199 to - .150	96	7	31
- .149 to - .100	128	8	28
- .099 to - .070	88	5	24
- .069 to - .040	83	4	25
- .039 to - .020	80	6	30
- .019 to 0	78	14	40
.001 to .019	68	9	31
.020 to .039	47	11	38
.040 to .069	76	8	49
.070 to .099	64	2	39
.100 to .149	81	10	43
.150 to .199	60	15	63
.200 to .299	60	12	65
.300 to 3.598	60	37	73

AUTOMOBILE VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	DEEP	SOME
- .232 to - .150	48	17	45
- .149 to - .100	241	7	28
- .099 to - .070	149	7	31
- .069 to - .040	131	8	30
- .039 to - .020	98	8	28
- .019 to 0	85	6	42
.001 to .019	56	20	41
.020 to .039	51	10	47
.040 to .069	70	9	46
.070 to .099	49	10	41
.100 to .149	78	9	51
.150 to .199	53	8	64
.200 to 1.780	84	30	69

TABLE D.2 -- Continued

NONAUTOMOTIVE DURABLE GOODS VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE	
		DEEP	SOME
- .123 to - .070	66	41	65
- .069 to - .040	185	22	56
- .039 to - .020	344	3	29
- .019 to 0	154	4	24
.001 to .019	154	6	40
.020 to .039	94	4	26
.040 to .069	78	8	37
.070 to .099	37	19	54
.100 to .149	35	14	54
.150 to .697	46	20	72

HOUSING VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE	
		DEEP	SOME
- .314 to - .150	74	30	57
- .149 to - .100	138	11	38
- .099 to - .040	116	9	44
- .039 to - .020	99	7	28
- .019 to 0	121	6	34
.001 to .019	163	4	31
.020 to .039	140	5	35
.040 to .069	143	9	39
.070 to .099	81	10	51
.100 to .149	61	11	38
.150 to 1.153	57	35	63

REGRESSION RESULTS:
INCOME CLASS LESS THAN $1000 OMITTED (N = 1193)

Equation[b]	Regression Coefficients (estimated standard errors in parathesis)									Standard Error of Estimate	R^2	e^{2c}
	Constant	A	A^2	D	D^2	H	H^2	S	S^2			

Dependent variable =
Deep trouble (DT)

	Constant	A	A^2	D	D^2	H	H^2	S	S^2	SEE	R^2	e^{2c}
(1)	.10 (.01)	.28 (.08)	$.05^n$ (.10)							.30	.02	.04
(2)	.09 (.01)			-.77 (.17)	3.00 (.53)					.30	.03	.11
(3)	.09 (.01)					$-.11^n$ (.09)	.70 (.19)			.30	.01	.07
(4)	.10 (.01)							.17 (.05)	$-.02^n$ (.03)	.30	.01	.06
(5)	.09 (.01)	.34 (.08)	$-.17^n$ (.12)	-.70 (.18)	2.51 (.61)	$-.07^n$ (.09)	$.32^n$ (.24)	–	–	.30	.05	
(6)	.09 (.01)	.34 (.08)	$-.15^n$ (.11)	-.77 (.17(	2.90 (.59)	–	–	–	–	.30	.04	

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Equation[b]	Regression Coefficients (estimated standard errors in parathesis)									Standard Error of Estimate	R^2	e^{2c}
	Constant	A	A^2	D	D^2	H	H^2	S	S^2			
Dependent variable												
Some trouble (ST)												
(7)	.41 (.01)	.94 (.12)	-.56 (.16)							.48	.05	.07
(8)	.39 (.01)			$-.03^n$	1.76 (.86)					.49	.01	.09
(9)	.39 (.01)					$-.08^n$ (.14)	$.55^n$ (.30)			.49	a	.03
(10)	.40 (.01)							.49 (.08)	-.14 (.04)	.48	.03	.08
(11)	.40 (.01)	1.02 (.13)	-.92 (.20)	$.03^n$ (.28)	1.67^n (.98)	$-.16^n$ (.15)	$.69^n$ (.39)	-	-	.48	.06	

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[n] nonsignificant at the .05 level

[a] less than .005

[b] equations estimated were of the following forms: $Y = a + bX + cX^2$; $Y = a + bA + cA^2 + dD + eD^2 + fH + gH^2$ where Y = DT or ST and X = A or D or H or S

[c] correlation ratio

TABLE D.4

PREDICTED PROBABILITIES OF TROUBLE $(\hat{Y})$[a], AND MARGINAL
EFFECT $(\Delta\hat{Y})$[b], FOR VARIOUS CONSUMPTION LEVELS OF
AUTOMOBILES, OTHER DURABLES AND HOUSING[c],
INCOME CLASS UNDER $1000 OMITTED

| | Probability of trouble | | | |
| | Deep | | Some | |
Summation Variable (S)	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
- .475[e]	.01	.05	.14	.17
- .360[f]	.04	.05	.21	.16
- .250	.06	.05	.27	.16
- .175	.07	.05	.31	.15
- .125	.08	.05	.34	.14
- .085	.09	.05	.36	.14
- .055	.09	.05	.37	.14
- .030	.09	.05	.39	.14
- .010	.10	.05	.40	.14
0	.10	.05	.40	.13
.010	.10	.05	.40	.13
.030	.11	.05	.41	.13
.055	.11	.05	.43	.13
.085	.11	.05	.44	.13
.125	.12	.05	.46	.12
.175	.13	.05	.48	.12
.250[f]	.14	.05	.51	.11
.480[f]	.18	.04	.60	.09
1.949[e]	.36	.03	.82	-.03

| | Deep | | Some | |
Automobile Variable (A)	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
- .191[e]	.05	.06	.21	.23
- .180[f]	.05	.06	.22	.22
- .125	.07	.06	.28	.21
- .085	.08	.06	.33	.20
- .055	.08	.06	.36	.19
- .030	.09	.06	.38	.19
- .010	.10	.06	.40	.18
0	.10	.06	.41	.18
.010	.10	.06	.42	.18
.030	.11	.06	.44	.17
.055	.12	.07	.46	.17
.085	.12	.07	.49	.16
.125	.14	.07	.52	.15
.175[f]	.15	.07	.56	.14
.280[f]	.18	.07	.63	.11
.990[e]	.43	.09	.79	-.06

TABLE D.4 -- Continued

Nonautomotive Durable Goods Variable (D)	Probability of trouble			
	Deep		Some	
	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
- .096${}^e_f$	.19	-.09	.41	-.02
- .080^f	.17	-.08	.40	-.01
- .055	.14	-.07	.40	-.01
- .030	.12	-.06	.39	d
- .010	.10	-.05	.39	.01
0	.09	-.04	.39	.01
.010	.08	-.04	.39	.01
.030	.07	-.03	.39	.02
.055	.06	-.02	.39	.02
.085	.05	d	.40	.03
.125${}_f$	.04	.02	.41	.04
.200^f	.06	.05	.45	.07
.424^e	.30	.16	.69	.13

Housing Variable (H)	Deep		Some	
	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
- .232${}^e_f$	.15	-.05	.44	-.04
- .190^f	.14	-.04	.43	-.03
- .125	.12	-.03	.41	-.02
- .070	.10	-.02	.40	-.01
- .030	.09	-.01	.39	-.01
- .010	.09	d	.39	d
0	.09	d	.39	d
.010	.09	d	.39	d
.030	.09	d	.39	d
.055	.09	.01	.39	.01
.085	.09	.01	.39	.01
.125${}_f$	.09	.02	.39	.02
.220^f	.10	.04	.40	.03
.652^e	.32	.13	.57	.10

[a] computed from equations 1-4 and 7-10, Table D.3

[b] computed from equation (c), page 41. The values used for Δ were one standard deviation for the respective variable, as follows: A, .22; D, .08; H, .14; S, .30.

[c] consumption levels used are midpoint of class interval used in Figures 5.1, 5.2, 5.3 and 5.4, and 0, the expected value of the variables.

[d] $-.005 \leq \Delta\hat{Y} \leq .005$

[e] midpoint of lowest/highest class

[f] value of median observation in lowest/highest class

TABLE D.5

TOTAL NUMBER OF RESPONDENTS, SOUTHERN REGION OMITTED,
AND PERCENTAGE IN TROUBLE BY INDEPENDENT
VARIABLE CLASSES (N = 824)

SUMMATION VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE	
		DEEP	SOME
-1.464 to - .200	69	10	29
- .199 to - .150	61	2	23
- .149 to - .100	85	4	26
- .099 to - .070	61	2	25
- .069 to - .040	64	3	22
- .039 to - .020	55	4	25
- .019 to 0	57	11	35
.001 to .019	43	5	26
.020 to .039	36	8	44
.040 to .069	52	4	42
.070 to .099	50	0	34
.100 to .149	63	8	41
.150 to .199	41	17	61
.200 to 6.190	87	25	63

AUTOMOBILE VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE	
		DEEP	SOME
- .760 to - .150	28	18	40
- .149 to - .100	180	7	27
- .099 to - .070	98	2	22
- .069 to - .040	84	2	25
- .030 to - .020	66	6	27
- .019 to 0	61	7	41
.001 to .019	39	13	31
.020 to .039	33	6	42
.040 to .069	45	7	49
.070 to .099	36	6	36
.100 to .149	62	6	48
.150 to .199	37	5	54
.200 to 5.014	55	29	64

TABLE D.5 -- <u>Continued</u>

NONAUTOMOTIVE DURABLE GOODS VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE DEEP	SOME
- .131 to - .070	37	32	49
- .069 to - .040	114	17	55
- .039 to - .020	257	1	27
- .019 to 0	111	4	23
.001 to .019	110	5	35
.020 to .039	69	1	20
.040 to .069	50	10	42
.070 to .099	21	19	48
.100 to .149	26	15	50
.150 to .665	29	21	65

HOUSING VARIABLE

CLASS INTERVAL	TOTAL NO. RESP.	PERCENT IN TROUBLE DEEP	SOME
- .629 to - .150	38	32	55
- .149 to - .100	84	4	35
- .099 to - .040	63	3	30
- .039 to - .020	72	3	22
- .019 to 0	83	2	24
.001 to .019	111	4	31
.020 to .039	110	4	35
.040 to .069	113	7	37
.070 to .099	62	10	50
.100 to .149	40	10	30
.150 to 1.440	48	33	40

REGRESSION RESULTS: SOUTHERN REGION OMITTED (N = 824)

Equation[a]	Regression Coefficients (estimated standard errors in parathesis)									Standard Error of Estimate	R^2	e^2[b]
	Constant	A	A^2	D	D^2	H	H^2	S	S^2			
Dependent variable = Deep trouble (DT)												
(1)	.08 (.01)	.19 (.06)	a^n (.02)							.26	.03	.06
(2)	.07 (.01)			$-.23^n$ (.20)	1.40 (.64)					.27	.01	.10
(3)	.07 (.01)					$-.03^n$ (.09)	.55 (.11)			.26	.05	.11
(4)	.07 (.01)							.19 (.05)	$-.01^n$ (.01)	.26	.04	.08
(5)	.07 (.01)	.25 (.07)	$-.05$ (.02)	$.14^n$ (.20)	-1.14^n (.72)	$-.04^n$ (.09)	.65 (.13)	–	–	.26	.07	
(6)	.07 (.01)	.22 (.06)	$-.04$ (.02)	–	–	$-.04$ (.09)	.56 (.12)	–	–	.26	.06	

Equation[a]	Regression Coefficients (estimated standard errors in parenthesis)									Standard Error of Estimate	R^2	e^2[b]
	Constant	A	A^2	D	D^2	H	H^2	S	S^2			
Dependent variable = Some trouble (ST)												
(7)	.36 (.02)	.58 (.11)	-.09 (.03)							.47	.03	.06
(8)	.35 (.02)			$.24^n$ (.35)	$.70^n$ (1.16)					.48	c	.08
(9)	.35 (.02)					$.05^n$ (.17)	$.33^n$ (.20)			.48	.01	.05
(10)	.35 (.02)							.43 (.08)	-.06 (.02)	.47	.03	.08
(11)	.36 (.02)	.64 (.12)	-.14 (.04)	$.55^n$ (.36)	-2.22^n (1.31)	$-.01^n$ (.17)	.59 (.25)	-	-	.47	.04	
(12)	.35 (.02)	.60 (.11)	-.13 (.03)	-	-	$.03^n$ (.17)	$.42^n$ (.23)			.47	.04	

[a] equations estimated were of the following forms: $Y = a + bX + cX^2$; $Y = a + bA + cA^2 + dD + eD^2 + fH + gH^2$ where Y = DT or ST and X = A or D or H or S

[b] correlation ratio   c less than .005   n nonsignificant at the .05 level

TABLE D.7

PREDICTED PROBABILITIES OF TROUBLE $(\hat{Y})^a$, AND MARGINAL
EFFECT $(\Delta\hat{Y})^b$, FOR VARIOUS CONSUMPTION LEVELS OF
AUTOMOBILES, OTHER DURABLES AND HOUSING[c],
SOUTHERN REGION OMITTED

| | Probability of trouble | | | |
| | Deep | | Some | |
Summation Variable (S)	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
$-.832^e_f$	-.10	.06	.03	.15
$-.360^f$	0	.06	.20	.14
$-.250$	.02	.06	.25	.13
$-.175$	.04	.06	.28	.13
$-.125$	.05	.06	.30	.13
$-.085$	.05	.06	.31	.13
$-.055$	.06	.06	.33	.13
$-.030$	.06	.06	.34	.12
$-.010$	.07	.06	.35	.12
0	.07	.06	.35	.12
.010	.07	.06	.35	.12
.030	.08	.06	.36	.12
.055	.08	.06	.37	.12
.085	.09	.06	.39	.12
.125	.09	.06	.40	.12
.175	.10	.06	.43	.12
$.250_f$	.12	.05	.46	.11
$.480^f$	.16	.05	.57	.11
3.195^e	.57	.04	2.34	.01

| | Deep | | Some | |
Automobile Variable (A)	$\hat{Y}$	$\Delta\hat{Y}$	$\hat{Y}$	$\Delta\hat{Y}$
$-.455^e_f$	-.01	.04	.11	.14
$-.180^f$	.05	.04	.26	.13
$-.125$	.06	.04	.29	.13
$-.085$	.06	.04	.31	.13
$-.055$	.07	.04	.33	.13
$-.030$	.07	.04	.34	.12
$-.010$	.08	.04	.35	.12
0	.08	.04	.36	.12
.010	.08	.04	.37	.12
.030	.09	.04	.38	.12
.055	.09	.04	.39	.12
.085	.10	.04	.41	.12
.125	.10	.04	.43	.12
$.175_f$	.11	.04	.46	.12
$.280^f$	.13	.04	.53	.11
2.607^e	.58	.04	2.48	.02

TABLE D.7 -- <u>Continued</u>

Nonautomotive Durable Goods Variable (D)	Probability of trouble			
	Deep $\hat{Y}$	Deep $\Delta\hat{Y}$	Some $\hat{Y}$	Some $\Delta\hat{Y}$
- .100[e]	.11	-.03	.33	.01
- .080[f]	.10	-.03	.34	.01
- .055	.09	-.02	.34	.02
- .030	.08	-.02	.34	.02
- .010	.07	-.01	.35	.02
0	.07	-.01	.35	.02
.010	.07	-.01	.35	.02
.030	.06	d	.36	.03
.055	.06	d	.37	.03
.085	.06	.01	.38	.03
.125[f]	.06	.02	.39	.04
.200[f]	.08	.04	.43	.05
.408[e]	.21	.08	.56	.07

Housing Variable (H)	Deep $\hat{Y}$	Deep $\Delta\hat{Y}$	Some $\hat{Y}$	Some $\Delta\hat{Y}$
- .390[e]	.17	-.05	.38	-.02
- .190[f]	.10	-.02	.35	d
- .125	.08	-.01	.35	d
- .070	.07	d	.35	.01
- .030	.07	d	.35	.01
- .010	.07	.01	.35	.01
0	.07	.01	.35	.01
.010	.07	.01	.35	.01
.030	.07	.01	.35	.02
.055	.07	.02	.35	.02
.085	.07	.02	.36	.02
.125[f]	.07	.03	.36	.03
.220[f]	.09	.04	.38	.03
.795[e]	.39	.13	.60	.09

[a] computed from equations 1-4 and 7-10, Table D.6.

[b] computed from equation (c), page 41. The values used for Δ were one standard deviation for the respective variable, as follows: A, .22; D, .08; H, .14; S, .30.

[c] consumption levels used are midpoint of class interval used in Figures 5.1, 5.2, 5.3 and 5.4, and 0, the expected value of the variables.

[d] $-.005 \leq \Delta\hat{Y} \leq .005$

[e] midpoint of lowest/highest class

[f] value of median observation in lowest/highest class

TABLE D.8

SIMPLE CORRELATION COEFFICIENTS
AMONG INDEPENDENT VARIABLES

	A	A^2	D	D^2	H	H^2
A	1	.6639	.0038	.0015	.2034	.0562
A^2		1	.0049	.1066	.3017	.4687
D			1	.7117	.0757	.1299
D^2				1	.0237	.3205
H					1	.5310
H^2						1

TABLE D.9

RANGE OF INDEPENDENT VARIABLE VALUES -- ENTIRE SAMPLE AND SUBSETS

	AUTOMOBILE	NONAUTOMOTIVE DURABLES	HOUSING	SUMMATION
Entire sample (N = 1223)				
Maximum	5.0140	.8506	1.8367	6.1899
Minimum	-1.5510	- .1313	-1.0954	-1.5062
Respondents with income $1000 or more (N = 1193)				
Maximum	1.7800	.6968	1.1533	3.5983
Minimum	- .2321	- .1227	- .3140	- .6496
All respondents except South (N = 824)				
Maximum	5.0140	.6650	1.4400	6.1899
Minimum	- .7600	- .1313	- .6286	-1.4643

APPENDIX E

CHARACTERISTICS OF EXCESSIVELY INDEBTED

TABLE E.1

Percentage of Debtors in Trouble with Regard to
Installment Debt, by Selected Economic and
Demographic Characteristics

	Percentage Distribution[a]	Per Cent in Trouble	
		DEEP	SOME
All debtors	100	11	40
MARITAL STATUS:			
Married	87	9	39
Single	3	13	45
Widowed	5	25	50
Divorced	3	25	47
Separated	3	43	66
NO. OF YEARS MARRIED:			
1 year or less	3	24	68
2 years	3	14	45
3 years	3	19	56
4 years	4	13	45
5-9 years	17	8	46
10-20 years	35	9	36
More than 20 years	22	6	28
Inappropriate	13	26	52
AGE OF HEAD:			
18-24	6	29	65
25-34	29	11	45
35-44	28	8	38
45-54	23	9	30
55-64	9	13	39
65 and over	5	17	47
Not available	c	0	50

TABLE E.1 -- Continued

	Percentage Distribution[a]	Per Cent in Trouble DEEP	SOME
LIFE CYCLE:			
Under 45 years old			
Unmarried, no children	3	30	58
Married, no children	8	18	61
Married, youngest child under 6	36	8	41
Married, youngest child 6 or older	13	7	36
45 or older			
Married, children	16	10	29
Married, no children, head working	11	3	32
Married, no children, head retired	2	21	46
Unmarried	6	22	47
Other	4	28	55
SEX OF HEAD:			
Man	89	10	39
Woman	11	23	50
NO. OF PEOPLE IN SPENDING UNIT:			
1	7	29	53
2	22	12	46
3	19	12	37
4	23	7	36
5	14	8	36
6	7	11	43
7	4	16	38
8 or more	4	7	40

TABLE E.1 -- Continued

	Percentage Distribution[a]	Per Cent in Trouble	
		DEEP	SOME
DISPOSABLE INCOME:[d]			
Less than $1000	2	53	83
$1000-1999	6	36	64
$2000-2999	10	40	69
$3000-3999	12	32	56
$4000-4999	19	1	52
$5000-5999	16	1	51
$6000-7499	17	0	9
$7500-9999	11	0	9
$10,000 and over	6	0	13
LIQUID ASSETS:[d]			
None	26	25	66
$1-99	12	17	64
$100-199	9	11	48
$200-499	15	6	41
$500-999	14	5	26
$1000-1999	10	2	11
$2000-4999	9	0	3
$5000-9999	4	0	0
$10,000 and over	1	0	0
RATIO: INSTALLMENT DEBT PAYMENT TO DISPOSABLE INCOME[d]			
Less than 5%	16	0	0
5-9%	22	0	0
10-19%	38	0	51
20-39%	19	42	92
40-59%	2	93	93
60% or more	1	81	81
Amount not available	1	0	0

TABLE E.1 -- <u>Continued</u>

	Percentage Distribution[a]	Per Cent in Trouble	
		DEEP	SOME
AMOUNT OF INSTALLMENT DEBT:			
$1-99	13	4	18
$100-199	12	9	18
$200-499	24	12	35
$500-999	21	15	52
$1000-1999	20	11	53
$2000-2999	8	16	62
$3000-4999	2	9	55
$5000 and over	c	33	67
INCOME CHANGE:			
1958-1959			
125% or more	15	10	47
105-124%	29	6	34
96-104%	32	11	37
76-95%	10	13	42
75% or less	6	25	59
Not available	9	22	52
EDUCATION OF HEAD OF SPENDING UNIT:			
0-8 years	27	19	48
9-11 years	21	12	48
12 years	29	8	37
College - no degree	11	6	28
College - degree	11	4	28
Not available	1	29	57
OCCUPATION:			
Professional, technical, kindred workers	11	3	29
Unemployed	5	11	44

TABLE E.1 -- <u>Continued</u>

	Percentage Distribution[a]	Per Cent in Trouble	
		DEEP	SOME
OCCUPATION: (continued)			
Managers, officials; self-employed businessmen	12	6	26
Clerical and sales workers	13	8	36
Craftsmen, foremen, and kindred workers	17	9	36
Operatives and kindred workers	22	10	45
Laborers and service workers	12	30	61
Miscellaneous groups	3	10	48
Retired	4	21	52
NO. OF WEEKS WORKED FULLTIME:			
Less than 13	3	32	68
14-26	3	31	67
27-39	7	12	53
40-47	7	18	46
48-49	3	21	50
50-52	70	8	35
Not available - how much worked	1	29	86
Not available - if worked	c	0	0
Inappropriate (housewives, retired, students)	4	19	48
RACE:			
White	86	8	37
Negro	13	30	62
Other	c	20	60
Not available	1	20	60

TABLE E.1 -- <u>Continued</u>

	Percentage Distribution[a]	Per Cent in Trouble	
		DEEP	SOME
REGION:			
Northeast	22	6	29
North Central	27	8	39
South	33	19	51
West	18	9	38
URBANIZATION:			
12 largest cities	12	9	28
Other cities 50,000 or larger	21	12	42
Urban: 10,000-49,999	15	14	40
Urban: 2,500-9,999	19	9	42
Rural: in SMA[b]	16	8	39
Rural: not in SMA[b]	18	15	48
In SMA[b]	62	9	37
Not in SMA[b]	38	16	47
HOUSING STATUS:			
Owner with mortgage	45	7	30
Owner, no mortgage	14	14	38
Renter	38	14	51
Neither owns nor rents[e]	4	30	65
LENGTH OF RESIDENCE IN PRESENT DWELLING:			
20 years or more	5	17	43
11-19 years	13	10	32
6-10 years	20	8	35
4-5 years	15	4	31
3 years	10	11	43
2 years	12	12	41
1 year or less	23	15	52
Not available	c	20	20
Inappropriate	2	36	57

TABLE E.1 -- <u>Continued</u>

	Percentage Distribution[a]		Per Cent in Trouble	
			DEEP	SOME
NO. OF CARS:				
None	14		18	44
One	71		12	44
Two or three	14		3	21

[a]Sub totals may not add to 100 due to rounding

[b]SMA -- Standard Metropolitan Area as defined by the Bureau of the Census

[c]Less than 0.5 per cent

[d]Criteria used to classify debtors as in trouble or not

[e]Respondents who live in trailers, rent part of anothers dwelling, receive shelter as part of income

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