

THE ROLE OF TELEVISION IN HOUSEHOLD DEBT: EVIDENCE FROM THE 1950'S*

August 5, 2009

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ABSTRACT

We examine whether advertising increases household debt by studying the initial expansion of television in the 1950's. Exploiting the idiosyncratic spread of television across markets, we use microdata from the Survey of Consumer Finances to test whether households with early access to television saw steeper debt increases than households with delayed access. Results indicate that television increases the tendency to borrow for household goods and to carry debt. Television is associated with higher debt levels for durable goods, but not with total non-mortgage debt. The role of media in household debt may be greater than suggested by existing research.

* This work was supported in part by a grant from the City University of New York PSC-CUNY Research Award Program.

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The process of persuading people to incur debt, and the arrangement for them to do so, are as much a part of modern production as the making of the goods and the nurturing of wants.

- John Kenneth Galbraith, *The Affluent Society*, 1958

I. INTRODUCTION

This paper relies on the rapid but idiosyncratic expansion of television in the 1940's and 1950's to study the effect of advertising on household debt. The idea that exposure to television and other forms of mass media may influence consumption and borrowing decisions has a long history in economics. Yet despite current interest in factors that contribute to household debt, most work on this topic remains outside the neoclassical tradition. From a theoretical standpoint, signaling and search models that dominate current advertising research do not offer a mechanism for raising current relative to future consumption. Advertising also plays no role in the life cycle-permanent income model underlying most of the literature on savings and consumption. Empirically, advertising exposure is typically too closely correlated with other consumer choices for sound estimates, so the link between advertising and household debt remains untested.

Because the initial expansion of television was driven by a number of exogenous factors, the 1940's and 1950's provide a unique opportunity for investigating the link between mass advertising and consumer behavior. A similar approach has been productively applied in the study of voting behavior (Gentzkow, 2006) and consumer behavior in markets for local beer (George, 2009). This paper makes use of household-level information on debt, income and assets from the Survey of Consumer Finances to examine whether households in markets with early access to television saw a steeper rise in the tendency to carry debt, and on average carried more debt, than households with delayed access to television. The results indicate that television access is associated with a higher tendency to borrow to purchase consumer goods and a higher tendency to hold non-mortgage debt. The analysis also indicates that television access is associated with higher debt levels for durable household goods, but not with the total amount of non-mortgage debt. The findings suggest that the role of advertising in market economies may be more important than recognized by current theory.

There are many possible channels through which television advertising might influence consumption and savings decisions. Most well known is John Kenneth Galbraith's view of a

destructive cycle of labor, spending and debt, driven by concerns for relative wealth. But it is not necessary to relax standard rationality assumptions to establish a theoretical link between advertising and debt. One possibility is that television, by exposing consumers to new products, alters the tradeoff between consumption and leisure. Households may wish to both work more and purchase more consumer goods. But if households cannot adjust labor supply completely in the short term, they may borrow to increase consumption in the current period with the expectation of working more in the future. We offer suggestive evidence from decennial census data in 1950 and 1960 that markets with early access to television saw higher male labor force participation compared to markets with delayed access to television.

While we offer a theoretical framework linking advertising and consumption and provide some evidence that higher labor supply might drive our results, this is primarily a positive paper examining the relationship between advertising and household debt. Data limitations prevent the structural modeling that would be needed to fully estimate welfare effects. While our basic framework suggests that additional borrowing makes consumers better off, we focus on establishing an empirical relationship that can guide future theoretical research. We also do not seek to distinguish in this paper between television advertising through product commercials or through exposure to products via programming. Even in the early days of television, the boundaries between program sponsorship, paid product placement and commercial messages were never sharp. Throughout this paper, we refer to all of these vehicles for product exposure as advertising.

The paper proceeds as follows. Section II discusses the relevant literature on advertising and debt and offers historical background on the history of television. Section III describes possible theoretical links between exposure to television and the borrowing and consumption decisions of households. Section IV describes the data used in the empirical analysis. Section V outlines the empirical strategy and presents estimates of the relationship between television access and household debt, and section VI considers the effect of household television ownership on debt measures. Section VII estimates the effect of television access on labor force participation. Section VIII concludes the paper.

II. BACKGROUND AND LITERATURE

A. *Advertising, Consumption & Debt*

While a large literature in industrial organization examines the role of advertising in market outcomes, the relationship between advertising, consumption and debt has not been considered directly. In the advertising literature, signaling models, such as Nelson (1974), Kihlstrom & Riordan (1984) and Milgrom & Roberts (1986) as well as search models such as Grossman & Shapiro (1984) explicitly operate in horizontally or vertically differentiated product markets. Consumer choice in these markets almost always centers on product selection among varieties, without overall shifts in demand for a product. Taste-shifting models such as Dixit & Norman (1978), as well as Becker & Murphy's (1993) treatment of advertisements and advertised goods as complements, do allow advertising to raise overall demand for advertised products relative to unadvertised ones. However, even in these models, there is no mechanism to link advertising with overall consumption and borrowing decisions.

Similarly, a large theoretical and empirical literature has examined the complexities of the consumption-savings decision, but this literature also does not offer a clear role for advertising.¹ Most savings and consumption research builds on the Life Cycle/Permanent Income (LC/PI) model, and a substantial empirical literature considers the empirical implications of the LC/PI for consumption, borrowing, and saving decisions. Among the typical determinants of consumption and savings in the LC/PI framework are interest rates, expected lifetime income, and age. Additionally, consumption and savings decisions may be influenced by precautionary savings, bequest motives, and liquidity constraints. However, in the usual model of consumption, there is no role for advertising, or any attribute of product markets generally, to influence consumption and savings.²

A related literature considers determinants of savings rates across countries or regions, offering some insight into how economy-wide conditions, such as urbanization, economic growth, institutional quality, and financial depth impact savings rates. Loayza, Schmidt-Hebbel, and Serven (2000) present a comprehensive list of potential determinants of savings described in

¹ See, for example, Browning and Lusardi (1996), Carroll (1994, 1997), and Gourinchas and Parker (2002).

² It is interesting to note that many studies of consumption decisions have, however, focused on goods that are heavily advertised. For example, Bernanke (1984) focuses his study of durable goods consumption on the decision to purchase automobiles.

this literature, while Deaton and Paxson (1996), Schmidt-Hebbel and Serven (1998), and Schultz (2004) describe results obtained from comparison of savings rates across different countries. This literature raises the possibility that savings might be influenced by the social environment or culture, including media, in addition to broader institutional and developmental conditions. While empirical evidence has not fully supported this hypothesis (see Carroll, Rhee, and Rhee 1994), the idea that overarching societal beliefs and norms might influence savings remains an intriguing possibility.

Galbraith (1958) and his followers took a strong normative view of the relationship between advertising and debt.³ He argued that firms use monopoly power and advertising to foster inefficiently high levels of consumption, labor and debt among consumers, though his arguments were not formalized in a lifetime consumption model. Benhabib and Bisin (2002) formalize these ideas in a general equilibrium model of advertising, consumption and debt. In their model, advertising changes both the elasticity of substitution between products and the intensity of consumer preferences for products. Thus, advertising may induce an increase in the marginal utility of consumption relative to leisure. Consumers then respond to advertising by increasing their consumption of products and reducing consumption of leisure; i.e., by working more. Evaluating welfare from the preference state before advertising, Benhabib and Bisin find that consumers can be made worse off by an increase in mass advertising.

The focus of both Galbraith's work and Benhabib and Bisin's model is the potentially harmful effects of mass media advertising. Persuasive advertising that shifts preferences in somewhat arbitrary ways is central to their approach, and is an important reason this literature remains outside of mainstream economic research. But it is possible to study in a more positive framework the relationship between increased exposure to advertising and the tendency to incur debt. In our approach, exposure to new products through television programming or advertising raises the marginal utility of consumption relative to leisure. Consumers would like to respond by both working more and spending more in the present and future, but are unable to immediately adjust labor supply. Thus, they incur debt to finance higher current consumption and work more in the future.

³ A review of writings in this area is available in Matsuyama (2002).

B. Consumer Debt in the 20th Century

US consumers emerged from World War II almost without debt. Household debt levels began rising steadily within a few years, then rapidly from the late 1970's into the present. Figure 1 shows overall household debt in the US from 1945 until 2005. Because debt continued to rise long after the expansion of television, television advertising clearly cannot account for all of the increase in consumer debt.

[Figure 1: Household Debt 1945-2005]

Yet the initial spread of television and concomitant surge in mass media advertising coincides with the initial growth in consumer debt. In particular, household debt as a fraction of income rose precipitously in the 1950's, leveling off by the early 1960's before rising again from the 1980's into the present. Figure 2 shows total household debt as a fraction of income from 1945 through 1975 along with television access and television ownership during this period. The debt income ratio rose by about 40 percentage points between 1945 and 1960, the time over which television access and television ownership spread across US markets.

[Figure 2: Income-Debt Ratio and Television Penetration, 1945-1975]

C. Television

Although experimental television stations broadcast throughout the US in the 1930's, the growth of commercial television did not truly commence until the end of World War II. At the end of the war in 1945, commercial stations broadcast in only four US cities. (New York, Philadelphia, Chicago and Schenectady). By 1960, television broadcasts from 440 VHF stations reached about 96% of the US population. TV ownership lagged only slightly, with close to 90% of households owning a television by that time.

Despite this rapid growth, television did not diffuse smoothly across the US throughout this period. The FCC rapidly reinitiated station licensing at the end of the war in 1945, licensing 71 stations in 42 cities by the end of 1948 [FCC 1949]. However, more than half of the 158 license applications pending after World War II were withdrawn, with CBS affiliates lagging in hopes of a system-wide shift to CBS color technology. Other cities had more applications pending after the war than allocated by the 1945 channel assignments, delaying licensing in these markets for hearings to resolve conflicts. After three years of rapid progress on pending

applications, the FCC stopped licensing new stations in 1948 and abruptly halted the spread of television. Although intended to last for a few months while the Commission studied signal interference, color standards and spectrum allocation, the outbreak of the Korean War and controversy over channel assignments and standards kept the licensing freeze in place until 1952. While licensed stations were allowed to complete construction and begin operations, very few new stations began operating in 1950, 1951 or 1952. In ending the freeze, the FCC published new channel allocations for the country. Applications surged, and the FCC issued 142 VHF licenses within a year. However, the revised geographic channel allocations set a priority of bringing at least one television signal to areas without service, even if the signals came from outside the community. This further delayed licensing even in larger cities within broadcast range of established television markets.

The empirical work that follows relies on the idiosyncratic nature of television's growth, treating FCC channel allocations and the licensing freeze as broad sources of exogenous variation in television access. Figure 2 (described above) shows the spread of television from 1945–1960. The top line shows the fraction of the US population within broadcast range of at least one station each year. The bottom line shows television ownership. The impact of the war and the freeze are evident in the station data. With ownership data, the impact is muted, as set ownership in markets with television continued to expand even as the number of TV markets remained constant.

III. THEORETICAL LINK BETWEEN TELEVISION, CONSUMPTION AND DEBT

This section sketches a theoretical link between television advertising and household debt. The ideas are essentially those in Benhabib and Bisin (2002), who describe how access to advertising may alter households' decisions to work by increasing the desire to consume relative to enjoying leisure. From this viewpoint, exposure to television and a wider range of products can be seen as a shock to the marginal propensity to consume. Consumers then wish to work more and consume more upon being exposed to television. ⁴

⁴ Let the marginal rate of substitution between consumption and leisure be given by $MRS_{cl} = \frac{U_c(c, l; \phi)}{U_l(c, l; \phi)}$

where c denotes consumption, l denotes labor, and ϕ denotes a preference shifter that changes the consumer's marginal utility derived from consumption and leisure. Differentiating MRS_{cl} with respect to ϕ gives

[Figure 3: The Consumer Choice Problem after an Unexpected Change in the Relative Marginal Utility of Consumption]

The desire to consume more requires more income. One possible means of generating more lifetime income is through an increase in lifetime labor supply. If consumers cannot immediately adjust labor supply in response to the shock to the marginal utility of consumption, they may borrow to increase current consumption. To illustrate, consider a simple two-period setting in which the consumer must make consumption decisions and labor supply decisions in both periods. Suppose that prior to exposure to television, the agent's plans are in balance, as shown on figure 3, point A. At this point, the consumer receives wage income wl^* , and consumes wage income each period, so that $c_1=c_2= wl^*$.

Upon exposure to television, the consumer now wishes to consume more in both periods of life, and this requires more income. Such a revision in consumption and work plans might be described by something like point B on figure 3, where the consumer is now supplying greater labor effort and consuming more in both periods. However, it might be that the consumer cannot immediately increase labor effort to attain the desired consumption and labor plan B. A simple way of illustrating this is to suppose that the consumer's labor supply in the current period is fixed and can only be altered in the future period. Hence, current income is fixed at the level wl^* , and the consumer is able only to increase income in the future, perhaps to attain a lifetime income like point E on figure 3. Consumption bundle B can then be supported through borrowing an amount d , as shown on the figure.⁵

While this potential link between television, advertising, and borrowing focuses on labor supply, the basic ideas reflect the principle that current consumption responds to beliefs about the growth of future income, as described in Gourinchas and Parker (2002), and Carroll (1997), among others. The observation here is that expected future income may be partly endogenously

$$\frac{dMRS}{d\phi} = \frac{1}{U_l} \left[U_{c\phi} - \frac{U_c}{U_l} U_{l\phi} \right].$$

Thus, if $U_{c\phi} > 0$, and $U_{l\phi}$ is either negative, or positive and not too large, MRS_{cl} increases.

⁵ Unlike Benhabib and Bisin, who treat welfare issues in a general equilibrium setting, we do not make any normative judgments about whether or not these decisions are welfare-enhancing from the perspective of the consumer or society. Relatedly, Laibson, Repetto, and Tobacman (1998) discuss potential time inconsistency problems in consumer decisions to incur debt.

determined by planned future labor supply decisions, which provides the consumer with a means to borrow more in the present.

With this framework for evaluating the effect of advertising on debt, we turn now to estimating the effect of television. The following section summarizes the data used in the empirical work. Section V and VI outline the empirical framework and present results.

IV. DATA

We analyze the effect of television penetration on debt with household finance measures drawn from the 1947-1959 annual Survey of Consumer Finances covering years 1946-1958.⁶ We link household-level finance data by county to county-level television penetration data from the *Television Factbook*. We also link household finance data by county to select county-level economic measures from the US Bureau of the Census *County and City Data Book*. The Survey of Consumer Finances records financial and demographic characteristics for about 3,000 households in 80 counties each year. While we cannot link households over time, we treat the survey data as a county-level panel.

In addition to the longer time series, a subset of 1,213 individuals was surveyed in both 1951 and 1952. Television ownership and purchase were recorded for the panel, allowing direct estimate of television purchase on household debt for this subsample.

The underlying sources used in constructing the working data are described in turn.

A. Household Finances

The Survey of Consumer Finances collects household-level finance data from a nationally-representative sample of about 3,000 dwelling units in about 80 cities and counties each year. The survey is sponsored by the Board of Governors of the Federal Reserve System and conducted by the Survey Research Center of the University of Michigan. This paper makes use of annual surveys during the period of television expansion, 1946 through 1958, though surveys continue into the present.

Although the survey questions changed from year to year, each survey offers measures of income, assets and debt. Many measures can reasonably be compared over time. The unit of

⁶ The 1947-1958 surveys cover household finance data from 1946-1957. Throughout the paper we refer to actual years rather than survey years.

analysis in the surveys is the “spending unit”, a group of related individuals living in the same home who pool their resources for expenses. The spending unit is more narrowly-defined than the contemporary census definition of a household, which need not include related individuals. However, for economy of language, we refer to the unit of analysis as a household throughout the paper. In most cases in the data, spending units correspond to traditional family units.

Each survey covers about 20 major cities and about 60 metropolitan and non-metropolitan counties. Large cities are covered every year, but the sample of smaller counties changes over time. Because of the limited sample size, the primary analyses in Section IV use the entire sample. Robustness checks at the end of section V consider the sensitivity of results to the geographic sample.

Key household finance variables in the survey are described below. All dollar values are deflated to 1950 levels. Detailed information on sample construction from the raw survey data is included in an appendix.

Debt: The primary independent variables in the study are total household non-mortgage debt and debt associated with purchases of consumer durable goods, each measured both as an indicator variable and in 1950 dollars. Non-mortgage debt rather than total debt is used because mortgage values were not recorded for all homeowners in all years. Although survey questions are not identical each year, total non-mortgage debt constitutes the sum of three sources: (1) debt on household goods purchases and cars; (2) debt to individuals (including medical debt); and (3) debt to institutions (bank loans, insurance firms). Not all of the categories can be disaggregated each year. Whether or not the consumer borrowed for durable goods is not available in 1952. Total debt for durable goods cannot be calculated in 1949 or 1951. These years are excluded from the relevant specifications.

Liquid Assets: Liquid assets are the primary measure of wealth in the surveys and serve as a control variable in the regressions. Liquid assets include holdings in savings accounts, checking accounts and securities such as bonds. Cash holdings are not recorded.

Income: The surveys calculate total income as the sum of income from five sources: (1) wages and salaries; (2) rental income from real estate, tenants and borders; (3) interest income from securities and dividends; and (4) income from farms, unincorporated business or professional

practice; and (5) income from government programs and pensions. Not all categories can be disaggregated each year, but total income is available throughout the study period.

B. Television Penetration

Dates of operation and territory reached for all television stations in the US are recorded in the *Television Factbook*, an industry reference published since the 1950's. The year of initial television access for each county in the *Television Factbook* is linked to household residence data in the Survey of Consumer Finances. Television access is in most cases measured as an indicator variable for whether or not the county was in range of a television signal. Lags and leads are included in some specifications.⁷

It is worth noting that the basic television measure used in this paper is whether or not a household resides in a county with access to a television broadcast, not whether the household owns a television. The paper relies on access measures because the exogenous drivers of market access allow better empirical tests than ownership measures. (This approach has been used successfully in Gentzkow 2006 and George 2009.) Also, in the early years of television, private ownership significantly understated viewership, as television programming was often viewed in public settings. However, the Survey of Consumer Finances does include information on television ownership in 1951 as well as data on television purchase. These data are used in Section V to consider the role of ownership directly.

C. Summary Statistics

Table 1 summarizes key household finance variables used in the study at four points in time. The first row in each panel shows the fraction who have borrowed to purchase durable goods. The second row shows the fraction with any non-mortgage debt. The third and fourth rows show the dollar level of debt for durable goods and non-mortgage debt. Rows 5-7 in each set show conditional measures. The fifth row shows the fraction purchasing durable goods that year. The sixth row shows the fraction borrowing given having made a purchase. The 8th rows shows total non-mortgage debt for those who non-mortgage debt.

⁷ The data used here differ from that used in Gentzkow (2006) and Gentzkow and Shapiro (2008) in that counties are recorded as having access to television if they receive a television signal from a commercial station in any location, rather than if they are located in a Designated Market Area with a broadcasting station. In this small sample of counties, the data are virtually identical.

[Table 1: Summary Statistics]

There is considerable variation in the tendency to carry debt and debt levels in the sample, though most measures are increasing over time. The expansion in the tendency to carry debt is more pronounced than the change in debt levels, though both increase throughout the sample period. The tendency to carry non-mortgage debt increases from 17% to 60% over the sample period. Average non-mortgage debt increases from \$67 to \$389. For perspective on these numbers, median family income in 1950 was \$3,319, with median home values at \$7,354. New car prices for Ford automobiles ranged from about \$1,300-\$2,000, and the price of a Philco black and white television was \$200.

Figure 4 and figure 5 plot the average fraction of households with debt along with debt levels by year over the study period, highlighting trends in table 1. All debt measures increase over the study period, but durables debt increases less than aggregate debt measures. Growth in most of the debt measures also slows in the early 1950's, coinciding with the period of the FCC licensing freeze.

[Figure 4: Fraction of Households Borrowing for Durables and Fraction with Non-Mortgage Debt]

[Figure 5: Average Household Debt for Durable Goods and Average Non-Mortgage Debt (\$1950)]

V. EMPIRICAL STRATEGY & RESULTS

A. Empirical Specification

The goal of the empirical work is to test whether increases in television penetration in a market lead to greater household debt. To identify the effects of television, the analyses ultimately rely on differences in television penetration across markets over time. Because television stations began broadcasting at different times, markets (counties) with faster and steeper increases in television penetration should see faster and steeper increases in household debt. The analysis will exploit the idiosyncratic spread of television across markets to evaluate whether television played a causal role in changing household finances or was simply correlated with unobserved market factors responsible for these changes.

The basic specification is a fixed effects regression of household debt measures on household characteristics over time:

$$(1) \quad Debt_{iMt} = a_0 + a_1 TV_{Mt} + \mathbf{b}X_{iMt} + g_M + v_t + e_{iMt}.$$

In equation (1), $Debt_{iMt}$ is a measure of debt in household i in market M at time t . TV_{Mt} indicates whether market M has television access in year t . The X are household financial and demographic characteristics, including income, wealth, race, age, etc. Market fixed effects, g_M , and year dummies, v_t , account for fixed, unobserved market characteristics and common time shocks. A random error term, e , completes the model. All regressions are weighted by individual sample weights, with standard errors clustered by television market (DMA). To the degree that a model of the decision to incur debt is also a theory of consumption decisions, our empirical model (7) reflects a similar approach and set of control variables as prominent studies of individual-level consumption decisions such as Attanasio and Weber (1993), Hall and Mishkin (1982), Altonji and Siow (1987), Zeldes (1989) and Runkle (1991).

With market fixed effects, the effect of television on household debt is identified off of changes in television access in a market. However, it might be the case that unobserved market trends correlated with the spread of television influence trends in household debt. One example might be local economic growth, which could lead to earlier television access and greater debt. To account for market level trends, we add a series of time-varying county characteristics to equation (1). Few measures of county economic conditions are available between decennial census years, however, data on the number of retail establishments, retail employment and retail sales per capita are available at 4-5 points in time from the *County and City Data Book* published by the Bureau of the Census. Total and long-term bank deposits per capita are also available for 5 years during the study period. We interpolate these variables to provide annual measures, which are included in equation (1). With county characteristics Y , equation (1) becomes:

$$(2) \quad Debt_{iMt} = a_0 + a_1 TV_{Mt} + \mathbf{b}X_{iMt} + \mathbf{d}Y_{Mt} + g_M + v_t + e_{iMt}.$$

The inclusion of county characteristics county fixed effects in the empirical model should also aid in controlling for market-wide phenomena that might also lead to more borrowing on the part of consumers, such as access to credit markets.

B. Basic Results

Equation (2) is estimated using four measures of debt: (1) an indicator for whether the household has non-mortgage debt; (2) an indicator whether the household has debt for household goods; (3) the dollar level of debt for household goods; and (4) the dollar level of total non-mortgage debt. All of the specifications include controls for income and liquid assets as well as household demographics. Dollar values are deflated to 1950.

Table 2 presents estimates of equation (2). The first two columns consider the tendency for a household to borrow or carry debt. Columns 3 and 4 show debt levels in 1950 dollars. Borrowing measures are not available in 1952, so this year is not included in columns 1, 2 and 4 for comparability. Debt for durable goods (column 3) cannot be calculated in 1949 and 1951 due to changes in survey questions, but these years are excluded only from column (3).

The first row of the table shows the effect of television access on whether or not a household borrowed for durable goods that year. Households in markets with access to television are 3.2 percentage points more likely to have borrowed to purchase durable goods. In column (2), individual with television access are 2.9 percentage points more likely to hold non-mortgage debt of any sort. Coefficients on television access are statistically significant at the 10% level for both indicator variables. As noted above, indicator variables provide a less complete picture of household debt than dollar measures, but they are the most comparable over time. The estimated coefficients on control variables generally bear the expected signs. For example, older consumers and consumers with more wealth are less likely to borrow or have incurred less debt, while younger consumers with larger households appear more likely to borrow.

Column (3) shows the relationship between television access and the dollar amount of debt for durable goods. This measure is not available for several study years, so the sample is not directly comparable to other columns. Individuals with television access have \$9.70 more debt for durable goods than households without television access. With average durable goods debt approximately \$50, the effect of television is substantial. Results in column (4) suggest a

positive relationship between television access and total non-mortgage debt, but the results are not statistically significant at standard levels.⁸

[Table 2: The Effect of Television on Household Debt 1946-1958]

Given the results above, it is worthwhile to consider whether television access is associated with increases in the tendency to purchase goods or solely the tendency to borrow conditional on purchases. Similarly, it is helpful to distinguish the effect of television on total non-mortgage debt conditional on borrowing. Table 3 shows the conditional analogs to specifications in table 2. Column (1) shows the relationship between television access and whether or not the household purchased durable goods. The relationship is positive and significant, with television access accounting for 3.9 percentage points higher tendency to purchase durable goods on an average tendency to purchase of 40 percentage points. The tendency to borrow conditional on having purchased is also positive, with a television access associated with a 2.8 percentage point increase in the tendency to borrow. This estimate has a p value of about 0.11. The results suggest that the effect of television works both through the tendency to make additional purchases as well as take on debt to finance those purchases.

Column (3) in table 3 reports that television access is associated with higher non-mortgage debt levels conditional on having non-mortgage debt, but the estimate is not statistically significant.⁹

[Table 3: The Effect of Television on Household Debt, Conditional Measures]

C. Robustness Checks

The results above suggest that television access is associated with a greater tendency to borrow for durable goods purchases and a greater tendency to carry debt. Television access is associated with higher debt for durable goods, but not for higher debt levels overall. This section considers the robustness of the basic results.

⁸ Estimating the level of durable goods and total non-mortgage debt in logs, transforming the dependent variable as well as wealth and income controls with $1 + x$, produces comparable results with higher p -values. In particular, estimates in column (4) are significant with a 10% confidence interval. However given the difficulty of interpreting transformed variables, we do not tabulate log results.

⁹ As noted above, estimating the specification in column (3) in logs produces comparable estimates with p -values of about 18%.

The estimates in table (2) assume the effect of television is fully captured in each time period. While a rapid impact on household debt is not unreasonable, household debt continued to expand into the present so it is reasonable to expect that the effect of television persisted beyond the initial expansion period.

An ideal test of the long-term effects of television would require a measure of television that increased over a longer time horizon, such as television ownership or viewing hours. (Both increased though the 1970's and beyond.) However, after the initial expansion of television access, programming options varied little across markets. As a result, any television consumption measures (or changes in those measures) likely would be correlated with unobserved characteristics such as income, wealth, age or alternative entertainment options that might also influence household tendency to incur debt. It would thus be difficult to produce reliable estimates of the long-term effect of television even with appropriate data. However, to investigate persistent effects of television, lagged television penetration can be added to the basic specification in equation (8). As a check on whether increases in household debt preceded or even drove the spread of television, leads can also be added to the model. Large and significant coefficient estimates on the lead terms would make it less likely that television played a causal role in the rise of household debt.

[Table 4: The Effect of TV Access on Household Debt, Cumulative Effects]

Table 4 presents results of fixed effects specifications analogous to those in Table 2 with one period of lags and leads. The individual television coefficients are not significant in these specifications, but the cumulative effects are consistent in magnitude and significance with those in table 2. The lead coefficients are small in magnitude compared to the cumulative effects and none of them approach standard significance levels. The results indicate that reverse causality is not a concern because the tendency to incur debt did precede the spread of television.

A second consideration with these results is the unbalanced nature of the geographic sample. Although the survey covers a nationally-representative population, the counties and television markets do change over time. The results in table 2 are robust to limiting the sample to markets

with at least 5 years of data (85 markets) and 7 years of data (56 markets). Beyond that, the sample of markets shrinks considerably, with a commensurate rise in p -values.

Finally, to rule out the possibility that the link between television access and household debt is simply due to a greater tendency for households in television markets to purchase television sets, we consider purchases of automobiles, which are recorded in most sample years. We find that television access is associated with a greater tendency to purchase and incur debt for new cars. Cars were advertised heavily on television, even in the early years, suggesting one avenue for increased household debt.

VI. TELEVISION ACCESS & TELEVISION OWNERSHIP

The specifications in section V identify the effect of household debt from market-level variation in television access. This identification strategy has the advantage that television diffused in an idiosyncratic fashion, eliminating many standard concerns with unobserved heterogeneity. With the inclusion of time-varying measures of local economic growth and wealth, the results offer substantial evidence that television contributed to the tendency to carry household debt.

The disadvantage of this approach, however, is that the effects of television are identified solely from variation in a market-level indicator variable. To obtain a more precise estimate of the effect of television on household debt, we make use of a 1951-1952 subsample of 1,213 individuals who were surveyed over two years. The data record whether an individual owned a television in 1951, and whether or not the household purchased a television in 1950 or 1951. From this it is possible to revise equation (2) to include television ownership as well as television access, with a household fixed effects replacing county fixed effects. Survey questions relating to durable goods purchases and durable goods borrowing were not consistently recorded over this two-year period, but it is possible to measure both whether or not a household had non-mortgage debt and the total debt level both years. Adding household television ownership each year (TVO), equation (2) becomes:

$$(3) \quad Debt_{iMt} = a_0 + a_1 TV_{Mt} + a_2 TVO_{iMt} + \mathbf{b}X_{iMt} + \mathbf{d}Y_{Mt} + g_i + v_t + e_{iMt}.$$

Table 5 reports estimates of equation (3). The first column measures the tendency to carry non-mortgage debt and the second column considers the debt in \$1950 dollars. In column 1, both television access and television ownership are positive and statistically significant. The magnitudes are larger than those estimated in Section V, with television access associated with a 12.5 percentage point increase in the tendency to carry household debt.¹⁰ Television ownership is associated with an 11 percentage point increase in the tendency to carry non-mortgage debt. Also as in Section V, results for total debt levels are positive but not statistically significant.

While the estimates in table 5 include controls for wealth, income, occupation and household composition, it might be the case that unobserved household factors influence both the tendency to purchase a television and the tendency to carry debt. Because of this potential bias, these results should be taken as suggestive rather than conclusive. Nonetheless, taken together with results above, these results provide further evidence of a link between television and household debt.

[Table 5: The Effect of TV Ownership on Household Debt, 1951-1952 Panel]

VII. TELEVISION ACCESS AND LABOR FORCE PARTICIPATION

With evidence of a link between television advertising and debt, we return to our model to consider whether the mechanism we describe may be driving the estimated effect. We can study the theory, though in a limited way, by estimating the relationship between television access and labor force participation. Our model suggests that television access should increase labor force participation, with early television markets seeing earlier and steeper increases than markets with later television access.

[Figure 6: Labor Force Participation 1950-1960]

¹⁰ The panel covers the period during the FCC freeze, so the number of counties gaining access to television in this period was minimal.

Labor participation rates for men and women in 1950 and 1960 are available at the county level from 1952 and 1962 *County and City Data Book* published by the Bureau of the Census. While all markets had access to television by 1960, there was substantial variation in cumulative years of television access at each point. Figure 6 plots average male labor force participation in three categories of counties: those with television access before the end of World War II (Pre-War TV); those acquiring television after the war but before the FCC freeze (Post-War TV), and those acquiring television after the end of the freeze in 1953 (Post-Freeze TV). As readily evident in the figure, male labor force participation was declining over the 1950's in all markets, while female labor force participation was increasing.¹¹ Counties with access to television before the war saw less of a decline in male labor force participation than markets with access after the war, and those with access after the end of the FCC freeze. A simple regression confirms that the differential trends in the graph are statistically significant. The trend in labor market participation for females does not differ across groups with early or late television access.

Table 6 estimates the relationship between television access and labor market participation more comprehensively. The panel shows six regressions of labor market participation on years with access to television in 1950 and 1960 along with a set of time-varying county characteristics. All specifications include county fixed effects with standard errors clustered by market. The first three columns weight observations equally, while the second three columns weight observations by county population. Results are presented separately for male, female and total labor force participation rates.

As suggested in the graph, male labor force participation increases with years of television access. An additional year of television increases labor force participation by about one quarter of a percentage point on an average of about 60 percent participation. Results for females are much smaller and insignificantly different than zero. While the lack of yearly data limits the insight produced by these estimates, the results are consistent with a model of television-induced labor supply.

¹¹ A large literature examines overall trends for both males and females. See Parsons (1980) for an overview of declining male labor participation rates and Cavalcanti and Tavares (2008) for a recent study of female labor participation during this period.

VIII. CONCLUSIONS

Despite a long history of interest in economics and politics, current economic research offers neither a mechanism for a relationship between advertising and debt nor empirical evidence on the nature of that relationship. This paper offers a simple model which shows how exposure to more products might lead to higher debt. If consumers are constrained from increasing labor income in the short term, a higher marginal utility for consumer goods would increase debt.

The empirical results suggest that the greater access to television is associated with a greater tendency to maintain household debt and debt for household products. Results also suggest that greater access to television is associated with higher levels of debt for durable goods, though not for total debt levels. We provide suggestive evidence that greater labor force participation might drive our results. Taken together, the theoretical and empirical results suggest a role for new research into the relationship between mass media advertising and debt.

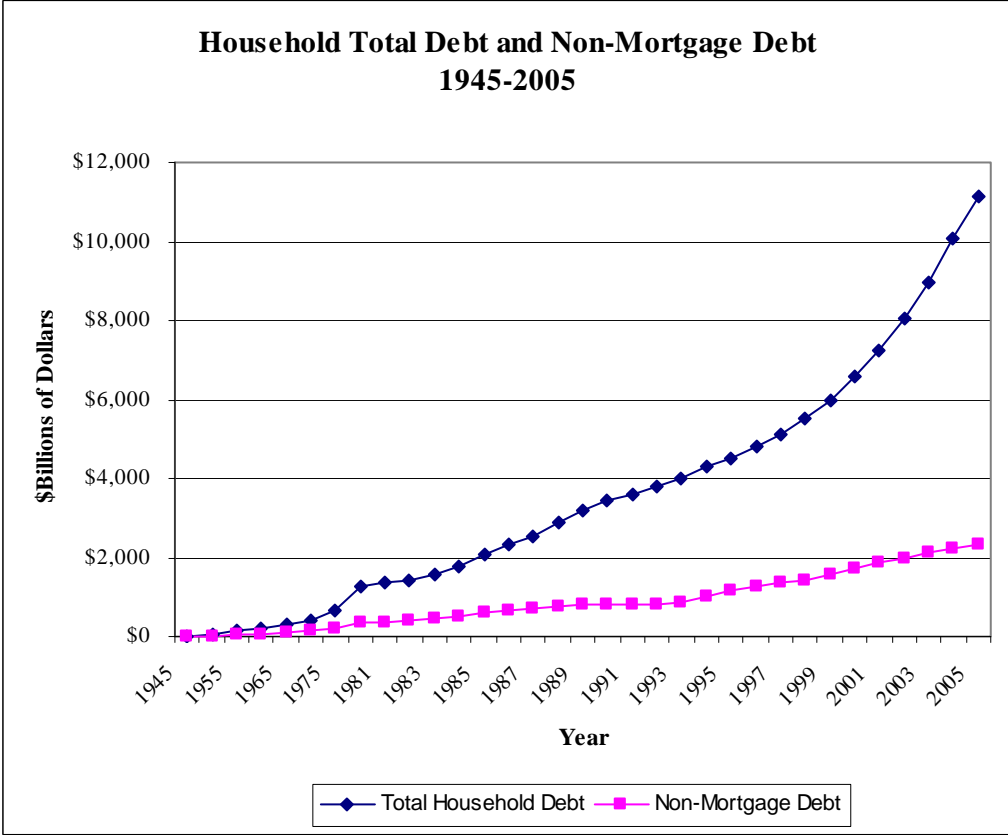
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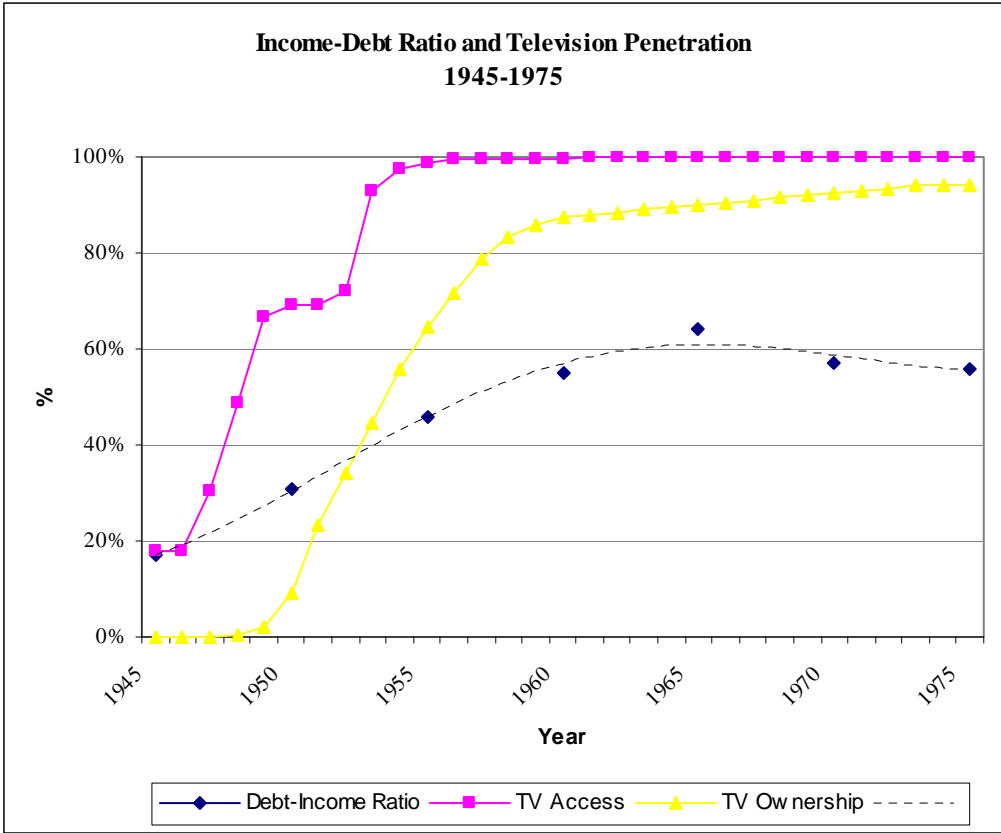
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Figure 1: Household Debt 1945-2005



Source: Federal Reserve and BLS Data, reported by Demographia, www.demographia.com.

Figure 2: Income-Debt Ratio and Television Penetration, 1945-1975



Source: Household Income and Debt Data, Federal Reserve and BLS Data, reported by Demographia, www.demographia.com. Television Penetration from the *Television Factbook*.

Figure 3: The Consumer Choice Problem after an Unexpected Change in the Relative Marginal Utility of Consumption

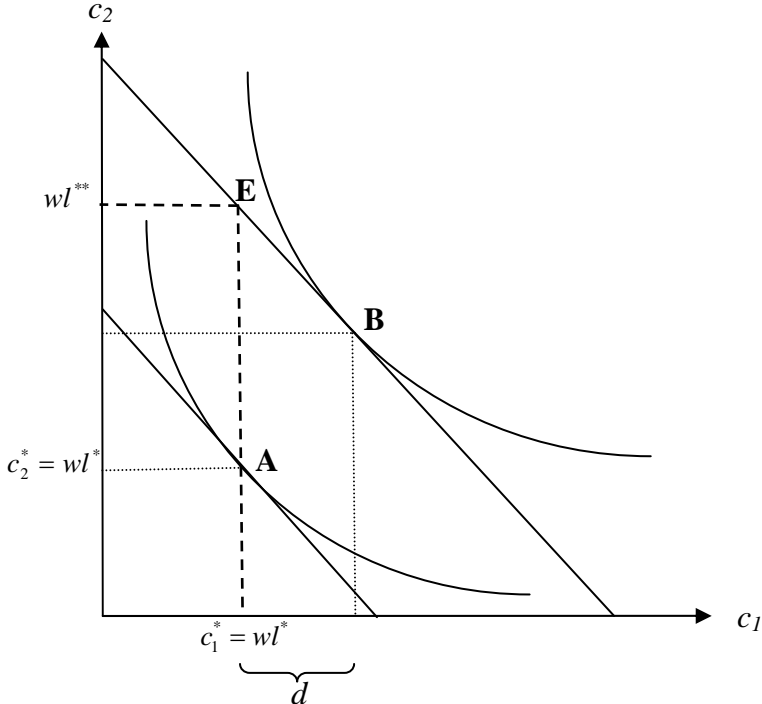


Figure 4: Fraction of Households Borrowing for Durables and Fraction with Non-Mortgage Debt

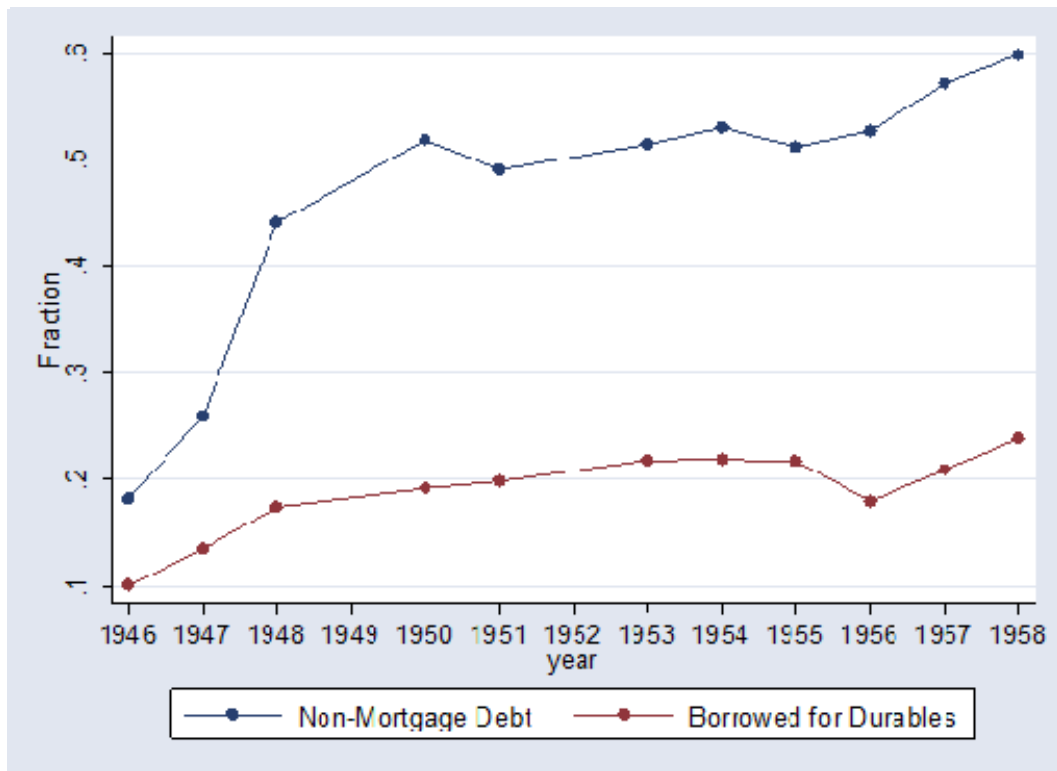


Figure 5: Average Household Debt for Durable Goods and Average Non-Mortgage Debt (\$1950)

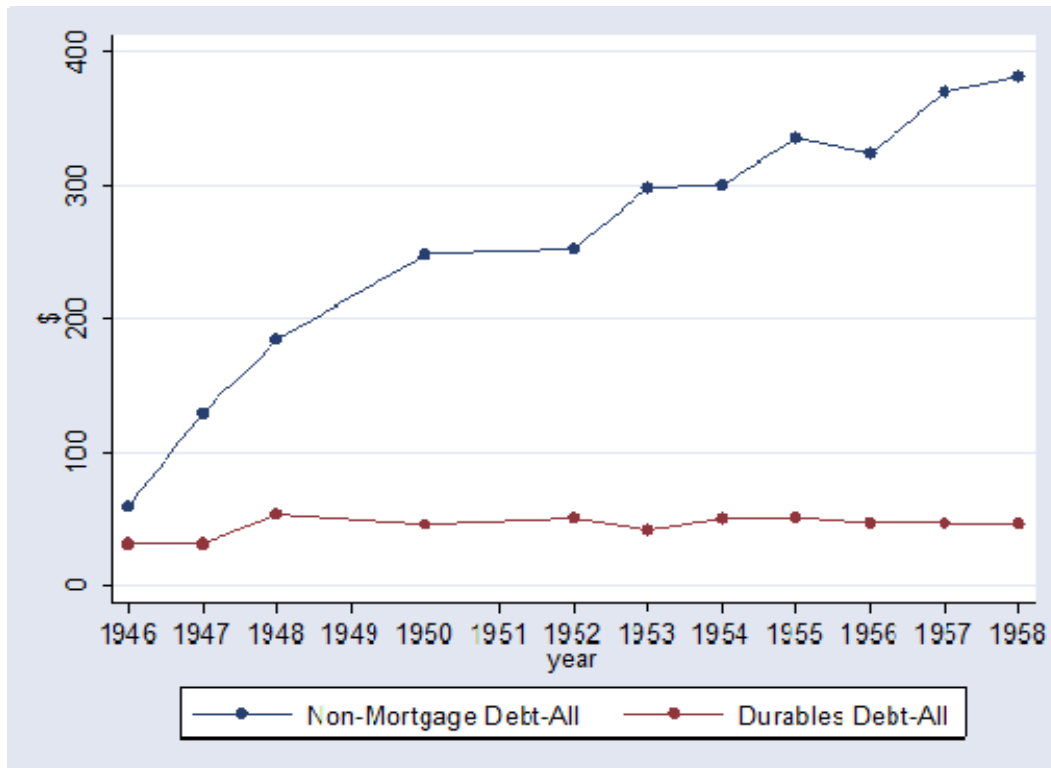


Figure 6: Labor Force Participation 1950-1960

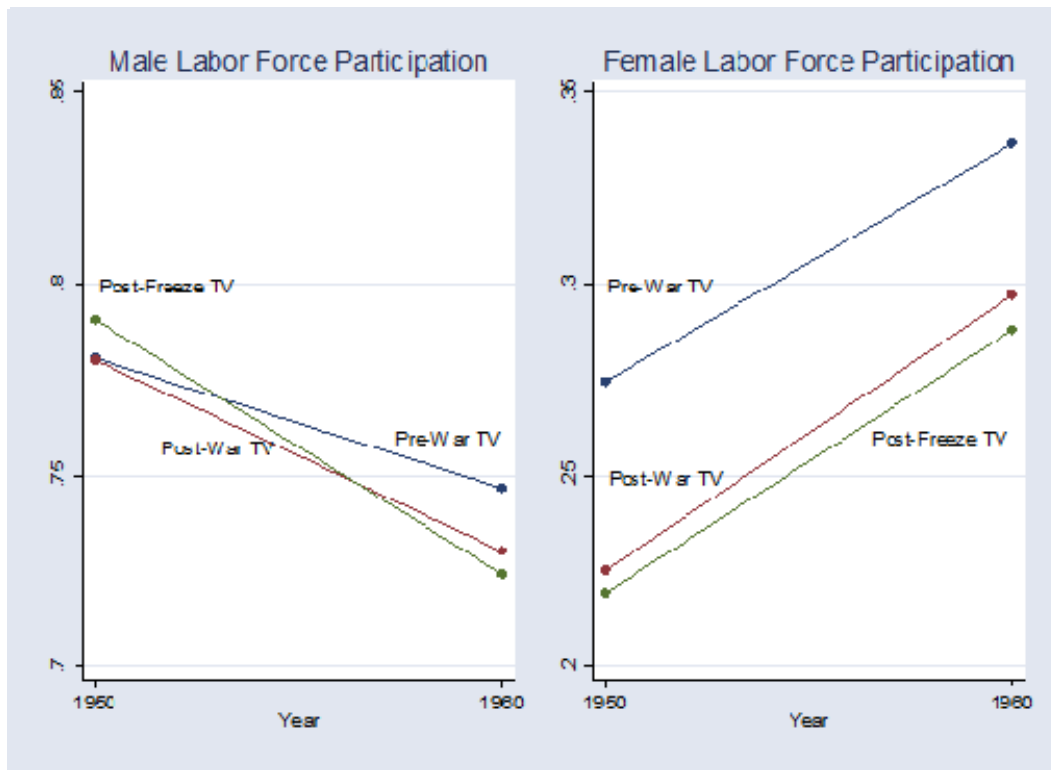


Table 1: Summary Statistics

	Year	N	Mean	SD	5%	25%	50%	75%	95%
Borrowed for Durables	1946	3,030	0.10	0.30	0	0	0	0	1
Has Non-Mortgage Debt	1946	3,030	0.17	0.38	0	0	0	0	1
Debt for Durables (\$1950)	1946	3,030	\$34.45	\$168.81	0	0	0	0	\$216.14
Total Non-Mortgage Debt (\$1950)	1946	3,030	\$67.64	\$350.59	0	0	0	0	\$216.14
Bought Durables	1946	3,030	0.29	0.45	0	0	0	1	1
Borrowed for Durables Conditional on Purchase	1946	865	0.35	0.48	0	0	0	1	1
Non-Mortgage Debt Conditional on Debt (\$1950)	1946	423	\$484.52	\$824.47	\$54.04	\$54.04	\$140.49	\$507.94	\$2,377.58
Borrowed for Durables	1950	3,263	0.19	0.39	0	0	0	0	1
Has Non-Mortgage Debt	1950	3,263	0.51	0.50	0	0	1	1	1
Debt for Durables (\$1950)	1950	3,263	\$45.69	\$119.64	0	0	0	0	\$324.42
Total Non-Mortgage Debt (\$1950)	1950	3,263	\$252.19	\$538.57	0	0	\$27.81	\$278.08	\$1,205.00
Bought Durables	1950	3,263	0.43	0.50	0	0	0	1	1
Borrowed for Durables Conditional on Purchase	1950	1,403	0.44	0.50	0	0	0	1	1
Non-Mortgage Debt Conditional on Debt (\$1950)	1950	1,649	\$499.03	\$671.48	\$92.69	\$92.69	\$278.08	\$556.15	\$1,853.85
Borrowed for Durables	1954	3,048	0.22	0.41	0	0	0	0	1
Has Non-Mortgage Debt	1954	3,048	0.53	0.50	0	0	1	1	1
Debt for Durables (\$1950)	1954	3,048	\$52.85	\$177.88	0	0	0	0	\$283.26
Total Non-Mortgage Debt (\$1950)	1954	3,048	\$327.69	\$606.29	0	0	\$22.48	\$413.66	\$1,506.25
Bought Durables	1954	3,048	0.44	0.50	0	0	0	1	1
Borrowed for Durables Conditional on Purchase	1954	1,339	0.49	0.50	0	0	0	1	1
Non-Mortgage Debt Conditional on Debt (\$1950)	1954	1,610	\$620.37	\$717.24	\$22.48	\$134.89	\$367.35	\$836.31	\$1,978.36
Borrowed for Durables	1958	3,080	0.24	0.43	0	0	0	0	1
Has Non-Mortgage Debt	1958	3,080	0.60	0.49	0	0	1	1	1
Debt for Durables (\$1950)	1958	3,080	\$46.25	\$130.01	0	0	0	\$1.66	\$265.02
Total Non-Mortgage Debt (\$1950)	1958	3,080	\$389.64	\$662.01	0	0	\$77.43	\$508.92	\$1,748.70
Bought Durables	1958	3,079	0.41	0.49	0	0	0	1	1
Borrowed for Durables Conditional on Purchase	1958	1,275	0.54	0.50	0	0	1	1	1
Non-Mortgage Debt Conditional on Debt (\$1950)	1958	1,845	\$650.45	\$749.69	\$20.70	\$125.06	\$371.02	\$920.11	\$2,202.96

Table 2: The Effect of Television Access on Household Debt

	Borrowed for Durables	Has Non- Mortgage Debt	Durables Debt (\$1950)	Non- Mortgage Debt (\$1950)
	(1)	(2)	(3)	(4)
<i>TV Access</i>	0.032** (3.35)	0.029+ (1.85)	9.712* (2.50)	20.141 (1.36)
Wealth -- Liquid Assets (\$1,000's)	-0.005** (-12.90)	-0.012** (-13.70)	-1.642** (-12.66)	-11.292** (-11.40)
Total Income (\$1,000's)	-0.000 (-0.59)	0.000 (0.57)	0.475** (3.11)	8.302** (6.42)
Owns Home	-0.045** (-7.09)	-0.017** (-2.64)	-9.904** (-4.04)	37.630** (4.10)
Education--High School	0.006 (0.76)	0.028** (4.80)	5.755* (2.46)	41.154** (5.76)
Education--College	-0.033** (-6.87)	-0.028** (-3.49)	-9.149** (-3.64)	15.442 (1.48)
Non-white	0.051** (5.26)	0.077** (5.12)	9.718* (2.05)	-19.998 (-1.42)
Age 18-24	0.128** (10.84)	0.150** (12.39)	34.486** (9.84)	79.964** (6.26)
Age 25-34	0.112** (15.64)	0.153** (21.80)	31.177** (10.00)	112.047** (11.52)
Age 35-44	0.047** (6.86)	0.075** (10.10)	14.975** (5.87)	68.398** (7.31)
Age 65+	-0.044** (-6.75)	-0.118** (-11.36)	-10.045** (-5.08)	-67.422** (-8.92)
Number of Adults in Household	0.016** (3.22)	0.033** (6.35)	6.089* (2.45)	13.207* (2.56)
Number of Children in Household	0.024** (11.77)	0.043** (19.03)	6.309** (6.32)	19.659** (6.43)
Married	0.074** (8.19)	0.071** (6.52)	17.321** (5.10)	53.416** (5.80)
Male Respondent	-0.011 (-1.56)	0.005 (0.96)	1.364 (0.62)	11.098 (1.39)
Male Head of Household	-0.020* (-2.21)	0.020* (2.00)	1.990 (0.74)	60.612** (6.37)
Primary Spending Unit	0.145** (12.89)	0.173** (13.60)	36.019** (8.25)	105.571** (7.64)
Primary Spending Unit--No Secondary	-0.015+ (-1.94)	-0.041** (-4.82)	-10.563** (-3.64)	-31.916** (-3.11)
<i>County Characteristics</i>				
Per Cap Retail Establishments	4.681 (0.44)	0.523 (0.06)	1999.764 (0.68)	-2796.407 (-0.27)
Per Cap Retail Sales	-0.073	0.261*	-24.980	237.415+

	(-0.79)	(2.57)	(-0.84)	(1.75)
Per Cap Retail Employment	1.180	-5.371*	149.339	-3670.232
	(0.59)	(-2.51)	(0.25)	(-1.20)
Per Cap Bank Deposits	0.010	-0.012	11.259	102.788*
	(0.37)	(-0.77)	(1.49)	(2.42)
Per Cap Bank Time Deposits	0.041	-0.011	-1.809	-168.378*
	(0.50)	(-0.18)	(-0.09)	(-2.12)
Constant	-0.140	-0.136	-26.274	-197.398+
	(-1.43)	(-1.66)	(-1.35)	(-1.74)
Fixed Effects	County,	County,	County,	County,
	Year	Year	Year	Year
Counties	135	135	135	135
N	36,566	36,566	34,295	36,566

Note: Dependent variables are whether a spending unit (household) has borrowed to purchase durable goods, whether the spending unit has non-mortgage debt, the amount of durables debt and the amount of total non-mortgage debt. All specifications exclude 1952, column (3) excludes 1949 and 1951. See text for details. Estimates for occupation codes, city size and year effects not shown. Specifications weighted by sample weights, with standard errors clustered by DMA.

+ p<0.10

* p<0.05

** p<0.01.

Table 3: The Effect of Television Access on Household Debt, Conditional Measures

	Bought Durables (1)	Borrowed for Durables Given Purchase (2)	Non-Mortgage Debt Given Debt (\$1950) (3)
<i>TV Access</i>	0.039** (2.67)	0.028 (1.61)	22.220 (0.78)
Liquid Assets (\$1,000's)	-0.001+ (-1.86)	-0.015** (-8.65)	-10.745** (-3.88)
Total Income (\$1,000's)	0.007** (7.93)	-0.004** (-4.24)	28.200** (6.68)
Owns Home	0.001 (0.14)	-0.090** (-9.43)	83.687** (5.46)
Education--High School	0.028** (4.04)	-0.025+ (-1.67)	51.308** (3.84)
Education--College	-0.000 (-0.02)	-0.073** (-6.80)	40.419* (2.28)
Non-white	-0.013 (-1.11)	0.161** (9.10)	-81.136** (-4.68)
Age 18-24	0.137** (8.97)	0.148** (7.76)	22.659 (1.05)
Age 25-34	0.138** (16.26)	0.093** (6.91)	52.486** (3.28)
Age 35-44	0.066** (9.55)	0.041** (3.26)	56.935** (3.51)
Age 65+	-0.069** (-8.62)	-0.084** (-4.94)	-106.835** (-4.02)
Adults in Household	0.001 (0.26)	0.044** (3.88)	-1.241 (-0.13)
Children in Household	0.010** (4.42)	0.038** (11.59)	-11.233** (-2.72)
Married	0.141** (13.55)	0.035+ (1.89)	32.845+ (1.72)
Male Respondent	0.014+ (1.81)	-0.036** (-3.38)	16.736 (1.20)
Male Head of Household	-0.025* (-2.17)	-0.067** (-3.65)	127.112** (6.14)
Primary Spending Unit	0.199** (14.96)	0.132** (6.32)	60.049** (2.75)
Primary Spending Unit with No Secondary Units	-0.007 (-0.84)	-0.032* (-2.60)	-35.761+ (-1.97)
<i>County Characteristics</i>			
Per Capita Retail Establishments	8.377 (0.75)	3.427 (0.18)	-9094.364 (-0.47)
Per Capita Retail Sales	-0.081	-0.081	137.691

	(-0.65)	(-0.48)	(0.55)
Per Capita Retail Employment	0.214	2.223	-1670.987
	(0.08)	(0.69)	(-0.32)
Per Capita Bank Deposits	0.029	-0.002	187.290*
	(0.96)	(-0.04)	(2.54)
Per Capita Bank Time Deposits	0.025	0.063	-191.943
	(0.22)	(0.52)	(-1.37)
Constant	-0.168	0.190	118.489
	(-1.52)	(1.13)	(0.53)
Fixed Effects	County, Year	County, Year	County, Year
Counties	135	135	135
N	36,565	14,960	16,534

Note: Dependent variables are whether a household purchased durable goods, whether the spending unit borrowed for durable goods conditional on purchase, and total non-mortgage debt for households with debt. All specifications exclude 1952. See text for details. Estimates for occupation codes, city size and year effects not shown. Specifications weighted by sample weights, with standard errors clustered by DMA.

+ p<0.10

* p<0.05

** p<0.01.

Table 4: The Effect of Television Access on Household Debt, Cumulative Effects

	Borrowed for Durables	Has Non- Mortgage Debt	Durables Debt (\$1950)	Non- Mortgage Debt (\$1950)
	(1)	(2)	(3)	(4)
<i>TV Access</i>	0.017 (0.92)	0.021 (0.99)	5.468 (0.88)	16.986 (1.05)
<i>TV Access Lag</i>	0.005 (0.32)	0.015 (0.85)	4.823 (1.06)	-3.793 (-0.22)
<i>TV Access Lead</i>	0.020 (1.17)	-0.003 (-0.16)	2.488 (0.37)	9.565 (0.50)
<i>Cumulative Effects</i>				
<i>TV Access + TV Access Lag</i>	0.022+ (1.67)	0.036+ (1.89)	10.29+ (1.85)	13.19 (0.82)
<i>TV Access Lead</i>	0.020 (1.17)	-0.003 (-0.16)	2.488 (0.37)	9.565 (0.50)
Liquid Assets (\$1,000's)	-0.005** (-12.94)	-0.012** (-13.69)	-1.641** (-12.66)	-11.295** (-11.40)
Total Income (\$1,000's)	-0.000 (-0.58)	0.000 (0.57)	0.475** (3.11)	8.303** (6.41)
Owns Home	-0.045** (-7.12)	-0.017** (-2.66)	-9.921** (-4.05)	37.611** (4.10)
Education--High School	0.006 (0.75)	0.028** (4.80)	5.740* (2.45)	41.123** (5.75)
Education--College	-0.033** (-6.87)	-0.027** (-3.49)	-9.126** (-3.63)	15.447 (1.48)
Non-white	0.051** (5.24)	0.077** (5.12)	9.707* (2.05)	-20.040 (-1.43)
Age 18-24	0.128** (10.84)	0.150** (12.41)	34.453** (9.84)	80.002** (6.26)
Age 25-34	0.113** (15.65)	0.152** (21.77)	31.154** (9.97)	112.073** (11.52)
Age 35-44	0.047** (6.85)	0.075** (10.09)	14.968** (5.87)	68.401** (7.31)
Age 65+	-0.044** (-6.77)	-0.118** (-11.39)	-10.054** (-5.06)	-67.378** (-8.94)
Adults in Household	0.016** (3.22)	0.033** (6.34)	6.102* (2.45)	13.218* (2.56)
Children in Household	0.024** (11.78)	0.043** (19.02)	6.316** (6.31)	19.658** (6.44)
Married	0.074** (8.18)	0.071** (6.52)	17.313** (5.07)	53.400** (5.80)
Male Respondent	-0.011 (-1.55)	0.005 (0.96)	1.362 (0.62)	11.098 (1.39)
Male Head of Household	-0.020*	0.020*	2.003	60.645**

	(-2.21)	(2.00)	(0.74)	(6.38)
Primary Spending Unit	0.145**	0.173**	35.978**	105.583**
	(12.88)	(13.59)	(8.26)	(7.62)
Primary SU No Secondary	-0.015+	-0.041**	-10.521**	-31.877**
	(-1.92)	(-4.83)	(-3.63)	(-3.10)
<i>County Measures (Not Shown)</i>				
Constant	-0.145	-0.125	-27.404	-203.581+
	(-1.45)	(-1.49)	(-1.37)	(-1.75)
Fixed Effects	County, Year	County, Year	County, Year	County, Year
Counties	135	135	135	135
N	36,566	36,566	34,295	36,566

Note: Dependent variables are whether a spending unit (household) has borrowed to purchase durable goods, whether the spending unit has non-mortgage debt, the amount of durables debt and the amount of total non-mortgage debt. All specifications exclude 1952, column (3) excludes 1949 and 1951. See text for details. Estimates for occupation codes, city size and year effects not shown. Specifications weighted by sample weights, with standard errors clustered by DMA.

+ p<0.10

* p<0.05

** p<0.01.

Table 5: The Effect of Television Ownership on Household Debt, 1951-1952 Panel

	Has Non-Mortgage Debt (1)	Non-Mortgage Debt (\$1950) (2)
<i>TV Ownership</i>	0.110+ <i>(1.74)</i>	11.985 <i>(0.10)</i>
<i>TV Access</i>	0.125+ <i>(1.92)</i>	167.183 <i>(1.24)</i>
Liquid Assets (\$1,000's)	-0.048 (-0.76)	-184.821 (-1.39)
Total Income (\$1,000's)	-0.003 (-0.69)	5.553 (0.35)
Owns Home	-0.004 (-1.14)	-11.779 (-1.44)
Education--High School	-0.016 (-0.14)	175.483 (0.78)
Education--College	-0.038 (-0.26)	111.700 (0.69)
Non-white	-0.156 (-1.28)	-241.880+ (-1.97)
Age 18-24	-0.022 (-0.24)	93.811 (0.71)
Age 25-34	0.166 (1.03)	-100.831 (-0.43)
Age 35-44	0.099 (0.88)	-69.090 (-0.37)
Age 65+	-0.001 (-0.01)	-275.260 (-1.31)
Adults in Household	-0.211 (-1.13)	-460.410+ (-1.71)
Children in Household	-0.030 (-0.57)	-44.497 (-0.36)
Married	0.049 (1.53)	7.873 (0.17)
Male Respondent	-0.004 (-0.03)	-95.723 (-0.43)
Male Head of Household	-0.071 (-0.94)	38.330 (0.46)
Constant	0.074 (0.56)	268.126 (1.24)
Fixed Effects	Household, Year	Household, Year
Counties	135	135
Households	1,213	1,213

Note: Dependent variables are whether a household has non-mortgage debt and the total amount of total non-mortgage debt. See text for details. Estimates for county characteristics (retail sector, bank deposits, population) not shown. Estimates for occupation codes, city size and year effects not shown. Coefficient estimates for county measures also not shown. Specifications weighted by sample weights, with standard errors clustered by DMA.

+ p<0.10

* p<0.05

** p<0.01.

Table 6: Television and Labor Force Participation, 1950-1960

	Labor Force Participation (Unweighted)			Labor Force Participation (Pop-Weighted)		
	Male	Female	Total	Male	Female	Total
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Years of TV Access</i>	0.0025**	0.0008	0.0017*	0.0028**	0.00004	0.0014*
	(2.60)	(0.87)	(2.23)	(2.93)	(0.06)	(2.17)
Year=1960	-0.113**	0.063**	-0.034*	-0.083**	0.066**	-0.017
	(-4.15)	(4.86)	(-2.02)	(-4.10)	(6.85)	(-1.41)
County Population	0.000**	0.000	0.000*	0.000**	0.000	0.000**
	(2.93)	(0.54)	(2.11)	(4.75)	(0.80)	(4.47)
Population Growth	-0.027	-0.017**	-0.017	-0.014	-0.006	-0.006
	(-1.21)	(-2.81)	(-1.32)	(-0.98)	(-1.14)	(-0.88)
Pop Density	0.000	-0.000	0.000	-0.000	-0.000	-0.000
	(0.15)	(-0.39)	(0.05)	(-0.19)	(-0.27)	(-0.15)
Fraction Age 65+	-0.001	-0.001*	-0.001	-0.002**	-0.002**	-0.001**
	(-0.90)	(-2.58)	(-1.38)	(-3.07)	(-3.53)	(-3.48)
Fraction Age<21	0.339**	-0.028	0.142+	0.323**	-0.121+	0.116+
	(3.27)	(-0.36)	(1.92)	(3.53)	(-1.82)	(1.82)
High Income Fraction	-0.001+	-0.000	-0.001	0.001	-0.000	0.000
	(-1.65)	(-0.64)	(-1.07)	(1.02)	(-0.74)	(0.70)
Low Income Fraction	-0.001+	-0.001**	-0.001**	-0.001**	-0.001**	-0.001**
	(-1.65)	(-3.22)	(-3.18)	(-2.63)	(-4.13)	(-4.29)
Non White Fraction	-0.000*	-0.000*	-0.000**	-0.001**	-0.000**	-0.000**
	(-2.58)	(-2.46)	(-2.66)	(-3.36)	(-2.76)	(-3.38)
Low Ed Fraction	0.001	0.000	0.001+	0.002*	0.002*	0.002**
	(1.09)	(0.55)	(1.66)	(2.12)	(2.58)	(2.80)
High School Ed Fraction	0.000**	0.000**	0.000**	0.000**	0.000**	0.000**
	(4.50)	(8.35)	(6.44)	(4.35)	(7.92)	(6.01)
Median Income (\$1,000)	0.011*	-0.001	0.005+	0.004	0.001	0.003
	(2.25)	(-0.23)	(1.70)	(1.14)	(1.56)	(1.58)
Urban Pop Fraction	0.000**	-0.000	0.000**	0.000**	-0.000	0.000**

	(3.61)	(-0.92)	(2.89)	(4.07)	(-1.25)	(3.14)
Farm Pop Fraction	0.000	0.000+	0.000*	0.000	0.001**	0.000**
	(1.05)	(1.90)	(2.24)	(0.56)	(4.27)	(2.72)
Retail Establishments	-0.000	-0.000	-0.000	-0.000**	-0.000*	-0.000**
	(-1.45)	(-0.41)	(-1.31)	(-2.94)	(-2.07)	(-3.68)
Retail Sales	-0.000*	-0.000	-0.000*	-0.000**	0.000	-0.000*
	(-2.57)	(-1.31)	(-2.50)	(-3.78)	(1.19)	(-2.33)
Per Capita Retail Establishments	2.956**	-0.173	1.130+	4.240**	0.819	2.357**
	(2.68)	(-0.24)	(1.69)	(3.98)	(0.90)	(3.21)
Per Capita Retail Sales	0.003	0.018+	0.012	0.002	0.005	0.007
	(0.23)	(1.66)	(1.28)	(0.11)	(0.42)	(0.61)
Bank Deposits	-0.000	0.000	0.000	-0.000	-0.000*	-0.000
	(-0.11)	(1.61)	(0.83)	(-0.81)	(-2.07)	(-1.60)
Bank Time Deposits	0.000	-0.000*	-0.000	0.000	0.000	0.000
	(0.28)	(-2.36)	(-1.03)	(0.36)	(0.08)	(0.33)
Per Capita Bank Deposits	0.016	-0.003	0.005	0.017	0.010	0.013+
	(1.18)	(-0.48)	(0.94)	(1.50)	(1.63)	(1.95)
Per Capita Bank Time Deposits	-0.021	0.023+	0.004	-0.014	0.006	-0.003
	(-1.01)	(1.81)	(0.34)	(-0.76)	(0.43)	(-0.24)
Constant	0.611**	0.278**	0.451**	0.619**	0.341**	0.468**
	(13.48)	(7.38)	(14.28)	(17.04)	(12.34)	(18.24)
Counties	3075	3075	3075	3075	3075	3075

Note: Dependent variable is the fraction of the population age 14 or older in the civilian labor force in the county. See text for details. Weighted regressions are weighted by county population. All specifications include county fixed effects, with standard errors clustered by DMA.

+ p<0.10

* p<0.05

** p<0.01.