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WEALTH EFFECT IN THE US: EVIDENCE FROM BRAND NEW MICRO-DATA

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Abstract

This article investigates how wealth and capital gains affected household consumption in the USA in the period 1989-2004. The empirical evidence brought so far by a large literature that investigates the role of wealth shocks on consumption is mixed, due to the low quality of the data more readily available. We use a statistical matching procedure to create our own unique dataset, merging data from the Consumer Expenditure Survey and the Survey of Consumer Finances. The high quality data that result from this operation allow us to perform a detailed analysis on the mechanism of the wealth effect. We divide between durables and non durables consumption, and we also investigate the roles of the different components of household wealth, both gross and net. Our estimates indicate that there is a significant tangible wealth effect, and its economic importance lies in the low range of the estimates of the previous empirical literature. Decomposing tangible wealth in the house of residence and other real estate leads us to conclude that both contribute to the total wealth effect, but the former is quantitatively more important. On the contrary, financial wealth seems to have no significant effects on consumption. This last finding tends to confirm the evidence found in a number of previous studies that use both micro and macro-level data. Interestingly, the effects of tangible wealth on consumption disappears in 2004, maybe because US households perceived that the rising property prices due to the housing bubble were not permanent, thus they did not modify savings. The estimation of the model with a Pooled OLS on the repeated cross sections confirms the initial findings, and, allowing for some interaction terms, permits a better understanding of the role played by aged people. The importance of tangible wealth is confirmed by this final estimation.

JEL: D12, E21

Keywords: Consumption, Household Wealth, Wealth Effect, Statistical Matching

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1. Introduction

During the Nineties and the beginning of the new Millennium, a period of growing stock and housing prices, the US aggregate savings rate fell considerably, leading to a renewed interest in the understanding of its determinants. In particular, the recent literature concentrated on the effects of household wealth on household consumption and savings, through the so called 'wealth effect' channel. This new wave of studies aimed at understanding the possible role of wealth in exacerbating the effects of a slowdown of the economy in case of constant or declining share and housing prices (Paiella, 2007). With the subprime mortgages crisis of the first half of 2008 and the following financial and economic crisis, this scenario, from mere hypothesis, has become reality. In light of that, the aim of our article is to explore deeply the role of household wealth on consumption and, consequently, on savings.

Greenspan (2003) credited housing wealth, realized capital gains, and home equity borrowing with shoring up the economy in the aftermath of the stock market collapse of 2000 and the recession of 2001, primarily through their effects on consumer spending. However, the mechanism through which wealth affects consumption is not yet clearly understood: while the arguments supporting a direct wealth effect are clear (changes in wealth directly cause changes in consumption through their effect on households' contemporaneous budget sets), the empirical evidence brought so far by a large literature that investigates the role of wealth shocks on consumption is mixed. Moreover, there is an indirect channel through which wealth can affect consumption: by providing a collateral for obtaining access to credit (Cynamon and Fazzari, 2008). Some authors claim that the decline in the personal saving rate (that started in the middle of the Eighties in most developed countries) is largely due to the significant capital gains in corporate equities experienced over this period (Juster et al., 2005). Others conclude that there is at best a weak evidence of a stock market wealth effect, and underline the importance of housing wealth in determining the households decisions on consumption and savings (Case et al., 2005).

In our article we investigate the role of wealth and capital gains on household consumption in the period 1989-2004 using a household-level dataset specifically built for this purpose. Two different surveys are combined together via a statistical matching procedure: the Consumer Expenditure Survey (CES) and the Survey of Consumer Finances (SCF). Basically, we use the statistical matching to impute the SCF wealth variables to the CES households, using the detailed socio-demographic variables collected in both surveys to match similar individuals. To the best of our knowledge, a similar procedure has been exploited only once previously, by Bostic et al. (2009). However, our analysis differs considerably from theirs, because of a completely different method chosen to perform the statistical matching that allows us to use a larger amount of information from

the surveys. As a result, our dataset is considerably larger than theirs, and we do not limit ourselves to the analysis of home owners only. Also, we use a richer set of variables, including some on past capital gains differentiated by type of asset. Finally, our analysis includes the year 2004, while Bostic et al. (2009) have data up to 2001 only.

As it is now standard in the wealth effect literature, we differentiate between financial and tangible wealth, as well as between gross and net wealth. Furthermore, we use information on past capital gains to investigate their direct role on consumption, as suggested by Juster et al. (2005). This direct investigation of the effects of capital gains on consumption has been used in early studies (Bhatia, 1972, Peek, 1983), while more recent work has focused on wealth-based models. We have chosen to perform both, even if the results of the capital gains specification are more prone to suffer from measurement errors. In fact, capital gains in the SCF are reported with a lower precision with respect to the wealth stock variables.

The main result of our study is that tangible wealth is the only type of household wealth to significantly and positively affect consumption. In particular, the house of residence is the part of tangible wealth which is responsible for the highest direct wealth effect. However, the estimated elasticity of consumption spending with respect to tangible wealth is low, being it around .02. These results demonstrate that the fears of sizable reverse direct wealth effects due to a sudden declines in housing values could have been overstated in previous studies (one exception being Case and Quigley, 2008). In fact, the dynamics of the recent economic and financial crises do not reveal any direct linkage between the declining housing prices and household consumption, rather they shed light on the perverse mechanisms of the real estate and credit (mortgages in particular) markets.

The rest of this paper is organized as follows. Section 2 provides a review of the previous literature. Section 3 describes the data used and how they were combined. Also, the econometric models are presented. Section 4 illustrates the results. Section 5 concludes briefly.

2. Previous findings

There is a large literature about the wealth effect, and most of it is based on the life-cycle model originally proposed by Ando and Modigliani (1963). According to this theory, an increase in wealth leads the individuals to gradually increase consumption, thus lowering their savings. However, Lettau and Ludvigson (2004) stress that wealth shocks must be perceived as permanent in order to affect consumption. The wealth effect has been empirically tested in a number of articles that make use either of panels of individuals or of time series data, and a wide range of different estimates have been produced. For the U.S economy, they usually lie between 2 and 7 cents of additional consumption per year per 1 dollar increase in household net wealth. This is consistent with the

magnitude of the effect estimated by the research staff of the Board of Governors of the Federal Reserve System, that maintains the longest and most regularly updated wealth effect estimates for the USA.

In the latest studies, different results have been found according to the type of household wealth analysed, mainly dividing between house equity and financial wealth. The reason lies in the fact that households may perceive these two kinds of wealth differently under many points of view, and this may influence the way it affects consumption (see Case et al., 2005, for an excellent discussion). The empirical evidence seems to confirm this intuition, and even go beyond that. For example, Edison and Sløk (2002) further differentiate financial wealth between technology and non-technology segments of the stock market, finding differences in the wealth effect channel for the USA. Case et al. (2005) study both the financial and the housing wealth effect for the US, finding a significant effect for the latter only. Bostic et al. (2009), in the paper which is most closely related to ours, disaggregate household wealth in financial, house of residence and other real estate, finding different results accordingly. Other authors concentrate either on the first or the second component: to name a few, Belski and Prakken (2004) and Carroll et al. (2006) study the housing wealth effect, while Davis and Palumbo (2001) concentrate on the financial wealth effect.[1]

The assessment of the importance of the effects of wealth on consumption is mainly an empirical issue, thus the quality of the data used in the analysis is of primary importance. This is crucial also because of the endogeneity problems that characterize this kind of analysis. Since it is hard to think about proper instruments, that is variables that are correlated with wealth but at the same time are not correlated with unobservables correlated with consumption, we have to rely on the quality of the data and on robustness checks to assess the goodness of the analysis. From this point of view, a common weakness of the articles that investigate the wealth effect is that they use either aggregate data or non accurate household-level data. In the first case there are some well known problems, such as aggregation issues and difficulties in decomposing age, cohort and time effects, as it is well explained by Attanasio and Banks (2001). About the second case, even if there are many sources of household-level data for the USA, each one of them, taken singularly, has some drawbacks for the type of analysis that is considered here. The Panel Study of Income Dynamics, (PSID, used by Lehnert, 2004, Juster et al, 2005), contains data on food consumption only, and detailed data on household wealth have been collected since 1984 every five year only. The CES (used by Dynan and Maki, 2001, to name one) has very detailed consumption data, but the quality of its wealth data is low. On the other hand, the SCF does not contain detailed consumption variables, while information on wealth is collected very accurately. In order to overcome such problems and

[1] See Paiella (2007) for an excellent survey on the empirical evidence on wealth effects.

drawbacks, the strategy of this paper is to build a new household-level dataset combining CES and SCF data, as explained in the next section.

3. Data and model

3.1 CES and SCF data

We specifically built the dataset used in this analysis in order to answer to questions related to the effects of household wealth on consumption, using two different surveys in order to collect high quality data on these two fields. The consumption data used in the estimations are provided by the CES for the period 1989-2004. The CES is collected by the Bureau of Labor Statistics to compute the Consumer Price Index, and contains data on up to 95 percent of total household expenditures. It is a rotating panel in which each household is interviewed four consecutive times over a one year period. Each quarter 25% of the sample are replaced by new households. The survey contains quarterly data, thus we had to extrapolate data on yearly consumption. Moreover, the interviews are conducted monthly about the expenditures of the previous three months: for example, a unit interviewed in January will appear in the same quarter of a unit interviewed in February or March, even if the reported information will cover a slightly different period of time. This overlapping structure of the sample complicates the operation of estimating annual consumption in many dimensions. First, the year over which we have information for each household is different depending on the month in which the household completes its cycle of interviews. Second, and even more important, not all households complete the cycle of four interviews, thus they don't report all the expenditures made in one year.

In order not to waste a vast amount of information, we have chosen to use the data of the households present for the whole year of reference, as well as the data of the households that were interviewed three periods or less, using the following procedure. First, we harmonized the expenditure variables using the Consumer Price Index, differentiated for food, energy and the other goods, in order to have all expenditures expressed with the prices of June of the reference year. Second, we deseasonalized the quarterly measures of consumption using the ratio to moving average method. Finally, we used a simple technique to extend these corrected quarterly expenditures to the whole year of interest: we multiplied by four the expenditure of the households present for one quarter only, by two the expenditure of two quarters and by four thirds the expenditure of the households interviewed for three quarters. For the households that were present for four quarters in a row, we just had to compute the sum across quarters. Thanks to this procedure, we were able to obtain a dataset with more than 17,000 households for the year 2004. We checked whether this operation led to a dataset differing from the original (quarterly) one in terms of

distributions of the variables that we used in our analysis, finding no significant difference. For each household, in addition to the expenditure variables, both for durable and for non-durable goods, we kept socio-demographic variables and annual income.[2]

The household wealth data that we imputed to the CES households come from the SCF, which is triennial and is produced by the Federal Reserve Board. This survey also includes socio-demographic information that proved valuable for the statistical matching procedure, as well as for the estimation of the consumption models. In particular, we used data on marital status, race, age, education and occupation of the household head, home ownership status and family size. The period covered by the analysis starts in 1989, mainly because the SCF question frame was different in earlier periods, and ends in 2004, with 6 observations in total. Moreover, we used the information contained in all the five implications of the SCF (implications that derive from the multiple imputation procedure used to approximate the distribution of missing data, as explained in Kennickell, 1998), by performing the statistical matching with the CES separately for each implication. To correctly take into account multiple imputation, the estimation of the consumption models were then carried out using Repeated Imputation Inference (RII), as explained by Montalto and Sung (1996).

3.2 The statistical matching procedure

The procedure used to perform the statistical matching between the two surveys is the following. We first partitioned both samples into cells based on six categorical variables in order to avoid to match individuals that differ in important characteristics. For the year 2004, more than 700 cells were created using:

* Race - white, black or other;
* Marital status - married or not;
* Education - twelfth grade or less, high school, some college or more;
* Tenure - home owner or not;
* Occupation - not working, managers and professionals, technicians, services, operators, other;
* Family size - one, two, three or four or more people in the household.

Thanks to this highly detailed partition that took into account many different variables, we were able avoid the risk of matching pairs of households differing in fundamental characteristics. Within every cell, we performed a multivariate propensity score matching based on Mahalanobis distance

[2] We had to make many decisions about when to drop households for which socio-demographic variables changed from one quarter to another. For example, we dropped the households for which the marital status changed, since we wanted to get rid from the effects of weddings and divorces. In cases of less dramatic changes, we have been more parsimonious. For example, when the educational status changed from one quarter to another, we chose to keep the household and to use the educational status of the quarter closer to the central quarter of the year.

that took into account age and income, both in logarithmic form. We also refined the matching by dropping the individuals for which the distance function displayed too high value, that is, the matched individuals had non-deniable differences in age and/or income to be paired together.[3] The matching process yielded a dataset with more than 14000 observations in 2004. In order to perform a very precise matching, we deliberately decided not to use age as a categorical variable (building 5 or 10 year groups, as it has been done in a number of previous empirical works), something that would have left income as the only variable to be used in the propensity score matching. In particular, suppose we used 10 year age groups, dividing between individuals that are 21-30 years old, 31-40 years old and so on. In this case it would have been possible to match a 30 years old household with a 21 years old control, even if a 31 years old control (with equal income) would have been a better choice. By using age together with income for the propensity score matching, we avoid such possibility and we minimize the distance between potential controls of the SCF and "treated" individuals of the CES (treated in the sense that we imputed to them the wealth variables).

We checked the result of the matching procedure in two different ways. We verified the similarity among the correlations between income (which is measured in both surveys) and the wealth variables both in the SCF and in the CES after the matching. They are reported in Table 1.

The signs and the significance levels are very close across the two surveys, and this is a sign of the good quality of the procedure. Furthermore, we produced the graphs of the probability density functions of the matched variables obtained with a kernel density estimation, finding comfortingly similar curves. Figures 1-6 reports the graphs for household net wealth: we have chosen to report this variable because it comprehends both assets and debt, therefore it summarizes more than other variables the results of the matching procedure. The two distributions do not completely overlap because not all the SCF individuals are used as controls in the matching procedure, but the curves do show very similar patterns, again making sure that the matching procedure maintained the distributional properties of the variables of interest.

We used these precautions because our application of the propensity score matching is different from the one for which it has been developed, that is, when there is the need to evaluate differences between a treatment group and a control group (Rosembaum and Rubin, 1983). Nonetheless, some national institutes of statistics have recently started to use propensity score matching to integrate different sources of information as we did, demonstrating the feasibility of this additional use (D'Orazio et al., 2006). However, researchers must be careful when using this method, since there

[3] In particular, we dropped the households that fell into the top 15% of the distribution of the distance variable. We also had to build a different distance function for the groups with one or two individuals only from either one or the other survey, using the normalized logarithmic income and age, and we dropped the top 20% of households matched according to this second, and rougher, algorithm.

are some conditions that have to be met in order to proceed with the matching. First, the two different surveys must be two samples drawn from the same population. Second, there must be a set of common variables on which to condition the matching procedure. In our case, the first condition seems easy to be met, since both the CES and the SCF should both represent the US population. However, their sample designs are different, since the SCF oversamples households that are likely to be wealthier, while the CES does not. This leads to differences in the distributions of the variables of interest (*in primis,* income), and that is why we had to get rid of the wealthiest households present in the SCF in order to get comparable income distributions between the two surveys (in particular, we dropped a percentage between 20 and 30% of the sample households with the highest income depending on the year of reference[4]). About the second condition, there are many socio-demographic variables that are collected in both surveys, and the only problem here is to recode the variables in order to have them measured in the same scale. This has been carried out making a large use of the documentation that accompanies the public releases of the two surveys. The majority of these operations of recoding were elementary. The most interesting exception has been the recoding of the occupational sector variable for the 1989 and 1992 waves of the CES, where there is an additional category, "self-employed", that in the SCF is not taken into account. In this case we performed a multinomial logit estimation to impute the occupational sector to the CES individuals labeled as "self-employed" in order to proceed with the matching with the SCF. The estimation results were in line with the distributions of the occupational variable both in the SCF and in the subsequent editions of the CES.

Finally, the matching method is based on the (critical) conditional independence assumption (CIA). Given two surveys, the first containing the variables Y and X and the other one containing the variables X and Z, the CIA states that Y and Z are independent conditionally on X. To guard against the possibility of errors deriving from the possible violation of this assumption and driving the results of the regressions, we use bootstrapped errors. Additionally, our bootstrap procedure takes into account the complex survey design of the CES, and above all, its probability weights, whose importance is well explained by Rao et al. (1992)[5].

3.3 The model

Following the literature on life cycle consumption, the basic specification of our model is the following:

[4] However, we also performed the statistical matching procedure without this preliminary operation and the resulting dataset did not differ dramatically from the one that we used. This is not surprising, because the Mahalanobis procedure discards the SCF households that differ considerably from the CES households in terms of income (and age), so that most of the preliminarily dropped SCF individuals would have been discarded anyway by the matching algorithm.

[5] The procedure was performed with the bsweights Stata routine, written by Stas Kolenikov.

$$\log(C) = \log(Y) + \log(fin) + \log(nfin) + Z \quad (1)$$

where C is total consumption, Y is current income, *fin* is gross financial assets, *nfin* is tangible assets and Z is a vector of additional socio-demographic controls. In Z there are: age, educational level, a dummy for the marital status (married or with a partner/single), two dummies for the race (one for African Americans, the other for non-Whites) and a dummy for the occupational status (working/not working) of the household head; the number persons in the household; a dummy for the homeownership status; and three different dummies for the US geographical area (Northeast, Midwest and South, with West being the reference region). While the regional dummies are supposed to capture macroeconomic factors, the other variables capture life cycle effects that are likely to affect consumption. In our analysis we used a number of different specifications, in order to investigate the role of the different components of household wealth (equation (2)), the importance of net compared to gross wealth (equation (3)), the effects on durables and non-durables consumption only, the effects of capital gains instead of the stocks of wealth (equation (4)). The specifications are the following:

$$\log(C) = \log(Y) + \log(fin) + \log(house) + \log(ore) + Z \quad (2)$$

where tangible assets are disaggregated into *house*, the value of the house of residence, if owned, and *ore*, the value of other real estate properties.

$$\log(C) = \log(Y) + \log(netfin) + \log(house) + \log(ore) + Z \quad (3)$$

where *netfin* is financial assets diminished by household debt.

$$\log(C) = \log(Y) + \log(kgbus) + \log(kgstmf) + \log(kghouse) + \log(kgore) + Z \quad (4)$$

where *kgbus* is capital gains on business activities, *kgstmf* on stocks and mutual funds, *kghouse* on the house of residence and *kgore* on other real estate properties.

These four equations were also estimated with two alternative dependent variables, the logarithm of consumption of durable and non-durable goods, the latter being more relevant and, also, more closely related to most of the previous literature. In fact, the use of expenditure on durable goods poses some problems, since its timing does not match the flow of services coming from the goods.

The relationship between consumption, income and wealth applies to the flow of consumption, but durable good expenditure "represents replacements and additions to a stock, rather than the service flow from the existing stock" (Paiella 2007, 198). This is why we will mainly concentrate on the results for total and, above all, non durable goods consumption.

The models described by the above equations were estimated cross-sectionally using data on 1989, 1992, 1995, 1998, 2001 and 2004. In the second part of the analysis we also estimated a model by pooling data over the six surveys, adding year dummies as well as a few interaction variables in order to better grasp the wealth and consumption dynamics of the old people. In particular, a dummy that takes the value of 1 if the household head is over 65 years old is multiplied by the income and the wealth variables. Again, the regressions were run with the three alternative dependent variables described above.

4. Results

The results from the cross-sectional estimation of equations (1-4) are reported in Tables 2-5. The standard errors are based on bootstrapping (250 replications, performed considering the sampling weights provided in the CES), and the estimations take into account the multiple imputation used in the SCF using the RII.

The results of the estimation of equation (1) are reported in tables 2a, 2b and 2c (as three different dependent variables are used). Current income significantly affected consumption in the period 1989-2004, since its coefficient is always highly significant and the estimated elasticity ranges between 0.3 and 0.5, indicating that current income plays a very important role in determining current consumption. Turning to the household wealth coefficients, an interesting result is that the different components do have different effects on consumption. In particular, financial wealth positively affected consumption (both total and non-durable) during the Nineties only, while it shows non-significant coefficients for the rest of the sample period. Probably, the model captured the effects of the stock market boom that ended in 2001. However, when significantly different from zero, the estimated elasticity of consumption to financial wealth is very low, being it close to .01. This means that only a one cent increase in consumption is associated to a one dollar increase in financial wealth, well below most of the previous estimates that found significant effects of this kind of wealth on consumption. On the contrary, tangible wealth positively affects consumption throughout the whole period of interest, even if the estimated elasticity is, again, very low (close to .01). However, we investigate better the effects of tangible wealth in the following specifications, where we disaggregate it and where we also take into account debt considerations. As a final consideration on the estimation of equation (1), the surprising wealth coefficients of Table 2c (in

terms both of signs and of statistical significance, compared to the tables 2a and 2b) confirms the fact that durable goods expenditure should not be used as the dependent variable in this kind of analysis. Therefore, we disregard the results with this dependent variable in the rest of the discussion.

Tables 3a and 3b show the results of the estimation of equation (2), when tangible wealth is disaggregated into the value of the house of residence and the value of other real estate. While the results confirm the previous findings on financial wealth, they show that there are significant differences in the way in which the value of the house of residence affects consumption, with respect to the rest of the tangible properties owned by the household. The estimated elasticity for the value of the house of residence is from three to five times larger than the one of the other real estate. Moreover, while the latter has comparable values across the whole sample period, the estimated elasticity for the house of residence is considerably larger for the last two periods, 2001 and 2004. As in the case of the financial wealth coefficients of the Nineties, this does not come as a complete surprise, because of the well known housing prices bubble that started in 2000 and abruptly ended with the start of the recent financial crisis, in the second half of 2007. The estimated wealth effect of the house of residence in 2004 is .03, a value that still lies in the low range of the previous literature estimates.

Tables 4a and 4b introduce debt considerations in the analysis, because net financial wealth is considered instead of gross financial assets (equation (3)). The results confirm the above findings for tangible wealth, while they confound the picture for the financial wealth effects. The estimated coefficients for this variable remain close to zero, but they are statistically significant in different periods depending on the dependent variable used: there is a significant effect in the first two periods when considering total consumption, but in the last two when considering non-durables consumption. However, since the estimated elasticity is in all cases very low, we see this results as a confirmation of the negligible role of financial wealth in determining consumption patterns.

Tables 5a and 5b show the results of the estimation of equation (4), with capital gains as the wealth variables of interest. As anticipated above, we did not expect to find important results from this estimation, since capital gains variables are more prone than the wealth variables to severe measurement errors that can compromise the estimation of the model. Indeed, this is confirmed by the estimated coefficients. For all the four different types of capital gains, the associated coefficients are always close to zero, and most of the time they are not different from zero at standard levels.

To conclude on the cross-sectional estimates, some considerations on the other explanatory variables of the model are now presented. Most of them have significant coefficients throughout all the specifications. This is not surprising, since a satisfactory R squared is reached in all estimations.

Some results are particularly interesting and confirm previous literature findings. For instance, the dummy that indicates that the household head is an Afro-American is always negative and economically important. A similar effect is also found for the dummy that indicates that the household lives in a rented house. The results conform to the previous literature also when they show that higher education is associated to higher consumption. The non trivial relationship between age and consumption is confirmed by the high statistical significance of the coefficients of age and age squared (the first positive, the second lower and negative). Finally, the regional dummies are often associated to significant and negative coefficients, a fact that must be read bearing in mind the region of reference (that is, whose dummy is not included) is West. Another interesting fact is the coefficient associated to the dummy that indicates that the household head does not work, which shows that such a condition is associated with a lower consumption, even controlling for income.

We now turn to the estimation of the pooled cross sections, shown in Tables 6 (equation (2)) and 7 (for the model of equation (3)).[6] The results confirm the findings of the cross-sectional estimates, with the bigger importance of tangible wealth with respect to financial wealth, and the higher elasticity coming from the value of the house of residence with respect to the rest of the tangible assets. The year dummies presents highly significant coefficients, confirming that consumption patterns are sensitive to macroeconomic conditions. This final estimation also permits a better investigation of the behavior of aged households, thanks to some interaction terms that try to better grasp the consumption dynamics of the households with the household head aged more than 65 years old. Concentrating on the case where non-durables consumption is the dependent variable, it seems that old people experience a higher wealth effect from the value of the house of residence, while they have a lower income elasticity.

We investigated the robustness of this findings in a few ways. We found that the results hold when we restrict our sample to urban households only (they are almost 90% of the sample). The same is true when we get rid of the 1% of household that are at the top and at the bottom both of the income and of the consumption distributions. This robustness is not surprising, since our sample is very large, and it is unlikely that our results are driven by outliers or by small subsamples of households.

5. Conclusions

[6] We thought about adopting pseudo-panel techniques *à la* Deaton (1985), but due to the construction of our dataset with a statistical matching procedure, we found it difficult to apply additional methods to manipulate the data and introduce additional assumptions.

This paper analyses the strength of the wealth effects on consumption in the USA with a dataset specifically built for this scope. A sophisticated statistical matching procedure was used to merge data of the CES and the SCG for the years 1989-2004. In particular, SCF wealth data were imputed to CES units in order to perform an analysis capable to link consumption and wealth using household-level data. This application of statistical matching is relatively recent in the economic literature, and was first used by national institutes of statistics. The matching procedure produced a large dataset capable to respect the properties of the distributions of the variables of interest present in each of the two original survey. The resulting dataset was then used to estimate four different specifications of a simple consumption model. The effects of wealth were investigated using three different dependent variables: total, durables and non durables consumption. The latter is the most correct measure of consumption to be used in this kind of analysis. Also, our dataset permits a high disaggregation of tangible wealth, as well as a differentiation between net and gross financial wealth. Two kinds of estimations are performed. First, the models were estimated for each cross-section. Then, a final estimation was carried out on the pooled cross-sections, something that allow the use of some interesting interaction terms. The results show that tangible wealth positively affected household consumption in the USA in the period 1989-2004. The estimated elasticity (.02) lies in the low range of what constitutes the consensus on how asset market gains affect consumer spending in the USA. It seems that households tend to consume both out of their house of residence and out of their other real estate properties, even if the former is more important of the latter. On the other hand, the results suggest that financial wealth does not exert any direct effect on household consumption. This piece of evidence adds to the mixed results of the previous literature, where the widest range of results has been found for this kind of wealth. These results are confirmed both by the cross-sectional estimates and by the estimation of the pooled cross-sections.

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Figures

Figure 1: Household net wealth kernel distribution, 2004

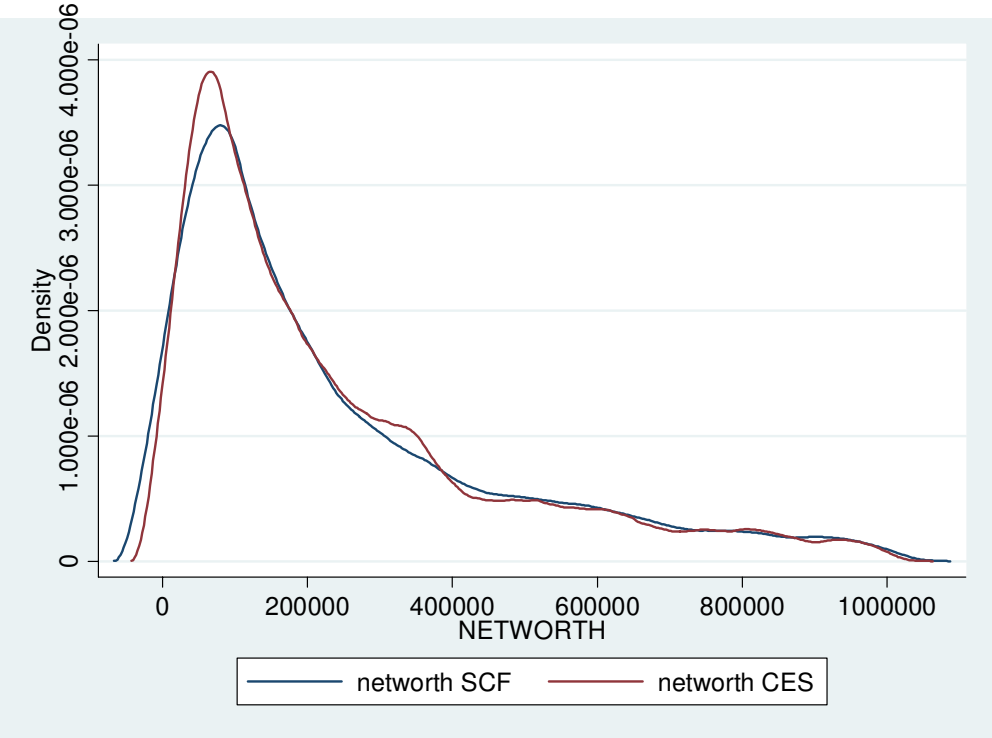


Figure 2: Household net wealth kernel distribution, 2001

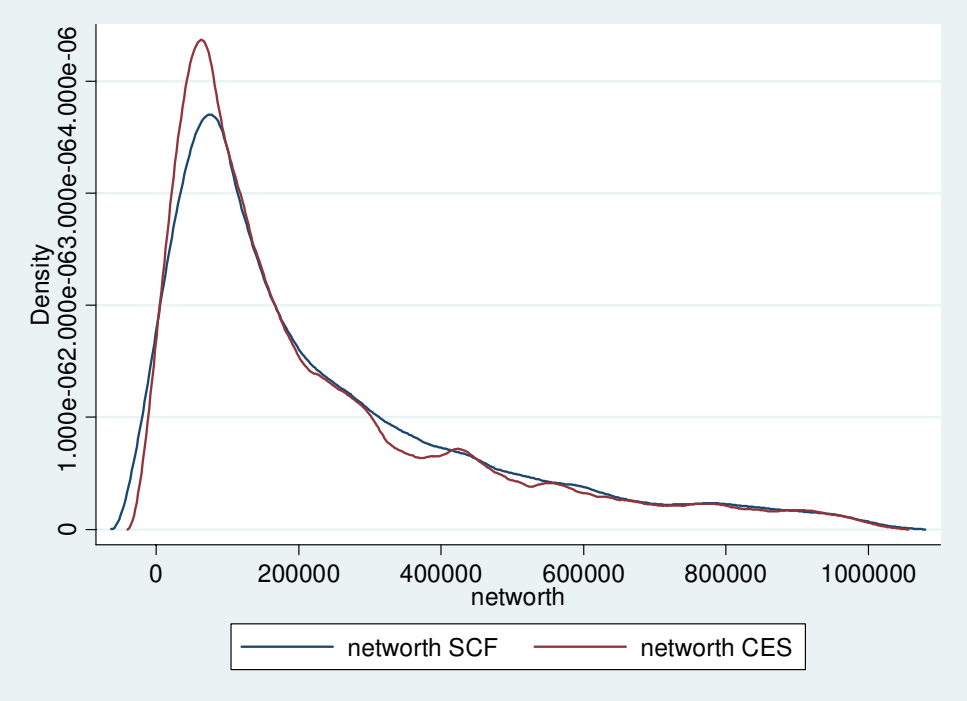


Figure 3: Household net wealth kernel distribution, 1998

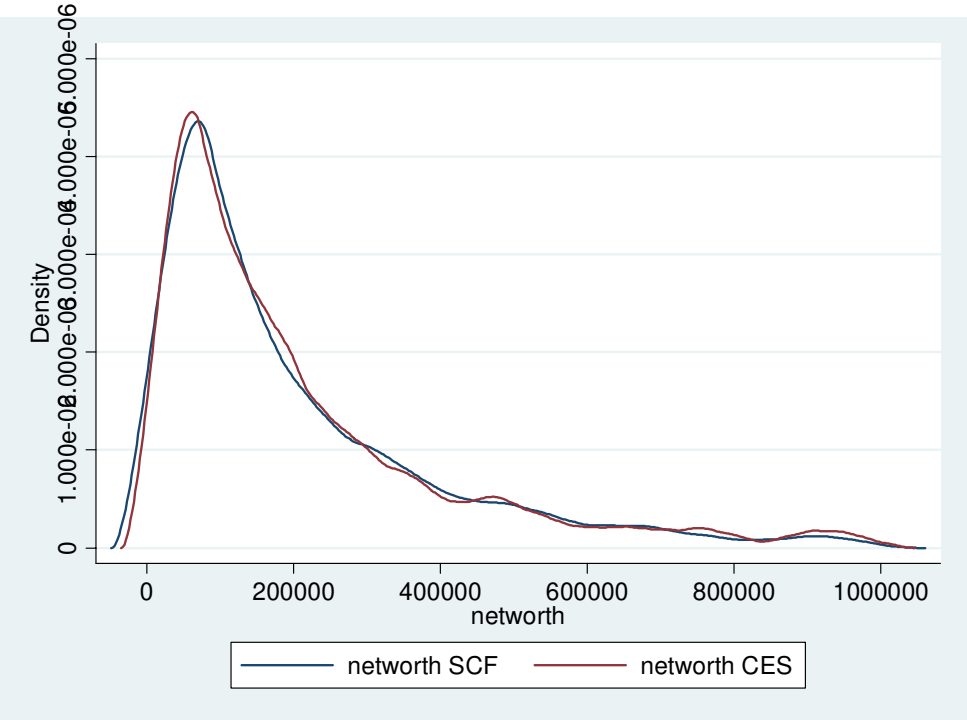


Figure 4: Household net wealth kernel distribution, 1995

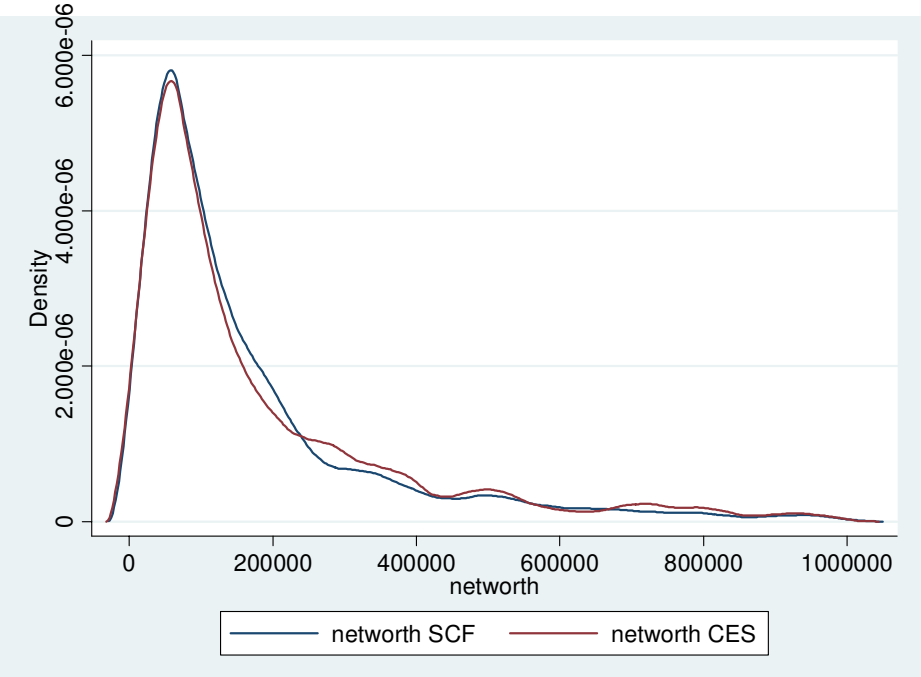


Figure 5: Household net wealth kernel distribution, 1992

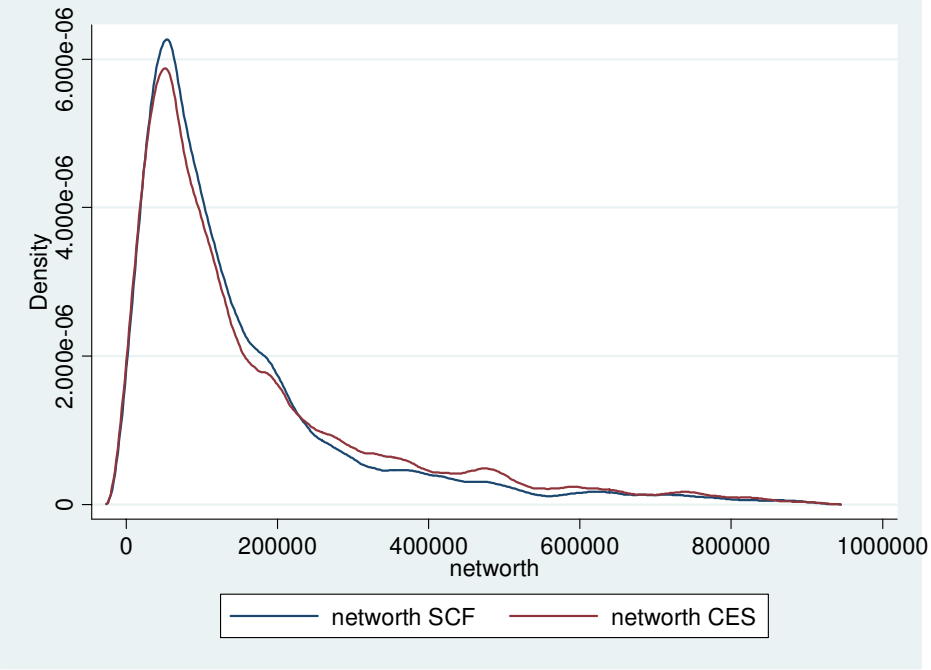
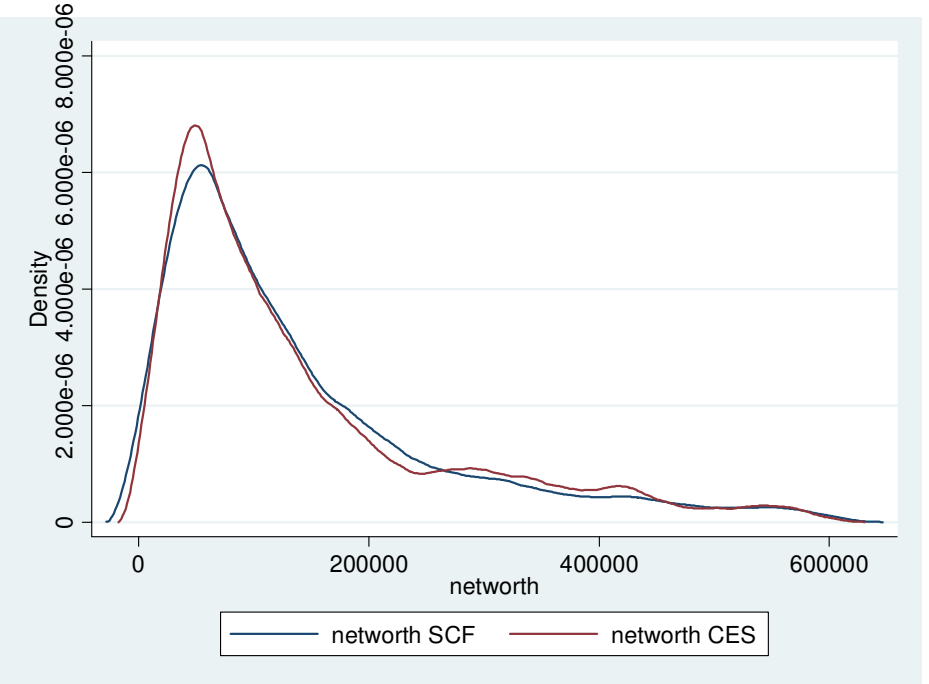


Figure 6: Household net wealth kernel distribution, 1989



Tables

Table 1: correlations between logarithmic income and the wealth (SCF) variables

	2004		2001		1998	
	SCF	CES	SCF	CES	SCF	CES
fin	0.26***	0.18***	0.27***	0.14***	0.22***	0.11**
nfin	0.25***	0.26***	0.24***	0.18***	0.19***	0.17***
asset	0.30***	0.26***	0.31***	0.20***	0.25***	0.17***
debt	0.41***	0.40***	0.47***	0.42***	0.38***	0.29***
networth	0.28***	0.23***	0.29***	0.18***	0.23***	0.16***
kgtotal	0.18***	0.15***	0.18***	0.09**	0.13***	0.12**
	1995		1992		1989	
	SCF	CES	SCF	CES	SCF	CES
fin	0.18***	0.12**	0.24***	0.19***	0.25***	0.08***
nfin	0.20***	0.09**	0.16***	0.09***	0.21***	0.10***
asset	0.24***	0.12***	0.21***	0.11***	0.27***	0.13***
debt	0.32***	0.29***	0.28***	0.14	0.39***	0.33***
networth	0.22***	0.10***	0.19***	0.10***	0.25***	0.12***
kgtotal	0.14***	0.04**	0.12***	0.07***	0.15***	0.06***

*** / ** / *: p-value <0.01 / 0.05 / 0.10

Table 2a: equation (1), Total Consumption

	1989	1992	1995	1998	2001	2004
Income	0.431***	0.393***	0.322***	0.370***	0.397***	0.536***
	(0.013)	(0.015)	(0.014)	(0.011)	(0.010)	(0.010)
Fin. Assets	0.002	-0.000	**0.008*** **	**0.005** **	0.004	-0.000
	(0.003)	(0.003)	**(0.003)**	**(0.002)**	(0.002)	(0.002)
Non Fin. Assets	**0.007** **	**0.007*** **	**0.010*** **	**0.006*** **	**0.007*** **	0.003
	(0.003)	**(0.003)**	**(0.003)**	**(0.002)**	**(0.002)**	(0.002)
Race-Black	-0.096***	-0.092***	-0.048**	-0.056***	-0.058***	-0.056***
	(0.023)	(0.022))	(0.023)	(0.018)	(0.017)	(0.014)
Race-Other	-0.052	-0.034	-0.060	-0.032	-0.021	-0.022
	(0.040)	(0.037)	(0.037)	(0.033)	(0.027)	(0.022)
Single	-0.157***	-0.127***	-0.167***	-0.149***	-0.132***	-0.084***
	(0.018)	(0.016)	(0.017)	(0.014)	(0.012)	(0.011)
Educated	0.101***	0.097***	0.109***	0.095***	0.097***	0.068***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Age	0.020***	0.017***	0.017***	0.018***	0.013***	0.010***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	-0.036**	-0.080***	-0.083***	-0.051***	-0.085***	-0.025
	(0.018)	(0.017)	(0.020)	(0.015)	(0.015)	(0.016)
Not working	-0.108***	-0.128***	-0.080***	-0.084***	-0.035**	-0.015
	(0.021)	(0.021)	(0.023)	(0.018)	(0.016)	(0.016)
Northeast	-0.017	-0.022	0.021	0.009	-0.043***	-0.102***
	(0.017)	(0.017)	(0.017)	(0.015)	(0.015)	(0.014)
Midwest	-0.077***	-0.098***	-0.026	-0.066***	-0.061***	-0.092***
	(0.016)	(0.016)	(0.017)	(0.014)	(0.013)	(0.012)
South	-0.057***	-0.051***	-0.010	-0.063***	-0.088***	-0.133***
	(0.017)	(0.016)	(0.018)	(0.013)	(0.013)	(0.011)
Family size	0.540***	0.064***	0.068***	0.066***	0.069***	0.053***
	(0.112)	(0.112)	(0.005)	(0.005)	(0.004)	(0.004)
Constant	4.960***	5.474***	6.105***	5.644***	5.603***	4.293***
	(0.126)	(0.138)	(0.143)	(0.112)	(0.104)	(0.109)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.67	0.66	0.63	0.60	0.60	0.63

Table 2b: equation (1), Non-Durables Consumption

	1989	1992	1995	1998	2001	2004
Income	0.399***	0.367***	0.311***	0.363***	0.389***	0.520***
	(0.012)	(0.015)	(0.014)	(0.011)	(0.009)	(0.012)
Fin. Assets	0.000	**0.006****	**0.008*****	**0.004***	**0.005***	0.001
	(0.003)	**(0.003)**	**(0.003)**	**(0.002)**	**(0.002)**	(0.002)
Non Fin. Assets	**0.010*****	**0.007****	**0.012*****	**0.007*****	**0.007*****	**0.006****
	(0.003)	**(0.003)**	**(0.004)**	**(0.002)**	**(0.002)**	**(0.003)**
Race-Black	-0.059***	-0.045**	-0.014	-0.050***	-0.045***	-0.058***
	(0.023)	(0.022)	(0.022)	(0.017)	(0.017)	(0.015)
Race-Other	-0.070	-0.033	-0.034	-0.024	-0.057**	-0.064**
	(0.042)	(0.046)	(0.037)	(0.033)	(0.027)	(0.030)
Single	-0.140***	-0.126***	-0.149***	-0.126***	-0.134***	-0.111***
	(0.016)	(0.016)	(0.016)	(0.013)	(0.011)	(0.011)
Educated	0.094***	0.091***	0.104***	0.089***	0.100***	0.071***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Age	0.015***	0.016***	0.013***	0.014***	0.011***	0.005***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	-0.101***	-0.145***	-0.151***	-0.130***	-0.153***	-0.098***
	(0.017)	(0.017)	(0.019)	(0.015)	(0.014)	(0.018)
Not working	-0.105***	-0.111***	-0.089***	-0.083***	-0.041***	-0.038***
	(0.020)	(0.020)	(0.022)	(0.017)	(0.016)	(0.017)
Northeast	0.041**	0.045***	0.072***	0.048***	-0.031**	-0.075***
	(0.016)	(0.017)	(0.017)	(0.015)	(0.014)	(0.014)
Midwest	-0.027*	-0.031*	0.050***	0.001	-0.022*	-0.043***
	(0.015)	(0.016)	(0.017)	(0.013)	(0.013)	(0.012)
South	-0.003	0.009	0.050**	0.007	-0.059***	-0.086***
	(0.015)	(0.016)	(0.017)	(0.012)	(0.012)	(0.012)
Family size	0.068***	0.076***	0.077***	0.072***	0.065***	0.055***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Constant	4.77***	5.148***	5.669***	5.241***	5.171***	3.993***
	(0.125)	(0.139)	(0.141)	(0.107)	(0.095)	(0.119)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.68	0.66	0.65	0.63	0.63	0.63

Table 2c: equation (1), Durables Consumption

	1989	1992	1995	1998	2001	2004
Income	0.537***	0.507***	0.370***	0.447***	0.461***	0.661***
	(0.024)	(0.029)	(0.021)	(0.019)	(0.017)	(0.020)
Fin. Assets	0.006	**-0.013****	**0.008***	0.001	0.001	-0.005
	(0.006)	**(0.006)**	**(0.005)**	(0.005)	(0.004)	(0.004)
Non Fin. Assets	**-0.009***	0.007	**0.012***	**0.009****	**0.007***	0.002
	(0.005)	(0.006)	**(0.006)**	**(0.004)**	**(0.004)**	(0.005)
Race-Black	-0.161***	-0.181***	-0.107**	-0.068*	-0.090***	-0.067**
	(0.044)	(0.045)	(0.045)	(0.035)	(0.032)	(0.029)
Race-Other	-0.058	-0.072	-0.170**	-0.113	-0.017	-0.037
	(0.065)	(0.064)	(0.077)	(0.073)	(0.045)	(0.046)
Single	-0.247***	-0.129***	-0.199***	-0.187***	-0.150***	-0.042**
	(0.037)	(0.027)	(0.028)	(0.024)	(0.021)	(0.021)
Educated	0.132***	0.111***	0.124***	0.111***	0.113***	0.082***
	(0.014)	(0.010)	(0.011)	(0.009)	(0.008)	(0.008)
Age	0.053***	0.034***	0.034***	0.036***	0.030***	0.029***
	(0.006)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	0.161***	0.084**	0.079**	0.144***	0.076***	0.168***
	(0.034)	(0.034)	(0.033)	(0.027)	(0.027)	(0.027)
Not working	-0.101**	-0.147***	-0.071*	-0.067**	-0.023	0.026
	(0.042)	(0.037)	(0.041)	(0.031)	(0.027)	(0.029)
Northeast	-0.149***	-0.150***	-0.067**	-0.049*	-0.066***	-0.147***
	(0.035)	(0.030)	(0.030)	(0.029)	(0.025)	(0.025)
Midwest	-0.138***	-0.221***	-0.155***	-0.130***	-0.138***	-0.168***
	(0.030)	(0.030)	(0.029)	(0.025)	(0.023)	(0.021)
South	-0.183***	-0.177***	-0.128***	-0.175***	-0.182***	-0.228***
	(0.033)	(0.029)	(0.030)	(0.025)	(0.022)	(0.020)
Family size	0.030***	0.052***	0.063***	0.070***	0.079***	0.050***
	(0.010)	(0.008)	(0.009)	(0.008)	(0.007)	(0.007)
Constant	2.317***	3.062***	4.245***	3.399***	3.534***	1.526***
	(0.271)	(0.274)	(0.237)	(0.215)	(0.203)	(0.229)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.43	0.44	0.41	0.39	0.39	0.41

Table 3a: equation (2), Total Consumption

	1989	1992	1995	1998	2001	2004
Income	0.430***	0.392***	0.320***	0.369***	0.396***	0.529***
	(0.013)	(0.015)	(0.014)	(0.011)	(0.010)	(0.010)
Fin. Assets	0.002	-0.001	**0.007****	**0.005****	0.003	-0.002
	(0.003)	(0.003)	**(0.003)**	**(0.002)**	(0.002)	(0.002)
Other real estate	**0.005****	**0.005****	**0.006****	**0.005****	**0.004****	**0.004****
	(0.002)	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**
House	0.008	**0.017*****	**0.016***	0.009	**0.011****	**0.026*****
	(0.005)	**(0.007)**	**(0.008)**	(0.007)	**(0.005)**	**(0.007)**
Race-Black	-0.100***	-0.095***	-0.054**	-0.056***	-0.060***	-0.053***
	(0.023)	(0.022)	(0.022)	(0.018)	(0.017)	(0.014)
Race-Other	-0.054	-0.036	-0.062*	-0.033	-0.022	-0.026
	(0.040)	(0.037)	(0.036)	(0.033)	(0.027)	(0.022)
Single	-0.156***	-0.124***	-0.163***	-0.145***	-0.129***	-0.079***
	(0.018)	(0.016)	(0.017)	(0.015)	(0.012)	(0.011)
Educated	0.101***	0.095***	0.108***	0.094***	0.096***	0.066***
	(0.006)	(0.006)	(0.007)	(0.005)	(0.005)	(0.004)
Age	0.019***	0.016***	0.017***	0.017***	0.013***	0.010***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	0.026	0.088	0.059	0.032	0.016	0.272***
	(0.061)	(0.076)	(0.094)	(0.075)	(0.063)	(0.078)
Not working	-0.109***	-0.130***	-0.085***	-0.085***	-0.035**	-0.016
	(0.021)	(0.021)	(0.023)	(0.018)	(0.016)	(0.017)
Northeast	-0.017	-0.023	0.020	0.009	-0.043***	-0.103***
	(0.017)	(0.017)	(0.017)	(0.015)	(0.015)	(0.014)
Midwest	-0.076***	-0.098***	-0.027	-0.066***	-0.061***	-0.092***
	(0.016)	(0.016)	(0.017)	(0.014)	(0.013)	(0.012)
South	-0.056***	-0.051***	-0.009	-0.062***	-0.088***	-0.133***
	(0.017)	(0.016)	(0.018)	(0.013)	(0.013)	(0.011)
Family size	0.054***	0.063***	0.067***	0.067***	0.069***	0.052***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
Constant	4.934***	5.352***	6.022***	5.591***	5.529***	4.083***
	(0.129)	(0.150)	(0.159)	(0.121)	(0.113)	(0.112)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.67	0.66	0.63	0.60	0.60	0.63

Table 3b: equation (2), Non-Durables Consumption

	1989	1992	1995	1998	2001	2004
Income	0.397***	0.367***	0.309***	0.361***	0.388***	0.514***
	(0.013)	(0.015)	(0.014)	(0.011)	(0.009)	(0.012)
Fin. Assets	0.001	**0.006***	**0.008*****	0.003	**0.004***	0.000
	(0.003)	**(0.003)**	**(0.003)**	(0.002)	**(0.002)**	(0.002)
Other real estate	**0.005****	**0.004***	**0.007*****	**0.004****	**0.004****	**0.005****
	(0.002)	**(0.002)**	**(0.003)**	**(0.002)**	**(0.002)**	**(0.002)**
Houses	**0.015*****	**0.016*****	**0.019****	**0.017*****	**0.017*****	**0.028*****
	(0.005)	**(0.005)**	**(0.008)**	**(0.006)**	**(0.005)**	**(0.007)**
Race-Black	-0.065***	-0.049**	-0.021	-0.050***	-0.047***	-0.057***
	(0.023)	(0.022)	(0.022)	(0.017)	(0.017)	(0.015)
Race-Other	-0.074*	-0.036	-0.037	-0.027	-0.059**	-0.068**
	(0.042)	(0.046)	(0.036)	(0.033)	(0.028)	(0.030)
Single	-0.141***	-0.124***	-0.145***	-0.122***	-0.131***	-0.106***
	(0.016)	(0.016)	(0.016)	(0.013)	(0.011)	(0.011)
Educated	0.093***	0.089***	0.102***	0.088***	0.098***	0.068***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Age	0.015***	0.015***	0.013***	0.013***	0.011***	0.005***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	0.026	0.008	0.019	0.034	0.019	0.204***
	(0.058)	(0.060)	(0.092)	(0.072)	(0.058)	(0.077)
Not working	-0.108***	-0.113***	-0.096***	-0.085***	-0.041***	-0.039**
	(0.021)	(0.020)	(0.022)	(0.017)	(0.016)	(0.017)
Northeast	0.042**	0.044***	0.071***	0.048***	-0.031**	-0.075***
	(0.016)	(0.017)	(0.017)	(0.015)	(0.014)	(0.014)
Midwest	-0.026*	-0.031*	0.048***	0.001	-0.023*	-0.043***
	(0.015)	(0.016)	(0.017)	(0.013)	(0.013)	(0.012)
South	-0.002	0.009	0.051***	0.008	-0.059***	-0.085***
	(0.015)	(0.016)	(0.017)	(0.012)	(0.012)	(0.012)
Family size	0.068***	0.075***	0.076***	0.072***	0.065***	0.055***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
Constant	4.713***	5.036***	5.567***	5.125***	5.041***	3.780***
	(0.126)	(0.141)	(0.150)	(0.114)	(0.103)	(0.117)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.68	0.66	0.65	0.63	0.63	0.63

Table 4a: equation (3), Total Consumption

	1989	1992	1995	1998	2001	2004
Income	0.432***	0.393***	0.325***	0.373***	0.399***	0.526***
	(0.012)	(0.015)	(0.013)	(0.011)	(0.009)	(0.010)
Net Fin. Assets	**-0.002***	**-0.003****	0.001	0.001	0.001	0.001
	(0.001)	**(0.001)**	(0.001)	(0.002)	(0.001)	(0.001)
Other real estate	**0.005****	**0.005****	**0.008*****	**0.006*****	**0.005****	**0.004****
	(0.002)	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**
House	0.008	**0.018*****	**0.018****	**0.011***	**0.012****	**0.025*****
	(0.005)	**(0.007)**	**(0.008)**	**(0.007)**	**(0.006)**	**(0.007)**
Race-Black	-0.106***	-0.098***	-0.056**	-0.057***	-0.061***	-0.050***
	(0.023)	(0.021)	(0.022)	(0.018)	(0.017)	(0.014)
Race-Other	-0.059	-0.039	-0.065*	-0.035	-0.025	-0.025
	(0.040)	(0.037)	(0.037)	(0.033)	(0.027)	(0.022)
Single	-0.155***	-0.126***	-0.167***	-0.146***	-0.129***	-0.078***
	(0.018)	(0.016)	(0.017)	(0.015)	(0.012)	(0.011)
Educated	0.102***	0.096***	0.112***	0.097***	0.098***	0.064***
	(0.006)	(0.006)	(0.007)	(0.005)	(0.005)	(0.004)
Age	0.019***	0.016***	0.017***	0.017***	0.013***	0.010***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	0.028	0.099	0.078	0.043	0.023	0.252***
	(0.061)	(0.077)	(0.093)	(0.075)	(0.064)	(0.079)
Not working	-0.107***	-0.126***	-0.092***	-0.088***	-0.038**	-0.015
	(0.021)	(0.021)	(0.023)	(0.019)	(0.016)	(0.016)
Northeast	-0.017	-0.023	0.020	0.009	-0.043***	-0.103***
	(0.017)	(0.017)	(0.017)	(0.015)	(0.015)	(0.014)
Midwest	-0.077***	-0.098***	-0.026	-0.066***	-0.061***	-0.092***
	(0.016)	(0.016)	(0.017)	(0.014)	(0.013)	(0.012)
South	-0.055***	-0.052***	-0.010	-0.062***	-0.088***	-0.133***
	(0.017)	(0.016)	(0.018)	(0.013)	(0.013)	(0.011)
Family size	0.053***	0.062***	0.066***	0.066***	0.068***	0.053***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
Constant	4.919***	5.335***	5.981***	5.572***	5.509***	4.115***
	(0.126)	(0.151)	(0.155)	(0.119)	(0.112)	(0.109)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.67	0.66	0.63	0.60	0.60	0.63

Table 4b: equation (3), Non-Durables Consumption

	1989	1992	1995	1998	2001	2004
Income	0.398***	0.371***	0.314***	0.364***	0.391***	0.512***
	(0.012)	(0.014)	(0.013)	(0.011)	(0.009)	(0.012)
Net Fin. Assets	-0.001	0.001	0.002	0.001	**0.003****	**0.003****
	(0.001)	(0.001)	(0.001)	(0.002)	**(0.001)**	**(0.001)**
Other real estate	**0.005****	**0.005*****	**0.008*****	**0.005*****	**0.005*****	**0.005****
	(0.002)	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**	**(0.002)**
House	**0.015*****	**0.017*****	**0.022*****	**0.018*****	**0.018*****	**0.027*****
	(0.005)	**(0.005)**	**(0.008)**	**(0.006)**	**(0.005)**	**(0.007)**
Race-Black	-0.068***	-0.055**	-0.023	-0.051***	-0.046***	-0.054***
	(0.023)	(0.021)	(0.022)	(0.017)	(0.017)	(0.015)
Race-Other	-0.076*	-0.039	-0.038	-0.027	-0.062**	-0.068**
	(0.043)	(0.046)	(0.036)	(0.032)	(0.027)	(0.030)
Single	-0.141***	-0.126***	-0.149***	-0.123***	-0.132***	-0.104***
	(0.016)	(0.016)	(0.016)	(0.013)	(0.011)	(0.011)
Educated	0.093***	0.092***	0.107***	0.089***	0.099***	0.067***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Age	0.015***	0.015***	0.013***	0.013***	0.011***	0.006***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	0.027	0.019	0.037	0.040	0.023	0.188**
	(0.058)	(0.061)	(0.091)	(0.071)	(0.058)	(0.077)
Not working	-0.107***	-0.116***	-0.104***	-0.088***	-0.046***	-0.041**
	(0.021)	(0.021)	(0.022)	(0.018)	(0.016)	(0.017)
Northeast	0.042**	0.045***	0.071***	0.048***	-0.031**	-0.076***
	(0.016)	(0.017)	(0.017)	(0.015)	(0.014)	(0.014)
Midwest	-0.026*	-0.031*	0.049***	0.001	-0.023*	-0.043***
	(0.015)	(0.016)	(0.017)	(0.013)	(0.013)	(0.012)
South	-0.002	0.008	0.050***	0.008	-0.059***	-0.085***
	(0.015)	(0.016)	(0.017)	(0.012)	(0.012)	(0.012)
Family size	0.067***	0.074***	0.075***	0.072***	0.065***	0.056***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Constant	4.708***	5.006***	5.527***	5.116***	5.022***	3.804***
	(0.123)	(0.141)	(0.146)	(0.113)	(0.101)	(0.112)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.68	0.66	0.65	0.63	0.63	0.63

Table 5a: equation (4), Total Consumption

	1989	1992	1995	1998	2001	2004
Income	0.436***	0.398***	0.329***	0.377***	0.405***	0.535***
	(0.012)	(0.014)	(0.013)	(0.011)	(0.009)	(0.010)
kg (house)	0.000	0.001	0.000	-0.001	0.000	**0.002****
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	**(0.001)**
kg (ore)	0.001	0.000	0.002	0.002	0.001	**0.002***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	**(0.001)**
kg (bus)	0.000	0.002	0.000	0.000	0.002	0.001
	(0.002)	(0.001)	(0.002	(0.002)	(0.002)	(0.001)
kg (stmf)	-0.001	0.001	**0.005*****	**0.004*****	0.000	0.001
	(0.002)	(0.002)	**(0.002)**	**(0.001)**	(0.001)	(0.001)
Race-Black	-0.108***	-0.104***	-0.070***	-0.065***	-0.067***	-0.056***
	(0.023)	(0.021)	(0.022)	(0.018)	(0.017)	(0.014)
Race-Other	-0.057	-0.040	-0.065*	-0.035	-0.027	-0.022
	(0.040)	(0.037)	(0.037)	(0.033)	(0.027)	(0.022)
Single	-0.164***	-0.129***	-0.181***	-0.153***	-0.132***	-0.081***
	(0.018)	(0.016)	(0.017)	(0.015)	(0.012)	(0.011)
Educated	0.104***	0.098***	0.116***	0.097***	0.100***	0.068***
	(0.006)	(0.006)	(0.007)	(0.005)	(0.005)	(0.004)
Age	0.020***	0.017***	0.017***	0.018***	0.013***	0.010***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	-0.062***	-0.098***	-0.133***	-0.088***	-0.119***	-0.015
	(0.019)	(0.017)	(0.017)	(0.014)	(0.016)	(0.015)
Not working	-0.115***	-0.130***	-0.100***	-0.093***	-0.040**	-0.013
	(0.021)	(0.021)	(0.023)	(0.019)	(0.016)	(0.016)
Northeast	-0.017	-0.025	0.021	0.009	-0.044***	-0.102***
	(0.017)	(0.017)	(0.017)	(0.015)	(0.015)	(0.014)
Midwest	-0.077***	-0.100***	-0.027	-0.066***	-0.062***	-0.091***
	(0.016)	(0.016)	(0.017)	(0.014)	(0.013)	(0.012)
South	-0.056***	-0.053***	-0.010	-0.063***	-0.089***	-0.133***
	(0.017)	(0.016)	(0.018)	(0.013)	(0.013)	(0.011)
Family size	0.053***	0.064***	0.065***	0.066***	0.069***	0.053***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
Constant	5.000***	5.500***	6.194***	5.691***	5.614***	4.313***
	(0.124)	(0.138)	(0.139)	(0.113)	(0.104)	(0.107)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.67	0.66	0.63	0.60	0.60	0.63

Table 5b: equation (4), Non-Durables Consumption

	1989	1992	1995	1998	2001	2004
Income	0.402***	0.378***	0.318***	0.367***	0.397***	0.523***
	(0.012)	(0.014)	(0.013)	(0.010)	(0.008)	(0.011)
kg (house)	0.002	**0.003*** **	0.001	0.001	0.001	**0.003*** **
	(0.001)	**(0.001)**	(0.001)	(0.001)	(0.001)	**(0.001)**
kg (ore)	0.002	0.002	**0.004***	**0.002***	**0.004*** **	**0.003*** **
	(0.001)	(0.002)	**(0.002)**	**(0.001)**	**(0.002)**	**(0.001)**
kg (bus)	-0.001	0.002	0.001	0.002	**0.003** **	0.001
	(0.001)	(0.001)	(0.002)	(0.001)	**(0.001)**	(0.001)
kg (stmf)	0.001	0.002	**0.005** **	**0.004*** **	-0.001	0.002
	(0.002)	(0.002)	**(0.002)**	**(0.001)**	(0.001)	(0.001)
Race-Black	-0.073***	-0.066***	-0.038*	-0.057***	-0.052***	-0.062***
	(0.022)	(0.021)	(0.021)	(0.017)	(0.016)	(0.015)
Race-Other	-0.073*	-0.044	-0.039	-0.025	-0.065**	-0.065**
	(0.042)	(0.046)	(0.036)	(0.032)	(0.027)	(0.030)
Single	-0.149***	-0.131***	-0.163***	-0.127***	-0.133***	-0.108***
	(0.016)	(0.015)	(0.016)	(0.014)	(0.011)	(0.011)
Educated	0.095***	0.095***	0.111***	0.090***	0.102***	0.072***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.004)	(0.004)
Age	0.015***	0.015***	0.013***	0.013***	0.011***	0.005***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Home Renter	-0.128***	-0.154***	-0.197***	-0.157***	-0.178***	-0.098***
	(0.017)	(0.016)	(0.016)	(0.014)	(0.015)	(0.015)
Not working	-0.114***	-0.116***	-0.109***	-0.089***	-0.046***	-0.037**
	(0.021)	(0.021)	(0.022)	(0.018)	(0.016)	(0.017)
Northeast	0.041**	0.042**	0.071***	0.048***	-0.033**	-0.075***
	(0.016)	(0.017)	(0.017)	(0.015)	(0.014)	(0.014)
Midwest	-0.027*	-0.034**	0.048***	0.001	-0.024*	-0.043***
	(0.015)	(0.016)	(0.017)	(0.013)	(0.013)	(0.012)
South	-0.002	0.007	0.051***	0.008	-0.061***	-0.086***
	(0.015)	(0.016)	(0.017)	(0.012)	(0.012)	(0.012)
Family size	0.067***	0.074***	0.074***	0.073***	0.065***	0.055***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Constant	4.857***	5.148***	5.779***	5.301***	5.191***	4.020***
	(0.124)	(0.138)	(0.138)	(0.108)	(0.095)	(0.117)
Obs.	7344	7620	7159	9868	12178	14411
R-squared	0.68	0.66	0.65	0.63	0.63	0.63

Table 6: equation (2), three different dependent variables

	Total cons.	Non-durables cons.	Durables cons.
Income	0.400***	0.389***	0.474***
	(0.005)	(0.005)	(0.009)
Fin. Assets	**0.003*** **	**0.006*** **	**-0.004***
	(0.001)	**(0.001)**	**(0.002)**
Other real estate	**0.006*** **	**0.005*** **	**0.011*** **
	(0001)	**(0.001)**	**(0.002)**
House	**0.019*** **	**0.022*** **	**0.017*** **
	(0.003)	**(0.003)**	**(0.005)**
Race-Black	-0.067***	-0.050***	-0.097***
	(0.008)	(0.008)	(0.015)
Race-Other	-0.035***	-0.052***	-0.069***
	(0.013)	(0.014)	(0.025)
Single	-0.138***	-0.135***	-0.157***
	(0.006)	(0.006)	(0.011)
Educated	0.094***	0.091***	0.113***
	(0.002)	(0.002)	(0.004)
Age	0.015***	0.012***	0.036***
	(0.001)	(0.001)	(0.002)
Age squared	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
Home Renter	0.081**	0.080***	0.112**
	(0.032)	(0.028)	(0.055)
Not working	-0.074***	-0.078***	-0.068***
	(0.008)	(0.008)	(0.014)
Family size	0.063***	0.071***	0.057***
	(0.002)	(0.002)	(0.003)
Area 1	-0.025***	0.020***	-0.110***
	(0.007)	(0.007)	(0.012)
Area 2	-0.070***	-0.009	-0.165***
	(0.006)	(0.006)	(0.010)
Area 3	-0.069***	-0.015**	-0.183***
	(0.006)	(0.006)	(0.011)
Year 1989	-0.128***	-0.153***	-0.127***
	(0.008)	(0.008)	(0.016)
Year 1992	-0.078***	-0.095***	-0.062***
	(0.007)	(0.007)	(0.014)
Year 1995	-0.023***	-0.055***	0.013
	(0.008)	(0.007)	(0.014)
Year 1998	-0.058***	-0.094***	-0.037***
	(0.007)	(0.007)	(0.013)
Year 2001	0.046***	0.032***	0.073***
	(0.006)	(0.006)	(0.011)
Old*Fin. Assets	0.000	-0.008***	0.018***
	(0.006)	(0.003)	(0.005)
Old*Other real estate	0.008***	0.005	0.002
	(0.003)	(0.003)	(0.005)
Old*House	0.001	0.019***	-0.043***
	(0.002)	(0.002)	(0.003)
Old*Income	-0.004	-0.014***	0.029***

	(0.003)	(0.003)	(0.005)
Constant	5.452***	4.912***	3.233***
	(0.060)	(0.053)	(0.111)
Obs.	58580	58580	58580
R-squared	0.64	0.66	0.42

Table 7: equation (3), three different dependent variables

	Total cons.	Non-durables cons.	Durables cons.
Income	0.403***	0.393***	0.473***
	(0.005)	(0.005)	(0.009)
Net Fin. Assets	0.000	**0.002*** **	**-0.003** **
	(0.001)	**(0.001)**	**(0.001)**
Other real estate	**0.007*** **	**0.006*** **	**0.010*** **
	(0001)	**(0.001)**	**(0.002)**
House	**0.021*** **	**0.024*** **	**0.016*** **
	(0.003)	**(0.003)**	**(0.005)**
Race-Black	-0.069***	-0.052***	-0.101***
	(0.008)	(0.008)	(0.015)
Race-Other	-0.037***	-0.054***	-0.071***
	(0.013)	(0.014)	(0.025)
Single	-0.140***	-0.136***	-0.158***
	(0.006)	(0.006)	(0.010)
Educated	0.096***	0.093***	0.114***
	(0.002)	(0.002)	(0.004)
Age	0.015***	0.012***	0.037***
	(0.001)	(0.001)	(0.002)
Age squared	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
Home Renter	0.089**	0.084***	0.123**
	(0.033)	(0.028)	(0.054)
Not working	-0.076***	-0.082***	-0.065***
	(0.008)	(0.008)	(0.014)
Family size	0.063***	0.070***	0.057***
	(0.002)	(0.002)	(0.003)
Area 1	-0.025***	0.020***	-0.110***
	(0.007)	(0.007)	(0.012)
Area 2	-0.070***	-0.009	-0.165***
	(0.006)	(0.006)	(0.010)
Area 3	-0.069***	-0.015**	-0.183***
	(0.006)	(0.006)	(0.011)
Year 1989	-0.127***	-0.153***	-0.124***
	(0.008)	(0.008)	(0.016)
Year 1992	-0.078***	-0.095***	-0.062***
	(0.007)	(0.007)	(0.014)
Year 1995	-0.022***	-0.054***	0.013
	(0.008)	(0.007)	(0.014)
Year 1998	-0.056***	-0.092***	-0.037***
	(0.007)	(0.007)	(0.013)
Year 2001	0.047***	0.034***	0.074***
	(0.006)	(0.006)	(0.011)

Old* Net Fin. Assets	-0.001	-0.004***	0.005*
	(0.001)	(0.001)	(0.002)
Old*Other real estate	0.008***	0.003	0.007
	(0.003)	(0.003)	(0.004)
Old*House	0.001	0.016***	-0.036***
	(0.002)	(0.002)	(0.003)
Old*Income	-0.004	-0.017***	0.038***
	(0.002)	(0.003)	(0.004)
Constant	5.331***	4.897***	3.210***
	(0.059)	(0.052)	(0.109)
Obs.	58580	58580	58580
R-squared	0.64	0.66	0.42