Discussion of the paper: "Spendthrift in America? On two decades of decline in the US saving rate"

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1. What is saving? Some measurement issues.

The decline in the saving rate in the U.S. represents a long-standing puzzle. Much research has been devoted to it, but so far there seems to be more agreement on the reasons that cannot explain the decline than on the reasons that actually can. This paper provides a very thorough investigation of saving, looking at both macro models and aggregate data and micro evidence on saving. The empirical work on household data tries to disentangle the reasons for the decline in saving by looking at different groups in the population and also by examining the role of the increase in wealth. The main findings are that there is not a unique explanation for the decline in saving, but the paper points to a list of viable candidates.

There are several issues to address when considering saving. The first one is concerned with measurement. Consider a simple manipulation of the budget constraint:

$$W_t - W_{t-1} = rW_{t-1} + Y_t - C_t$$

Where W denotes wealth, C consumption, Y income and r the interest rate. Saving can be derived by taking the first difference of wealth or by subtracting consumption from (capital and labor) income. At the aggregate level, saving has been measured from the National Income and Product Accounts (NIPA) as the difference between personal consumption outlays and personal disposable income, and from the Flow of Funds (FOF) of the Federal Reserve System as the household sector's net acquisition of assets (including housing) minus its net accumulation of liabilities. These two measures do not generally match and many adjustments are needed to obtain comparable figures. The most important fact is that capital gains are not counted in the above definitions of saving. However, those gains have become so important that if one were to include them, saving would not even show a decline.

Gale and Sabelhaus (1999) have examined the measures of saving from NIPA and FOF and considered several adjustments to the official statistics related to, for example, the treatments of durable goods, inflation, tax accruals and retirement accounts. Considering those adjustments, the decline in saving is much smaller and the level of saving much higher than reported in official statistics. When adding capital gains, however, the figures change dramatically. Saving is not only much higher than in the official statistics, but also it shows no decline over time and has actually increased in the 1990s, in particular after 1993. One of the important features of the U.S. economy is that while we observed a decline in saving (at least according to official statistics), we did not witness a decrease in the stock of wealth.

When moving from aggregate to micro statistics, measurement issues become even more problematic. The two existing data sets on consumption, i.e. the Panel Study on Income Dynamics (PSID) and the Consumer Expenditure Survey (CES) have serious limitations for calculating accurate measures of saving. For example, the PSID reports information only on food consumption. This measure is not only limited, but also noisy.[1] The CES has information on total household expenditure, but suffers from severe measurement error in income, and has only limited (and noisy) information about financial assets. In addition, income is top-coded in the CES and this makes it difficult to calculate saving for high income households, which are responsible for a large share of saving in the U.S.. It is also possible to calculate saving using wealth data from the Survey of Consumer Finances (SCF) or from the PSID, but one has to deal with the issue of how to treat capital gains that, as mentioned before, are not included in the aggregate statistics.

These observations suggest that one should use much caution in interpreting the aggregate statistics. As far as measurement is concerned, there are different definitions of saving and which one to choose does ultimately depend on the research question under consideration. In terms of micro data, there is no ideal data set to study saving. The paper by Parker uses the PSID, but much data construction and imputation is needed to obtain accurate measures of consumption. More specifically, data from the CES and NIPA are used to construct a more comprehensive measure of consumption than the one reported in the PSID.

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[1]See Runkle (1991).

2. Some basic facts.

In addition to the official statistics about saving, the paper reports several important facts which are not usually present in previous works on the decline saving. For example, the paper documents that there has been a substantial increase in the ratio of consumption to income, in particular after the 1980s. Additionally, it shows that the household rather than the government sector is responsible for the decline in saving. As mentioned before, the paper also shows that while saving declined, wealth has increased a lot, at least in the aggregate statistics. However, one should note that aggregate data hide important differences across households. Wealth is very unequally distributed among U.S. households and in the 1980s the distribution of wealth became even more spread out.[2] In this respect, only a share of the population enjoyed capital gains on existing assets.

Household debt has also surged in the past years. The figures below show that total debt per capita and one of its components, i.e. consumer credit per capita, have increased over time and accelerated during the 1990s.[3] This is also a potentially important fact and it should be kept in mind when modeling household consumption or saving. I will return to it below.

Perhaps a less well-known fact is that the lack of saving is very pervasive among U.S. households. Recent data from the Health and Retirement Study (HRS) show that many households arrive close to retirement with little in terms of non-pension wealth. Table 1 reports the distribution of financial wealth, housing equity, and total net worth for a cohort of households whose head is close to retirement (they are 51-61 years old in 1992). Even though these households should be close to the peak of their accumulation, median financial wealth is $6,000 and median total net worth is less than $100,000. Much of the accumulation is accounted for by housing equity, but it is an issue whether or not households are using housing wealth to

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[2] See Wolff (1994).

[3] Household total debt is the sum of home mortgages and consumer credit. Consumer credit includes automobile credit and revolving credit, such as credit card debt and unsecured personal line of credit. These figures are from the Flow of Funds Accounts of the Federal Reserve System.

support their consumption at retirement.[45] These findings raise some concerns about the financial security of many American households. Saving is also heavily concentrated among high income/high education/high wealth households. For example, according to Kennickell and Starr-McCluer (1997), households with income of $50,000 and above (in 1989 dollars) contributed over 75 percent of total saving. Households whose head has a college degree also accounted for a disproportionate share of saving; depending on the chosen sample, estimates go from 64% to 72%. Note that if saving is calculated to measure the ability of households to finance consumption in retirement, then official statistics may provide an inadequate picture since, as mentioned before, they do not take into account the appreciation of the existing stock of assets.

3. Explaining the decline in saving.

While basic facts are important, the relevant question is: What explains the observed figures? As mentioned before, there have been many explanations for the decline in saving in the U.S.. In Browning and Lusardi (1996), we reviewed as many as twelve proposed explanations. They can be summarized as follows: 1) the aging of the population; 2) changes in the saving propensities of different cohorts; 3) changes in the structure of household (e.g. divorce rates); 4) changes in the insurance provided by the government (a decrease in the precautionary saving motive); 5) changes in the distribution of income; 6) the decline in aggregate growth; 7) capital gains on housing; 8) capital gains on stocks; 9) the increased annuitization of wealth (due to Social Security and pensions); 10) cash payouts to shareholders; 11) the development of financial markets; 12) changes in the thriftiness and perception of financial security (and other reasons from economic psychology).

This list serves to emphasize that this topic has been heavily investigated, and while we

[4]Financial wealth is defined as the sum of checking and saving accounts, bonds, stocks, and other assets minus short-term debt. Total net worth is the sum of financial wealth, IRAs and Keoghs, housing equity, other real estate, business equity, and vehicles. Figures refer to the sample of households whose financial respondent is not retired. All values are in 1992 dollars. Figures are weighted using survey weights.

[5]See Lusardi (1999) and the references therein.

can perhaps rule out some of the explanations suggested by past research, many still remain under debate. The paper by Parker adds to the existing explanations by suggesting that there is not a single culprit to the decline in saving, but several reasons are likely to coexist. The paper offers useful and original insights with respect to previous work. On the one hand, there is an examination of a stylized macroeconomic model. How do we reconcile the movements in consumption with changes in government policies, the behavior of interest rates, and the stock market boom? On the other hand, there is a close examination of micro data and using different methods.

It is clear that, to be able to explain the decline in saving, it is necessary to look at micro data. This makes it possible to test different hypotheses, as well as focus on well defined demographic and economic groups and characterize their behavior. The micro data analysis, however, is not without limitations. As mentioned before, there is not a single data set that can be used to analyze saving. Data construction is not only cumbersome but it also requires making several assumptions about the characterization of consumption. For example, the imputation of health expenses is particularly difficult since those data are only available at the aggregate level. The other problem is that micro data is notoriously noisy and it is hard to estimate effects with precision. Nevertheless, the analysis of household behavior is important, both because this is the sector responsible for the decline in saving and because aggregate statistics hide important differences across population groups.

The first problem in modeling household saving is determining to which theoretical scheme to refer. The paper refers broadly to the life cycle model, even though it sometimes hints at the importance of incorporating a precautionary saving motive. When using a fairly general specification of the life-cycle model of saving, at least three explanations for the decline in saving can be rationalized. The first one is that the proportion of the elderly has increased and since they should on net be dissavers, that may per se explain the decline in saving. This can be called an *age effect*. An additional explanation is that individuals born in different time periods display different saving behaviors. This may be due to the fact that their resources are different or that preferences are different across generations. This can be called a *generational or cohort effect*. A third explanation is that the behavior of the macro economy has affected saving. This can be called a *time effect*.

Unfortunately, it is not possible to decompose the observed decline in saving into an age, cohort, and time effect. This is due to the well known identification problem in using time, cohort, and age dummies. Their effects cannot be separately identified since year of birth (or cohort) plus age is simply equal to time. There are several ways to get around the identification problem.[6] One way is to use identifying assumptions, for example restrict the estimates on the time dummies. This approach was originally used by Deaton and Paxson (1994), and is also implemented in this paper. While it has several advantages, it leaves open the question of how to interpret cohort effects: are they due to economic conditions, for example differences in the rate of productivity growth across generations, or are they due to preferences? It is not possible to disentangle these effects by simply using cohort dummies. Another alternative is to use better proxies for these effects than dummy variables, and/or to model the effect explicitly. While this requires putting more structure on a specific model of saving and making assumptions about the variables necessary to estimate the model, it may provide a clearer interpretation of the cohort effects. An additional advantage of this approach is that it allows a more flexible specification for these different effects. For example, it is easy to think of cases where age, cohort, and time effects are not simply additive. Kapteyn, Alessie and Lusardi (1999) use a simple life cycle model of saving and show that the introduction of a universal Social Security system in the Netherlands in the mid-50s introduced an interaction between age and cohort effects. Rather than using cohort dummies, they model the cohort effect in wealth and saving explicitly by constructing measures of productivity growth and the generosity of the Social Security system across different generations.

Which interpretation to attach to cohort effects is a rather critical issue in this paper. As the empirical work shows, age effects can be easily dismissed as an explanation for the decline in saving. This is consistent with the findings of many other papers.[7] It is almost intuitive why this is the case. Changes in the age structure of the population are too slow to be able to rationalize the decline in saving. Note that while the decline started perhaps two decades ago, it

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[6] See Heckman and Robb (1985) and Attanasio (1998).

[7] See the discussion in Browning and Lusardi (1996) and the references therein.

has become precipitous after the mid-1980s, at least according to the official statistics. The importance of time effects is not clearly assessed. In one specification of the empirical work, these effects are restricted ex-ante. By making the assumption, as in Deaton and Paxson (1994), that time effects are orthogonal to a linear time trend and average to zero, all (linear) trends observed in the data are attributed to age and cohort effects. This restriction is relaxed when estimating a consumption function and, in that context, time effects are found to be significant in sign and magnitude.

A main finding of the paper is that cohort effects are significant and important to explain the decline in saving. More precisely, every generation is consuming more than the previous generation did at a similar age. This finding is relevant per se, even though it is open to many interpretations. First, note that this is partly in conflict with previous research.[8] While other authors also attributed the decline in saving mainly to cohort effects, the cohorts that are responsible for the decline differ widely across studies. For example, according to Boskin and Lau (1988), the generations born after 1939 are the ones responsible for the decline in saving. This is in contrast with the findings of Attanasio (1998), who reports that it is not the baby-boomers, but the generations born between 1925 and 1939 that shifted down their saving. In other words, it is those generations that should be at the peak of their saving during the 1980s that are saving less. Gokhale, Kotlikoff and Sabelhaus (1996) provide yet a different explanation. According to their study, it is mainly the elderly that are responsible for the decline in saving. They document that the government redistributed resources from young and future generations to current old ones and that there has been a sharp increase in the propensity of older Americans to consume out of their remaining lifetime resources.

It is not obvious why findings are so different, and what explains the different conclusions reached by different authors, in particular among studies using similar micro data sets and similar versions of the life-cycle model of saving. We do await a study that can explain those differences and generate some consensus on this topic.

Second, there is the problem of interpreting cohort effects when using cohort dummies.

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[8] Some studies, such as Bosworth, Burtless and Sabelhaus (1991), report results in line with this paper that saving has declined across every age group.

What do cohort effects capture? Differences in economic circumstances or differences in preferences across generations? The fact that all generations consume more than previous ones seems to indicate a plurality of reasons for the decline in saving, even though it is not obvious which are the corrects ones. For example, transfers from the government are a potentially relevant explanation, but they have affected generations differentially and if any, it is the elderly that have benefitted the most from them. Similarly, changes in the financial markets, and in particular in the opportunities for borrowing, should have affected the younger generations. Changes in preferences, such as impatience, could also be changing across generations. In this case it is difficult to expect a dramatic change across (adjacent) generations, and it should have affected prevalently the younger generations, even though it is not clear which ones (individuals born after the Great Depression, or after the war, or the late boomers?).

The paper suggests that several reasons could be at work, such as an increase in government transfers that explain the decline for the elderly combined with the development in the financial markets that changed saving for the young. While plausible, this explanation requires further investigation, since it is not easy to rule out the fact that preferences, such as impatience or attitudes toward saving (thriftiness, expectations toward the future) have also changed across generations.

In the attempt to explain cohort effects, the paper resorts to estimating a consumption function. To model cohort effects explicitly, wealth and the permanent component of income are considered in the estimation of a consumption function. Thus, the analysis allows a close evaluation of how much of the increase in consumption is attributable to the increase in wealth that was documented earlier.

The results from estimating consumption functions do not provide evidence in support of one specific explanation or set of explanations for understanding cohort effects. Overall, the estimates suggest that a rather limited share of the consumption boom can be explained by the increase in wealth. But estimates from these equations are not without difficulties. If households have financed the increase in consumption by borrowing from future resources, then low wealth (but not necessarily zero or negative, which in the estimation is treated as a separate group) can be highly correlated with high consumption and current estimates may not adequately capture this non-linear effect. In fact, even households with zero or negative wealth are found to have

high consumption.

In addition, much attention both in the media and in some current academic research has focused on the effect of the stock market boom. Given the importance of capital gains in the measures of saving mentioned before, this is an important issue to study. However, it is hard to evaluate the effect of the stock market from the estimates of the consumption function. Even though the dummy for stock market participation is statistically significant, much of the effect may be due to the increase in the wealth invested in stocks, which is not separately identified.

The theoretical model that underlies the calculation of the consumption function assumes that borrowing is severely limited. More specifically, assets are assumed not to go negative. This implicitly rules out the importance of the development of financial markets. As documented in the figures shown before, many households can borrow and they have increased substantially the amount of debt that they are holding. Similarly, it is not surprising that cohort effects are still present in the data after accounting for wealth and the permanent component of income, since those two variables could be poor predictors of future resources across cohorts.

From consumption functions the analysis shifts at the end to the estimation of Euler equations. Thus, from the examination of consumption levels the analysis goes to the examination of growth rates of consumption. However, it is hard to gain clear insights on the decline on saving from Euler equations. On the one hand, data in first differences are very noisy and estimates are often poor and unreliable.[9] On the other hand, we do not know whether Euler equations are well specified. If some households face borrowing constraints, then there should be additional terms in the Euler equation (a proxy for the Lagrange multiplier) to capture the fact that consumption grows more for constrained than for unconstrained consumers.[10] While borrowing constraints are explicitly considered in the derivation of the consumption function, they are not considered in the derivation of Euler equations. Additionally, apart from the case of quadratic preferences or the certainty equivalence case, the variance of consumption growth should also appear in the Euler equation. This is due to the fact that, for households that have a

[9]See the discussion about estimating Euler equations using micro data in Browning and Lusardi (1996).

[10] See Zeldes (1989).

precautionary saving motive, uncertainty depresses consumption and consumption should grow faster for households facing greater uncertainty. While the derivation of the consumption functions relaxed the assumption about certainty, the Euler equations do not allow for uncertainty.

Euler equations have the advantage that one does not have to specify the income process of households or their expectations about future events. Nevertheless, specific assumptions have still to be made about how to characterize preferences and the economic environment, for example whether households are impatient, whether they have a precautionary saving motive, and whether there are borrowing constraints or other market imperfections. To illustrate this point more clearly, note that in addition to the expected interest rate and a set of cohort dummies, wealth (in logs) is added to the Euler equation. The justification for adding wealth reported in the paper is to evaluate whether unexpectedly high asset returns are the causes of the consumption boom. Even though it is statistically significant only in one specification, the sign of wealth is negative rather than positive. However, as it is mentioned in the paper too, wealth can be capturing precautionary saving, i.e. the fact that the wealthy have lower precautionary saving motives. Alternatively, it could be capturing the fact that the wealthy do not face stringent borrowing constraints.

At the end the analysis of consumption from these three different angles — the decomposition of the data into age, cohort, and restricted time effects, the estimation of consumption functions, and the estimation of Euler equations— does not pin down a single explanation for the decline in saving and sometimes it leads to somewhat different and conflicting results. It is plausible that this is the result of different identifying assumptions. On the one hand, the decomposition into age, cohort, and time effects requires making assumptions about the behavior of one set of dummies. On the other hand, the estimation of consumption functions and Euler equations requires making modeling assumptions about the preferences of individuals and the potential imperfections in the financial and insurance markets they could face. Given that there is much debate on which theoretical model can best describe saving (life-cycle, models with intergenerational transfers, precautionary saving, etc.), there is no safe avenue to undertake when studying the decline in saving. Different methods have their own shortcomings, and overall the results of employing those different methods in this paper may

also be interpreted as showing how hard it is to well explain saving and how many difficulties the traditional theories of saving have in rationalizing the empirical findings.

To summarize: this paper has taken up the difficult task of explaining the decline in saving. With respect to previous work in this area, it proposes that there are several different explanations at work that can explain saving. Among them, a combination of government transfers to the elderly, changes in preferences (impatience or attitudes toward saving) across generations, and changes in the development of financial markets seem most promising and a useful avenue for future research.

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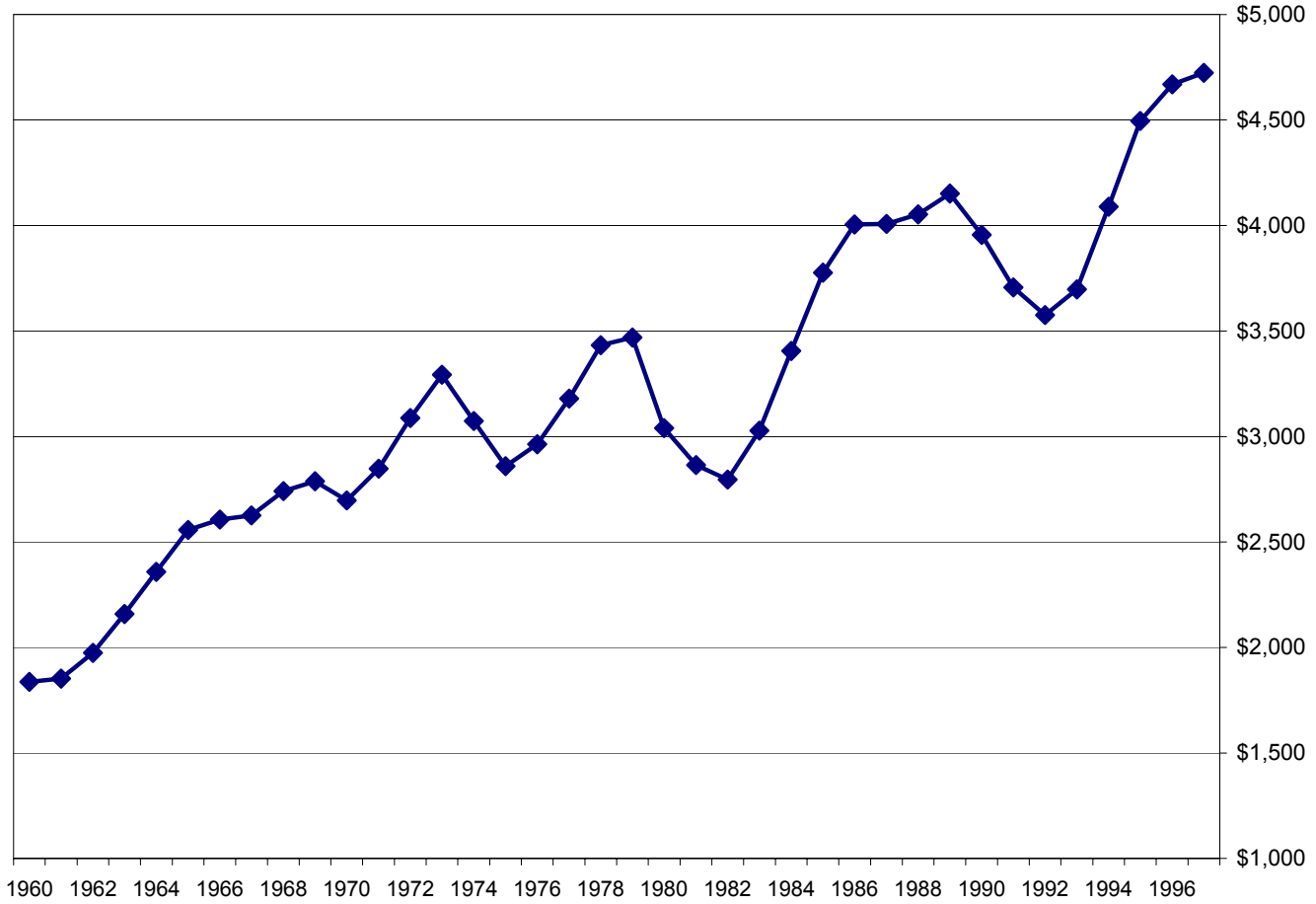
Table 1:
Distribution of Financial & Total Net Worth
Age range: 51-61 in 1992

Percentile	Financial Net Worth	Housing Equity	Total Net Worth
5	-6,000	0	0
10	-2,000	0	850
25	0	0	27,980
50	6,000	42,000	96,000
75	36,000	85,000	222,200
90	110,000	150,000	475,000
95	199,500	200,000	785,000
Mean	46,171	61,613	227,483
(Std. Dev.)	(178,654)	(100,646)	(521,467)

Note: Author's calculations from the Health and Retirement Study.

Per Capita Consumer Credit: 1960-1997
(in 1997 dollars)



Per Capita Total Household Debt: 1960-1997
(in 1997 dollars)