

# Stock Market Wealth, Housing Market Wealth, Spending and Consumption

Karl E. Case  
Wellesley College  
Wellesley, MA  
kcase@wellesley.edu

John M. Quigley  
University of California  
Berkeley, CA  
quigley@econ.berkeley.edu

Robert J. Shiller  
Yale University & NBER  
New Haven, CT  
robert.shiller@yale.edu

Draft 2  
June 25, 2001

## Abstract

We examine the link between increases in housing wealth, financial wealth, and consumer spending. We rely upon a panel of 13 countries observed annually for various periods during the past 25 years and a panel of U.S. states observed quarterly during the 1980s and 1990s. We impute the aggregate value of owner-occupied housing, the value of financial assets, and measures of aggregate consumption for each of the geographic units over time. We estimate regressions relating consumption to income and wealth measures, finding a statistically significant and rather large effect of housing wealth upon household consumption.

Keywords: wealth effect, nonfinancial wealth, housing market gains  
JEL Codes: E2, G1

This paper is prepared for the NBER Summer Institute, July 2001. Portions of this work have been presented previously, at the AEA/AREUEA joint session in New Orleans (Case and Shiller, 2000) and the RSAI North American Meetings in Chicago (Quigley, 2000). This draft benefited from the assistance of Victoria Borrego, Tanguy Brachet, George Korniotis and Maryna Marynchenko.

## I. Introduction

The dramatic increase in stock values during the recent economic expansion in the U.S. has led to renewed policy and scientific interest in the effects of household wealth upon consumption levels. To the extent that the inflation of stock prices increased consumption pressures during the decade-long boom, there are well known reasons to fear that constant or declining share prices may exacerbate a slowdown in the economy by depressing the consumption spending of households.

There is every reason to expect that changes in housing wealth exert analogous effects upon household behavior, and institutional innovations (such as second mortgages in the form of secured lines of credit) have made it as simple to extract cash from housing equity as it is to sell shares or to borrow on margin.<sup>1</sup>

More generally, it has been widely observed in the U.S. and elsewhere that changes in national wealth are associated with changes in national consumption. In regression models relating changes in log consumption to changes in log wealth, the estimated relationship is generally positive and statistically significant. Under a standard interpretation of these results, from a suitably specified regression, the coefficient measures the "wealth effect"—the causal effect of exogenous changes in wealth upon consumption behavior. These simple regressions do admit other interpretations which may be hard to disentangle. Nevertheless, the interpretation of

---

<sup>1</sup> Indeed, in a speech to the Mortgage bankers Association, Federal Reserve Chairman Alan Greenspan has ruminated: "One might expect that a significant portion of the unencumbered cash received by [house] sellers and refinancers was used to purchase goods and services... However, in models of consumer spending, we have not been able to find much incremental explanatory power of such extraction. Perhaps this is because sellers' extraction [of home equity] is sufficiently correlated with other variables in the model, such as stock-market wealth, that the model has difficulty disentangling these influences." (Greenspan, 1999)

these results as a “wealth effect,” even as an approximation, justifies careful examination of these statistical relationships.

Wealth may take many forms, and as noted below, there is ample reason to think that the tendency to consume out of stock market wealth is different from the tendency to consume out of housing wealth.

In this paper, we provide empirical evidence on the issue by relying upon two bodies of data: a panel of annual observations on 13 countries measuring aggregate consumption, the capitalization of stock market wealth, and aggregate housing wealth; and an analogous panel of quarterly observations on U.S. states estimating consumption, stock ownership, and aggregate housing wealth. These data exploit the geographical distribution of stock market and housing market wealth among the U.S. states and the substantial variations in the timing and intensity of economic activity across developed countries.

Section II below provides a brief theoretical motivation for the distinction between housing and financial wealth and a review of the limited evidence on the effects of housing wealth on consumption and savings behavior. Section III describes the data sources, imputations, and computations used to create the two panels. Section IV presents our statistical results; Section V is a brief conclusion.

## **II. Differential Wealth Effects: Theories and Evidence**

A simple formulation of the life cycle savings hypothesis suggests that consumers will distribute increases in anticipated wealth over time and that the marginal propensity to consume out of all wealth, whether in the form of stocks, real estate, or any other form, should be the same small number, something just over the real interest rate. Clearly, such a proportional effect must

exist in the long run. However, a number of concerns have been raised about the identification of the short-run effects of changes in wealth on household spending.

There are, in fact, many reasons why consumption may be differently affected by the form in which wealth is held. First, increases in measured wealth of different kinds may be viewed by households as temporary or uncertain. Second, households may have a bequest motive which is strengthened by tax laws which favor holding appreciated assets until death. Third, households may view the accumulation of some kinds of wealth as an end in and of itself. Fourth, households may not find it easy to measure their wealth, and may not even know what it is from time to time. The unrealized capital gains held by a household in asset markets may be transitory, but they can be measured with far more precision in thick markets with many active traders. Fifth, people may segregate different kinds of wealth into separate "mental accounts," which are framed quite differently. The psychology of framing may dictate that certain assets are more appropriate to use for current expenditures while others are earmarked for long-term savings (Shefrin and Thaler, 1988).

Each of these concerns suggests a distinction between the impact of housing wealth and stock market wealth on consumption. The extent to which people view their currently-measured wealth as temporary or uncertain may differ between the two forms of wealth. People may have quite different motives about bequeathing their stock portfolios and bequeathing their homesteads to heirs. The emotional impact of accumulating stock market wealth may be quite different from that of real estate wealth. People are likely to be less aware of the short-run changes in real estate wealth since they do not receive regular updates on its value. Stock market wealth can be tracked daily in the newspaper.

Differential impacts of various forms of wealth on consumption have already been demonstrated in a quasi-experimental setting. For example, increases in unexpected wealth in the form of lottery winnings lead to large effects on consumption. Responses to surveys about the uses put to different forms of wealth imply strikingly different "wealth effects." By analogy, it is entirely reasonable to expect that there should be a different impact of real estate wealth, as compared with stock market wealth, on consumption.

The effect of housing wealth on consumption has not been widely explored. An early study by Elliott (1980) relied upon aggregate data on consumer spending, financial wealth, and nonfinancial wealth, finding that variations in the latter had no effect upon consumption. Elliott's analysis suggested that "houses, automobiles, furniture, and appliances may be treated more as part of the environment by households than as a part of realizable purchasing power. (1980:528)." These results were challenged by Peek (1983) and by Bhatia (1987) who questioned the methods used to estimate real non financial wealth. More recently, Case (1992) found evidence of a substantial consumption effect during the real estate price boom in the late 1980's using aggregate data for New England.

Using data on individual households from the Panel Study of Income Dynamics (PSID), Skinner (1989) found a small but significant effect of housing wealth upon consumption. Sheiner (1995) explored the possibility that home price increases may actually increase the savings of renters who then face higher down payment requirements to purchase houses. Her statistical results, however, were quite inconclusive. Engelhardt (1996) provided a direct test of the link between house price appreciation and consumption, also using the PSID. He estimated that the marginal propensity to consume out of real capital gains in owner-occupied housing is about 0.3, but this arose from an asymmetry in behavioral response. Households experiencing

real gains did not change their savings and consumption behavior appreciably, while those experiencing capital losses did reduce their consumption behavior.

Much of the limited evidence on the behavioral response to changes in housing wealth has arisen from consideration of the “savings puzzle.” During the late 1990’s, personal savings as measured in the National Income and Product Accounts fell sharply and was negative in 2000. But it was shown that if unrealized capital gains in housing were included in both the income and savings of the household sector (as suggested by the Haig-Simons criteria), then the aggregate personal savings rates computed were much higher (Gale and Sabelhaus, 1999).

Similarly, Hoynes and McFadden (1997) used micro (PSID) data to investigate the correlation between individual savings rates and rates of capital gains in housing. Consistent with the perspective of Thaler (1990), the authors found little evidence that households were changing their savings in non-housing assets in response to expectations about capital gains in owner-occupied housing.

The only other study of the “wealth effect” which has disaggregated housing and stock market components of wealth is an analysis of the Retirement History Survey by Levin (1998). Levin found essentially no effect of housing wealth on consumption.

All of these micro studies of consumer behavior rely upon owners’ estimates of housing values. Evidence does suggest that the bias in owners’ estimates is small (see below), but these estimates typically have high sampling variances (Kain and Quigley, 1972; Goodman and Ittner, 1992). This leaves much ambiguity in the interpretation of statistical results.

### III. The Data

We address the linkage between stock market wealth, housing wealth, and household consumption using two distinct bodies of panel data that have been assembled independently for this purpose. The data sets have different strengths and weaknesses, which generally compliment each other for the study of these relationships.

The first data set consists of a panel of quarterly data constructed for U.S. states from 1982 through 1999. This panel exploits the fact that the distribution of increases in housing values has been anything but uniform across regions in the U.S., and the increases in stock market wealth have been quite unequally distributed across households geographically. This panel offers the advantage that data definitions and institutions are uniform across geographical units. In addition, the sample size is large. One disadvantage of this data set arises because at least one key variable must be imputed to the various states on the basis of other data measured at the state level. Another disadvantage of these data is that the U.S. stock market has trended upwards during the entire sample period, and the period may have been unusual (Shiller, 2000).

The second body of data consists of a panel of annual data on 13 developed countries for various years during the period of 1975-1999. This data set relies upon consumption measures derived from national income accounts, not our imputations, but we suspect that housing prices and housing wealth in this panel are measured less accurately. In addition, the sample of countries with consistent data is small. Finally, there are substantial institutional differences among countries, for example, variations in the taxation of wealth and capital gains and in institutional constraints affecting borrowing and saving.

Both data sets contain substantial time series and cross sectional variation in cyclical activity and exhibit substantial variation in consumption and wealth accumulation.

## A. U.S. State Data

We estimate stock market wealth, housing market wealth and consumption for each U.S. state, quarterly, for the period 1982-1999.

Estimates of aggregate financial wealth were obtained annually from the Federal Reserve Flow of Funds (FOF) accounts and compared to the aggregate capitalization of the three major U.S. stock markets. From the FOF accounts, we computed the sum of corporate equities held by the household sector, pension fund reserves, and mutual funds. The FOF series has risen in nominal terms from under \$2 trillion dollars in 1982 to \$18 trillion in 1999. It is worth noting that more than half of the gross increase between 1982 and 1999 occurred during the four years between 1995 and 1999. The total nominal increase for the 13 years between 1982 and 1995 was \$7.5 trillion; the total nominal increase during the 4 years between 1995 and 1999 was an astonishing \$8.4 trillion. Nearly all variation in the FOF aggregate arises from variation in the capitalization of the stock market. Figure 1 summarizes the course of U.S. stock market wealth during the period 1982-1999.

To distribute household financial assets geographically, we obtained mutual fund holdings by state from the Investment Company Institute (ICI). The ICI data are available for the years 1986, 1987, 1989, 1991 and 1993. We assumed that for 1982:I through 1986:IV, the distribution was the same as it was in 1986; similarly we assumed that the 1993 distribution held for the period 1993-99. We further assumed that direct household holdings of stocks and pension fund reserves were distributed in the same geographical pattern as mutual funds. These are clearly strong assumptions, but there are no alternative data.

Estimates of housing market wealth were constructed from repeat sales price indexes applied to the base values reported in the *1990 Census of Population and Housing* by state.

Weighted repeat sales (WRS) indexes (See Case and Shiller, 1987, 1989) constructed by Case Shiller Weiss Inc. are available for this entire period for only 16 states. In addition, the Office of Federal Housing Enterprise Oversight (OFHEO) publishes state level repeat value indexes quarterly. These indexes are produced by Fannie Mae and Freddie Mac and are available for all states.

The Case-Shiller indexes are the best available for our purposes and wherever possible we use them.<sup>2</sup> The WRS and the OFHEO indexes are highly correlated, however, and we use the OFHEO indexes where WRS indexes are not available.

Equation (1) indicates how the panel on aggregate housing wealth was constructed for each state:

$$(1) \quad V_{it} = R_{it} N_{it} I_{it} V_{i0} \quad ,$$

where,

$V_{it}$  = aggregate value of owner occupied housing in state  $i$  in quarter  $t$ ,

$R_{it}$  = homeownership rate in state  $i$  in quarter  $t$ ,

$N_{it}$  = number of households in state  $i$  in quarter  $t$ ,

$I_{it}$  = weighted repeat sales price index, WRS or OFHEO, for state  $i$  in quarter  $t$  ( $I_{i1} = 1$ , for 1990:1),

$V_{i0}$  = mean home prices for state  $i$  in the base year, 1990.

The total number of households  $N$  as well as the homeownership rates  $R$  were obtained from the *Current Population Survey* conducted by the U.S. Census Bureau annually and

---

<sup>2</sup> While OFHEO uses a similar index construction methodology (the WRS method of Case and Shiller, 1987), their indexes are in part based on appraisals at the time of refinancing rather than on arms-length transactions. The Case-Shiller indexes use various devices to filter out non-arms-length sales data.

interpolated for quarterly intervals. Aggregate wealth varies as a result of price appreciation of the existing stock as well as additions to the number of owner-occupied dwellings.

The baseline figures for state level mean home prices  $V_{10}$  are derived from estimates of house values reported in the *1990 Census of Population and Housing*. As noted, several studies have attempted to measure the bias in owner estimates of house values. The estimates range from minus 2 percent (Kain and Quigley, 1972 and Follain and Malpezzi, 1981) to plus 6 percent (Goodman and Ittner, 1992). However, Goodman and Ittner point out that for many purposes, owners' estimates may indeed be the appropriate measures of housing wealth; household consumption and savings behavior is likely to be based upon perceived home value. The aggregate nominal value of the owner-occupied stock in the U.S. grew from \$2.8 trillion in 1982 to \$7.2 trillion in 1999. Figure 1 also summarizes the course of aggregate wealth in owner-occupied housing during the 1982-1999 period.

Unfortunately, there are no measures of consumption spending by households recorded at the state level. However a panel of retail sales has been constructed by Regional Financial Associates (RFA, see Zandi, 1997). Retail sales account for roughly half of total consumer expenditure.<sup>3</sup>

The RFA estimates were constructed from county level sales tax data, the *Census of Retail Trade* published by the U.S. Census Bureau, and the Census Bureau's monthly national retail sales estimates. For states with no retail sales tax or where data were insufficient to support imputations, RFA based its estimates on the historical relationship between retail sales and retail employment. Data on retail employment by state are available from the Bureau of Labor Statistics. Regression estimates relating sales to employment were benchmarked to the

*Census of Retail Trade* available at five-year intervals. Estimates for all states were within five percent of the benchmarks.

Retail sales can be expected to differ systematically from consumption spending for several reasons. Clearly, states with relatively large tourist industries have high retail sales per capita. Nevada, for example, with 26 percent of its labor force employed in tourism, had per capita retail sales of \$3,022 in 1997:I, third highest among the 50 states. In addition, states with low or no sales tax can be expected to have high retail sales per capita. For example, New Hampshire with no sales tax had per capita retail sales of \$3,200 in 1997:I, highest among the 50 states. Most states, however, were tightly packed around the mean of \$2,385 in 1997:I.

While there are systematic differences between retail sales and consumption, to the extent that differences are state specific, this can be accounted for in multivariate statistical analysis. Data on retail sales, house values, and stock market valuation, by state and quarter, were expressed per capita in real terms using the *Current Population Survey* and the consumer price index.

## **B. International Data**

It was possible to obtain roughly comparable data for a panel of 13 developed countries during the period 1975-1998.<sup>4</sup> In an analogous manner, we estimate stock market wealth, housing market wealth, and consumption for each country for each year.

Estimates of aggregate stock market wealth for each country were obtained from the Global Financial Database which reports domestic stock market capitalization annually for each

---

<sup>3</sup> In 1997, for example, gross domestic product was \$8,080 billion, household consumption spending was \$5,486 billion, and retail sales amounted to \$2,625 billion.

<sup>4</sup> The countries include: Belgium (1978-1996), Canada (1978-1993), Denmark (1978-1996), Finland (1978-1996), France (1982-1996), Germany (1981-1995), Ireland (1979-1995),

country. To the extent that the fraction of the stock market wealth owned domestically varies among

countries, this can be accounted for in the statistical analysis reported below by permitting fixed effects to vary across countries. Figure 2 reports the evolution of stock market wealth in each country, relative to its aggregate value in 1994. (The entry for Ireland is not an error.)

Estimates of housing market wealth were constructed in a manner parallel to those used for the panel of U.S. states and summarized in equation (1). Indexes of annual housing prices  $I_{it}$  were obtained from the Bank of International Settlements (BIS) which records housing prices for some 15 industrialized countries (Kennedy and Andersen, 1994). The BIS series for the United States was quite short, so the national OFHEO-Freddie Mac series described earlier is used for the U.S.

Consistent data on housing prices for a benchmark year,  $V_{i0}$ , was not available for the panel of countries. This means that the regression estimates without fixed effects for each country (which control for country-specific benchmarks) are meaningful only under very restrictive assumptions.

Data on the number of owner-occupied housing units was obtained from various issues of the *Annual Bulletin of Housing and Building Statistics for Europe and North America* published by the United Nations. The series describing the owner-occupied housing stock was not complete for some years in all the countries. More complete data existed for the total housing stock of each country. Where missing, the owner-occupied housing stock was estimated from the total housing stock reported for that year and the ratio of the owner-occupied housing stock to the total housing stock for an adjacent year. Missing data points were estimated by linear

---

Netherlands (1978-1997), Norway (1980-1996), Sweden (1982-1990), Switzerland (1991-1996),

interpolation. Figure 3 reports the evolution of housing market wealth in the 13 countries relative to its aggregate value in 1990.

Consumption data were collected from the International Financial Statistics database. "Household Consumption Expenditure including Nonprofit-Institution-Serving Households" is used for in the European Union countries that rely upon the *European System of Accounts (ESA1995)*. "Private Consumption" is used for other countries, according to the *System of National Accounts (SNA93)*. Data on aggregate consumption, housing values and stock market valuations, by country and year, were expressed per capita in real terms using UN population data and the consumer price index.

#### IV. Statistical Results

Tables 1 and 2 present basic statistical relationships between per capita consumption, income, and the two measures of wealth. Table 1 reports the results for the panel of countries (193 observations on 13 countries) while Table 2 reports the results for the panel of states (3498 observations on 50 states and the District of Columbia). The tables report a variety of specifications, including models that specify fixed effects for countries and states, country- or state-specific time trends and fixed effects for years (and quarters for the U.S. state panel). As far as possible, we present results for common specifications for the two panels. For the international panel, we present specifications without fixed effects for country (Models I, III and V in table 1), even though we do not find the regressions meaningful. For the panel of U.S. states, we also present specifications without fixed effects for state (Models I, III, and V in Table 2). Again, given differences among states in sales taxes and tourism, we do not find these regressions especially meaningful.

---

the United Kingdom (1978-1996), and the United States (1975-1999).

As the tables indicate, in the simplest formulation the estimated effect of housing market wealth on consumption is significant and large. In the international comparison with fixed effects the elasticity ranges between 0.09 and 0.11. In the analysis across states with fixed effects the coefficients range from 0.04 to 0.08.

In the international comparison, the effect of stock market wealth is estimated to be zero or negative, while in the comparison across U.S. states, the coefficient is precisely estimated and positive.

For all specifications for both the international and U.S. panels, we can reject the hypothesis that the effects of housing market wealth and stock market wealth upon consumption are equal. With fixed effects, can never reject the hypothesis that housing market wealth is more important than stock market wealth in influencing consumption. The models explain a large fraction of the variance in log consumption, but the state-specific effects are quite important in explaining the variation in consumption.

Tables 3 and 4 present models based upon the assumption of first-order serial correlation in the errors. The models reported in the table present estimates of the serial correlation coefficient as well as the other parameters. All estimates are computed by generalized least squares on the quasi-differenced data sets. As indicated in Table 3 for the panel of countries, when serial correlation in the errors is assumed, the estimates of the elasticity of consumption with respect to housing market wealth narrow (in the models with fixed effects) to 0.09 to 0.10. Comparable estimates for U.S. states are 0.03 to 0.04.

For international data, the coefficients of stock market wealth are imprecisely measured. For the U.S. state data, the effects of stock market wealth are precisely estimated, small, and positive. In both data sets the serial correlation coefficient is estimated to be 0.8 to 0.9.

Tables 7 and 8 report the results from a set of models that employ a lagged dependent variable. In these statistical models, we use the twice-lagged value of the dependent variable as an instrument for the one-period lag. In models with a lagged dependent variable and with fixed effects, the country panel again provides strong evidence of a housing market wealth effect upon consumption. The state panel provides little evidence of an effect of housing market wealth, but the coefficient of stock market wealth is positive and statistically significant.

Tables 9 and 10 present what is probably the best statistical evidence on the issue. The tables report the regression results which are based upon first differences in the logarithms of all variables. In the country comparisons, the elasticity of housing wealth varies from 0.09 to 0.13. The coefficient of stock market wealth is again imprecisely estimated.

In the panel of U.S. states, the coefficients of housing market wealth are precisely estimated to be 0.01 to 0.02, larger than the precisely estimated coefficients of the variable measuring stock market wealth.

## V. Conclusion

We have examined the wealth effect with a cross-sectional time-series data sets that are more comprehensive than any applied to the wealth effect before and with a number of different econometric specifications. The results we got are quite variable depending on econometric specification, and so any conclusion must be very tentative. We must conclude that the evidence of a stock market wealth effect is weak; the common presumption that there is strong evidence for the wealth effect is not supported in our results. However, we do find in our best specifications, shown in Tables 9 and 10, that there is strong evidence for a wealth effect from housing.

## References

- Bhatia, K., "Real Estate Assets and Consumer Spending," *Quarterly Journal of Economics*, 102, 1987: 437-443.
- Case, Karl E., "The Real Estate Cycle and the Economy: Consequences of the Massachusetts Boom of 1984-1987," *Urban Studies*, 29(2), 1992: 171-183.
- Case, Karl E. and Christopher J. Mayer, "House Price Dynamics within a Metropolitan Area," *Regional Science and Urban Economics*, 26, 1996: 387-407.
- Case, Karl E. and Robert J. Shiller, "The Stock Market, The Housing Market and Consumer Spending," paper prepared for the AEA/AREUEA joint session, ASSA meetings, New Orleans, January 2000.
- Elliott, J. Walter, "Wealth and Wealth Proxies in a Permanent Income Model," *Quarterly Journal of Economics*, 95, 1980:509-535.
- Engelhardt, Gary V., "House Prices and Home Owner Saving Behavior," *Regional Science and Urban Economics*, 26, 1996: 313-336.
- Englund, Peter and Yannis M. Ioannides, "House Price Dynamics: An International Empirical Perspective," *Journal of Housing Economics*, 6, 1997: 119-136.
- Gale, William G. and John Sabelhaus, "Perspective on the Household Savings Rate," *Brookings Papers on Economic Activity*, January 1999: 181-214.
- Goodman, John L. and J.B. Ittner, "The Accuracy of Home Owners' Estimates of House Value," *Journal of Housing Economics*, 2, 1992: 339-357.

Greene, Richard K., "Stock Prices and House Prices in California: New Evidence of a Wealth Effect?" November 1999. Processed.

Greene, Richard K., "Does the New Economy Drive the Santa Clara Economy?" Paper Presented at the Conference on Housing and the New Economy, Washington, D.C., May 31, 2001.

Greenspan, Alan, "Speech to Mortgage Bankers' Association," Washington, D.C., March 8, 1999.

Hoynes, Hilary W. and Daniel L. McFadden, "The Impact of Demographics on Housing and Nonhousing Wealth in the United States," in Michael D. Hurd and Yashiro Naohiro, eds., *The Economic Effects of Aging in the United States and Japan*, Chicago: University of Chicago Press for NBER, 1997: 153-194.

Kain, John F. and John M. Quigley, "Note on Owners' Estimates of Housing Values," *Journal of American Statistical Association*, 67 (340), 1972: 803-806.

Kennedy, Neale, and Polle Anderson, "Household Saving and Real housing Prices: An International Perspective," BIS Working Paper 20, Bank for International Settlements, January 1994.

Levin, Laurence, "Are Assets Fungible? Testing the Behavioral Theory of Life-Cycle Savings," *Journal of Economic Organization and Behavior*, 36, 1998: 59-83.

Muelbauer, John and Anthony Murphy, "Booms and Busts in the UK Housing Market," *The Economic Journal*, 107, 1997: 1701-1727.

Peek, Joe, "Capital Gains and Personal Saving Behavior," *Journal of Money, Credit, and Banking*, 15, 1983:1-23.

Poterba, James M., "House Price Dynamics: The Role of Tax Policy and Demography," *Brookings Papers on Economic Activity*, 2, 1991: 143-203.

Poterba, James M. and Andrew A. Samwick, "Stock Ownership Patterns, Stock Market Fluctuations, and Consumption," *Brookings Papers on Economic Activity*, 2, 1995: 295-372.

Quigley, John M. "Housing Market Gains and Consumer Spending," paper prepared for the RSAI North American Meetings, Chicago, November 2000.

Shefrin, Hersh and Richard Thaler, "The Behavioral Life-Cycle Hypothesis," *Economic Inquiry*, 26, 1988: 609-643.

Sheiner, Louise, "Housing Prices and the Savings of Renters," *Journal of Urban Economics*, 38(1), 1995:94-125.

Shiller, Robert J., *Irrational Exuberance*, Princeton University Press, Princeton, NJ, 2000

Skinner, Jonathan, "Housing Wealth and Aggregate Saving," *Regional Science and Urban Economics*, 19, 1999: 305-324.

Skinner, Jonathan, "Housing and Saving in the United States," in Yoshiro Noguchi and James M. Poterba, eds., *Housing Markets in the United States and Japan*, Chicago, IL: University of Chicago Press for NBER, 1994: 191-214.

Taltavull de La Paz, Paloma, "Housing and Consumption in Spain," Paper Presented at the AREUEA International Conference, Cancun, Mexico, May 6-9, 2001.

Taltavull de La Paz, Paloma, "Housing or Stock Investment?" Paper Presented at the ARES Annual Conference, Cour D'Aleve, April 18-21, 2001.

Thaler, Richard H., "Anomalies: Saving, Fungibility and Mental Accounts," *Journal of Economic Perspectives*, 4, 1990: 193-206.

Zandi, Mark M., *Regional Financial Associates*, 1997.

Figure 1  
 Nominal US Stock Market and Owner-Occupied Housing Wealth  
 (Billions of US \$)

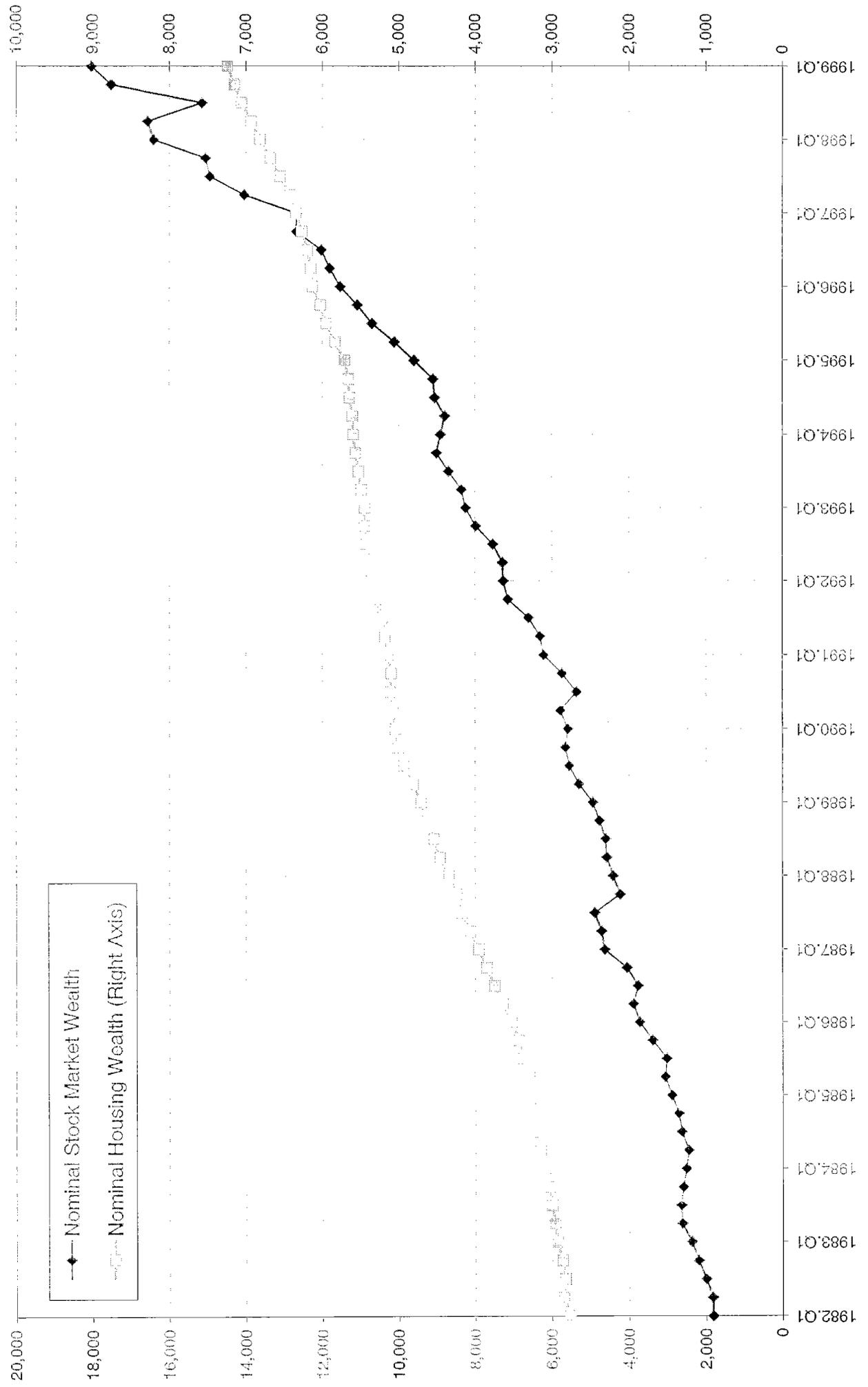


Figure 2:  
Evolution of Nominal Stock Market Wealth  
(1994 = 100)



Figure 6  
Evolution of Nominal Owner-Occupied Housing Wealth  
(1990 = 100)

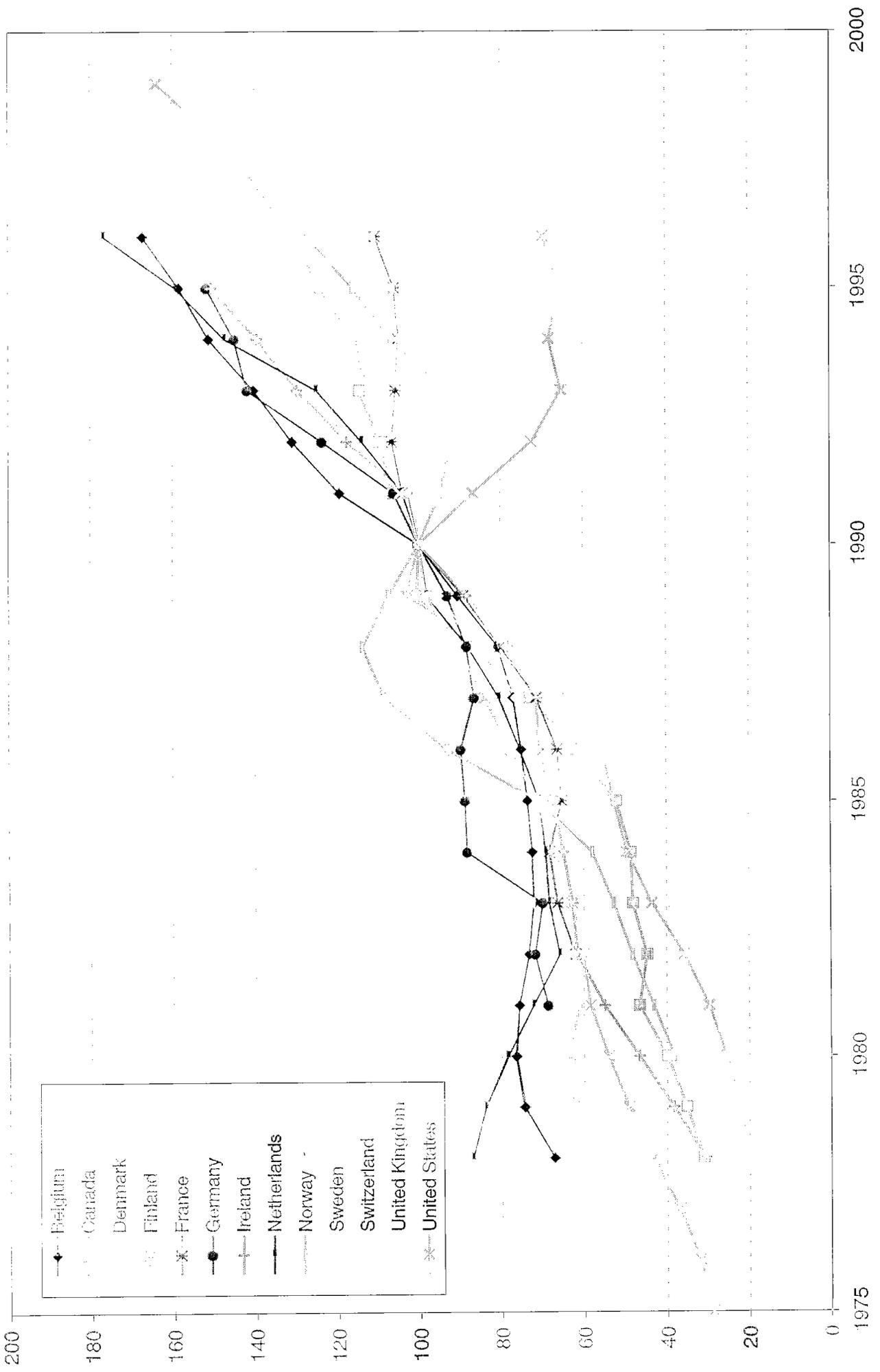


Table 10  
 Ordinary Least Squares  
 Consumption Models Based Upon Country Data: Annual Observations  
 1975-1999

All variables are nominal and measured per capita in logarithms  
 (t ratios in parentheses)

Dependent variable: Consumption per capita	Model					
	I*	II	III*	IV	V*	VI
Income	0.954	1.012	1.010	0.904	0.959	0.974
SE	(154.31)	(30.09)	(128.71)	(24.85)	(135.12)	(17.44)
Stock Market Wealth	0.028	-0.037	0.017	-0.012	0.021	-0.048
SE	(4.26)	(-4.07)	(2.29)	(-1.52)	(2.43)	(-4.03)
Housing Market Wealth	-0.043	0.078	-0.021	0.038	-0.064	0.086
SE	(-2.64)	(3.71)	(-1.02)	(2.53)	(-2.80)	(3.74)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9959	0.9993	0.9989	0.9997	0.9961	0.9994
t-Ratio	-3.742	5.505	-1.855	3.104	-3.790	5.903
DF	189	178	177	165	168	156
p-value for H <sub>0</sub>	0.000	0.000	0.065	0.002	0.000	0.000
p-value for H <sub>1</sub>	0.000	1.000	0.033	0.999	0.000	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.  
 H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.  
 \* Regression also includes a constant term.

Table 20

## Ordinary Least Squares

## Consumption Models Based Upon Nominal State Data: Quarterly Observations 1982-1999

All variables are nominal and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model						
	I*	II	III*	IV	V*	VI	VII*
Income	0.722	0.703	0.510	0.740	0.073	0.585	0.786
SE	0.022	0.013	0.019	0.019	0.023	0.024	0.016
	(33.39)	(54.38)	(26.39)	(58.20)	(3.14)	(24.58)	(48.57)
Stock Market Wealth	0.033	0.075	0.005	0.027	0.042	0.069	0.041
SE	0.007	0.004	0.005	0.005	0.006	0.006	0.005
	(4.81)	(16.82)	(0.95)	(5.88)	(7.32)	(11.99)	(8.27)
Housing Market Wealth	-0.004	0.064	0.101	0.037	0.165	0.076	0.040
SE	0.010	0.007	0.007	0.006	0.009	0.007	0.007
	(-0.44)	(9.45)	(13.71)	(6.25)	(18.92)	(11.10)	(5.72)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.7765	0.9735	0.9588	0.9857	0.8563	0.9759	0.9964
t-Ratio	-3.504	-1.470	12.020	1.324	13.243	0.868	-0.128
DF	3495	3445	3444	3394	3475	3425	2600
p-value for H <sub>0</sub>	0.000	0.142	0.000	0.186	0.000	0.385	0.898
p-value for H <sub>1</sub>	0.000	0.071	1.000	0.907	1.000	0.807	0.449

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 30

Generalized Least Squares Consumption Models with Serially  
Correlated Errors Based Upon Country Data

All variables are nominal and measured per capita in logarithms  
(t values in parentheses)

	I*	II	III*	IV	V*	VI
Dependent variable: Consumption per capita						
Income	0.973	0.945	0.998	0.846	0.973	0.772
SE	0.012 (81.73)	0.030 (51.40)	0.012 (85.26)	0.042 (20.15)	0.012 (80.43)	0.059 (13.07)
Stock Market Wealth	-0.003	-0.008	-0.003	-0.008	-0.011	-0.013
SE	0.006 (-0.53)	0.007 (-1.18)	0.006 (-0.40)	0.007 (-1.22)	0.008 (-1.34)	0.009 (-1.47)
Housing Market Wealth	0.019	0.064	0.000	0.045	0.015	0.091
SE	0.017 (1.13)	0.023 (2.84)	0.021 (-0.02)	0.019 (2.44)	0.021 (0.73)	0.023 (3.89)
Serial Correlation Coefficient	0.970	0.788	0.839	0.545	0.970	0.812
SE	0.018 (54.57)	0.046 (17.00)	0.041 (20.43)	0.066 (8.28)	0.019 (51.84)	0.047 (17.34)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9997	0.9998	0.9998	0.9998	0.9998	0.9998
t-Ratio	1.133	3.154	0.097	2.749	1.221	4.509
DF	189	177	176	164	167	155
p-value for H <sub>0</sub>	0.259	0.002	0.923	0.007	0.224	0.000
p-value for H <sub>1</sub>	0.871	0.999	0.539	0.997	0.888	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 46

Generalized Least Squares: Consumption Models with Serially  
Correlated Errors Based Upon Nominal State Data

All variables are nominal and measured per capita in logarithms  
(t ratios in parentheses)

	Model						
	I*	II	III*	IV	V*	VI	VII*
Dependent variable: Consumption per capita							
Income	0.727	0.758	0.420	0.465	0.250	0.389	0.778
SE	0.014 (50.47)	0.013 (60.64)	0.020 (20.88)	0.023 (20.58)	0.020 (12.84)	0.024 (16.35)	0.016 (47.56)
Stock Market Wealth	0.066	0.064	0.013	0.017	0.032	0.033	0.043
SE	0.005 (13.32)	0.004 (14.40)	0.005 (2.70)	0.005 (3.58)	0.005 (6.45)	0.005 (6.18)	0.005 (8.65)
Housing Market Wealth	0.030	0.035	0.033	0.031	0.034	0.030	0.039
SE	0.007 (4.38)	0.006 (5.54)	0.006 (5.27)	0.006 (5.03)	0.006 (5.76)	0.006 (5.02)	0.007 (5.65)
Serial Correlation Coefficient	0.981	0.875	0.910	0.781	0.974	0.862	0.049
SE	0.003 (301.29)	0.008 (106.28)	0.007 (128.59)	0.011 (72.88)	0.004 (253.17)	0.009 (99.52)	0.017 (2.95)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.9914	0.9942	0.9945	0.9949	0.9938	0.9952	...
t-Ratio	-4.092	-3.584	2.489	1.755	0.357	-0.401	-0.519
DF	3494	3444	3443	3393	3474	3424	2600
p-value for H <sub>0</sub>	0.000	0.000	0.013	0.079	0.721	0.688	0.604
p-value for H <sub>1</sub>	0.000	0.000	0.994	0.960	0.640	0.344	0.302

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Models I through V are Yule-Walker estimates; Model VI is a Cochrane-Orcutt estimate.

Table 50

Ordinary Least Squares  
Consumption Models with Lagged Dependent Variable Based Upon Country Data

All variables are nominal and measured per capita in logarithmic  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model					
	I*	II	III*	IV	V*	VI
Income	0.170	0.300	0.311	0.444	0.136	0.304
SE	0.020 (8.65)	0.042 (7.12)	0.050 (10.57)	0.048 (9.29)	0.020 (6.82)	0.051 (6.02)
Stock Market Wealth	-0.005	-0.014	0.002	-0.003	0.001	-0.015
SE	0.002 (-2.25)	0.005 (-2.54)	0.004 (0.63)	0.006 (-0.49)	0.003 (0.51)	0.007 (-2.05)
Housing Market Wealth	-0.023	0.030	-0.005	0.027	0.002	0.030
SE	0.005 (-4.27)	0.012 (2.47)	0.010 (-0.49)	0.011 (2.44)	0.007 (0.32)	0.014 (2.17)
Lagged Dependent Variable	0.823	0.658	0.689	0.496	0.854	0.661
SE	0.021 (40.12)	0.035 (19.01)	0.029 (23.61)	0.041 (11.83)	0.021 (41.43)	0.038 (17.36)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9996	0.9998	0.9998	0.9999	0.9997	0.9998
Durbin t	8.395	5.079	4.952	5.518	6.097	5.063
p-value	0.000	0.000	0.000	0.001	0.000	0.000
t-Ratio	-2.813	3.536	-0.716	2.513	0.153	3.154
DF	188	176	175	163	167	155
p-value for H <sub>0</sub>	0.005	0.001	0.475	0.013	0.894	0.002
p-value for H <sub>1</sub>	0.005	1.000	0.237	0.994	0.553	0.999

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 6c

Ordinary Least Squares  
Consumption Models with Lagged Dependent Variable Based Upon Nominal State Data  
All variables are nominal and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model						
	I*	II	III*	IV	V*	VI	VII*
Income	-0.002	0.060	0.022	0.121	-0.004	0.032	0.497
SE	0.004	0.008	0.008	0.014	0.004	0.012	0.022
	(-0.60)	(1.55)	(2.76)	(8.79)	(-0.95)	(2.72)	(23.12)
Stock Market Wealth	0.004	0.015	0.007	0.008	0.003	0.013	0.032
SE	0.001	0.002	0.002	0.003	0.001	0.003	0.005
	(3.31)	(7.41)	(3.88)	(3.07)	(3.21)	(4.90)	(6.85)
Housing Market Wealth	-0.001	-0.009	0.001	-0.008	-0.001	-0.007	0.054
SE	0.002	0.003	0.003	0.004	0.002	0.003	0.010
	(-0.66)	(-2.72)	(0.48)	(-2.19)	(-0.44)	(-2.17)	(5.44)
Lagged Dependent Variable	0.985	0.898	0.931	0.794	0.986	0.905	0.346
SE	0.003	0.008	0.006	0.010	0.003	0.008	0.018
	(368.95)	(117.60)	(147.86)	(79.51)	(305.29)	(115.80)	(19.26)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.9943	0.9947	0.9945	0.9951	0.9948	0.9951	0.9969
Durbin t	-12.508	-11.351	-11.300	-9.487	-13.266	-12.898	---
p-value	0.000	0.000	0.000	0.000	0.000	0.000	---
t-Ratio	-2.724	-6.994	-1.724	-3.614	-2.353	-5.044	2.185
DF	3443	3393	3392	3342	3423	3373	2548
p-value for H <sub>0</sub>	0.006	0.000	0.085	0.000	0.020	0.000	0.029
p-value for H <sub>1</sub>	0.003	0.000	0.042	0.000	0.010	0.000	0.985

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.  
H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 76

Two-Stage Least Squares: Consumption Models Based Upon Country Data Instrumenting  
for the Lagged Dependent Variable with the Twice Lagged Dependent Variable

All variables are nominal and measured per capita in logarithms  
(t-ratios in parentheses)

Dependent variable: Consumption per capita	<u>Model</u>					
	I*	II	III*	IV	V*	VI
Income	0.205	0.338	0.357	0.475	0.163	0.348
SE	0.021 (9.94)	0.046 (7.30)	0.033 (10.72)	0.057 (8.40)	0.021 (7.84)	0.054 (6.43)
Stock Market Wealth	-0.004	-0.014	0.005	-0.004	0.002	-0.017
SE	0.002 (-1.56)	0.006 (-2.55)	0.004 (0.75)	0.006 (-0.62)	0.003 (0.75)	0.007 (-2.33)
Housing Market Wealth	-0.023	0.033	-0.006	0.028	0.000	0.034
SE	0.005 (-4.32)	0.012 (2.69)	0.010 (-0.62)	0.011 (2.49)	0.007 (0.01)	0.014 (2.42)
Lagged Dependent Variable	0.786	0.621	0.645	0.459	0.826	0.618
SE	0.022 (36.46)	0.038 (16.14)	0.032 (19.91)	0.052 (8.89)	0.021 (38.46)	0.043 (14.51)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9996	0.9998	0.9998	0.9999	0.9997	0.9998
Durbin-Watson	0.902	1.248	1.257	1.481	1.109	1.213
t-Ratio	-3.084	3.746	-0.891	2.602	-0.263	3.501
DF	187	175	174	162	167	155
p-value for H <sub>0</sub>	0.002	0.000	0.374	0.010	0.793	0.001
p-value for H <sub>1</sub>	0.001	1.000	0.187	0.995	0.396	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 83

Two-Stage Least Squares: Consumption Models Based Upon Nominal State Data Inflation-Adjusting  
for the Lagged Dependent Variable with the Twice Lagged Dependent Variable

All variables are nominal and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model						
	I*	II	III*	IV	V*	VI	VII*
Income	-0.007	0.027	0.006	0.068	-0.005	0.001	0.287
SE	0.004	0.009	0.008	0.015	0.005	0.012	0.042
	(-1.65)	(3.11)	(0.76)	(4.51)	(-1.07)	(0.05)	(6.84)
Stock Market Wealth	0.004	0.013	0.008	0.008	0.003	0.010	0.025
SE	0.001	0.002	0.002	0.003	0.001	0.003	0.005
	(3.34)	(5.96)	(4.29)	(2.77)	(2.98)	(3.57)	(4.70)
Housing Market Wealth	-0.001	-0.014	-0.003	-0.014	-0.002	-0.014	0.048
SE	0.002	0.003	0.003	0.004	0.002	0.004	0.012
	(-0.82)	(-4.16)	(-0.98)	(-3.58)	(-1.36)	(-3.85)	(4.16)
Lagged Dependent Variable	0.991	0.946	0.963	0.866	0.995	0.958	0.615
SE	0.003	0.009	0.007	0.013	0.003	0.009	0.051
	(362.12)	(108.12)	(136.77)	(67.19)	(298.85)	(106.39)	(12.17)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.9941	0.9944	0.9942	0.9948	0.9945	0.9948	0.9965
Durbin-Watson	2.437	2.456	2.434	2.433	2.448	2.488	2.580
t-Ratio	-2.887	-7.485	-3.297	-4.555	-5.082	-5.626	-2.050
DF	3392	3342	3341	3291	3372	3322	2497
p-value for H <sub>0</sub>	0.004	0.000	0.001	0.000	0.002	0.000	0.040
p-value for H <sub>1</sub>	0.002	0.000	0.000	0.000	0.001	0.000	0.980

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 1

Ordinary Least Squares  
Consumption Models Based Upon Country Data: Annual Observations  
1975-1999

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model					
	I*	II	III*	IV	V*	VI
Income	0.964	0.813	1.012	0.641	0.968	0.719
SE	0.014 (69.91)	0.059 (13.85)	0.012 (87.14)	0.070 (9.16)	0.016 (61.69)	0.088 (8.20)
Stock Market Wealth	0.018	-0.011	0.008	-0.008	0.012	-0.022
SE	0.014 (1.22)	0.009 (-1.31)	0.011 (0.72)	0.007 (-1.01)	0.018 (0.65)	0.011 (-2.02)
Housing Market Wealth	-0.165	0.108	-0.076	0.092	-0.175	0.114
SE	0.043 (-3.83)	0.020 (5.46)	0.029 (-2.57)	0.015 (5.95)	0.048 (-3.65)	0.022 (5.23)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9792	0.9993	0.9973	0.9998	0.9794	0.9994
t-Ratio	-4.118	6.183	-2.758	6.234	-3.940	6.159
DF	189	177	176	164	168	156
p-value for H <sub>0</sub>	0.000	0.000	0.006	0.000	0.000	0.000
p-value for H <sub>1</sub>	0.000	1.000	0.003	1.000	0.000	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 2

Ordinary Least Squares  
Consumption Models Based Upon State Data: Quarterly Observations 1982-1999

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model						
	I*	II	III*	IV	V*	VI	VII*
Income	0.091	0.542	0.486	0.782	0.073	0.583	0.558
SE	0.024 (3.84)	0.019 (28.21)	0.020 (23.71)	0.023 (34.46)	0.023 (3.10)	0.024 (24.49)	0.024 (23.06)
Stock Market Wealth	0.076	0.041	0.011	0.035	0.042	0.069	0.019
SE	0.005 (15.43)	0.003 (11.69)	0.005 (2.15)	0.005 (7.67)	0.006 (7.35)	0.006 (12.05)	0.004 (4.95)
Housing Market Wealth	0.144	0.084	0.109	0.039	0.165	0.077	0.040
SE	0.009 (16.31)	0.007 (12.18)	0.008 (14.47)	0.006 (6.14)	0.009 (18.95)	0.007 (11.15)	0.007 (5.90)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.4615	0.9062	0.8550	0.9492	0.4996	0.9160	0.9883
t-Ratio	7.869	6.513	12.223	0.397	13.254	0.890	2.955
Df	3495	3445	3444	3394	3475	3425	2600
p-value for H <sub>0</sub>	0.000	0.000	0.000	0.691	0.000	0.373	0.003
p-value for H <sub>1</sub>	1.000	1.000	1.000	0.654	1.000	0.813	0.998

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 3  
Generalized Least Squares Consumption Models with Serially  
Correlated Errors Based Upon Country Data

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	I*	II	III*	IV	V*	VI
Income	0.954	0.733	0.991	0.573	0.966	0.697
SE	0.016 (58.19)	0.051 (14.32)	0.015 (64.37)	0.072 (7.96)	0.017 (57.49)	0.079 (8.79)
Stock Market Wealth	-0.011	0.001	-0.004	-0.003	-0.008	-0.009
SE	0.007 (-1.55)	0.006 (0.14)	0.008 (-0.46)	0.006 (-0.48)	0.011 (-0.76)	0.009 (-1.01)
Housing Market Wealth	0.019	0.092	0.006	0.096	0.027	0.086
SE	0.026 (0.74)	0.021 (4.28)	0.027 (0.23)	0.019 (5.11)	0.029 (0.93)	0.023 (3.74)
Serial Correlation Coefficient	0.993	0.804	0.848	0.547	0.992	0.813
SE	0.008 (117.45)	0.045 (17.96)	0.040 (21.16)	0.066 (8.34)	0.010 (98.61)	0.047 (17.36)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9995	0.9998	0.9996	0.9998	0.9996	0.9998
t-Ratio	1.088	4.214	0.353	5.082	1.201	4.158
DF	188	176	175	163	167	155
p-value for H <sub>0</sub>	0.278	0.000	0.725	0.000	0.232	0.000
p-value for H <sub>1</sub>	0.861	1.000	0.638	1.000	0.824	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 4

Generalized Least Squares Consumption Models with Serially  
Correlated Errors Based Upon State Data

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

	I*	II	III*	Model IV	V*	VI	VII*
Dependent variable: Consumption per capita							
Income	0.410	0.543	0.410	0.465	0.247	0.380	0.552
SE	0.019 (22.18)	0.018 (30.15)	0.020 (20.11)	0.023 (20.03)	0.019 (12.75)	0.023 (16.23)	0.024 (22.76)
Stock Market Wealth	0.065	0.054	0.016	0.024	0.033	0.034	0.020
SE	0.004 (16.82)	0.004 (15.13)	0.005 (3.49)	0.005 (4.80)	0.005 (6.67)	0.005 (6.55)	0.004 (5.20)
Housing Market Wealth	0.030	0.032	0.036	0.036	0.036	0.031	0.039
SE	0.006 (4.73)	0.006 (5.10)	0.006 (5.74)	0.006 (5.78)	0.006 (6.06)	0.006 (5.36)	0.007 (5.85)
Serial Correlation Coefficient	0.974	0.882	0.910	0.783	0.974	0.863	0.042
SE	0.004 (255.16)	0.008 (109.77)	0.007 (129.16)	0.011 (75.33)	0.004 (255.06)	0.009 (99.89)	0.017 (2.52)
State Fixed Effects:	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.9746	0.9811	0.9810	0.9823	0.9784	0.9833	--
t-Ratio	-4.602	-3.081	2.390	0.398	0.456	-0.378	2.684
DF	3494	3444	3443	3594	3474	3424	2600
p-value for H <sub>0</sub>	0.000	0.002	0.017	0.691	0.649	0.705	0.007
p-value for H <sub>1</sub>	0.000	0.001	0.992	0.655	0.676	0.353	0.996

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Models I through V are Yule-Walker estimates; Model VI is Cochrane-Orcutt estimates.

Table 5

Ordinary Least Squares  
Consumption Models with Lagged Dependent Variable Based Upon Country Data

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model					
	I*	II	III*	IV	V*	VI
Income	0.028	0.361	0.141	0.531	0.027	0.446
SE	0.012 (2.56)	0.055 (6.54)	0.031 (4.49)	0.066 (8.01)	0.011 (2.38)	0.062 (7.20)
Stock Market Wealth	0.002	-0.001	0.014	0.006	0.001	-0.006
SE	0.002 (1.01)	0.006 (-0.23)	0.005 (2.84)	0.007 (0.88)	0.003 (0.25)	0.007 (-0.85)
Housing Market Wealth	-0.002	0.026	-0.017	0.039	-0.003	-0.002
SE	0.007 (-0.25)	0.016 (1.62)	0.013 (-1.31)	0.017 (2.33)	0.007 (-0.40)	0.017 (-0.14)
Lagged Dependent Variable	0.968	0.582	0.857	0.535	0.970	0.669
SE	0.012 (81.32)	0.045 (12.87)	0.030 (28.18)	0.056 (6.03)	0.011 (85.10)	0.048 (13.84)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9994	0.9996	0.9995	0.9993	0.9995	0.9997
Durbin t	4.491	6.623	4.605	6.709	3.566	5.206
p-value	0.000	0.000	0.000	0.000	0.000	0.000
F-Ratio	-0.559	1.731	-2.323	1.355	-0.489	0.228
DF	187	175	174	162	167	155
p-value for H <sub>0</sub>	0.577	0.085	0.021	0.081	0.625	0.820
p-value for H <sub>1</sub>	0.288	0.957	0.011	0.959	0.313	0.590

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 6

Ordinary Least Squares  
Consumption Models with Lagged Dependent Variable Based Upon State Data

All variables are real and measured per capita in logarithms  
(t-ratios in parentheses)

Dependent variable: Consumption per capita	Model						
	I*	II	III*	IV	V*	VI	VII*
Income	-0.007	0.019	0.016	0.128	-0.004	0.032	0.385
SE	0.005	0.010	0.002	0.016	0.004	0.012	0.025
	(-1.55)	(1.96)	(1.91)	(8.11)	(-0.99)	(2.76)	(15.17)
Stock Market Wealth	0.004	0.012	0.009	0.016	0.004	0.013	0.024
SE	0.001	0.002	0.002	0.003	0.001	0.003	0.004
	(3.71)	(7.31)	(4.98)	(5.89)	(3.32)	(5.20)	(6.16)
Housing Market Wealth	0.001	-0.003	0.002	-0.007	-0.001	-0.007	0.059
SE	0.002	0.003	0.003	0.004	0.002	0.003	0.010
	(0.63)	(-0.93)	(0.76)	(-1.81)	(-0.46)	(-2.21)	(6.03)
Lagged Dependent Variable	0.982	0.899	0.934	0.802	0.986	0.905	0.328
SE	0.005	0.008	0.006	0.010	0.003	0.008	0.019
	(303.65)	(118.02)	(148.25)	(80.53)	(308.75)	(117.36)	(17.55)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.9804	0.9817	0.9811	0.9830	0.9824	0.9836	0.9897
Durbin t	-9.827	-9.341	-8.993	-6.781	-12.783	-12.477	--
p-value	0.000	0.000	0.000	0.000	0.000	0.000	--
t-Ratio	-1.505	-4.574	-2.113	-4.891	-2.417	-5.275	3.823
DF	3443	3393	3392	3342	3423	3373	2548
p-value for H <sub>0</sub>	0.132	0.000	0.035	0.000	0.016	0.000	0.000
p-value for H <sub>1</sub>	0.066	0.000	0.017	0.000	0.008	0.000	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.  
H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 7

Two-Stage Least Squares: Consumption Models Based Upon Country Data Instrumenting  
for the Lagged Dependent Variable with the Twice Lagged Dependent Variable

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

	Model					
	I*	II	III*	IV	V*	VI
Dependent variable: Consumption per capita						
Income	0.036	0.454	0.196	0.629	0.033	0.483
SE	0.012 (3.02)	0.062 (7.38)	0.055 (5.69)	0.076 (8.29)	0.011 (2.92)	0.064 (7.51)
Stock Market Wealth	0.003	-0.004	0.012	-0.007	0.001	-0.008
SE	0.002 (1.08)	0.006 (-0.55)	0.005 (2.58)	0.008 (-0.79)	0.003 (0.27)	0.008 (-1.12)
Housing Market Wealth	-0.003	0.042	-0.022	0.084	-0.004	0.013
SE	0.008 (-0.44)	0.017 (2.53)	0.013 (-1.67)	0.022 (3.89)	0.008 (-0.55)	0.018 (0.74)
Lagged Dependent Variable	0.959	0.462	0.803	0.832	0.963	0.578
SE	0.012 (79.06)	0.056 (8.19)	0.033 (23.98)	0.098 (0.55)	0.012 (83.41)	0.060 (9.59)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.9994	0.9996	0.9995	0.9998	0.9995	0.9997
Durbin-Watson	1.356	0.998	1.314	1.014	1.446	1.169
t-Ratio	-0.766	2.735	-2.587	3.613	-0.659	1.147
DF	186	174	173	161	167	155
p-value for H <sub>0</sub>	0.444	0.007	0.010	0.000	0.511	0.253
p-value for H <sub>1</sub>	0.222	0.997	0.005	1.000	0.255	0.873

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 8

Two-Stage Least Squares: Consumption Models Based Upon State Data Instrumenting  
for the Lagged Dependent Variable with the Twice Lagged Dependent Variable

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

	I*	II	III*	IV	V*	VI	VII*
Dependent variable: Consumption per capita							
Income	-0.008	-0.002	0.004	0.085	-0.005	0.002	0.244
SE	0.005	0.010	0.009	0.017	0.004	0.012	0.036
	(-1.69)	(-0.20)	(0.45)	(4.99)	(-1.10)	(0.20)	(6.85)
Stock Market Wealth	0.003	0.011	0.010	0.015	0.003	0.010	0.023
SE	0.001	0.002	0.002	0.003	0.001	0.003	0.004
	(3.40)	(6.53)	(5.27)	(5.54)	(3.07)	(3.89)	(5.45)
Housing Market Wealth	0.000	-0.008	-0.001	-0.012	-0.002	-0.013	0.053
SE	0.002	0.003	0.003	0.004	0.002	0.003	0.011
	(-0.03)	(-2.23)	(-0.36)	(-2.75)	(-1.34)	(-3.81)	(4.59)
Lagged Dependent Variable	0.989	0.936	0.959	0.854	0.995	0.956	0.634
SE	0.003	0.009	0.007	0.015	0.003	0.009	0.038
	(295.90)	(107.14)	(136.54)	(67.18)	(302.35)	(107.94)	(10.88)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
R <sup>2</sup>	0.9798	0.9810	0.9804	0.9824	0.9819	0.9829	0.9884
Durbin-Watson	2.351	2.378	2.352	2.325	2.433	2.472	2.606
t-Ratio	-2.025	-5.556	-5.333	-5.433	-3.116	-5.796	2.723
DF	3392	3342	3341	3291	3372	3522	2497
p-value for H <sub>0</sub>	0.043	0.000	0.001	0.000	0.002	0.000	0.007
p-value for H <sub>1</sub>	0.021	0.000	0.000	0.000	0.001	0.000	0.997

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 9

## Ordinary Least Squares

## Consumption Models in Differences Based Upon Country Data

All variables are real and measured per capita in logarithms  
(t ratios in parentheses)

Dependent variable: Consumption per capita	Model					
	I*	II	III*	IV	V*	VI
Income	0.560	0.531	0.521	0.507	0.616	0.599
SE	0.072 (7.75)	0.075 (7.08)	0.076 (6.87)	0.080 (6.34)	0.082 (7.53)	0.084 (7.13)
Stock Market Wealth	-0.001	-0.002	-0.002	-0.005	-0.008	-0.011
SE	0.006 (-0.13)	0.006 (-0.37)	0.006 (-0.34)	0.007 (-0.43)	0.008 (-1.01)	0.008 (-1.28)
Housing Market Wealth	0.101	0.106	0.113	0.127	0.085	0.086
SE	0.022 (4.59)	0.023 (4.59)	0.023 (4.86)	0.026 (4.87)	0.023 (3.67)	0.024 (3.53)
Country Fixed Effects	No	Yes	No	Yes	No	Yes
Time Trend * Country Fixed Effects	No	No	Yes	Yes	No	No
Year Fixed Effects	No	No	No	No	Yes	Yes
Regression R <sup>2</sup>	0.4798	0.5112	0.5158	0.5400	0.5799	0.6980
Durbin-Watson	1.630	1.747	1.765	1.834	1.641	1.771
t-Ratio	4.485	4.491	4.743	4.760	4.034	3.931
DF	115	163	162	150	155	143
p-value for H <sub>0</sub>	0.000	0.000	0.000	0.000	0.000	0.000
p-value for H <sub>1</sub>	1.000	1.000	1.000	1.000	1.000	1.000

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

Table 10

## Ordinary Least Squares

## Consumption Models in Differences Based Upon State Data

All variables are real and measured per capita in logarithms  
(t-ratios in parentheses)

Dependent variable: Consumption per capita	Model						
	I*	II	III*	IV	V*	VI	VII*
Income	0.523	0.517	0.522	0.508	0.267	0.260	0.522
SE	0.025 (13.83)	0.024 (13.47)	0.024 (13.68)	0.024 (13.00)	0.024 (11.23)	0.024 (10.84)	0.028 (11.57)
Stock Market Wealth	0.011	0.010	0.010	0.010	0.008	0.008	0.007
SE	0.005 (2.18)	0.005 (2.12)	0.005 (2.11)	0.005 (2.09)	0.005 (1.62)	0.005 (1.56)	0.006 (1.28)
Housing Market Wealth	0.021	0.020	0.021	0.018	0.016	0.015	0.014
SE	0.006 (3.29)	0.006 (3.14)	0.006 (3.20)	0.007 (2.76)	0.006 (2.61)	0.006 (2.44)	0.008 (1.76)
State Fixed Effects	No	Yes	No	Yes	No	Yes	No
Time Trend * State Fixed Effects	No	No	Yes	Yes	No	No	No
Year & Quarter Fixed Effects	No	No	No	No	Yes	Yes	No
State * Year Fixed Effects	No	No	No	No	No	No	Yes
Regression R <sup>2</sup>	0.0599	0.0666	0.0645	0.0759	0.1410	0.1480	0.2416
Durbin-Watson	2.556	2.571	2.368	2.393	2.435	2.453	2.701
t-Ratio	1.275	1.195	1.242	0.933	1.019	0.931	0.671
DF	3444	3394	3393	3343	3424	3374	2549
p-value for H <sub>0</sub>	0.203	0.232	0.214	0.351	0.308	0.552	0.503
p-value for H <sub>1</sub>	0.899	0.884	0.893	0.824	0.846	0.824	0.749

Note: H<sub>0</sub> is a test of the hypothesis that the coefficient on housing market wealth is equal to that of stock market wealth.

H<sub>1</sub> is a test of the hypothesis that the coefficient on housing market wealth exceeds that of stock market wealth.

\* Regression also includes a constant term.

### Correlations Among Consumption, Stock Market and Housing Market Variab

State/Country	Correlation Between Log Real Consumption Per Capita and		Correlation Between Change in Log Real Consumption Per Capita and	
	Log Real Stock Wealth Per Capita	Log Real Housing Values Per Capita	Change in Log Real Stock Wealth Per Capita	Change Log Real Housing Values Per Capita
	Alabama	0.9054	0.7794	0.1159
Alaska	-0.4436	0.5558	-0.0720	0.0729
Arizona	0.7439	0.3202	0.0943	-0.0959
Arkansas	0.9554	-0.1973	0.0764	0.0866
California	-0.1856	0.2839	0.0315	0.3536
Colorado	0.9200	0.4886	-0.3787	0.2870
Connecticut	0.5961	0.7310	0.0170	0.3190
Delaware	0.9013	0.7461	0.1280	0.0693
District of Columbia	0.7158	0.2932	0.0056	-0.0976
Florida	0.8485	-0.4165	-0.1177	0.4219
Georgia	0.8754	0.7747	-0.0565	0.2802
Hawaii	0.9695	0.6936	0.1015	-0.1172
Idaho	0.9251	0.6581	0.0948	0.1890
Illinois	0.8341	0.8519	-0.0555	0.2245
Indiana	0.9444	0.5250	-0.0160	0.0540
Iowa	0.9629	0.6220	-0.0037	0.1058
Kansas	0.9155	-0.5046	0.0097	0.1818
Kentucky	0.9048	0.8351	0.1258	-0.1159
Louisiana	0.7449	-0.3430	-0.0571	0.1350
Maine	0.7372	0.8307	0.0345	0.0303
Maryland	0.6501	0.2847	0.0464	-0.0552
Massachusetts	0.1254	0.8691	-0.0501	0.3725
Michigan	0.9236	0.8350	-0.0633	-0.0352
Minnesota	0.9262	0.6053	-0.0112	0.2046
Mississippi	0.9346	0.1881	-0.1926	-0.0265
Missouri	0.9445	0.6024	0.0326	0.1169
Montana	0.6894	0.8758	0.2220	0.2451
Nebraska	0.9396	0.1380	0.0159	-0.1193
Nevada	0.7027	0.1906	-0.0361	0.5830
New Hampshire	0.5213	0.7275	0.1239	0.3976
New Jersey	0.6330	0.7678	0.1433	0.2126
New Mexico	0.9309	0.3167	0.0204	-0.1242
New York	0.7158	0.7596	-0.0429	0.2419
North Carolina	0.9054	0.9261	-0.0349	0.3469
North Dakota	0.8515	-0.2304	0.0640	0.0696
Ohio	0.9240	0.9139	-0.0180	0.1780
Oklahoma	0.0368	0.0101	-0.0473	0.2011
Oregon	0.9538	0.8110	-0.0125	0.0076
Pennsylvania	0.9450	0.8693	0.0280	0.1901
Rhode Island	-0.2279	0.5353	-0.0665	0.2223
South Carolina	0.9422	0.9071	0.0464	0.0454
South Dakota	0.9396	0.4337	0.0370	-0.2579
Tennessee	0.9460	0.7602	-0.0024	0.0863
Texas	0.1838	-0.0837	0.0339	0.1922
Utah	0.9545	0.4901	0.0384	0.2706
Vermont	0.5110	0.6771	0.1420	0.3611
Virginia	0.7701	0.8031	0.0336	0.2021
Washington	0.9671	0.8964	-0.0289	0.0750
West Virginia	0.9497	0.4458	-0.0976	0.1497
Wisconsin	0.9751	0.9301	-0.1386	0.0217
Wyoming	0.3060	0.2109	0.1182	0.2454

State/Country	<u>Correlation Between Log Real Consumption Per Capita and</u>		<u>Correlation Between Change in Log Real Consumption Per Capita and</u>	
	Log Real Stock Wealth Per Capita	Log Real Housing Values Per Capita	Change in Log Real Stock Wealth Per Capita	Change Log Real Housing Values Per Capita
Belgium	0.4506	0.7457	-0.2962	0.3739
Canada	0.4447	0.8520	0.3971	0.6896
Denmark	0.7808	0.2665	-0.1519	0.6419
Finland	0.9171	0.7837	0.3813	0.7306
France	0.9095	0.6354	0.0948	0.2343
Germany	0.3276	0.5433	-0.0890	-0.4198
Ireland	0.8835	0.9053	0.3528	0.3324
Netherlands	<b>0.8687</b>	0.7200	-0.0195	0.5538
Norway	<b>0.9126</b>	0.6100	0.1511	<b>0.5517</b>
Sweden	<b>0.8914</b>	-0.0710	0.3118	<b>0.4360</b>
Switzerland	<b>-0.8189</b>	0.7399	-0.7563	0.5031
United Kingdom	0.9527	0.9393	0.1703	0.7107
United States	0.9154	0.8250	<b>0.0430</b>	0.6438

**Correlations Among Consumption, Stock Market and Housing Market Variational**

State/Country	<u>Correlation Between Log Nominal Consumption Per Capita and Log Nominal</u>		<u>Correlation Between Change in Log Nominal Consumption Per Capita and</u>	
	Log Nominal Stock Wealth Per Capita	Housing Values Per Capita	Change in Log Nominal Stock Wealth Per Capita	Change Log Nominal Housing Values Per Capita
Alabama	0.9876	0.9767	0.0898	0.1468
Alaska	0.9280	0.5752	-0.0841	0.0602
Arizona	0.9674	0.9454	0.0414	-0.1758
Arkansas	0.9830	0.9843	0.0347	0.0511
California	0.9487	0.9195	-0.0117	0.3503
Colorado	0.9860	0.8801	-0.0850	0.2660
Connecticut	0.9561	0.8603	-0.0130	0.2726
Delaware	0.9641	0.9479	0.0915	0.0607
District of Columbia	0.9530	0.9315	-0.0193	-0.1279
Florida	0.9625	0.9814	-0.1412	0.4033
Georgia	0.9804	0.9684	-0.0837	0.2437
Hawaii	0.9899	0.8946	0.0699	-0.0866
Idaho	0.9771	0.9484	0.0792	0.2224
Illinois	0.9793	0.9873	-0.1094	0.1491
Indiana	0.9868	0.7796	-0.0652	0.1058
Iowa	0.9870	0.9605	-0.0547	-0.0033
Kansas	0.9713	0.9589	-0.0157	0.1604
Kentucky	0.9530	0.9757	0.1048	-0.1395
Louisiana	0.9549	0.6960	-0.0825	0.1092
Maine	0.9722	0.9489	0.0060	0.0371
Maryland	0.9785	0.9390	0.0115	-0.0724
Massachusetts	0.8780	0.9385	-0.0737	0.3404
Michigan	0.9882	0.9733	-0.1255	-0.1138
Minnesota	0.9863	0.9549	-0.0451	0.1930
Mississippi	0.9848	0.9560	-0.2319	-0.0835
Missouri	0.9852	0.9863	-0.0061	0.0595
Montana	0.9531	0.9736	0.1044	0.2291
Nebraska	0.9812	0.9381	-0.0161	-0.1808
Nevada	0.9611	0.9337	-0.0943	0.5891
New Hampshire	0.9520	0.8445	0.0914	0.3630
New Jersey	0.9243	0.3951	0.1280	0.1724
New Mexico	0.9867	0.9436	0.0099	-0.1276
New York	0.9785	0.9160	-0.0858	0.1691
North Carolina	0.9835	0.9906	-0.0730	0.3014
North Dakota	0.9549	0.3491	0.0462	0.0071
Ohio	0.9815	0.9877	-0.0702	0.1036
Oklahoma	0.9562	0.3684	-0.0657	0.1691
Oregon	0.9801	0.9582	-0.0727	-0.0046
Pennsylvania	0.9760	0.9690	-0.0032	0.1575
Rhode Island	0.8920	0.9150	-0.1019	0.1775
South Carolina	0.9869	0.9880	0.0250	0.0185
South Dakota	0.9729	0.9278	0.0297	-0.3265
Tennessee	0.9891	0.9659	-0.0381	0.0370
Texas	0.9683	0.5635	0.0522	0.1241
Utah	0.9816	0.8675	0.0446	0.2662
Vermont	0.9018	0.9424	0.1257	0.3382
Virginia	0.9769	0.9711	-0.0273	0.1453
Washington	0.9860	0.9825	-0.0813	0.0485
West Virginia	0.9794	0.9435	-0.1431	0.1292
Wisconsin	0.9903	0.9881	-0.2127	0.0296
Wyoming	0.8609	0.7371	0.1118	0.2437

State/Country	<u>Correlation Between Log Nominal Consumption Per Capita and Log Nominal</u>		<u>Correlation Between Change in Log Nominal Consumption Per Capita and Change in Log</u>	
	Log Nominal Stock Wealth Per Capita	Housing Values Per Capita	Nominal Stock Wealth Per Capita	Nominal Housing Values Per Capita
	Belgium	0.9249	0.8650	-0.3051
Canada	0.9344	0.9684	0.1999	0.5440
Denmark	0.9762	0.9276	-0.0632	0.4961
Finland	0.9540	0.9366	0.0949	0.8156
France	0.9777	0.9360	0.0931	0.2250
Germany	0.8348	0.9714	-0.1468	-0.1648
Ireland	0.9401	0.9637	0.1760	-0.3681
Netherlands	0.9724	0.7967	-0.2187	-0.2872
Norway	0.9739	0.9370	0.0093	0.7009
Sweden	0.9387	0.9660	0.0084	-0.5372
Switzerland	0.9600	-0.9532	-0.0444	0.0535
United Kingdom	0.9778	0.9861	-0.2635	0.8441
United States	0.9700	0.9948	-0.1876	0.7291