Consumer Demand for Durable Goods, Nondurable Goods and Services

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ABSTRACT

Separate macroeconomic consumption demand functions are developed and tested for (1) durable goods, (2) nondurable goods and (3) services. These are compared for consistency with econometric studies of total consumer demand. U.S. data for 1960 - 2000 is used. The econometric method used was 2SLS with heteroskedasticity controls. The models explain 94% of the variance in demand for consumer durables, 86% of demand for nondurable consumer goods and 81% of services demand.

Keywords: *Consumption, Consumer Durables, Consumer Nondurables and Services, Demand*

1. INTRODUCTION

Every economics student learns that the level of what's produced, the GDP, is determined by the demand for business and consumer goods, demand by government for goods and services and (the net) demand for exports and imports in accordance with the formula

$$GDP = C + I + G + (X-M)$$

Recent studies have subjected many theorized determinants of consumer, investment and imports demand to testing to see if they are empirically verifiable (Heim 2008a&b). Knowing what drives demand for goods and services is critical for businesses trying to project future demand, and for economists trying to advise them or determine how demand can be stimulated by changing government policy (e.g., toward credit availability or tax levels). One of these studies showed that you can't treat different components of investment demand the same: its three components (plant and equipment demand, inventory demand and residential housing demand) are driven by different factors, or by the same factors, but with different time lags. It found that studies of total investment only often provide misleading inferences about how these determinants affect demand for any one type of investment.

This study examines whether or not the same might be true for consumer spending. Does knowledge of what factors drive overall demand for consumption give us all the information we need to know about what drives demand for the separate parts? Do all variables which influence overall consumer demand influence in the same way demand for consumption's three component parts: durable goods(like cars and furniture), nondurable goods (like food and clothing), and services (like entertainment, restaurant, lawyer and accountant services).

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Heim (2008c) indicated that demand for U.S. consumer goods is driven by the following factors (listed in order of importance), which explained 92% of the variance in total consumer demand, 1960 - 2000:

- Disposable income
- credit constraints due to the "crowd out" effects of government deficits,
- consumer wealth
- interest rates
- the exchange rate

The study did not develop separate demand functions for the three subcomponents of total consumption. This paper addresses that need by econometrically developing and testing demand functions for the three separate types of consumption, also using U. S. data for the period 1960 – 2000.

2. THEORIES OF DEMAND FOR CONSUMPTION GOODS:

The middle 50 years of the 20th century was dominated by Keynesian theory of how the economy operates, which is driven by Keynes' theory of what determines consumption spending. Keynes argues in chapter 8 of the General Theory of Employment, Interest and Money (1936) that income, wealth, taxes (fiscal policy) and possibly the rate of interest might influence consumption. However, he felt

> … income…is, as a rule, the principal variable upon which the consumption-constituent of the aggregate demand function will depend…(though)…windfall changes in capital-values will be capable of changing the propensity to consume, and substantial changes in the rate of interest and in fiscal policy may make some difference… (pp.95-96)

where "fiscal policy" is a reference to tax levels and capital values a reference to wealth. In chapter 9 he also notes other factors that might affect the level of consumption spending: precautionary, saving for known future needs (like retirement), and saving to finance improvements in future standards of living.

In the late 1950's and early 1960's, Keynes theory was challenged by Franco Modigiani's Life Cycle hypothesis, (Modigiani 1963) and Milton Friedman's Permanent Income Hypothesis (Friedman 1957). Central to both theories was that average income perhaps including future expected as well as past income, not just current income alone, as Keynes had argued, determined current period levels of consumption spending. Heim 2008b exhaustively tested different variants of these rational and adaptive expectations based income average models and found that none of them could explain variation in consumption as well as Keynes' current income variable, even controlling for other significant variables influencing consumption, such as wealth, credit availability and interest rates. Since the difference in the Keynes and Modigliani/Friedman functions has huge policy implications for how well the economy reacts to government spending and tax stimulus, this was an important finding.

Hence, the key theoretically postulated determinants of consumption we will test below are those from Keynesian theory: income, taxes, interest rates, wealth, and credit availability (measured by 'crowd out" caused by the government deficit. A number of other variables will also be tested.

3. METHODOLOGY

The following variables constitute this study's initial hypothesis of the determinants of demand for durable, and non durable goods spending. The hypothesis for testing is:

(1) $C_{DorND} = \alpha + \beta_1 (Y-T_G) + \beta_2 (T_G-G) + \beta_3 (DJ_{-2}) + + \beta_4 (PR) + \beta_5 (XR_{AV0123})$

where

- C_{DorND} = Consumer spending on durable or non durable goods
- $(Y- T_G)$ = Disposable income
- $(T_G -G)$ = The government budget deficit/surplus or (T_G and G may be modeled separately)
- DJ = = The Dow Jones Composite Stock Index, a measure of changes in consumer wealth
- PR = The Prime Interest Rate(r), multiplied by the size of the GDP (Y) two years earlier
- XR_{AV0123} = The average Exchange Rate for the current and past three years. Preliminary studies showed the full effects of exchange rate changes are not felt until three years after the change.

To these five are added population growth (POP) and demand for new housing (HOUSE), and variables that test for the effects of differing age compositions of the population over time (162465b34) and the relative expensiveness of housing compared to income (HP/INC).

The hypothesized determinants of services demand tested included these variables and some others found to influence the demand for the residential construction component of investment demand. (The rental value of owner-occupied housing is added to the GDP each year as an estimate of the (consumer) services (protection from the elements) provided by housing. Since newly constructed housing in the GDP expands the number of houses providing consumers with housing services, variables found related to housing demand in the investment study were also tested as possible determinants of this type of consumer serves demand. Other variables were added, including the cost of housing relative to income (HP/INC), population size, the mortgage interest rate and the percentage of population in prime house-buying age groups in the population (162465b34)). Hence, our model of services demand becomes:

(2) $C_S = \alpha + \beta_1 (Y-T_G) + \beta_2 (T_G-G) + \beta_3 (DJ_{-2}) + \beta_4 (PR) + \beta_5 (XR_{AV0123})) + \beta_6(MORT) + \beta_7(HP/INC) + \beta_9(POP)$

where the first five determinants are defined as above. The remainder are defined as follows:

- C_S = Expenditure on consumer services

- ACC = The Accelerator (ΔY). It is a measure of the rate of growth of the economy, therefore a measure of business climate: i.e., the current boom/bust condition of the economy
- MORT = The mortgage interest rate, the interest rate found most systematically related to housing construction demand in the earlier investment study
- HP/INC = The cost of housing relative to income
- POP = The percentage of population in prime house-buying age groups in the population

Through econometric testing of the three different types of consumption we can determine which of these hypothesized determinates really do move in ways consistent with the hypothesis they are determinants of consumer demand. Testing will also suggest something about the marginal effects on consumption resulting from changes in these determinants, and how reliable our estimates of these marginal effects are likely to be.

3.1 DATA USED

1960 – 2000 data taken from the *Economic Report of the President, 2002,* appendix tables B2, B7, B26, B28, B54, B73, B82, B95 was used to test the models. Data are in real, rather than nominal values, deflated where necessary using the most appropriate chained price index (base year =1996) from Table B7. The nominal prime interest rate is deflated using the average of the past two years consumer price index from Table B60.

3.2 THE ECONOMETRIC TESTING PROCEDURE

A “stepwise” regression procedure was employed to determine which of the variables explained the most variance in consumption during the 40 year period studied. Consumption theory rarely tells us how long it takes for a change in one of consumption’s determinants to bring about a change in consumption, yet the lag hypothesized can critically influence test results (Heim 2008b).

To determine the appropriate lags to use with a variable, each of the individual variables cited above was tested in a preliminary model containing only one other explanatory variable: current year disposable income (testing had indicated the current year or ‘zero” lag value of this variable explained the most variance). Each added variable was tested using seven different lags (+3 in the future to -3 in the past). The lag level that added the most to explained variance was picked as the lag level to use subsequently in larger tests of all the hypothesized determinants of consumption, unless the sign on the variable was theoretically wrong, or if the result suggested the direction of causation was backward. Subsequently, these variables, with their chosen lags, were used in a stepwise regression procedure to determine how much of the variance in consumption each explained.

A problem with the stepwise technique first made obvious by Goldberger (1961) and others since then is that when using stepwise regression, order of entry itself can influence estimates of how much variance a variable explains. Generally speaking, the earlier in the process a variable is entered, the larger the percent of variance it will explain. This is because, typically, explanatory variables are intercorrelated. Hence entering one allows it to "pick up" the variance it uniquely explains, plus some of the variance best explained by another variable, but one not yet entered in the regression. Hence, our findings should be considered as providing some ordinal, not cardinal, information, about relative importance, and not necessarily conclusive.

An additional use of the stepwise procedure results is to provide a way of assessing the stability (robustness) of the marginal effects (regression coefficient) to the model as new variables are added or subtracted. Regression coefficients, point estimates of marginal effects, often vary significantly as variables are added or subtracted from the regression, if variables added are correlated with variables already in the regression. This study will show the more variance a regression currently explains, the less likely marginal effect estimates will change when additional variables are added. Hence, in incompletely specified regressions, especially when important explanatory variables are left out, the possibility of overstating the marginal effects of a variable, or its statistical significance, are substantial, and results are subject to major change when the omitted variable is added. (Goldberger, 1961)

Since the base problem affecting the stability (or robustness) of our estimates is intercorrelation among the explanatory variable set, we can enhance the likelihood of stable point estimates by reducing the intercorrelation before running the regressions. One way of doing this that can be successful is to use "first difference" rather than "levels" of the data when estimating regression coefficients. In general, the first differences of two time series variables are substantially less intercorrelated than are their underlying data in levels. This technique has the added advantage in time series data sets, such as the one used here, of reducing autocorrelation problems (Griffiths, Hill, Judge, 1993), and can reduce nonstationarity.

Consumption, the dependent variable, and the (Y) component of the explanatory variable ($Y\text{-}T_G$) are simultaneously determined, since C_t is part of Y_t. Two Stage Least Squares regression is the appropriate form of regression to use to avoid this simultaneous equations bias (Griffiths, Hill, Judge, 1993)).

Evidence of heteroskedasticity was found in preliminary testing. Newey West heteroskedasticity corrections were made in all tests. (Newey West, 1987)

4.0. FINDINGS: DETERMINANTS OF THE TOTAL DEMAND FOR CONSUMER GOODS

Stepwise testing of the theorized determinants of total consumption yielded the Table 1 marginal impacts for variables determining total consumer demand in the U.S. 1960-2000:

The results in Table 1 are presented for each step in the stepwise regression procedure. Showing each stepwise equation's results individually provides information about regression coefficient stability. The stability of regression coefficients increases significantly as the total variance (R^2) explained by the

Table 1: Stepwise Addition to the Regression of Hypothesized Determinants of Total Consumption

$\Delta C_t = f\ [\ \beta_1 \Delta(Y\text{-}T_G)_t, + \beta_{2T\&2G} \Delta(\text{Crowd Out: } T_G,G)_t, + \beta_3 \Delta DJ_{-2}, + \beta_4\ \Delta PR, + \beta_5 \Delta\ XR_{AV0123} + \beta_6\ \Delta PR\ ]$

	$\Delta(Y\text{-}T_G)$	ΔT_G	ΔG	ΔDJ_{t-2}	ΔPR	ΔXR_{AV0i23}	$\Delta P0P$
R^2/Adj. R^2 (DW).	$\beta_1(t)$.	$\beta_{2T}(t)$.	$\beta_{2G}(t)$.	$\beta_3(t)\|$.	$\beta_4(t)$.	$\beta_5(t)$.	$\beta_6(t)$.
68% (1.3)	.82(12.6)						
84% (1.7)	70 (21.7)	.43 (3.9)	.25 (1.2)				
89% (1.9)	.65 (21.0)	.32 (3.5)	.21 (1.0)	.81 (4.5)			
91% (1.8)	.65 (31.8)	.48 (4.8)	.07 (0.4)	.71 (5.1)	-6.72(-3.9)		
92% (2.0)	.66 (29.2)	.49 (5.7)	.04 (0.3)	.62 (4.9)	-6.93(-3.2)	2.83 (3.2)	
93/91%(1.9)	.58 (12.5)	.54 (6.2)	-.08(0.6)	.59 (4.9)	-7.12(-3.3)	3.48 (3.8)	.006(1.8)

(*) t- statistics of 2.0 = 5% significance; t - statistics of 2.7 = 1% level of significance.

(**) The Crowd Out Variable (T_G- G) Reported As two separate Deficit Variables, ΔT_G and ΔG because of noticeable different effects.

model increases. Until the model explains approximately 85% or more of the variation in consumption, regression coefficients change so much when variables are added or subtracted they are simply unreliable. Other variables tested, thought a priori to influence total consumer demand were nominal, current period mortgage interest rates and real housing prices as a percent of real per capita income. Neither was statistically significant, so they were dropped from the regression. The mortgage interest rate variable was also tested to see if it better explained the effect of interest rate changes on overall consumer demand than the prime interest rate. It did not. When substituted for the prime rate, it was statistically insignificant. Population growth (POP) is left in, though its statistical significance is only at the .09 level, below out typical .05 cutoff. It is left in because evidence introduced later will show that it negatively seems to impact durables demand, but positively affect non durables demand (ceteris paribus). This may be because population growth (family size growth) reduces discretionary income available for durables and necessitates increased nondiscretionary consumption (e.g, food, clothing).

Table 2 shows the results of stepwise addition of variables to the model. Overwhelmingly, as Keynes predicted, current year disposable income is the most influential factor. Next in importance, somewhat unexpectedly, was our measure of crowd out – limitations on consumer credit availability. One might expect the interest rate underlying most consumer credit (the Prime Rate used here) would reflect such limitations completely. This would probably be true if the Prime Rate were a market determined rate, but it not. It is an administered rate, set by banks to maintain a 3 point spread between itself and the (Federal Reserve administered) federal funds rate (Heim 2009, p. 58). Hence, the amount of loanable funds available absorbed by the government as it attempts to finance deficits by borrowing also becomes a key measure of consumer spending.

TABLE 2: Contributions to Explained Variance

Variable	(Adds To R^2)
Disposable Income	68 %
Crowd Out	16
Wealth	5
Interest Rate	2
Exchange Rate	1.2
Population Growth.	0.5 .
Explained Variance	92.7%

4.1 DETERMINANTS OF CONSUMER DEMAND FOR DURABLE GOODS

Table 3: Stepwise Addition - Regression of Hypothesized Determinants of Durable Goods Demand

$\Delta C_D = f$ [$\beta_1 \Delta(Y\text{-}T_G)_t$, + $\beta_{2T\&2G} \Delta$(Crowd Out: T_G,G)$_t$, + $\beta_3 \Delta XR_{AV0123}$ + $\beta_4 \Delta DJ_{-2}$, + β_5 ΔPR + β_6 ΔPOP (plus either ΔMort or ΔHouse)]

	Δ(Y-T_G)	Δ T_G	ΔG	ΔXR_{AV0i23}	Δ DJ_{t-2}	ΔMORT	ΔPR	ΔHOUSE	ΔPOP
R^2/Adj.(DW) .	β_{1t}(t) .	β_{2T} (t) .	β_{2G}(t) .	β_3(t) .	β_4(t) .	$\beta 6_7$(t) .	β_5(t) .	β_8(t) .	β_6(t) .
49/49% (0.6)	.16(9.3)								
67/66% (0.9)	.14(7.0)	.18 (4.6)	-.10(-1.0)						
81/79% (1.4)	.14 5.6)	.17 (5.6)	-.15(-1.8)	3.23 (5.0)					
86/84% (1.9)	.12(8.6)	.14 (4.8)	-.17(-2.3)	2.83 (4.9)	.28 (3.5)				
89/87% (2.1)	.12(9.2)	.14 (5.4)	-.16(-2.6)	2.47 (4.7)	.30 (4.2)	-5.36(-3.0)			
90/89% (2.2)	.12(9.8)	.19 (5.6)	-.21(-3.2)	2.59 (5.1)	.26 (3.8)	-4.02(-2.2)	-1.90(-2.0)		
91/90% (2.0)	.08(5.9)	.08 (3.0)	-.03 (-0.4)	1.89 (3.8)	.41 (5.9)			.31 (4.5)	
92/91% (2.2)	.09(6.3)	.12 (3.3)	-.08 (-1.1)	2.06 (4.1)	.37 (5.1)		-1.37(-1.6)	.26 (3.6)	
92/90% (2.2)	.09(5.7)	.12 (3.1)	-.08 (-1.0)	2.06 (4.1)	.37 (4.9)	-.06(-0.0)	-1.37(-1.6)	.26 (2.6)	
93/91% (2.2)	.13(5.2)	.07 (2.7)	.01 (0.1)	1.72 (3.6)	.40 (6.2)			.26 (3.7)	
94/92% (2.2)	.14(5.7)	.12 (3.4)	-.05 (-0.7)	1.89 (4.1)	.35 (5.3)		-1.59(-2.0)	.20 (2.7)	-.003(2.2)
									-.004(2.5)

(*) t- statistics of 2.0 = 5% significance; t - statistics of 2.7 = 1% level of significance.

(**)Crowd Out Variable (T_G- G) Reported As Two Separate Variables).

Table 3 shows stepwise addition of variables to the model. The results indicate the factors whose variation explained most variance in consumption during the 1960 – 2000 period:

- Disposable income (49%)
- Crowd out (as indicated by the government deficit) (18%)
- The Exchange Rate (14%)
- Wealth (as indicated by the Dow Jones Composite average) (5%)
- Demand for Residential Housing (5%)
- Population Growth (2%)

- (Real) Prime Interest Rate (1%)

Alternatively, if we exclude the residential housing demand variable (HOUSE), and instead let the mortgage interest rate to pick up the effect of housing market conditions on demand for consumer durables, the last two variables (after wealth), in order of importance, become

- Population Growth
- (Real) Prime Interest Rate

With population growth in, the mortgage interest becomes statistically insignificant and is left off this list.

However, our preference is for the first interpretation. Other studies (Heim 2008c) have found that other variables not in the formulations above (e.g., housing price levels relative to income, or the accelerator) powerfully influence housing demand. This it turn powerfully influences durables demand (appliances and furniture for new housing). Neither component of housing demand shows statistically significant when used separately in the above model of durables demand, yet clearly play a role in determining housing demand, which does. Hence, our preference for the formulation that includes housing demand as one of the determinants. Housing demand is also systematically related to the mortgage interest rate in the Heim 2008c study. In table 4 above, the suspected reason it is significant when housing demand is left out, is that it is proxying for its effect on housing demand. When the housing demand variable is left in the model, the mortgage interest rate becomes insignificant. Its influence on demand for durables is already picked up by the housing demand variable.

Overwhelmingly, as Keynes predicted for consumption in general, current year disposable income is the most influential factor. Next in importance, again somewhat unexpectedly, was our measure of crowd out – limitations on consumer credit availability, which explained 18% of the variance. As was explained earlier, one might expect the interest rate underlying most consumer credit (the Prime Rate used here) would pick up variations in demand resulting from credit shortages. This would probably be true if the Prime Rate were a market determined rate, but it not. It is an administered rate, rigidly set by banks to maintain exactly a 3 point spread between itself and the federal funds rate, which is directly set by the Federal Reserve. Hence, the amount of loanable funds available which are taken up by the government as it attempts to finance its budget deficits becomes a key measure of how much credit is available to consumers, even more so than the prime rate itself.

The next most important variable affecting demand for consumer durables was the exchange rate (unlike our results for consumption overall), explaining 14% of the variance in durable goods demand, perhaps not unexpectedly, since durables such as foreign autos, constitute a significant part of durables demand. Wealth, as represented by the Dow Jones Composite Index, explained 5% of the variance, housing demand (5%) and the prime interest rate 1%

The population growth variable is negatively related to demand for durables. We suspect this may be because, holding income constant, as in our tests, increased population (family size) requires reductions in discretionary spending (durables) because of increased non discretionary spending on nondurables (food, clothing). Other variables found non-significant were the age distribution of the population (ratio of

16-24 year olds to those 65 and over), the accelerator, and the affordability of homes (ratio of house prices to per capita income).

4.2 DETERMINANTS OF CONSUMER DEMAND FOR NONDURABLE GOODS

In this section, we test the statistical significance of each of the theorized determinants of consumer demand for nondurable goods. Results are presented in table 4 below.

Table 4: Stepwise Addition - Regression of Hypothesized Determinants of Nondurable Goods

$$\Delta C_{ND} = f\,[\,\beta_1\,\Delta(Y\text{-}T_G)_t, + \beta_{2T\&2G}\,\Delta(\text{Crowd Out})_t, + \beta_3\,\Delta DJ_{-3}, + \beta_4\,\Delta PR, + \beta_5\,\Delta POP]$$

	$\Delta(Y\text{-}T_G)$	$\Delta\ T_G$	ΔG	$\Delta\ DJ_{-3}$	ΔPR	ΔPOP
R^2/AdjR^2(DW)	$\beta_1(t)$	$\beta_{2T}(t)$	$\beta_{2G}(t)$	$\beta_3(t)$	$\beta_4(t)$	$\beta_5(t)$
60/60% (1.3)	.22(16.8)					
77/76% (1.7)	.18(13.4)	.13 (5.0)	.04 (0.5)			
83/81% (2.2)	.16(12.3)	.12 (5.0)	.01(0.2)	.29 (3.6)		
85/83% (2.1)	.16(13.1)	.17 (5.5)	-.03(-0.4)	.26 (3.3)	-1.96(-2.3)	
86/84% (2.1)	.13(5.5)	.18 (5.9)	-.07(-1.1)	.28 (3.7)	-1.96(-2.4)	.003 (1.7)

(*) t- statistics of 2.0 = 5% significance; t - statistics of 2.7 = 1% level of significance.

(**) Using Separate T_G, G Variables to Represent Crowd Out.

The factors whose variation is most associated with change in consumption during the 1960 - 2000 period, in order of importance were

- Disposable income (60%)
- Crowd out (as indicated by the government deficit) (17%)
- Wealth (as indicated by the Dow Jones Composite average lagged 3 years) (6%)
- (Real) Prime Interest Rate (2%)
- Population Growth (1%)

Overwhelmingly, as Keynes predicted for consumption in general, current year disposable income is the most influential factor, explaining 60% of the variance. Next in importance, again somewhat unexpectedly, was our measure of crowd out – limitations on consumer credit availability, which explained 17% of the variance. One might expect the interest rate underlying most consumer credit (the Prime Rate used here) would pick up variations in demand resulting from credit shortages. This would probably be true if the Prime Rate were a market determined rate, but it not. It is an administered rate, rigidly set by banks to maintain exactly a 3 point spread between itself and the federal funds rate, which is directly set by the Federal Reserve. (Heim 2009, p. 58) Hence, the amount of loanable funds available which are taken up by the government as it attempts to finance its budget deficits becomes a key measure of how much credit is available to consumers. The next most important variable affecting demand for consumer

nondurables was wealth, as represented by the Dow Jones Composite Index, explained 6% of the variance, and finally, the prime interest rate, explaining 2%. A number of other variables were tested as possible determinants in the stepwise process, but none were found statistically significant. They included the exchange rate, population size, population 16-24 as a percent of population over 65 (and separately, this same variable divided by aggregate income), residential housing demand, and the ratio of real house prices to real income. However, population size, though insignificant at the 5% level, population size was significant at the 9 % level.

4.2 DETERMINANTS OF CONSUMER DEMAND FOR SERVICES

In this section, we test the statistical significance of each of the theorized determinants of consumer demand for services. Results are presented in table 5 below.

The results below are presented for each step in the stepwise regression procedure. Showing each stepwise equation's results individually provides information about regression coefficient stability. The stability of regression coefficients increases significantly as the total variance (R^2) explained by the model increases. Until the model explains approximately 70% of the variation in services consumption, regression coefficients change so much when variables are added they are simply unreliable.

Table 5 below shows stepwise addition of variables to the model. The results indicate the factors whose variation is most associated with change in consumption during the 1960 - 2000 period.

Table 5: Hypothesized Determinants of Consumer Demand for Services (T_g, G Variables For Crowd Out)

$\Delta C_s = f\ [\ \beta_1 \Delta(Y\text{-}T_G)_t, + \beta_{2T\&2G} \Delta(\text{Crowd Out})_t, + \beta_3 \Delta POP + \beta_4 \Delta DJ_{-2}, + \beta_5 \Delta(16\text{-}24)/65, + \beta_6 \Delta MORT\ ]$

	$\Delta(Y\text{-}T_G)$	ΔT_G	ΔG	ΔPOP	DJ_{-2}	Δ16-24/65	ΔMORT
R^2/Adj R^2 (DW)	$\beta_1(t)$	$\beta_{2T}(t)$	$\beta_{2G}(t)$	$\beta_3(t)$	$\beta_4(t)$	$\beta_5(t)$	$\beta_6(t)$
40/40% (2.2)	.44(21.0)						
58/56% (2.2)	.37(15.3)	.08(1.6)	.39 (3.1)				
70/67% (1.7)	.26 (7.2)	.13 (2.9)	.21 (1.8)	.009 (3.8)			
77/74% (1.7)	.22(6.3)	.09 (2.1)	.18 (1.8)	.010 (4.2)	.37 (3.5)		
79/76% (1.8)	.21 (5.9)	.08 (2.1)	.17 (1.7)	.011 (4.7)	.39 (3.9)	-247.7(-2.1)	
79/76% (1.5)	.19 (5.2)	.10 (2.5)	.14(1.4)	.013 (4.8)	.37 (3.7)	na	-5.5(-2.0)
81/78% (1.6)	.18 (5.1)	.10 (2.4)	.13 (1.4)	.013 (5.1)	.39 (4.0)	-212.9(-1.8)	-4.7(-1.7)

(*) t- statistics of 2.0 = 5% significance; t - statistics of 2.7 = 1% level of significance

(**) There is a little overlap in the variance explained by the mortgage interest rate variable and the % of young people in the population variable, leaving both significant at the 5% level when entered alone, but reducing their significance to the 7.5 and 9.7% level when used together. We will view the results as indicating both make a small, reasonably systematic, contribution to explaining consumer demand for services.

As Keynes predicted for consumption in general, current year disposable income is the most influential factor related to consumer spending on services, explaining 40% of the variance. Next in importance, we again found the crowd out variables important, adding 18% to explained variance. Third most important, explaining 12% of the variation in demand for services was population growth. Fourth most important was consumer wealth, adding 7%. Fifth most important were the percentage of younger people in the population relative to those 65 and over, adding 2% to explained variance. Spending on services was inversely found related to the percentage of young people in the population, suggesting that families with younger members have less to spend on services, as might be expected. Sixth .most important was the mortgage interest rate, which added an additional 2% to explained variance. It also was found inversely related to demand for services. This may be because mortgage payments are often the largest single item in the consumer's budget and many are variable rate mortgages. The inverse relationship may indicate the need to accommodate the need to increase monthly mortgage payments due to interest rate increases by cutting back on other, more discretionary spending such as services.

Other variables were subsequently entered into the regression in stepwise order. None were found even marginally statistically significant. They included the prime interest rate, housing the ratio of real housing prices to real income, housing demand and the exchange rate.

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