Chapter 5 The Consumption Function

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The theory of the consumption function is one of the most unresolved issues in contemporary macroeconomics. As consumption forms the major component in aggregate demand, the lack of a reliable estimate of the consumption function leads to serious errors in economic forecasts of the level of demand and hence to flawed decision making at a policy level. This essay seeks to outline the major theories of aggregate consumption demand and to explain their relevance to contemporary policy issues.

The Keynesian absolute income hypothesis states that $C = a + bY$, where b is the marginal propensity to consume (MPC). (1). He based this view on a "fundamental psychological law" that the MPC was between zero and unity and was below the APC. (2). An implication of this non-empirical contention was that the rate of consumption would fall as incomes rose, requiring that investment rise (via the State) in order to keep aggregate demand constant. This view that consumption was a function of current income and that the APC fell as incomes rose was seriously weakened by Kuznet's empirical studies (3), which showed that the APC was constant over long time periods but that there was significant cross-sectional variation in the APC across income levels.

The problem for economists, then, was to reconcile "Kuznet's paradox" of a stable APC as income varies in time-series data but variable APC in cross-sectional studies, and also the cyclical variability of consumption between the short-run and the long-run. Dusenberry's "relative income hypothesis" (4) was an early attempt, postulating that a person's consumption habits depended on his relative income. An increase in his income thus leads to conspicuous consumption and other visible forms of expenditure but the aggregate consumption rate remains stable, if the overall social pattern of income distribution is unchanged. Cyclical fluctuations in the consumption level were explained by the lagged response of household's spending habits to a change in income.

Friedman's "permanent income hypothesis" (PIH) (5) and Ando and Modigliani's "lifecycle hypothesis" (LCH) (6) have dominated consumption function theory since the 1950's. The PIH broadened the influences on consumption to include the individual's holdings of physical assets and of "human capital", or the discounted value of future income streams. Thus, consumption no longer depended solely on current income but on a range of variables which combined to determine a person's expectation of his permanent income. This was intuitively attractive as it explained why risk-averse individuals would seek to average out their consumption over a lifetime, making adjustments via borrowing and saving if current income happened to diverge from the long-run or permanent income level.

Formally, $C_t = k\, Y_{Pt}$ where

$Y_{Pt} = Y_{Pt} + z\,(Y_t - Y_{Pt-1})$

and z = a positive fraction

Y_{Pt} = permanent income in period t.

$Y_t - Y_{Pt-1}$ = transitory income in period t.

This model plausibly explained empirical consumption data. The stability of long-run time series data was due to the constant relationship between consumption and permanent income. Cross-sectional variability was accounted for the fact that higher income groups presumably contained a large number of people with higher than average levels of transitory or unexpected earning. Another reason for cross-sectional variation is the highly unstable income levels of some groups, notably farmers. Cyclical fluctuations occurred as a person's expectation of permanent income changed only adaptively over time, so that there was a lagged response in consumption to even enduring changes in income (such as a permanent tax cut).

Modigliani's LCH similarly recognized that variables other than current income affected consumption decisions. The LCH was rooted in the microeconomic theory of consumer behaviour (7) and argued that at a given stage in an individual's lifecycle, he wished to consume a given proportion (O_m) of the discounted present value of current income, holdings of physical assets and future income streams. That is,

$$C_t = O_m (W_t + Y_t + Y^e_{t+1}/(1+r)+...))$$

Where O_m = a positive fraction, depending on the individual's consumption-saving preferences at a given stage in his lifecycle.

W_t = value of physical assets in period t

Y_t = current income

Y^e_{t+T} = expected income in period (t +T)

This allowed for considerable cross-sectional variation as people of different ages or preferences consumed at different rates, but cancelling out at an overall level meant a constant APC over time.

Some economists were dissatisfied with the PIH and LCH for relying on the vague concepts of 'permanent' or lifetime income. As such, the theories were merely descriptive rather than establishing a causal explanation for the behaviour of aggregate consumption demand. Spiro (8) argued that a "lifetime income" was merely a proxy for wealth and that the PIH, LCH models ignored the dynamic relationship between savings and wealth accumulation. In a long-run stationary position, consumption would equal income with savings zero. This is because, Spiro posits, the purpose of saving is to accumulate wealth. A person will eventually achieve his desired level of wealth and if income is assured, the rationale for saving disappears. The observed overall positive level of savings is explained by the fact that incomes (and hence the desired level of wealth) are growing, because of uncertainty and a desire to make bequests to one's progeny.

Clower and Johnson (9) take a similar view that consumption is ultimately a function of wealth. Individuals face a consumption-wealth difference map and the lower MPC of high income groups is a result of their desired level of wealth dynamically increasing as incomes grow. Groups with stable levels of income will eventually consume almost all of their incomes as they reach their desired wealth level, which remains static.

PHI, LCH and these consumption-wealth models all point usefully to the

multivariate determinants of consumption. The role of expectations is central, as factors such as future income streams or the desired level of wealth will be sensitive to changes in economic variables such as inflation, the interest rate, unemployment, government debt and the returns in capital markets. At the extreme, a rational expectations model (10) argues that consumption demand takes a random walk as all predictable factors have already been incorporated into one's consumption decision, and so only "shock" factors can cause fluctuations in the consumption rate.

The last two decades, however, have seen a highly unstable consumption level with the OECD savings ratio peaking at 14% in the mid-1970's (11) but falling to below 10% currently. Such cyclical variability was due to people revising future income expectations for the following reasons. Firstly, the high inflation rates of the 1970's raised the level of savings needed to maintain the real value of financial assets. Rising unemployment increased savings as expectations of future wage earnings became more uncertain. The 1980's saw the reverse process in operation but, more controversially, other factors may have also have contributed to the consumption boom in the OECD nations which will be discussed below.

The effect of rising real interest rates is ambiguous. On the one hand, the opportunity cost of not saving rises but this may be offset by the fact that, at a higher interest rate, a chosen target can be reached with less savings. Changes in the U.S. tax system encouraged borrowing, with increased relief on interest charges. The wealth effect of rising share prices on the value of household's financial assets may also have increased consumption but the 'Black Monday' crash does not seem to have dented households' enthusiasm for high consumption, as yet, perhaps because a high proportion of shares are held by institutions. It is increasingly argued that the long-run consumption rate has permanently increased also, with financial innovation and more competitive capital markets giving people easier access to credit. Thus, aggregate consumption demand may be moving closer to the predictions of PIH and LCH models, which depend on perfect capital markets if households are to smooth out consumption plans over a lifetime via borrowing and saving. Another reason for a permanently lower savings ratio is that the existence of welfare benefits and guarantied State pensions has reduced the 'rainy day' motivation for saving. Nigel Lawson has suggested the taxation of pension rights in order to encourage private individuals to save more.

The most controversial issue in current debate on consumption demand is the impact of government budget deficits. Robert Barro has argued that taxpayers will increase private savings in anticipation of higher future taxes if the government runs a deficit and so the overall consumption level is unaffected by the government's fiscal stance, with public sector dissaving (a deficit) offset by a rise in private sector saving. This neo-Ricardian hypothesis was found to hold true for Ireland (12) but is surely at odds with the U.S. situation where both government and household sectors are borrowing heavily.

The consequences for policy making are radical if Barro Debt Neutrality is valid. Macroeconomic demand management is redundant as an increase in government borrowing will simply "crowd out" private consumption demand - another blow for Keynesian advocates. On a more general level, the advances in consumption demand theory since Keynes illustrate the unpredictability of demand management policies on aggregate demand. The empirical evidence is united in showing

that consumption responds in a lagged fashion to changes in income. A tax cut, for example, may only increase consumption demand after several time periods (as the PIH predicts) and so political desires to "finetune" the economy, as short-run electoral considerations might demand, are frustrated.

A final comment concerns the considerable differences in consumption rates between nations. The Japanese savings ratio stands at 18%, in contrast to the U.S. figure of 5%. One explanation is differing age structures - the more old people there are, the more dissaving is occurring. Recent work by Summers in the U.S. (13) suggests, however, that the old actually save more, in a desire to leave bequests for their descendants. Many see the differing ratios as cultural-U.S.-babyboomers are spendthrifts, whereas the Japanese retain a belief in the virtue of saving. The consequence, however, is far-reaching with the U.S. current account deficit being financed by thrifty foreigners rather than domestic savers, exacerbating the imbalances in world trade and capital flows which have dominated the world economy in recent years.

Footnotes

1. Begg, Dornbusch, Fischer, "Economics", Chapter 20.
2. J.M. Keynes, "The General Theory", Chapters 8, 9.
3. Discussed in Greenaway and Shaw "Macroeconomics", Chapter 2, p.19.
4. J. Dusenberry, "Income, Saving and the Theory of Consumer Behaviour", 1952.
5. M. Friedman, "A Theory of the Consumption Function", 1957.
6. A. Ando and F. Modigliani, "The Lifecycle Hypothesis of Saving", 1963.
7. F. Modigliani and R. Brumberg, "Utility Analysis and the Consumption Function"(1954).
8. A. Spiro, "Wealth and the Consumption Function", 1962.
9. R. Clower and M.B. Johnson, "Income, Wealth and the Theory of Consumption", 1968.
10. Attfield, Demery and Duck, "Rational Expectations in Macroeconomics".
11. "The Economist", March 19, 1988, p. 78.
12. Michael J. Moore, "The Irish Consumption Function and Ricardian Equivalence", Economic and Social Review, October 1987.
13. Begg, Dornbusch, "Macroeconomics", Chapter 8, p.267.