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Debt and the Household Balance Sheet Transcript

Date: Thursday, 16 March 2017 - 6:00PM

Location: Barnard's Inn Hall

16 March 2017

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*Costly thy habit as thy purse can buy,
But not express'd in fancy; rich, not gaudy;
For the apparel oft proclaims the man,
And they in France of the best rank and station
Are of a most select and generous, chief in that.
Neither a borrower nor a lender be;
For loan oft loses both itself and friend,
And borrowing dulls the edge of husbandry.*

Polonius in *Hamlet*, Act I Scene iii, William Shakespeare.

Introduction

The resilience of output following last year's referendum has been most welcome and has led to many forecasters gradually cranking up their central views for 2017. Last Wednesday, for the Budget, the OBR plumped for a central case of 2% growth in GDP this year compared to 1.4% in November. The National Institute of Economic and Social Research itself also published an upward revision in February and thought that output would be most likely to grow by some 1.7% this year. But it is the composition of that growth and the risks present a great concern.

So we cannot roll out the bunting yet because caveats need to be stressed. First, the central cases for growth remain below what we tend to think of as potential growth at just over 2%. And in a world of spare capacity we might reasonably expect significantly faster growth – so this is not an economy in rude health. When we look at income growth per head, which is one measure of productivity, the story is even worse at around 1% to 1.5%. Of course, as my previous lecture highlighted average growth in incomes masks considerable heterogeneity across the income distribution and many families will experience little or no increase in their real purchasing powers. We might argue that this is a reasonable outcome compared to an alternative of higher levels of unemployment, as I argued here last November, but that counterfactual cannot be observed and may be the cause of less frustration than expected income growth forgone.

Naturally much of the debate on the economy concentrates in the state of output, or its counterparties income and expenditure. What we want to concern ourselves about today is a that fraction of income that arguably concerns us most: consumption. Indeed it was consumption expenditure that provided the main contribution to last year's resilience in output and seems to have been driven by robust real wage growth and a higher propensity to consume from income. Reversion to the mean is a powerful process and so as a result of the depreciation-induced inflation, the fall in real wage growth this year will correspondingly reduce the purchasing power of households and next. This reduction may be even sharper should households decide to increase their savings rate this year and next.

Indeed the prospective fall in consumption growth is a direct result of last year's sharp move to a lower exchange rate, which are then both explained by a lower long run level of income. This is because a reduction in the quantity of trade still seems likely to reduce income relative to the alternative in the long run. The risks even to this central case are skewed to the downside from the confirmation of a hard Brexit and a prolonged period of uncertainty whilst we work out our trade agreements and these may well bear down further on activity. What we can observe is that it is both important to understand consumption, which tends to account for some 60-70% of output in an advanced economy, if we want to understand changes in income growth but also that consumption may be pointing us in the direction of important clues about important the current conjuncture in the economy.

For example, did consumption surprise because permanent income has risen following the referendum vote, was it the result of confidence in the future by those who voted to leave, were households bringing forward consumption before prices rose, did the response of monetary policy induce more expenditure or, relatedly, did increased lending encourage greater consumer expenditure?

In this lecture, as ever, which will draw heavily on the work of others, we will look at the basic theory of consumption and try to understand the basic patterns we observe at the level of household.

The Consumption Problem

At the basic level, we can choose to consume or acquire financial and non-financial assets (savings) from a given income stream. The split between consumption and savings is a within period choice that given the rate of return on savings ought to provide income in the future to the saver. Broken up, the consumption problem is about how to allocate an income stream that may be subject to some variance over the course of a lifetime between present and future consumption. The consumer's budget constraint encompasses this idea by encouraging us to understand that lifetime income and lifetime consumption should be broadly-speaking, save for bequests and other transfers, equal. And this constraint means that consumption decision is really about the extent we bring forward expenditure from future income or store expenditure to augment future income. Within this programming problem is the additional need to revise opinions about the income of the remaining years of life, which may change in line with aggregate shocks and personal circumstances. These decisions are important because notions of welfare, or what economists call utility, are thought to be closely related to the level of consumption and any variance we experience relative to that level.

This decision about the consumption path and the according level of saving or debt accumulation provides funds for firms to invest in what is called capital accumulation. It is therefore also the case that if we can characterise households' attitudes to saving, risk and returns in the presence of uncertain income streams we will understand better the constraints that may operate on investment and growth. Furthermore given that financial assets will be acquired to provide income streams under various conditions in the future, what economists tend to think of as hedging risks or providing for contingent claims, the pricing of these assets may be well explained by theories that help us understand planned consumption.

Indeed the operation of monetary policy is essentially trying to offset shocks to income, preferences and asset prices so as to further bring forward or defer consumption by changing interest rates. Interest rate can thus be thought of as the intertemporal price of consumption. So let us suppose that we perceived that debt levels were too high, perhaps as we revised down our notion of permanent income or as the price of loans increases, households would tend to react by increasing the level of savings. If the levels of savings were increased at too abrupt a rate that may lead to a large fall in demand that would in turn induce a persistent or long lived downturn. At this point lower interest rates can smooth the adjustment by slowing down the rate at which savings accumulate. This means we have a longer but smoother adjustment to lower debt levels.

There has been a widespread debate about the extent to which measured consumption per household is a good way characterising welfare or well-being. The Easterlin paradox (1974) suggested that reported happiness was flat or falling over the period of 1946-1970, which has been characterised as the golden age of economic growth. And so many economists and social scientists have considered the construction of alternate indices of well-being or happiness and to use these indices as the objective of economic policy. For example, Oswald *et al* (2009) suggest that happiness makes people more productive when faced with external shocks and so may be an important key to understanding both the stability of the economy and its advance over time. But whether such findings, which may help us understand changes in income and productivity, necessarily imply that subjective or self-reported measures of well-being are a better way to think about utility than the actual consumption of goods and services is not yet clear.

Patterns in Consumption

The choice facing households in terms of consumption comprises both non-durable and durable consumption. And the constraint in terms of income is what we ought to call disposable income. We also have to remember that the measures of aggregate consumption are the sum of the choices of all households, which each have their own age, skills, wealth and tax positions.

Consumption expenditure on durables typically accounts for just under 15% of total consumption expenditure and is considerably more volatile than both non-durable consumption and disposable income. Indeed, non-durable consumption is considerably smoother than disposable income. The mean growth and standard deviation of aggregate disposable income, durable and non-durable consumption differs. Non-durable consumption is very persistent to shocks, which means that it tends to stay at a particular level of growth, whereas disposable income is considerably less so and durable consumption seems to be more likely to reverse after a shock and behave in a more temporary manner. These time series properties mean as well that if surprises in consumption are more related to durable consumption than non-durable consumption they are more likely to be reversed.

If we move away from aggregate consumption to the analysis of households in age groupings or cohorts using the household surveys we can start to understand the patterns of income and expenditure over a lifetime. Note that the individual household surveys for the household expenditure surveys that have been a feature of UK statistics since 1957.[\[1\]](#) These surveys can be aggregated back up to explain some 90% of aggregate consumption obtained from the National Accounts.

Attanasio (1999) shows the life cycle profile of consumption and disposable income for these cohorts using the first 25 years of these surveys. He shows that both consumption and income have a hump shape over the life cycle with a peak in the mid-40s. After mid-life in the UK there is a relatively rapid fall in consumption which by age 70 is some 35% of the peak in the UK. Note that an episode of higher than anticipated consumption may be better understood if we sought to examine which cohorts were responsible for the aggregate increase in consumption. Such a disaggregation may also matter at the regional level.

At first glance the peakedness in consumption in mid-life may surprise those of us who think in terms minimising consumption variance of the life-cycle. But if household expenditure is deflated by an adult equivalent scale the life cycle in consumption looks considerably flatter. Attanasio (1999) finds that this correction reduces the standard error of non-durable consumption in the US markedly from 2.6% to 1.9%.

It is though clear that there is considerable similarity in the aggregate time series for disposable income and consumption and at the cohort level for both as well. Macroeconomic models tend to think of consumption and leisure as separate arguments in utility to the point that a household is indifferent at the margin between a unit of consumption and one of leisure. Then for a given wage or income stream the household has formulated a plan in terms of consumption that does not alter with temporary changes in the wages. As so we shall see, current income and consumption expenditure should not be related under any form of life cycle-permanent income hypothesis. But that they do, asks some important questions.

Consumption Theory

Modigliani and Brumberg (1954) and Freidman (1957) sketched the first formulations of the life cycle-permanent income (LCPI) hypothesis. As opposed to the Keynesian notion of some fraction of consumption from current income, the LCPI treats the consumption problem as a resource (income) allocation problem over time in which both relative prices between today and tomorrow and the overall quantity of resources available matter.

In the LCPI world, households decide on their consumption by assessing the path of their future income. In this world, consumption is proportional not so much to current income but to the present value of total lifetime income. If consumers do not like variation in consumption because the expected utility from an uncertain income is less than its certainty equivalent level then households will wish to save in order to smooth consumption over their lifetimes and in particular to accumulate wealth for retirement. There is a connection between the life cycle and permanent income models, in that we can generate the infinite horizon treatment implied by the latter by considering a succession of linked descendent generations.

Consider the following formulation. We take the disposable income of a single household in the figure and imagine a fixed high level of income for the middle portion of the household's life and a fixed low level in youth and old age. The LCPI household then works out the average level of this income over its lifetime and consumers that level in every period. Naturally we are assuming that financial intermediaries will allow the household to borrow from their own richer future when young. As already explained, this path can further be tilted by changes in interest rates which may lead to some tilting in consumption.

Now we can drive the point further along by imagining that just as the household gets going, information comes to light that causes it to raise its lifetime resource allocation. The household realises that it can work as a neurosurgeon rather than an economics lecturer and so it can raise its consumption plans. The permanent increase in resources is reflected in a permanent increase in consumption. Note that more debt is accrued in this early period than before and accordingly more is saved in the working years.

Now let us suppose the households cannot borrow very well against future income and also cannot save in vehicles that will give sufficient comfort for old age. What we will see then is that consumption will follow more closely actual disposable income and the overall quantity of savings and borrowing will be low. Indeed the close match of disposable income and consumption found in the survey data may suggest significant liquidity constraints preventing the theoretical extent of consumption smoothing.

Consumption and Debt

So what explains debt? Well if the household formulates a rational plan that conditions on its lifetime budget constraint, over its lifetime debt should be zero. With many overlapping households we might therefore expect debt in a young economy when the proportion of young outweighs the old. Conversely in an ageing economy we might expect to see a high level of saving. We might also think of debt as resulting from impatience or a higher rate of discount applied to future earnings.

So temporary debt results from a situation in which current income is below its average long run level and this will lead a household to borrow in order to stabilise consumption. We might expect less debt in a world of significant borrowing constraints. And a sharp increase in debt if those borrowing constraints are relaxed. We might also see an increase in debt if household convince themselves that they are about to become richer e.g. after the discovery of oil in their back garden.

As with many advanced and ageing economies, household debt indebtedness increased markedly in the period of financial liberalisation in the 1980s. In the UK household debt rose from around 35% of GDP in the early 1980s to just under a 100% in 2010 and it now stands at just under 90%. Advanced economies on average peaked at 80% and now stand at around 75% of GDP. The ageing economies would suggest that a more likely explanation has been the relaxation of credit constraints, which might throw open the strange possibility that we had sub-optimal levels of household debt in the past!

But we cannot understand debt without realising that it is not the case that households are indebted, once we account for wealth. Indeed even though loans are about the same as income, net wealth remains large multiple of consumption. So the overall picture may not be that disturbing.

Conclusion

Consumption is the key to understanding macroeconomic fluctuations. It determines the level of saving and hence capital accumulation. The rate of return on savings should adjust to bring savings and investment into balance. And yet imbalances seem to be the main topic of conversation. The risks are that loans cannot be paid or the assets on which those loans are made change in value. We shall think about these risks next time.

But to go back to my first question: what caused consumption to surprise? Probably lower rates and an increase in durable consumption which will reverse. But I might well be wrong.

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- [\[1\] The Family Expenditure Survey \(FES\) ran from 1961-2001 and was an annual survey providing information on household and personal incomes, certain payments that recurred regularly \(e.g. rent, gas and electricity bills, telephone accounts, insurances, season tickets and hire purchase payments\), and included a detailed 14-day expenditure diary. From 2001, the both the FES and the National Food Survey \(NFS\) were replaced by a new survey, the Expenditure and Food Survey \(EFS\), which subsequently became the Living Costs and Food Survey \(LCF\) from 2008.](#)