
ARTICLES

Towards understanding what and when households spent

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Household spending is typically the largest component of economy activity. This article sets out some ways of thinking about what shapes household consumption decisions and looks at New Zealand's experience over the last decade or so – a period marked by rapid growth in asset prices and debt, and by big swings in economic performance. Large unexpected, but sustained, shifts in incomes appear to have been the biggest influence on total household consumption. Fiscal policy also appears to have played a role. It is less clear that the large increases in asset prices played a substantial role in influencing total household spending.

1 Introduction

Just over 80 percent of all the income earned by New Zealanders is consumed in a typical year (about three-quarters of that through goods and services purchased by households directly, and around one quarter of it delivered or undertaken by central and local governments).¹

In this article, we outline some ways to think about private consumption behaviour, including some reasons why fluctuations in total household consumption, income and assets values might be expected to be related.² We look at some factors that are likely to influence long-term (even lifetime) average spending, and others that might affect more substantially the timing of spending. We then take a preliminary look at some data to help shed light on New Zealand consumption behaviour over the last decade – both through the boom years, and subsequently.

Understanding private consumption matters a lot to a central bank. Increased spending, all else equal, tends to put more pressure on resources, raising inflation pressures. In addition, households take spending decisions jointly with decisions about how much to borrow. Big swings in debt, and in asset prices, can matter a lot for financial stability.

2 Longer-term influences on aggregate consumption

Economic theory typically posits that the most important single influence on consumer spending (for individuals and for the whole economy) is shifting perceptions of how much purchasing power people will have over long periods of time (for an individual, one can think in terms of a lifetime). The current year's income matters, of course, but annual consumption spending tends to fluctuate less than annual income does (individually and economy-wide).

That approach makes a lot of sense. To a first approximation, what one doesn't have (or expect to have) one can't spend. And most of what people do have they will spend at some point in their lives. Any individual's total expected lifetime resources consists of their current income, the value of their assets (minus their debt), as well as the sum of all their expected future income and any expected appreciation in the net value of their assets. Of course, they can spend based on future income by borrowing today and then repaying the loan when the income comes in. Many people do that to some extent - most obviously, for example, when they take a loan as a student. However, a person cannot spend more than they (or those lending to them) expect that they will ever be able to repay.

Typically, a household will spend more over its lifetime if the resources they expect to have available over a lifetime increase. Resources can increase either because of rising incomes (e.g. wages and salaries or business profits) or

¹ **And, thus, the (gross) national savings rate has averaged under 20 percent of income. The national savings rate itself can be further broken down into household, business, and government savings rates.**

² **For some formal evidence on the economy-wide relation between consumption, income, wealth and debt in New Zealand, see De Veirman and Dunstan (2008, 2010, 2011).**

from increases in the value of owned assets. The academic literature refers to this influence as a 'wealth effect'.³

We look at incomes and asset values separately.

Wealth effect: actual and expected income

If we want to understand overall consumption behaviour we need to look at overall incomes. Since households ultimately own businesses and, as citizens 'own' government, total national income is likely to influence private spending, not just the income specifically recorded as directly and immediately available to households.

The value of all the income generated in New Zealand each year is measured by Gross Domestic Product (GDP). However, this isn't the same as the incomes of New Zealanders, since some of the income generated here accrues to foreigners, and New Zealanders also earn some income from abroad. The sum of all New Zealanders' income is known as Gross National Income (GNI)⁴ and, wherever possible, this is the measure of income used in the rest of this article.

Incomes tend to increase over time. But what happens when incomes increase more than households expected? Typically, households do not immediately spend the extra resources that they have just found out about. In part, that is because they can't be certain how much of the gain is permanent and how much might be temporary. But even if they were confident of being better off, the economics literature typically, and plausibly, assumes that households feel better off when they increase their spending somewhat for every future year rather than spending it all at once (in other words they smooth out their consumption). The standard view is that a typical household's spending increases by about five

dollars a year in response to an increase in lifetime resources of 100 dollars.⁵

None of us has any great certainty about our future real incomes, especially over a lifetime. Circumstances change, shocks happen, and the future is inherently unknowable. What we experience now tends to influence our expectations of the future. Single-year surprises in income probably don't change consumer spending very much, but as those surprises become embedded in expectations about the future, consumer spending is likely to adjust accordingly.

When the economy proves to be surprisingly strong for a prolonged period of time, economic forecasters (and probably ordinary householders) seem to come to assume that much of the improvement will be permanent. And on the other hand, a protracted period of poor economic performance probably also gets factored into households' expectations about their future incomes and how much they can afford to consume.

More generally, De Veirman and Dunstan (2011) find that about 75 percent of all variation in New Zealand household income is permanent, while the remaining 25 percent is temporary. Therefore, if households see that average incomes increase more than expected today, they likely also become more optimistic about their future income prospects.

Of course, many households do not (either consciously or unconsciously) take their future income into account when deciding how much to spend today. Some just behave as 'rule-of-thumb' consumers who purely consume their current income, and others have no capacity to do anything else, living week to week with little or no borrowing capacity. We will discuss borrowing restrictions later in the article.

Patterns in the government's finances may also influence household consumption spending. Typically, households spend a higher proportion of their immediately disposable income when the government's fiscal position is very strong (large surpluses), and a lower proportion when government

³ For accessible discussions of theoretical approaches to wealth effects, see Attanasio (1999) and Davis and Palumbo (2001).

⁴ In New Zealand, GNI has been consistently less than GDP, because of New Zealand's persistent heavy dependence on foreign debt and equity finance (and, hence, the income flows that need to be paid to foreign lenders and investors). The shorter-term fluctuations in the two series are quite similar.

⁵ Modigliani (1971) found a consumption response of that size. Since then, most economists have treated the size of the response as common knowledge. For instance, the responses in Poterba (2000) are of that order.

finances are weak (large deficits). Large government deficits are, in some sense, money that the government will need to collect in future from households (or from the businesses they own). Closing a large deficit will tend to dampen for a time the future growth in the resources immediately available to households. And sustained large surpluses have tended to foreshadow some mix of spending increases and tax cuts, increasing expected disposable incomes. This is especially so if the government has a very low level of debt.

Big changes in the government's own consumption spending may also be mirrored partly in offsetting changes in private consumption spending. If the government provides, say, more health or education services directly to households (funded from taxes), households do not need to directly purchase as many of these services themselves (from earned incomes, or from cash transfers from the government). For some purposes, it is going to be more useful to look at total consumption, and for others, to look just at private consumption.

Wealth effect: changes in asset values affecting lifetime consumption

An increase in the real (ie adjusted for general inflation) market value of an asset one owns, increases potential lifetime consumption options.

The implications of an increase in share prices are easy to see. If share prices unexpectedly double, one can easily sell half one's shares and spend the proceeds, and still be just as wealthy as one was before the asset price rose. In principle, the same goes for an increase in the value of a farm or any other business.

The situation is less clear for houses, since a house is not just an asset but also somewhere to live.⁶ At an individual level, if real house prices unexpectedly double, many people could, at least in principle, sell their current house and move to a smaller, cheaper one, using the increased wealth to consume

⁶ In the jargon, we consume 'housing services', the value of which are included in aggregate consumption statistics. The value of housing services is measured using actual market rents for rental properties, and uses imputed rents (the estimated rental value) for owner-occupied houses.

more of everything else. But the story is rather murkier at an economy-wide level. My sale is your purchase.⁷

When house prices increase, the asset wealth of existing homeowners increases. But the cost of acquiring a house also increases for everybody who may ever wish to buy a house. So a rise in house prices does not make the population as a whole materially better off.

For the whole economy, unexpected changes in house prices probably have more of an effect on the distribution of wealth (and consumption possibilities) than on the overall level. The relatively old, who might have been about to downsize, benefit from the windfall, and can spend more than otherwise over the rest of their lives. But the relatively young, coming into the housing market, have to pay the higher cost of housing, and find themselves worse off. A landlord will be rather better off (since he or she can sell the house and put the proceeds in the bank). But tenants will be worse off: many will wish to buy a house in the future and in any case over the longer-term higher house prices will also tend to mean higher rents. Home owners gain at the expense of renters; the relatively old tend to gain at the expense of the relatively young, but the economy's sustainable consumption possibilities don't seem likely to change much at all.

Collateral effects – affecting consumption at a point in time

The redistributions that arise out of big house price changes may well matter, even at a macroeconomic level. Certainly, there appears historically to have been a positive relationship between consumer spending and the value of the housing stock. A variety of factors may explain the apparent relationship. One may be the impact of limitations on how much one can borrow.

Banks are typically reluctant to lend very much unsecured, simply on expectations about someone's future income. Instead, banks typically only lend substantial amounts to the

⁷ The situation would be different if houses could readily be sold to, and then rented from, foreign investors. But in most countries, most houses are held by domestic owners, and the share of foreign ownership changes only slowly.

extent that the household guarantees repayment of a large fraction of the loan by providing collateral: an asset that the bank can seize if the household is not otherwise able to repay the loan. Housing is by far the most common type of collateral that households use. Household borrowing without collateral, for instance, in the form of student debt, credit card debt or consumer credit, accounts for quite a small fraction of borrowing.

When average house prices rise, the value of the collateral homeowners hold tends to increase, which normally means that banks are willing to lend more. In fact, in sustained housing booms banks' lending standards are often somewhat relaxed, further increasing homeowners' access to credit. Of course, this collateral effect applies to other assets too - but for a typical household, a house is the most practical asset to borrow against.⁸

The collateral effect has a number of implications

In contrast to a pure wealth effect from higher asset values, these collateral effects only affect the timing of consumption: one might expect to see consumption rising more strongly than otherwise during a house price boom, but it will be offset by weaker consumption later (for example, during a period when house prices were flat or falling, in which no additional collateral was coming available).

A significant collateral effect will unambiguously boost household debt – the whole point of the effect is that it involves more borrowing. A wealth effect need not boost total debt – an asset that had increased in price could be sold to facilitate increased consumption, or indeed to retire some debt. In practice, of course one can't readily sell just part of a house (in the way that, say, one can sell part of a share portfolio) so that if people do generally increase their spending based on perceived increases in their housing wealth that would probably involve some of them increasing

their debt for a time. Others will tap other forms of saving to finance the increased consumption.

A collateral effect also implies a stronger response of consumption to changes in current asset wealth than a wealth effect does. Because restrictions on borrowing make it harder for a household to spend out of future income, they weaken the relationship between consumption and expected future resources, but they strengthen the relation between consumption and currently available resources. To put it a different way, if a household that is restricted in terms of how much it can borrow suddenly finds those constraints eased, they might well choose to increase spending quite substantially immediately (perhaps by the whole of the increased amount its bank is willing to lend).

Collateral effects are undoubtedly important for some individual homeowners: if one's house price increases by, say, 20 percent, an individual homeowner with his eye on a new car or overseas holiday may now be able to finance that purchase much more readily and quickly. Quite how much collateral effects can explain behaviour at an economy-wide level is a more open question. Even when house prices are relatively stable, it is typically only borrowers in the first few years of a mortgage who would face tight borrowing constraints – most homeowners have substantial equity in their houses.

Existing homeowners find themselves with additional borrowing capacity when house prices rise, and for some of them that will provide a real increase in immediate consumption possibilities. But for each renter looking to move into the housing market shortly, the increase in house prices also increases the deposit they have to save to enable them to enter the housing market in the first place. (Of course, to the extent that overall lending standards ease in big housing booms, initial deposit requirements may themselves be easing). If collateral effects matter a lot for the whole economy, then in a very big house price boom one might expect see the consumption to current income ratio rise quite a lot.

⁸ There is a large theoretical literature on the collateral effect. See, for instance, Iacoviello (2005) and Kiyotaki, Michaelides and Nikolov (2011). See Coleman (2007) for a model with a collateral effect tailored to New Zealand.

Expectations may affect the timing of consumption (inter-temporal substitution effects)

So far, we have focused on the way that unexpected increases in income or asset values relax constraints people face.

But expectations about future changes in asset prices could also affect spending. If households expect asset prices to increase in future, they might choose to hold back spending today, using the increased savings to take advantage of the rising asset values. By saving more today, they will be able to consume even more in the future.

The incentive to switch the timing of spending when expected returns on saving alter could apply to all assets. Interest rate changes work partly through this so-called inter-temporal substitution: an interest rate cut tends to stimulate consumption today because it lowers the return on saving and the cost of borrowing, while an interest rate increase raises the return on saving and, in so doing, dampens current consumption. And when a business judges that the profit opportunities open to it are particularly good, the owners are likely to defer consumption: increasing the share of profits held as retained earnings (business savings) and reinvested in the business.

If asset prices have already increased a lot, and households now expect those prices to go sideways or fall back, then expected returns to savings are lower than they would normally be. In such a situation, households may have a motive to reduce their rate of saving and to consume more today.

Getting a sense of how important these inter-temporal substitution effects are is not easy. For example, one needs a good sense of expected increases in asset prices (and hence expected returns to saving). Good data on that are scarce anywhere.

What data there are tend to suggest that people's expectations of house price inflation in particular often tend to extrapolate from recent experience. When house prices have been rising for a while, they are expected to carry on rising, and when they have been flat or falling for a while, that sort of behaviour is also expected to continue. If that

does describe how households form their (conscious or otherwise) expectations, then an inter-temporal substitution effect would mean that consumption spending would tend to be quite subdued, all else equal, during a house price boom and quite high, as a share of current income, as asset prices were falling.

In practice, we never observe inter-temporal substitution in isolation, but always see it in combination with other influences on consumption. De Veirman and Dunstan (2011) is one attempt to disentangle the wealth effect from the inter-temporal substitution effect.

Some other shorter-term influences

The exchange rate may also matter in explaining the timing of consumption spending. The exchange rate can depart from its long-run average level (or some sense of longer-term equilibrium) for sustained periods. A persistently high (low) exchange rate tends to lower (raise) the relative price of consumption, since much of what we consume is tradable goods and services. A persistently high exchange rate might raise the real volume of goods and services consumed (people buy more stuff when it is cheaper), even if the total dollar value of consumption as a share of current income did not change much.

There is also some evidence, internationally and locally, that the volume of activity in the housing market (turnover) matters for the timing of consumption. People changing house are more likely to purchase a new lounge suite or white ware at the same time. But this is clearly a timing effect: a purchase of a new lounge suite this year means that, all else equal, one is unlikely to purchase another lounge suite next year.

3 Towards making sense of the last decade

The first half of this article has outlined some of the factors we might expect to influence consumption behaviour. These included:

- Fluctuations in actual income

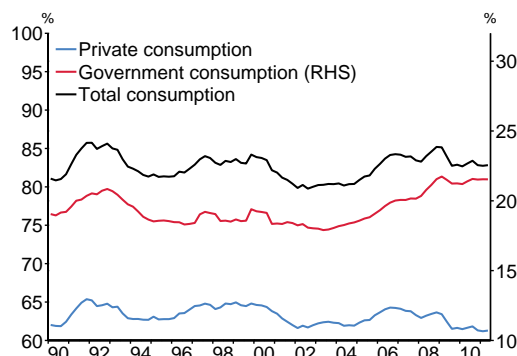
- Fluctuations in expected future income
- Unexpected changes in the value of asset wealth
- The implications of asset price changes for the borrowing capacity of asset owners.
- The impact of changes in expected rates of return (including expected rates of increases in asset prices).

In addition, patterns of behaviour in government spending and the overall fiscal position may influence, in particular, the timing of private consumption. Sustained exchange rate changes may also matter.

So how do we interpret New Zealand's actual consumption experience in the last decade or so, a period which, among other things, featured probably the largest house price boom in New Zealand's history?

Figure 1 shows public consumption, private consumption, and total consumption, each as a percentage of the total gross income of New Zealanders (GNI) since 1990. Our focus is on understanding private consumption, but total consumption⁹ also matters when thinking about total pressure on resources.

Figure 1
Consumption as percent of nominal GNI
(four-quarter moving averages)



Source: Statistics New Zealand and RBNZ calculations.

Some things stand out:

- Private consumption fluctuates over time as a share of GNI, but there is no obvious trend in the series.

- Private consumption to GNI generally tends to be higher in recessions and a bit lower in booms (consistent with the idea that households adjust their spending only slowly and, in effect, smooth through what appear as short-term fluctuations in income).
- Private consumption did not reach new highs, as a share of GNI, in the last decade: the peaks were not out of the ordinary.
- What increase there was in the private consumption share did not come until rather late in the boom years (in other words, it does not look to have been a private consumption-led boom)
- Public consumption as a share of GNI increased very substantially late in the period (indeed, as a share of GNI, it increased by more than the private consumption share did).
- Total consumption as a share of GNI averaged much the same in the 2000s as in the previous decade (and was persistently low for the first half of the 2000s).

A full assessment of what shaped consumption behaviour is hampered by data limitations. We do not, for example, have formal comprehensive data for the relevant period on any of the following items:

- Household medium to long-term income expectations
- Household asset price expectations (including house price expectations)
- Many of the major components of household wealth, including the value of farms and businesses owned directly by households.

Data on household spending patterns through time, broken down by age and by whether the household owns a house or rents, are also limited, especially for the last decade.¹¹

Given those limitations, any conclusions that we draw must inevitably be rather tentative, and should stand as an invitation to continuing research work.

⁹ Or, alternatively, the difference between income and total consumption, national saving.

¹⁰ By contrast, in the US and the UK the consumption share of income has trended upwards over the last 20-30 years.

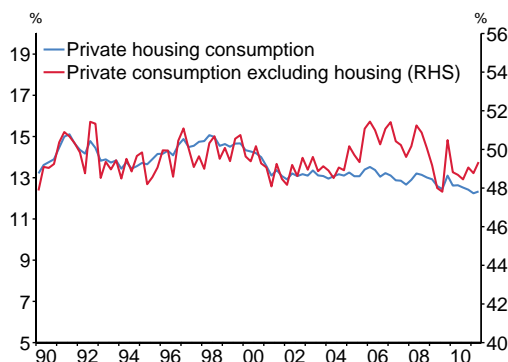
¹¹ Some results drawing on the data that are available are reported in Smith (2010).

Housing consumption

Housing itself is, of course, a significant chunk of total consumption. The housing component of consumption is not, however, measuring the cost of purchasing a house, or of building a new house (which both rose very sharply during New Zealand's housing boom). The housing component of consumption instead tries to capture the cost of purchasing housing services: actual rents on rented houses, and an imputed rental value for owner-occupied houses.

Despite the size of the house price boom, rents have been flat to falling in real terms over the last decade. Partly as a result, the housing component of consumption has actually been edging down, and now represents the smallest share of GNI for 20 years

Figure 2
Private housing consumption as percent of nominal Gross National Income (GNI)



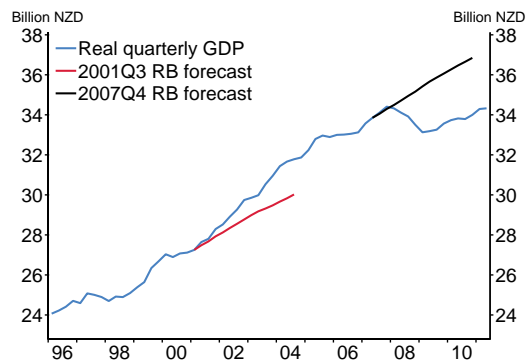
Source: Statistics New Zealand and RBNZ calculations.

Incomes

Figure 3 is one way of helping to illustrate how surprised people were by the level of income the total economy was generating. The blue line shows actual real GDP.¹² The red line shows the Reserve Bank's forecasts for GDP in the August 2001 *Monetary Policy Statement* while the black line shows the forecasts published in the December 2007 *Monetary Policy Statement*, the last before New Zealand went into recession. In neither case were the Reserve Bank's forecasts particularly unusual. For example, these appear to have been broadly consistent with the expectations of the private sector respondents in the Bank's Survey of Expectations.

¹² We use real GDP for this purpose, mainly for data availability reasons, but also so as not to muddy the picture with unexpected changes in the inflation rate (which don't alter total purchasing power).

Figure 3
GDP surprises



Source: Statistics New Zealand.

Note: Production GDP in billion 1995/96 NZD. Forecasts from *Monetary Policy Statements* issued in 2001Q3 and 2007Q4.

For quite a few years, at least until around 2005, GDP ran well above most expectations. Times were good, unemployment was very low, wage rates were rising. It would not have been at all surprising to see households consuming as if the good times would last. There was no hint, whether from official agencies or private forecasters, that they would not - at worst, forecasters tended to foresee a brief dip in growth rates, but certainly not a reversal of the increased level of income.¹³ Quite late in the boom, the unexpected sharp lift in the terms of trade provided an additional boost to incomes.¹⁴

Since 2008, actual incomes have run well below projections made prior to the recession (and projections for the future incomes have been progressively revised down). Nothing in the Reserve Bank's published forecasts (or in any private forecasts of which we are aware) suggests a return to the pre-recession path for the economy. Once the initial extreme volatility of 2008–09 passed, it looks as though people have started spending on the (implicit or explicit) assumption that future incomes will, in aggregate, be rather lower than they had previously expected. Despite the big swings in perceived incomes, the consumption-to-income ratio didn't change that markedly. People adjusted.

¹³ As one illustration, from the start of 2000 to the end of 2005, however strongly the economy performed respondents to the Reserve Bank's Survey of Expectations never expected annual GDP growth two years ahead to drop below 2.4 percent.

¹⁴ Large oil price increases dampen the terms of trade, and also appear to influence spending behaviour in the short term.

Fiscal policy

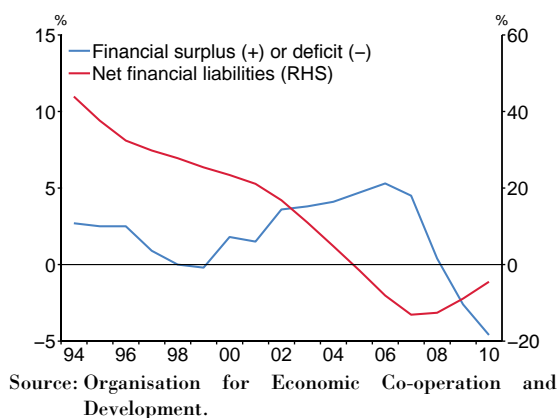
Household consumption as a share of GNI had been quite subdued until around 2005. The large and rising government fiscal surpluses were probably one reason. Rising government surpluses meant that a smaller proportion than usual of national income was directly in the hands of the private sector.

From around the middle of the decade, fiscal policy began to be loosened. Public consumption rose rapidly as a share of income (from its lowest level in decades), and a combination of tax cuts and increases in cash transfers progressively transferred income from the public sector to the private sector. Indeed, in time, the large surpluses switched over to large deficits. Several factors played a part. Discretionary fiscal policy changes were important, but so too was the surprise governments received when national incomes (and the tax base) proved to be much smaller than had been foreseen (and assumed) prior to the recession.

Household consumption as a share of GNI seems to have started rising increasingly strongly only from around 2005 – coinciding with the big shift in direction in fiscal policy and in particular the big increase in cash transfers (and then tax cuts) to the private sector. Apparently as a result, total consumption as a share of GNI rose from around 80 percent as late as 2004 (just after the period of peak house price inflation) to around 84 percent in 2006.

Figure 4

General government position (as percent of nominal GDP)

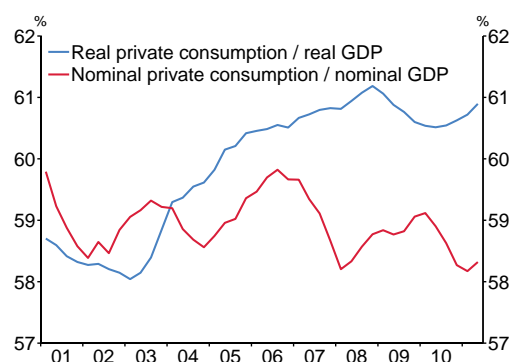


Exchange rate

On a trade-weighted basis, the exchange rate had been very low (so that the relative price of consumption was quite high) from around 1999 to 2002. By contrast, since around 2004, the exchange rate has averaged higher than at any time for some decades (so that each New Zealand dollar buys more foreign currency and, hence, more foreign goods). It is likely that the high exchange rate, itself arising out of the overall mix of domestic and foreign economic and financial conditions, has made consumption spending relatively more attractive than it otherwise would have been – or than it would have been at the turn of the last decade. This is reflected in the divergence between the real and nominal consumption shares shown in Figure 5.

Figure 5

Consumption to GDP ratios (four-quarter moving averages)



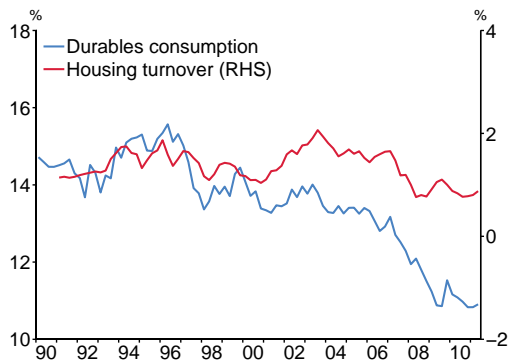
Source: Statistics New Zealand.

Note: Percent of expenditure GDP.

Assets

The market value of household (net) assets rose very substantially during the period 2002 to 2007. Houses make up the largest chunk of household balance sheets, and the price of houses nearly doubled in that period, one of the larger increases internationally during that period; and one of the most rapid real increases in New Zealand's history. House prices rose fastest in 2003 (which was also when housing market activity and turnover was at its most frenetic) and the bulk of the increase in house prices had occurred by 2005.

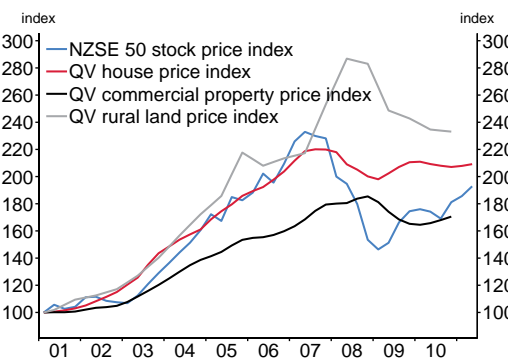
Figure 6
Consumption of durable goods and housing turnover



Source: Real Estate Institute of New Zealand, Statistics New Zealand, RBNZ calculations.

Note: Consumption of durable goods as a percent of GNI. Housing turnover is the number of dwelling sales as a percent of the total number of private dwellings.

Figure 7
Asset prices (2001Q1=100)



Source: Quotable Value Limited, Datastream, Reuters and RBNZ calculations.

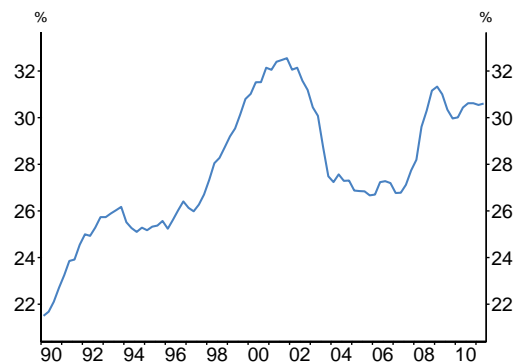
Other real assets (including shares) owned by households also increased materially in value during that period, as illustrated in Figure 7. The increase in farm prices, for example, was even more dramatic than the increase in house prices, and ran on for longer. Even allowing for the rapid increase in the debt of the farm sector over the period (around \$30 billion), the market value of wealth held in the form of farms rose very substantially during the boom years.

The asset boom ended, of course. Farm prices and equity prices (and presumably the values of unlisted businesses for which we do not have any data) are now well below previous peaks. Even in nominal terms, the prices of houses and commercial buildings have, at best, gone sideways.

The increase in house prices increased the value of homeowners' collateral - at least for those homeowners who had bought before the boom was too far advanced. That in turn, increased those homeowners' borrowing capacity. We do not have good formal data on lending standards during the earlier years, but it is fairly clear that bank lending standards eased during the boom years, amplifying the increase in actual borrowing capacity.

Figure 8 shows house mortgage debt as a share of the market value of the housing stock. Household debt indeed increased sharply during the housing boom (by around \$75 billion, and a similar figure for mortgage debt). However, the value of the housing stock increased by around \$335 billion from 2002 to 2007, so there was a large increase in household equity in the housing market. The chart also illustrates how, once house prices peaked, the level of equity began to fall back. There has been no additional collateral freed up (in aggregate) since at least 2007.

Figure 8
Housing leverage (mortgage debt as percent of housing stock)



Source: Statistics New Zealand, Quotable Value Limited, RBNZ calculations.

Household debt tends to rise just because house prices rise. When house prices increase, new entrants to the housing market tend to need to take on larger mortgages to purchase a first house, while those leaving the market or trading down (typically with a high level of equity in the house) capture a windfall that finds its way into a bank deposit.

This phenomenon - new entrants having to take on higher debt to purchase a home from the elderly - is a

large component of what is known as mortgage equity withdrawal. It happens even if no individual's consumption behaviour changes (higher gross debt for the buyer is simply matched by higher household deposits for the seller). And this passive equity withdrawal can go on for some considerable time even if house prices stop rising because the housing stock turns over relatively slowly. Today's new entrants to the housing market are typically taking on much larger mortgages than new entrants did in 2001, just prior to the boom.

What role, then, did housing or asset-related effects play in explaining consumption behaviour?

Residential investment as a share of GDP rose markedly during the boom years, partly, no doubt, because of unexpectedly rapid population growth, and perhaps partly in response to the increase in existing house prices. Moreover, rising house prices (as distinct from high house prices) tend to be associated with a high level of activity in the housing market, and turnover itself not only generates more consumption (the new lounge suite) but also boosts other significant components of GDP (e.g. real estate agents and lawyers experience a boost in income). In other words, strong activity in the housing market probably contributed directly to the strength of economic activity and income.

That high level of building and housing market activity also put pressure on resources, and was one factor behind the increase in interest rates during the boom years. Higher interest rates will have deterred some consumption that people would otherwise have undertaken. However, the extent of the increase in the OCR in New Zealand was not particularly unusual relative to previous cycles (indeed, short-term interest rates rose less than they did in the smaller mid-1990s cycle).

But how much did the rapid growth in house and farm prices contribute to consumption in aggregate through wealth or collateral effects?

As discussed earlier, increased house prices do not amount to an increase in consumption possibilities for the economy as a whole. However, it is still possible that misperceptions on that score might have played a part.

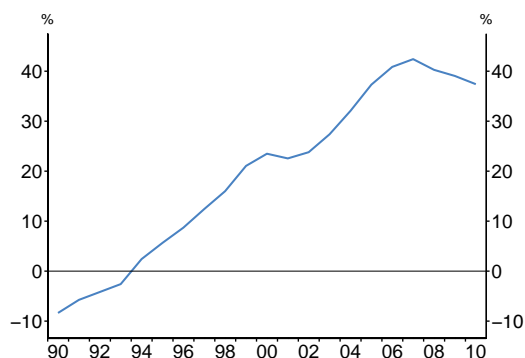
If asset wealth effects boosted consumption, we would have expected to see the consumption of home owners (and especially older home owners) increasing materially faster than the consumption of other groups in the economy. And to the extent that collateral effects were an important explanation of consumption behaviour, we would expect to have seen consumption rising relatively more rapidly for households with large mortgages than for those without. Renting households won't have benefited from the collateral effect, of course. But for the many households with little or no initial debt, the collateral effects will also have been small (since they already had substantial equity before the boom, or will have been accumulating financial assets in addition to an unmortgaged house).

Smith (2010) found some tentative evidence for these sorts of effects, but the data used shed only a limited amount of light on the question. Using macroeconomic data, consumption as a share of income was quite subdued through the period of the most rapid house price inflation, and despite the very large house and farm price boom, consumption as a share of income never reached exceptional levels.

It is likely that higher asset prices (and higher house prices in particular) will have altered the distribution of consumption more than they raised total private consumption. If consumption spending during the boom years was growing quite strongly for all groups, that would be more consistent with actual and expected incomes having been the largest influences on household consumption behaviour.

Sometimes financial data can also shed light on these questions. If house prices had directly influenced total private consumption (and especially if the collateral effect was important), we might also have expected to see net household debt (relative to income) rising faster than usual during such a large house price boom. Slightly surprisingly, in the New Zealand data there is no sign of that. Household debt net of deposits had been rising for decades, but showed no sign of rising at a faster rate in the last decade than it did in the previous decade.

Figure 9
Net household debt to income



Source: Statistics New Zealand, RBNZ calculations.

Note: December net household debt (gross debt less fixed income assets) as a percent of immediately following March year annual GNI.

Asset price expectations

Asset price expectations may have influenced consumer behaviour (recall the inter-temporal substitution effect). Unfortunately, we do not have good consistent data for house or farm price expectations over time.

From contemporary evidence, however, it is clear that the initial rise in house prices from 2002 was largely unexpected. There is also little sign that anyone participating in the market expected any reversal in the level of house prices once the boom got going – if anything, interest in ownership of investment properties seemed to increase as the boom went on. Expectations appear to have become much more subdued only once the boom itself subsided. In the new Reserve Bank household survey, the median respondent expects no change in house prices over the coming year. And the ANZ/Property Investors' Federation 2011 survey recently showed that even property investors expect modest falls in real house prices over the next five years.

There is also little to suggest that the farm price boom was expected before it began. However, the behaviour of borrowers – rapidly increasing farm debt and bidding up prices ever further – suggested that for a time at least expectations of continuing farm price inflation became quite established.

These sorts of expectations patterns, if accurately described, may be part of the explanation as to why consumption (as a share of income) was very subdued in the early years of the housing boom and why it is higher than average at present.

3 Conclusion

This article has outlined a framework for thinking about what might explain aggregate consumer spending behaviour. In New Zealand over the last decade, changes in actual and expected income (private and national) seem likely to have been the most important influences. The economy remained stronger than expected for much longer than expected, and, since the recession, has similarly surprised on the downside. Fluctuations in fiscal policy also appear to have been part of the story, materially boosting consumption towards the end of the boom years.

New Zealand asset prices rose substantially until around 2007. Since then, they have mostly fallen in real terms. Asset price swings have often been regarded as an important part of the consumption (and savings) story in New Zealand. However as consumption as a share of income did nothing very unusual during an unprecedented housing boom, it is not obvious that there is a large role for house prices to play in explaining consumption behaviour during the period. But there are always conflicting forces at work and further research will continue to shed light on what shaped New Zealand household behaviour over the last decade. Cross-country perspectives should also add value in interpreting the New Zealand experience. The unresolved questions matter not just for understanding recent history, but also for thinking about how the economy might behave in future asset booms (or busts).

References

- Attanasio, O P (1999), 'Consumption', in *Handbook of Macroeconomics Volume 1B*, eds, in J B Taylor and M Woodford, Elsevier.
- Coleman, A (2007) 'Credit constraints and housing markets in New Zealand', Reserve Bank of New Zealand *Discussion Paper* 2007/11.
- Davis, M A and M G Palumbo (2001) 'A primer on the economics and time series econometrics of wealth effects', Finance and Economics Discussion Series 2001-09, Board of Governors of the Federal Reserve System.

De Veirman, E and A Dunstan (2008) 'How do housing wealth, financial wealth and consumption Interact? Evidence from New Zealand', Reserve Bank of New Zealand *Discussion Paper* 2008/05.

De Veirman, E and A Dunstan (2010) 'Debt dynamics and excess sensitivity of consumption to transitory wealth changes', Reserve Bank of New Zealand *Discussion Paper* 2010/09.

De Veirman, E and A Dunstan (2011), 'Time-varying returns, intertemporal substitution and cyclical variation in consumption', B.E. *Journal of Macroeconomics* (Topics), 11(1), Article 23. Also appeared as Reserve Bank of New Zealand *Discussion Paper* 2011/05 and CAMA Working Paper 2011/14.

Iacoviello, M (2005), 'House prices, borrowing constraints, and monetary policy in the business cycle', *American Economic Review*, 95, 739-764.

Kiyotaki, N, A Michaelides and K Nikolov (2011), 'Winners and losers in housing markets', *Journal of Money, Credit and Banking*, 43, pp 255-296.

Modigliani, F (1971), 'Consumer spending and monetary policy: the linkages', Federal Reserve Bank of Boston *Conference Series* 1971 (5).

Poterba, JM (2000), 'Stock market wealth and consumption', *Journal of Economic Perspectives* 14(2), pp 99-118.

Smith, M (2010), 'Evaluating household expenditures and their relationship with house prices at the microeconomic level', Reserve Bank of New Zealand *Discussion Paper* 2010/01.