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Wealth shocks, credit conditions and asymmetric consumption response: Empirical evidence for the UK

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ABSTRACT

The evolution of real estate prices and the stock market indices in several OECD countries, such as the UK, has attracted researchers' interest to the empirical analysis of consumers' response to subsequent changes in wealth. In this line, this paper investigates the existence of wealth effects in the UK economy, taking into account the credit conditions of financial markets, and whether consumption responds asymmetrically to a positive or negative financial and housing wealth shocks. We apply the Enders and Siklos (2001) M-TAR methodology modified, for application in a multivariate framework, following Stevans (2004); unlike this author, both financial and real estate wealth are included. The results show that there is a consumption wealth effect and that the consumption discrepancies resulting from an unanticipated positive change in real estate wealth are eliminated whereas those resulting from a negative change are not; however, when the changes in the UK households financial wealth are considered, we find that consumption responds only to negative unanticipated changes in such a wealth.

1. Introduction

The evolution of real estate prices and stock market indices in several OECD countries, especially over the last twenty years, has attracted researchers' interest to the empirical analysis of consumers' responses to subsequent changes in wealth. This analysis involves estimating the relationship between consumption, income and wealth in order to test for the presence of a consumption wealth effect. The theoretical framework supporting this relationship can be found in the *permanent income theory* of Friedman (1957) and the Ando and Modigliani (1963) *life cycle model*. The basic idea in the *permanent income consumption theory* is that the agents' consumption in a single period is a function of their expectation of future income; on the other side, Ando and Modigliani argued that consumers smooth consumption over their life cycle.[1] According to these theories, only unexpected changes in wealth involve a higher target consumption spending.[2]

Recently, a few works have tried to test whether consumption behaves in an asymmetric way when there are positive and negative changes in wealth. Our paper focusses on this issue analysing both the short-run and the long-run behaviour of the relationship between UK households' consumption expenditure and wealth. Since wealth can be available for consumption with different degrees of liquidity and facilities, we disaggregate wealth into financial (more liquid) and real estate (less liquid) wealth and we include a credit conditions index to take into account the financial credit market facilities. So in order to analyse whether a wealth effect exists or not, we test for the existence of a cointegration relationship between consumption, income, wealth and the credit market conditions, allowing for an asymmetric adjustment to the long-run equilibrium relationship. For this purpose we use the momentum threshold autoregressive model (M-TAR) proposed by Enders and Siklos (2001), which is modified for application in a multivariate framework. We follow Stevans (2004) in this respect.

With regard to the short-run behaviour, our aim would be to answer whether the negative consumption discrepancies are eliminated in a quicker way than positive ones. That is, if actual consumption is below its equilibrium level (negative consumption discrepancy) because of an unexpected wealth increase, will consumption adjust to the target spending quicker than if consumption is above its long-run equilibrium level (positive consumption discrepancy) due to an unexpected wealth decrease?

Unlike most of the authors, who only study the response of consumption to changes in equity prices, both financial and real estate

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[1] For the life cycle theory to be true, some simplifying assumptions need to be made: consumers make no distinction between different forms of wealth and have costless access to perfect capital markets. A more detailed analysis can be seen in Belsky and Prakken (2004).

[2] See Davis and Palumbo (2001) for a more detailed explanation.

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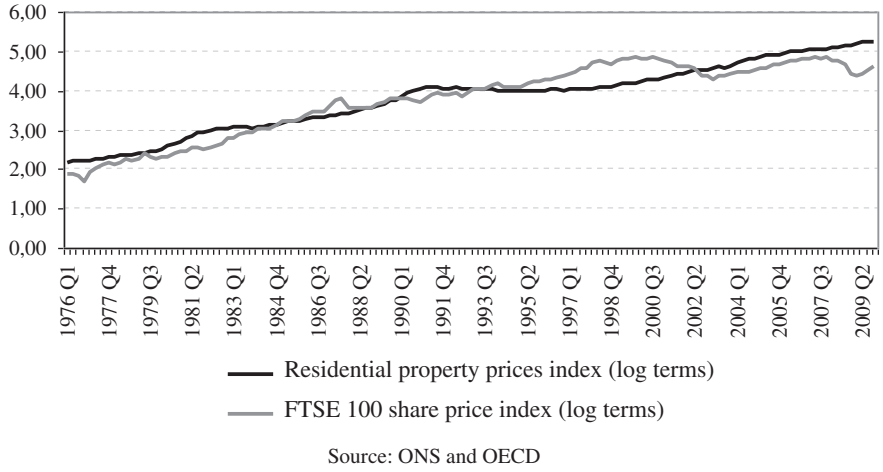

Fig. 1. Evolution of equity and real estate prices indexes in the UK, 1976:Q1–2009:Q4. Source: ONS and OECD.

wealth are included in our paper as a possible source of asymmetries in consumption responses. As far as we know, apart from some papers applied to the USA case[3], there are no more studies about the possible asymmetric response of the households' consumption expenditure when housing wealth changes[4]; so our paper contributes to provide new evidence on this matter. We consider this as a relevant contribution given the evolution of the UK real estate market in the last years (see Fig. 1). Thus, from the end of the XX century, the previous smooth upward tendency turns into a steeper one that could have been considered as unexpected by UK households in relation to the preceding evolution. In addition, the persistence of such increases could have also been seen as a permanent shock, what could have caused a relevant effect on consumption.

We find a long-run relationship among consumption, income, wealth and the credit conditions, so there exists a consumption wealth effect which is influenced by the financial markets conditions. We also find that the consumption adjustment to the long-run equilibrium relationship when a positive change in real estate wealth occurs is significant whereas when real estate wealth decreases the consumption adjustment is not significant (the evolution of housing equity withdrawal in the UK could be crucial for understanding these results), and that the opposite is true for financial wealth. We also find that these differences are statistically significant, so we conclude that UK consumption responses to wealth shocks are asymmetric.

This paper is organized as follows: in Section 2 we describe several theoretical aspects of the consumption wealth effect and review the main empirical results for different countries. In Section 3, we explain the reasons for looking for asymmetric consumption responses to wealth shocks from a theoretical perspective. In Section 4, we present the empirical results for the UK and, finally, Section 5 summarizes our main findings.

2. Consumption wealth effect: theoretical aspects and empirical evidence

As previously mentioned, the theoretical framework for analysing the consumption–income–wealth relationship is based on the *life cycle model* proposed by Ando and Modigliani (1963) and the Friedman (1957) *permanent income hypothesis*. The main idea behind these models is that consumers want smooth consumption paths so they will vary their net wealth positions (e.g. using capital markets, borrowing or lending) to reach this goal when a wealth or income shock occurs. Besides, only unexpected changes in wealth (or income) have effect on planned consumption.

Consumer response to these shocks is revealed by the so-called *consumption wealth effect*, which could be defined as the variation in aggregate consumption when wealth changes. Following Boone and Girouard (2002), there are two possible channels for the wealth effect:

1. Direct channel: agents can sell their assets (financial or non-financial) and increase consumption. An increase in asset prices could also encourage consumption, as agents feel wealthier even though they do not sell their assets.
2. Indirect channel: agents can increase their borrowing capacity as their wealth grows, since the value of the available collateral is higher. This is, therefore, an indirect way to increase consumption which will depend on the degree in which financial markets make available credit to consumers.

The relative size of these two channels will depend not only on this previous condition but on the degree of liquidity of the particular asset market, on the regulation of the financial markets and on the demographic distribution of asset ownership as well.

Many empirical studies have tested this relationship between consumption and wealth in different economies. The results seem to support a long-run relationship between consumption, income and wealth. Generally, the cointegration relationship is estimated first and the short-run dynamic is then analyzed.[5] Although most empirical studies consider private consumption, specifically of non-durable goods, as the dependent variable, some distinguish between durable consumption on the one hand and non-durable consumption and services on the other, as in Sastre and Fernández-Sánchez (2005) for the Spanish economy. Independent variables, in addition to income and different sources of wealth[6], usually include the unemployment rate, the inflation rate and the short-term real interest rate. The unemployment rate is usually included as a measure of future household uncertainty, and the estimated coefficient is always negative

[3] See Engelhardt (1996), Case et al. (2005), and Donihue and Avramenko (2007).

[4] Disney et al. (2002) examine the impact of housing capital gains on savings behaviour during the 1990s British housing market cycle. However, neither the variables nor the approach is similar to those considered in our paper.

[5] This is the case in Boone and Girouard (2002), Catte et al. (2004) and Pacheco and Martins Barata (2005). Sastre and Fernández-Sánchez (2005) consider a VEC, enabling them to analyze the relationships between the different system variables. Panel cointegration techniques are applied in other cases, usually to a set of countries or to different country states. Some examples are Ludwig and Slok (2004), Case et al. (2005), Rapach and Strauss (2006) or Dvornak and Kohler (2007).

[6] Boone et al. (1998) only consider financial wealth, whereas Boone and Girouard (2002) estimate two different model specifications, one with aggregate wealth and another considering financial and real estate wealth separately.