# CONSUMPTION DYNAMICS IN SPAIN BY PRODUCT TYPE

The authors of this article are José González Mínguez and Alberto Urtasun, of the Directorate General Economics, Statistics and Research.

## Introduction

Private consumption explains a substantial proportion of the fluctuations in economic activity in Spain in the most recent cycle given its high weight as a percentage of GDP - currently around 58% in nominal terms – and the intensity of the variations in this demand component during that period. Specifically, between the pre-crisis peak in 2008 Q1 and the trough of the recession in 2013 Q1, consumption dropped in real terms by 12.6%. Thereafter until early 2015, household spending on consumer goods and services rose by 4.8%.

Fluctuations in consumption are not distributed proportionately among the different types of goods and services. Reductions in expenditure usually affect durable goods to a greater extent since households do not derive their utility directly from the current expenditure incurred but from the consumption services obtained from the products acquired. Thus, households can reduce these purchases in periods when their current income is low, with a relatively small decline in their utility, and postpone them to periods in which this income has recovered (giving rise to what is known in the literature as pent-up demand). Furthermore, the adjustment in the consumption of durables may be sharper when there are adverse financial conditions which make it more difficult to obtain credit (see Arce et al, 2013).

In turn, several factors prompt households to adjust their consumption of the various types of non-durable goods and services unevenly in response to a negative income shock. On one hand, there are products whose elasticity to changes in income is low because they cover basic vital needs, whereas other products are more dispensable ("non-essential consumption"). On the other, there are expenditures whose downward adjustment, especially in the short term, show a high degree of stickiness, for example, agreements entered into in earlier periods which cannot be cancelled immediately ("non-adjustable consumption").

This article studies changes in private consumption in the Spanish economy over the economic cycle from the standpoint of its breakdown by product. In particular, the role played by durables and non-staple goods and services in explaining the fluctuations in consumption is examined. National Accounts (NA) data covering the 1995-2013 period are used for this purpose, supplemented for 2014 by the results of the Household Expenditure Survey (EPF, by its Spanish abbreviation).

Section 2 looks at the arguments which would suggest an asymmetrical adjustment of the various types of goods and services in the presence of income shocks and changes in expenditure on each group considered are examined, including an analysis of the contribution of prices and the real component to changes in each expenditure item. Next, a durable goods consumption model is estimated with the intention of identifying the gap between the existing durables stock and that desired by households; the latter is understood as the level which would be maintained in the absence of adjustment costs and other frictions. Lastly, a summary of the main findings is presented.

## The breakdown of changes in consumption by product

Faced with a negative income shock, particularly in cases of persistent fluctuations of a high magnitude, such as those experienced during the recent crisis, household spending does not decrease proportionately for all types of goods and services. For example,

Hamermesh (1982) and Parker (1999) find that reductions in expenditure caused by a decrease in income are concentrated on luxury goods and services, which are usually those that show higher intertemporal elasticity of substitution. Charles and Stephens (2006) focus on those expenses which, for various reasons, it is difficult to reduce in the short term. These goods may include rental services or contracts for the occupancy of dwellings and since their consumption tends to be necessary and subject to agreements, it is difficult to adjust them in the short-term.

Browning and Crossley (2009) emphasise the durable nature of certain goods as an important determinant in aggregate fluctuations of expenditure on consumption. Since durable goods provide consumption services not only when they are acquired but also in subsequent periods, a notable reduction in the expenditure on this type of goods may entail only modest decreases in the utility of consumers. Thus, consumers may find it optimal to notably reduce purchases of this type of goods following a sufficiently large unfavourable shock to disposable income. Conversely, during recessions the proportion of non-adjustable expenditure on staple, non-durable consumer goods and services would increase in terms of total expenditure. These changes would reverse during upturns, leading to higher spending on non-essential goods and services and to the satisfaction of pent-up demand for durables, that is, rekindling demand for new products of this type which was postponed during the downturns.

Based on these considerations, changes in consumption in the Spanish economy since the beginning of the recession to date are analysed below, distinguishing between different types of goods and services. For this purpose, household expenditure on consumption has been broken down into four categories of goods and services comprising, specifically, staple non-durables, non-essential non-durables, durables and semi-durables, and non-adjustable consumption.[1] The COICOP classification, which presents two different levels of breakdown of household consumption,[2] was used as a starting point to assign each type of good and service to one of these categories. The resulting correspondence is shown in Table 1.

In nominal terms, the category with the heaviest weight in total expenditure is non-essential goods and services, which represents 46.6% of the total on average between 1995 and 2013 (left-hand panel of Chart 1). Each of the three remaining categories – namely, durables, necessary goods and services and non-adjustable goods and services – represent approximately 18% of the total.

The right-hand panel of Chart 1 summarises changes, in real terms, between 1996 and 2013, in the four categories of goods and services constructed, distinguishing between the expansionary phase of the economy – identified with the period 1996-2007 – and the crisis stage including 2008 to 2013.[3] Total consumption performed very differently across

1 This classification is to some extent similar to that in Bils and Klenow (1998), where expenditure on consumer goods and services is broken down according to two main characteristics: their degree of durability and their degree of luxuriousness.

2 COICOP (Classification Of Individual Consumption by Purpose) is a classification of household consumption expenditure developed by the United Nations Statistics Division. At the lowest level of the breakdown (classification to one digit) there are twelve types of goods and services. For some of them it is easy to trace correspondence with the four categories of goods and services defined. In other cases, by contrast, it is evident that some of the specific COICOP classes at the level of one digit include products from more than one of the four categories and, consequently, it was necessary to use the highest level of the classification with two digits.

3 The focus in this article is on the impact of the cycle on the various items of consumption. However, not all the developments observed in such items are cyclical in nature but rather, in certain cases, they respond to structural factors. An example in this connection would be the sharp fall in postal services (category 8.1), as a result of this means of communication falling into disuse in comparison with other alternatives.

CLASSIFICATION OF HOUSEHOLD CONSUMPTION TABLE 1

| Category | COICOP classes |
|---|---|
| a. Staple non-durables | 1 Food and non-alcoholic beverages |
| | 6.1 Medical products, appliances and equipment |
| | 7.3 Transport services |
| | 10 Education |
| b. Non-essential non-durables | 2 Alcoholic beverages, tobacco and narcotics |
| | 6.2 Outpatient services |
| | 6.3 Hospital services |
| | 8.1 Postal services |
| | 8.3 Telephone and telefax services |
| | 9.4 Recreational and cultural services |
| | 9.5 Newspapers, books and stationery |
| | 9.6 Package holidays |
| | 11 Restaurants and hotels |
| | 12 Miscellaneous goods and services |
| c. Durables and semi-durables | 3 Clothing and footwear |
| | 5 Furnishings, household equipment and routine household maintenance |
| | 7.1 Purchase of vehicles |
| | 8.2 Telephone and telefax equipment |
| | 9.1 Audio-visual, photographic and information processing equipment |
| | 9.2 Other major durables for recreation and culture |
| | 9.3 Other recreational items and equipment, gardens and pets |
| d. Non-adjustable consumption | 4 Housing, water, electricity, gas and other fuels |

SOURCE: Banco de España.

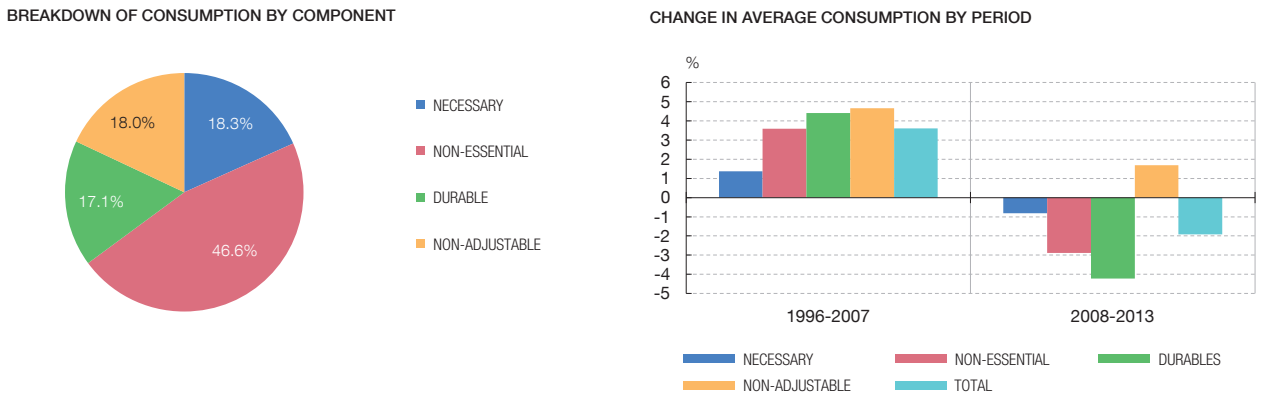
the two stages: in the first stage the annual average rose by 3.6%, whereas in the second stage it fell by 1.9%. Furthermore, the differences in the developments of the four categories of products considered are also very notable. Staple non-durable goods and services have comparatively low cyclical elasticity in relation to the other goods and services. Consequently, although, as in the case of total consumption, expenditure in this category increased in the boom phase and fell in the crisis, the difference between the annual average rates between the two periods (1.4% and –0.8%, respectively) was considerably lower than for aggregate consumption (and this gap was even lower if food consumption is considered in isolation). Expenditure on education, an item included in staple consumption, grew at very similar rates in the two periods.

The cyclical swings are much more pronounced in the case of non-essential durables, confirming their greater elasticity than income. When consumers adjust total expenditure for reasons such as liquidity constraints or higher uncertainty, the adjustment falls more than proportionately on this type of consumption. During the cyclical upturn, expenditure on these products grew 3.6% and during the crisis it dropped 2.9%. Noteworthy within this category, on account of the magnitude of their fluctuations and their significance, are the items of accommodation (which grew 0.7% in the boom and fell 5% in the crisis) leisure, entertainment and culture (with respective rates of 4.8% and -2.5%), hotels and restaurants (2.7% and -3.1%), holiday packages (6.3% and -1.9%) and alcoholic beverages and tobacco (2.1% and -4.6%).

Similarly, the annual increase in expenditure on durable consumer goods during the upturn averaged 4.4%, 0.8 pp higher than that in total expenditure, whereas during the downturn it

DISAGGREGATED CONSUMPTION IN SPAIN

CHART 1




SOURCES: INE and Banco de España.

slipped 4.2%, 2.3 pp more than consumption as a whole.[4] Seemingly, during the crisis, a substantial portion of the adjustment of household expenditure affected this type of goods. While many of the products in this category and those in the previous category do indeed share the characteristic of not being necessary goods, the higher relative adjustment suggests that households have been able to reduce the pace at which they purchase durables in order to temper their total consumption without incurring large losses of utility, given the stock of these goods acquired in the past. Furthermore, in practice the effective average life of durable goods might be extended beyond their theoretical amortisation period. This argument applies not only to durable consumer goods with a useful life which can be lengthened by a good number of years, such as automobiles, but also for other semi-durables such as clothing and footwear, or household furnishings.[5] Noteworthy within this item, on account of their significance, are groups of expenditure such as those relating to household appliances, household textiles and vehicle purchases, with increases of 5.5%, 5% and 5.7% in the boom and changes of -4.8%, -7.1% and 1.6%, respectively, in the crisis.

Finally, the category of non-adjustable consumption which includes, as indicated above, household expenditure on actual and imputed rents, home maintenance and utilities such as water, gas and electricity, showed the highest growth in the boom phase with an annual average growth rate of 4.6% (1 pp higher than the rate of increase in total consumption), and also during crisis, when its average rate of increase was 1.7% (3.6 pp higher than total household real expenditure). This shows that these expenditures, like those in the first category are essential life-sustaining consumption, along with the fact that, in many cases, adjusting them downwards is not straightforward since their magnitude depends on contractual commitments previously assumed by households.

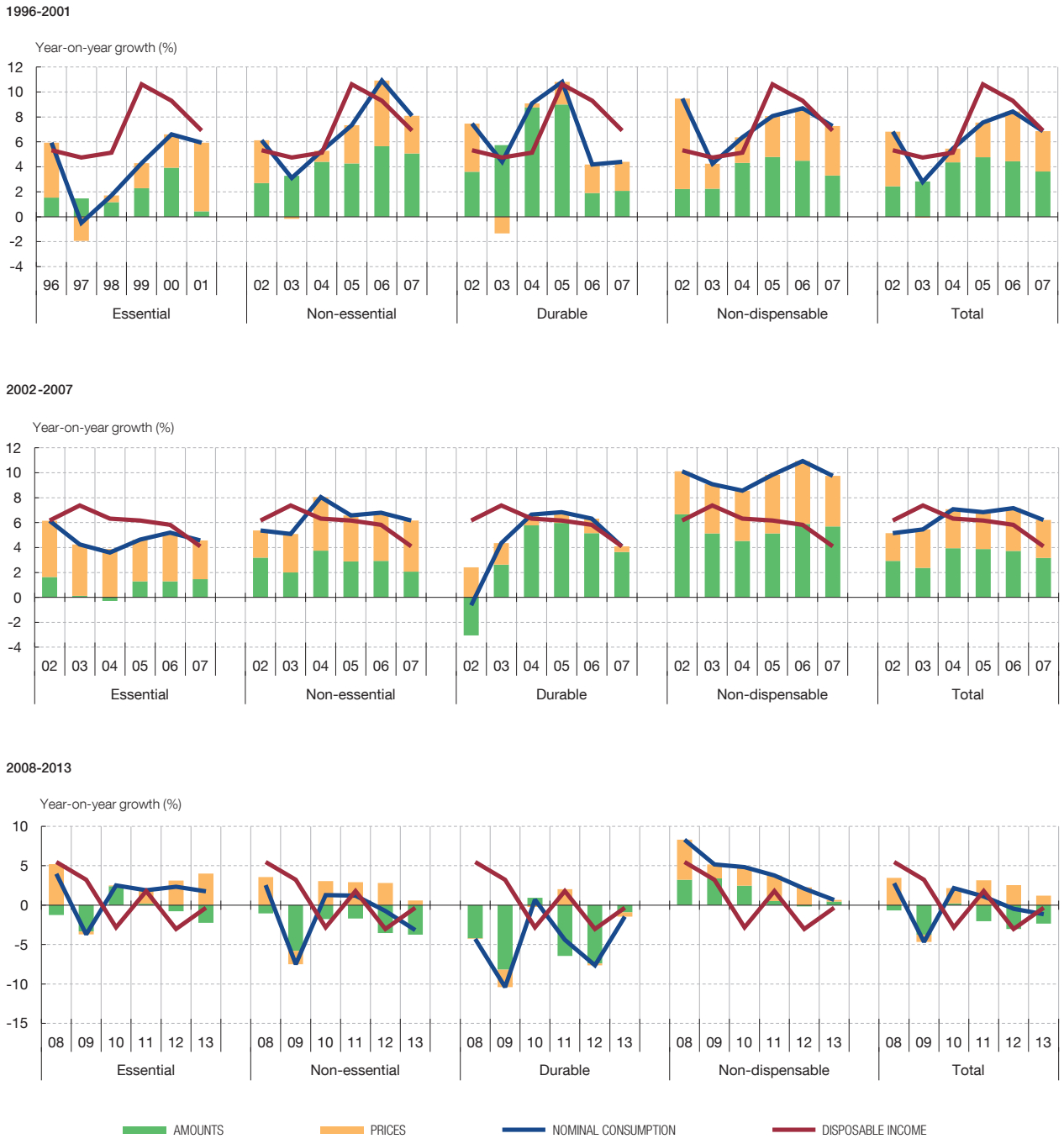
Large differences were not observed in the cyclical price developments of the different types of consumption. What has definitely happened is that the relative price of durables

4 It should be taken into account that the upturn was characterised by extremely buoyant house purchases, which usually entail a high volume of expenditure in initial purchases of durables. Additionally, the growth of the real estate market stemmed from a considerable improvement in access to credit, part of which may have contributed to the financing of spending on household equipment or on other durable goods.

5 In Bils and Klenow's disaggregation (1998), consumer goods are broken down into 57 categories, only 11 of which are deemed to be non-durable goods (basically, food, alcohol, cigarettes and other tobacco, newspapers and magazines and oil and gasoline). The remainder are durable goods, whose expected life may vary between one year (women's stockings) and 27 (silverware). The average lives are calculated on the basis of actuarial tables used by insurance companies in the United States.

NOMINAL CONSUMPTION: BREAKDOWN BY PRICE AND AMOUNT

CHART 2




SOURCES: INE and Banco de España.

has fallen in the two stages of the cycle (an average annual rate of decline of approximately 1.4% and 2.1%, respectively, in the phases of expansion and recession). Chart 2 shows a breakdown of the year-on-year rates of change in the consumption of each type of product in terms of volume and price. In keeping with the data described above, the rate of increase in real consumption of durables was higher, in the upswing in the cycle, than in total consumption. Nevertheless, considering the changes in relative prices moderates the size of this gap in nominal terms. Chart 2 also shows how the prices of non-adjustable consumption have tended to move at relatively high rates irrespective of the phase in the cycle, with the result that growth in nominal expenditure on these goods and services has

clearly exceeded income growth, triggering an increase in the weight of expenditure on these goods in household budgets.

Comparing nominal consumption with disposable income permits a better understanding of the changes in the household saving rate based on the analysis of the fraction of income earmarked for the consumption of each category of goods and services. Accordingly, it can be seen how maintaining expenditure on essential non-adjustable goods explains the moderation of the saving rate, whereas non-essential goods (in the first part of the recession) and durable goods, throughout the crisis, fell in nominal terms by considerably more than disposable income. The latter entailed a clear boost to household saving, in line with the greater uncertainty households faced when taking decisions on expenditure.

### The build-up of pent-up demand during the recession

As indicated above, insofar as a decrease in expenditure on durables has a relatively modest impact on the related stock (all the more so the longer the life of the goods), an unfavourable shock to disposable income can give rise to very negative rates of expenditure on this type of goods with a small impact at the same time on the utility of consumers. For modest shocks, expenditure on durables will be such that it will reduce the speed of the increase in the stock. The higher the magnitude of the shock, the greater the reduction in expenditure and, consequently, the increases in stock are ever lower until they become equal to zero, in which case, the expenditure incurred merely serves to maintain the size of the stock unaltered. Henceforth, the expenditure does not even cover the depreciation of the existing stock, and consequently, the latter begins to decline. It is from that time onwards that the negative impact on the services provided by durable consumer goods and, consequently, on the utility of households begins to become more pronounced. Under these circumstances, pent-up demand builds up and will not be satisfied until current income recovers (Browning and Crossley, 2009).

In addition to its observed impact on the durable goods stock, a reduction in income also has an effect on the desired stock, defined as that level of holdings of durable goods which is consistent with the determinants that would be observed if there were no frictions (such as adjustment costs, lack of liquidity, etc). By definition, the adjustment of the desired stock occurs immediately, unlike what happens with the observed stock. For this reason, the difference between the desired stock and the expected stock could be expected to behave procyclically. When the recovery arrives, unsatisfied demand will be the sum of pent-up demand during the recession and the immediate rise in the desired stock.

In order to approximate quantitatively the volume of the gap between the desired and observed durable stock levels at any given time, an empirical model of household consumption of this type of products was estimated.[6] Specifically, an equation in levels is estimated which attempts to approximate the desired durables stock, in accordance with its economic determinants.[7] The set of explanatory variables includes the usual variables in a consumption equation, namely, disposable income, total (financial and non-financial)

6 Here the definition of the durable goods aggregate is slightly different to that of Table 1 (which is used in the preceding section of this article). This is because quarterly time series are needed. Specifically, the definition used is that of Sastre and Fernández-Sánchez (2005), which considers the following are durable consumer goods: automobiles; furniture, furnishings and other floor coverings; household appliances; tools for the home and garden; telephone and fax equipments; audio-visual, photographical and data processing equipment and accessories; other important leisure and cultural durables; and 50% of personal belongings not reported above. It is also necessary to assume a specific value for the depreciation rate of these goods. The value adopted (17% per year), was taken from Cerletti and Pijoan-Mas (2014).

7 Under the cointegration assumption, which is not rejected at the 10% significance level.

wealth and the real interest rate.[8] The evolution of the relative price of durable goods with respect to non-durable goods was also included.[9]

Lastly and, highly significantly, the equation incorporates the net creation of households as an explanatory variable. The inclusion of this variable attempts to factor in the initial investment in durables following the purchase of a home. The period considered was characterised by the sharp fluctuations in the emergence of new households. This flow was very high in the upswing when it was fuelled by notable population growth (in turn, the result of the pronounced procyclical behaviour of migratory flows). Thus, while in the period 1996-2007, annual population growth averaged 1.2%, this rate dropped to 0.5% during the crisis and has fallen since 2013.

The results of the estimation are consistent with economic intuition, insofar as the desired durables stock at any given time depends positively on income and financial and non-financial wealth, and the net household creation flow; and negatively on the relative price.[10] Once the equation has been estimated, it is possible to compare the desired durable stock level – or the level explained by its determinants – with the level observed, and, as a result the difference can be interpreted as a deviation of the desired stock with respect to the actual stock.

The left panel of Chart 3 shows the gap between the desired stock and the observed stock in percentage terms (blue line). During the upswing, the high rate of increase in income and household wealth not only prompted rapid growth of durable goods purchases (and, consequently, an increase in the durables stock), but also strong growth of the desired stock, which according to these estimations, is expected to have given rise to a positive gap between the desired stock and that observed for most of the previous expansionary cycle. At the beginning of the crisis, this was reversed, with the result that although the acquisition of durables slipped sharply, the desired stock of durables fell even more, giving rise to a persistently negative gap as from 2009. As the crisis persisted, against a backdrop of high uncertainty and difficulties in obtaining credit, the fall in spending was such that agents began to postpone the restocking of goods, causing the observed stock level to gradually fall below the desired level and the gap between the two became positive once again. When the economy emerged from the crisis, the recovery of the determinants (current income and household wealth), as well as lower uncertainty and greater availability of credit boosted expenditure on durables and, along with it, the observed stock of durables. However, those same factors have also promoted a faster increase in the desired stock and, consequently, the gap has remained highly positive which, *ceteris paribus*, is consistent with the existence of a significant volume of pent-up demand at the end of the sample period. This seemingly explains, to a large degree, the strong pace of increase in consumption (especially in headings linked to durable goods) during the current phase of economic recovery as analysed below.

## The recent recovery of consumption

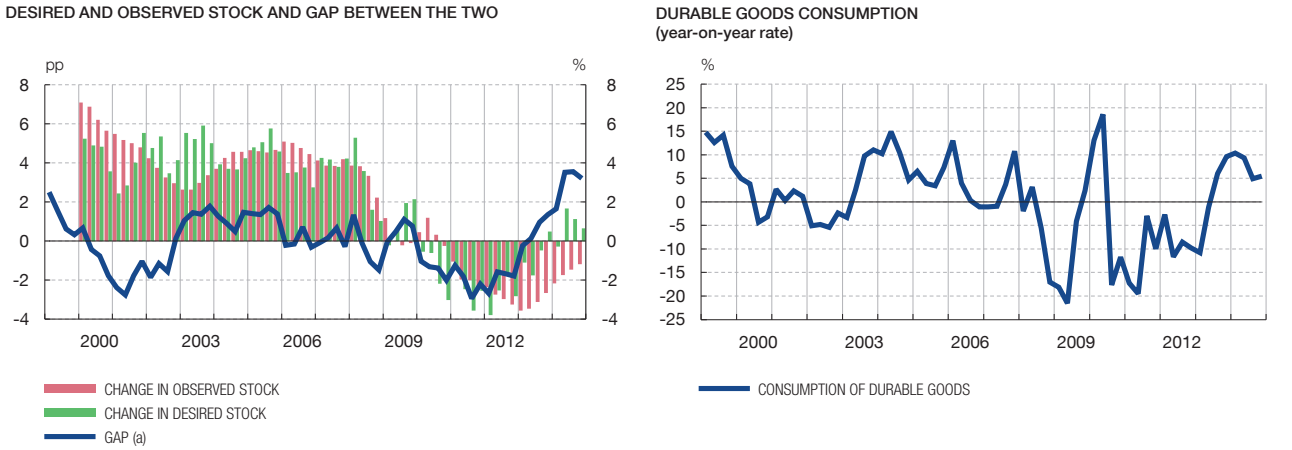
Following the trough at end-2012, private consumption began to show more buoyant behaviour and posted increases from the second half of 2013, which quickened in 2014. However, based on the data source used in this article – NA – it is not possible to obtain evidence with a sufficient degree of detail for 2014 since the data required are only available until 2013. An alternative source is the EPF.

8 Household non-financial wealth, which is basically housing, aims to factor in the effects of the strong growth of the real estate market during the boom.

9 Fernández-Corugedo, Price and Blake (2003) show the importance of entering this relative price in the equation to ensure cointegration of the constituent variables.

10 By contrast, the interest rate coefficient was not significant.

DURABLE GOODS: CHANGES IN OBSERVED AND DESIRED STOCK AND IN FLOW OBSERVED CHART 3




SOURCE: Banco de España.

a Gap between desired and observed stock (in pp of observed stock). Positive values of the gap (where the desired stock is greater than the observed stock) would lead to positive contributions to the growth of spending on durables.

The left-hand panel of Chart 4 points to a high correlation between the average rates of change in consumption broken down by component in the period 2008-2013,[11] which shows a high degree of consistency of the NA data used in the remainder of the article for those dates with information from the 2014 EPF. Against a backdrop of lower uncertainty and improved determinants, the strengthening of household expenditure in the last year, as shown in the right-hand panel, fell on durable goods (in response to the desire to bring the observed stock closer to the desired stock) and on non-essential goods and services which had experienced higher declines during the recession. Specifically, the items which have recorded the highest increases were clothing and footwear, health, transport, communications, and hotels and restaurants. By contrast, the recovery was less marked for the headings of furnishings, household equipment and routine household maintenance, which is probably explained by weak residential investment.

The economic information available for the opening months of 2015 indicates that consumption of this type of goods and services will continue to grow robustly as shown, for example, by the growth of new private car registrations, overnight hotel stays of residents, the components of the services sector activity indicator or the sales of large corporations relating to consumption services.

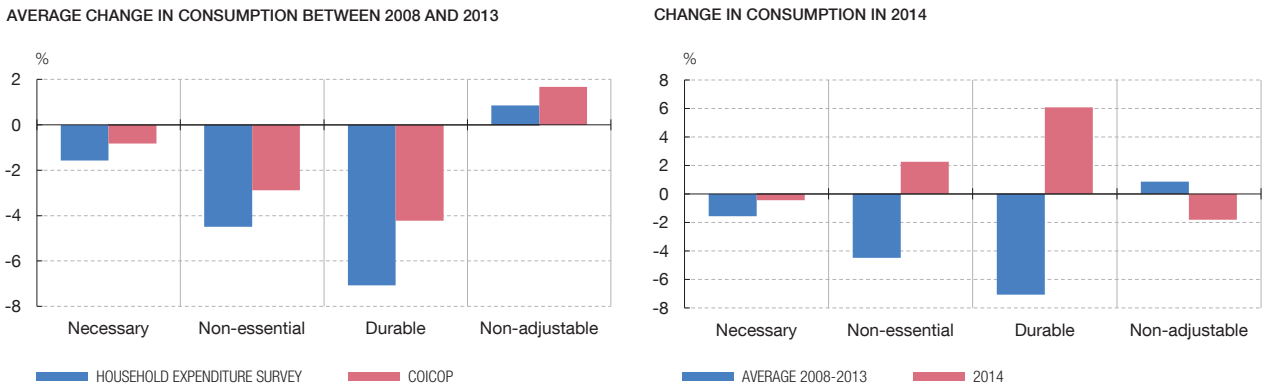
## Conclusions

In the latest economic cycle, private consumption experienced very visible changes prompted by fluctuations in household income and the notable change in financial conditions and in the general level of uncertainty observed since the beginning of the crisis. However, the fluctuations in household consumption do not have a proportional impact of the different types of product. Particularly, purchases of durable goods and non-essential goods and services are subject to greater volatility.

This article analyses changes in consumption by product type, according to a breakdown into four categories of goods and services: those whose adjustment is subject to stickiness, such as rents and household utility contracts (which we call non-adjustable),

11 The coefficient of correlation between the estimated annual rates according to both information sources is 0.92.

CONSUMPTION AT THE BEGINNING OF THE RECOVERY CHART 4




SOURCES: INE and Banco de España.

staple non-durables, and other non-durables and durables. For this purpose a long time perspective was adopted, covering the period 1995-2013 and including phases of expansion and adjustment of consumption. In line with the theoretical prescriptions, changes in consumption have fallen more than proportionately on durable goods and non-essential, easily adjustable, non-durable goods. Noteworthy in any event is the marked impact of the crisis on durable goods purchases.

The available information on the breakdown of private consumption in 2014 and in 2015 indicates that the recovery observed in aggregate terms seems to have fallen mainly on the components which decreased to a greater degree during the recession. Nevertheless, the rise in durable consumer goods purchases observed to date seems to have permitted only partial satisfaction of the pent-up demand which built up during the crisis. The persistence of this type of pent-up demand, together with the improvement of consumption determinants, indicate that the buoyant performance of this aggregate will continue in the short term.

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