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The role of the social environment in household consumption decisions in Spain

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This article analyses the relationship between household consumption and that in their social environment, defined as those households that live in nearby geographical areas. The results, drawn from the Spanish Household Expenditure Survey, reveal that, on average, approximately one-third of the non-durable goods consumption of the average Spanish household is influenced to some extent by the decisions of its peer group, a magnitude that is in line with the evidence available for other countries. The influence of the social environment appears to be greater for certain specific goods, such as tobacco, clothing, leisure activities and alcohol. This analysis may help us understand how specific shocks, which initially have a direct bearing only on the expenditure of very specific population groups, ultimately affect the consumption of other, broader population groups.

THE ROLE OF THE SOCIAL ENVIRONMENT IN HOUSEHOLD CONSUMPTION DECISIONS IN SPAIN

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Introduction

The dynamism of the household consumption of goods and services is proving to be one of the main determinants of the recovery in the Spanish economy. From mid-2013 to end-2017, real household expenditure posted average year-on-year growth rates of 2.5%. This sound consumption performance is largely due to the increase in household income, as a result of the pick-up in employment, along with the improvement in financial conditions arising from the moderation in the cost of credit and the easing in the terms of access to financing.[1]

Traditional macroeconomic models that are based solely on the standard economic determinants of consumption (such as income and the cost of financing) have generally proven insufficient to explain much of the pattern of household expenditure over sufficiently lengthy time horizons (Deaton (1992)). In this respect, Campbell and Deaton (1989) had already by the late 1980s highlighted the importance of including habits in consumption models to help understand the process of gradual adjustment that is observed in this variable in the face of permanent household income shocks. Likewise, the inclusion of habits in these models has helped us better understand the aggregate response of consumer spending to changes in monetary policy, the better yield on shares as opposed to less risky assets (the so-called equity premium puzzle), the connection between saving and growth, and how to improve the fit of business cycle models to empirical regularities.

In this respect, the literature has distinguished between two types of habits. Firstly, internal or intrinsic habits, which relate a household's current to its past consumption. Secondly, external habits, which relate a household's consumption to that of its surrounding or peer group, an example being the average consumption of its neighbours.

There is abundant international evidence on the existence of internal habits.[2] By contrast, the empirical studies of external habits are more limited, confining themselves to two major avenues of research. One set of research papers on external habits focuses on how to define the peer group that influences each household. Here, mention may be made of the study by Maurer and Meier (2008), which defines the peer group as that set of households which shares common socio-demographic characteristics. By contrast, other research considers geographical proximity as being key to defining the influential group, confining this group to a province or region (Charles et al. (2009)), city (Ravina (2007)), postcode (Kuhn et al. (2011)) or even the same block of flats or dwellings (Agarwal et al. (2017)).

The second set of studies on external habits focuses on developing models that offer possible reasons why a household's consumption is related to that of its peer group. Firstly, mention should be made of the "keeping up with the Joneses" model, the underlying

1 See Matute and Urtasun (2017) for details of the recovery of consumption in Spain, and Casado and Cuenca (2015) for the comparison with euro area developments.

2 Carrasco, Labeaga and Lopez-Salido (2005) highlight the presence of habits in Spanish household spending on food and services, further noting the significance of non-observable individual heterogeneity in the identification. Browning and Collado (2007), likewise drawing on Spanish data, find the presence of internal habits in household spending outside the home as well as in the consumption of alcohol and tobacco.

explanation for which is that household utility may depend not only on its own consumption but also on attaining a similar level of consumption to that of its social environment.[3] The second type of model that accounts for the significance of external habits takes up the notion of *conspicuous consumption* as expressed by Veblen (1899) and suggest that household expenditure may lean towards more socially conspicuous goods, such as jewellery, cars and restaurants, as these provide them with greater utility. The third type of model is based on the idea that households in the same peer group, faced with adverse or positive shocks, occasionally help one another through income transfers, which ultimately generates similar consumption decisions (risk-sharing).

This article uses data from the Spanish Household Expenditure Survey, following Álvarez-Cuadrado, Casado and Labeaga (2016), with the aim of determining the importance of external habits in Spanish consumers' decisions, once the significance of internal habits and other traditional determinants of consumption decisions have also been taken into account.

Awareness of the significance of the external habits of Spanish household consumption would help explain, for example, spending dynamics in respect of specific groups of goods (see Matute and Urtasun (2017)) and the concentration of spending observed in connection with some more conspicuous goods, such as clothing, leisure activities and alcohol or tobacco. Moreover, studying external habits is important for understanding aggregate consumption dynamics, since in the presence of these habits, idiosyncratic shocks, such as unexpected tax changes affecting only certain taxpayers, may give rise to aggregate consequences that go beyond the group directly concerned. In this respect, better knowledge of the degree of interrelatedness between the consumption of different population groups will help us better foresee the aggregate effect of an economy-wide consumption shock.

Design of the sample

Quantification of the relationship between the consumption of households and that of their peer group is achieved using the Household Expenditure Survey data spanning the period 1985-1997.[4] This survey contains the only data panel in Spain with a time span that tracks each household for eight consecutive quarters; given its size, it is possible to identify the potential presence of internal habits along with unobservable household characteristics. Moreover, this database contains geographical and socio-demographic information for the possible identification of external habits. Specifically, the survey includes the primary sampling unit of each household, which provides for geographical characterisation and identification of the peer group of each household following spatial proximity criteria. This paper constructs, for each household, the consumption of the peer group as the expenditure of its primary sampling unit, excluding the household's own consumption.

The original database contains 30,133 households (148,482 observations). As in most of the literature on consumption, the sample is confined to couples, eliminating those households with a head younger than 25 or older than 60. Finally, and after applying these filters, a sample of 10,296 households (42,869 observations) is obtained.

Using this information, a household consumption equation is estimated that relates this variable to its usual determinants, namely external and internal habits. Specifically, the

3 For further details on the treatment of endogeneity, see Alvarez-Cuadrado, Casado and Labeaga (2016).

4 As from 1998, the Household Expenditure Survey panel does not cover the identification of internal and external habits. See Browning and Collado (2001, 2007) or Casado (2011) for details on the characteristics of this survey.

ESTIMATION OF THE EFFECT OF HABITS ON HOUSEHOLD CONSUMPTION

TABLE 1

	(1)	(2)
Variables	FD-GMMZ	FD-LIML
External habits ($\Delta\bar{c}_{it}$)	0.300** (a)	0.309**
	(0.133)	(0.135)
Internal habits (Δc_{it-1})	0.334*	0.341*
	(0.200)	(0.203)
Number of observations	30,499	30,499
Number of households	10,296	10,296
R^2	0.5350	0.5510
Kleibergen–Paap LM statistics		
Under-identification test	21.49***	
Hansen J statistic		
Over-identification test	0.377***	0.373***

SOURCE: Own calculations based on Spanish Household Expenditure Survey data.
NOTE: Standard errors in brackets. ***P < 0.01, **P < 0.05, *P < 0.1.
The estimation procedures applied to Spanish Household Expenditure Survey data for the period 1985-1997 are generalised methods of moments in the first column and limited information maximum likelihood in the last column. All the regressions include socio-demographic and change in employment situation variables, as well as annual and seasonal dichotomous variables to take the importance of the cycle into account.

a A coefficient of 0.3 is interpreted as meaning that 30% of the observed change in consumption of a household between two quarters is due to external habits.

consumption variable used is that relating to non-durable goods, i.e. food, alcohol, tobacco, services and other items such as spending on heating, public and private transport, personal care goods, and semi-durable goods such as clothing and footwear, which, overall, account for 80% of total consumption. External habits are defined as the average consumption level of each household's primary sampling unit, excluding its own spending, and internal habits as the household's consumption in the previous quarter.

Manski (1993) points out that estimating external habits poses some specific difficulties. In particular, he stresses the difficulty of distinguishing those similar household consumption behaviours that are due to the direct influence of other households (endogenous effect) from those that are simply repeated because these households have similar socio-economic characteristics (exogenous effect). Moreover, households occasionally behave similarly because they are exposed to the same shocks, an example of which might be the opening of a new shop in the same area of influence (correlated effect). In an attempt to define to what extent the results are affected by the exogenous effect, socio-demographic variables belonging to the peer group – such as the average number of adults and of children in the household, the average age and the level of educational attainment – are included in the estimation. Finally, to soften the effect of specific shocks that might arise and affect the primary sampling unit (correlated effect), the estimate includes as additional explanatory variables the rate of unemployment in the province or the average interest rate for households with a loan in each primary sampling unit.

Results

The results of using two alternative econometric procedures to include external and internal habits simultaneously are shown in Table 1. According to these estimates around one-third of the consumption of households is determined by their own consumption in previous periods (internal habits) and approximately another third by that of their peer group (external habits).

ESTIMATION OF THE EFFECT OF HABITS ON HOUSEHOLD CONSUMPTION: ROBUSTNESS TEST I TABLE 2

	(1)	(2)	(3)	(4)
Variables	Baseline	Exogenous effect	Correlated effect	Exogenous effect + correlated effect
External habits ($\Delta\bar{c}_{it}$)	0.300**	0.305**	0.304**	0.308**
	(0.133)	(0.136)	(0.133)	(0.136)
Internal habits (Δc_{it-1})	0.334*	0.330*	0.332*	0.329*
	(0.200)	(0.198)	(0.199)	(0.197)
Average number of adults in peer group		–0.045		–0.046
		0.036		0.036
Average number of children in peer group		–0.013		–0.012
		0.025		0.025
Average age of peer group		0.002		0.002
		0.002		0.002
Average educational attainment of peer group		–0.005		–0.008
		0.017		0.017
Unemployment rate of the primary sampling unit			–0.075	–0.079
			0.052	0.052
Interest rate of the primary sampling unit			–0.030*	–0.028*
			0.016	0.016
Number of observations	30,499	30,499	30,499	30,499
Number of households	10,296	10,296	10,296	10,296
R^2	0.5350	0.529	0.532	0.526
Kleibergen–Paap LM statistics				
Under-identification test	21.49***	21.72***	21.55***	21.78***
Hansen J statistic				
Over-identification test	0.539***	0.513***	0.575***	0.549***

SOURCE: Own calculations based on Spanish Household Expenditure Survey data.
NOTE: Standard errors in brackets. ***P < 0.01, **P < 0.05, *P < 0.1.
All the regressions include socio-demographic and change in employment situation variables, as well as annual and seasonal dichotomous variables.

These results are in line with the findings in the international literature. For the US economy, Maurer and Meier (2008) estimate that between 11% and 44% of household consumption decisions are determined by the consumption of the peer group, while Ravina (2007) puts this proportion at 30%. More recently, De Giorgi et al. (2016) find an effect of 30% for the Danish economy when the peer group is confined to the work setting.

Alternative estimations were performed to check the validity of the findings. Specifically, checks for the presence of what are known as external effects and correlated effects (see previous section) are shown in Table 2. Neither of these were found to give rise to significant changes in the results. Also, alternative definitions of the peer group, based on other variables such as socio-demographic characteristics and random groupings, were considered for the construction of the external habit variable (see Table 3). The results support the importance of geographical proximity of the peer social group in consumption decisions.

Some authors, such as Heffetz (2011) and Quintana-Domeque and Turino (2013), have pointed out that external habits are likely to be more important in the case of consumer goods, such as clothing and leisure activities. Accordingly, following the visibility ranking of Heffetz (2011), non-durable consumer goods are divided into conspicuous and non-conspicuous

ESTIMATION OF THE EFFECT OF HABITS ON HOUSEHOLD CONSUMPTION: ROBUSTNESS TEST II

TABLE 3

	(1)	(2)	(3)	(4)	(5)
	Baseline	Socio-demographic peer group	Baseline + socio-demographic peer group	Random peer group	Baseline + random peer group
Internal habits (Δc_{it-1})	0.334*	0.265	0.292	0.409	0.321
	(0.200)	(0.240)	(0.185)	(0.257)	(0.205)
External habits Geographic definition ($\Delta \bar{c}_{it}$)	0.300**		0.268**		0.276**
	(0.133)		(0.123)		(0.132)
External habits Socio-demographic definition ($\Delta \hat{c}_{it}$)		–0.136	–0.015		
		(0.190)	(0.028)		
External habits Random definition ($\Delta \tilde{c}_{it}$)				0.177	–0.009
				(0.130)	(0.013)
Number of observations	30,499	29,774	30,046	26,599	27,783
Number of households	10,296	10,094	10,187	9,367	9,744
R^2	0.535	0.401	0.454	0.698	0.504

SOURCE: Own calculations based on Spanish Household Expenditure Survey data.
NOTE: Standard errors in brackets. ***P < 0.01, **P < 0.05, *P < 0.1.

ESTIMATION OF THE EFFECT OF HABITS ON HOUSEHOLD CONSUMPTION: ROBUSTNESS TEST III

TABLE 4

	(1)	(2)	(3)
Variables	Baseline	Conspicuous goods	Non-conspicuous goods
Internal habits (Δc_{it-1})	0.334*	0.352	0.248*
	(0.200)	(0.263)	(0.148)
External habits ($\Delta \bar{c}_{it}$)	0.300**	0.385**	0.136
	(0.133)	(0.187)	(0.103)
Number of observations	30,499	29,543	30,494
Number of households	10,296	10,063	10,294
R^2	0.535	0.570	0.351

SOURCE: Own calculations based on Spanish Household Expenditure Survey data.
NOTE: Standard errors in brackets. ***P < 0.01, **P < 0.05, *P < 0.1.

ones. The former include tobacco, clothing, leisure activities and alcohol, while other non-durable goods are included in the non-conspicuous group. Table 4 shows an estimation of external habits, which are found to have an effect of 35% in the case of conspicuous goods (column 2), as compared with 24% for non-conspicuous goods (column 3), underlining the greater importance of external habits for the former.

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