



Sectorial Observatory

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Convergence in consumption habits: what goods and services are more likely to experience growth in Spain in the future?*

- The growing international integration of the markets in goods and services has led to significant changes in the patterns of household consumption.
- Results of convergence analysis carried out using OECD data show that a process of growing convergence is underway between the consumption patterns of different countries.
 - o In particular, calculations show a relatively faster convergence in the consumption of durable goods, as well goods and services related to basic needs (food, beverages, clothing and footwear).
 - o In contrast, no convergence has been detected in the share of household expenditure on health services and recreation and culture.
- The comparison of the household consumption basket in Spain with that in other developed economies suggests that there will be an increase of around 4 pp in spending on durable goods over the next two decades...
 - o ..., and a fall in relative consumption of restaurant and hotel services, which will decline slowly to below 10% of total spending if the process of convergence to the international pattern of consumption is complete.

Mario Alloza
malloza@fedea.es
Juan Ramón García
juanramon.gl@grupobbva.com

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Introduction

The growing international integration of product markets, in particular consumer goods markets, has led to significant changes in the patterns of household consumption in both developing and developed countries.

The changes in the level of economic development fostered by the process of globalization constitute the main catalyst of the variations in the patterns of household consumption. Thus, international empirical evidence¹ indicates that the share of expenditure on essential goods and services drops as the economic situation of a country improves. At the same time, demographic and labor changes resulting from improved living conditions and birth control policies also contribute to this relative reduction in consumption of essential products² (Charts 1 and 2).

A natural consequence of the internationalization of economies and their economic development would be the convergence of consumption patterns between countries, particularly between those making up an area of economic integration. This process of convergence would be helped by the reduction in trade barriers, which make it easier to trade similar products in different markets, and by a possible convergence of household preferences as the range of household choices is extended in a similar way.

Thus, if the existence of convergence in consumer patterns between countries can be demonstrated, a comparison of the composition of the consumption basket in each economy with that of the country or reference group would allow us to identify those market segments that (*ceteris paribus*) are more likely to expand in the future.

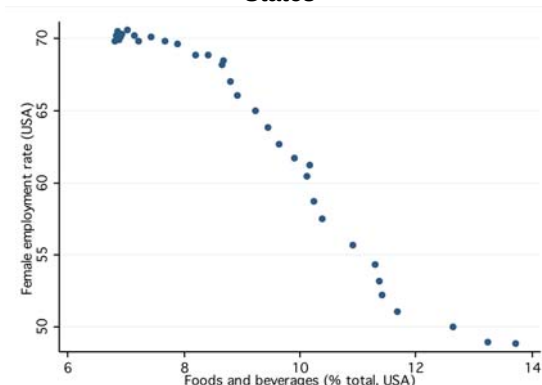
The results of the convergence analysis carried out using OECD data indicate that although there is some degree of heterogeneity, most of the groups of goods and services analyzed show convergence. In particular, estimates demonstrate that there is significantly faster convergence in consumption patterns for durable goods, as well as goods and services related to the basic needs such as food, drink, clothing and footwear.

Taking into account the results of the convergence equations, the comparison of the consumption basket for Spanish households with that of the reference group (either the U.S. or a representative set of OECD countries) indicates that there is a considerable margin for growth in the share of certain products in household expenditure. In particular, we can expect an increase of around 4 percentage points (pp) in the relative consumption of durable goods. In contrast, results suggest that relative expenditure on restaurants and hotels could fall below 10% in the coming years if this process of convergence is complete.

The importance of economic development as a factor explaining the differences in consumption patterns between countries

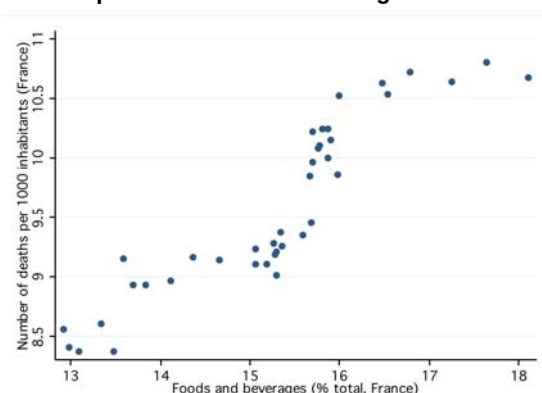
The level of development of an economy and, in particular, the size and composition of the households that make it up, determine the structure of its consumption basket. Using World Bank data³, Chart A.1 of the Annex shows the relationship between the share of expenditure on consumption of each

Chart 1. Female employment rate and the relative consumption of food and beverages in the United States



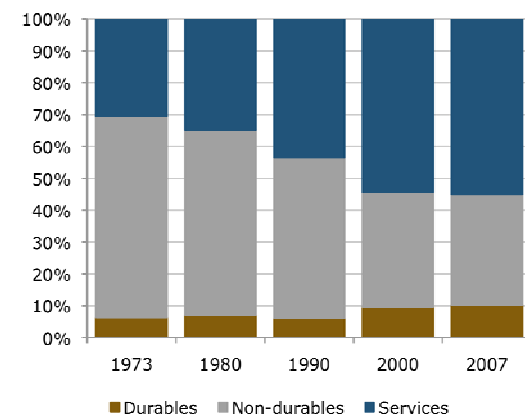
Source: BBVA ERD & Fedea based on OECD data.

Chart 2. Mortality rate and the relative consumption of food and beverages in France



Source: BBVA ERD & Fedea based on OECD data.

Chart 3. Relative consumption of goods and services in Spain



Source: BBVA ERD & Fedea based on data in Luengo-Prado and Ruiz-Castillo (2004) and the OECD.

¹ Houthakker (1957); Selvanathan and Selvanathan (2003) and Clements, Wu and Zhang (2006), among others.

² Deaton (1997) discusses in Chapter 4 the effects that the composition of the household has on consumption patterns. A specific analysis of the Spanish case can be found in Deaton, Ruiz Castillo and Thomas (1989).

³ For more details, see:
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/ICPEXT/0,,menuPK:1973757~pagePK:62002243~piPK:62002387~theSitePK:270065,00.html>

good and service⁴ and the logarithm of the per capita GDP of each country, expressed as purchasing power parity (PPP).

For the vast majority of products considered, the results suggest that there is a clear relationship between aggregate relative consumption and the level of economic development. It is worth noting the close negative relationship between the per capita GDP of each country and the weight of expenditure on food and non-alcoholic beverages, which confirms Engel's law at the aggregate level⁵. In contrast, there is a positive relationship between the level of development and consumption of furnishings and household equipment, transport, communication, recreation and culture, restaurants and hotels and miscellaneous goods and services. Thus, durable consumer goods and in particular services clearly behave as luxury products, *i. e.* their income-elasticity is greater than one.

Preliminary evidence of convergence in consumption habits in developed countries

Previous results offer a static perspective of the relationship between the level of development of an economy and its population's consumption habits. However, a time series for expenditure on each good or service for each economy would be required for a convergence analysis. A shortage of comparable data means the analysis of all the OECD countries⁶, with the exception of Mexico, has to be limited due to the lack of information⁶.

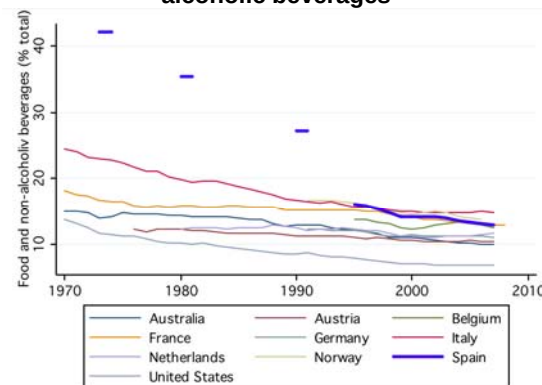
An initial analysis describing the temporary development of consumption habits allows us to extract the following conclusions. First, it shows that the share represented by durable consumer goods of total household expenditure has gradually increased over recent decades. In particular, the relative consumption of durable goods in Spain increased to 10.3% in 2007 from 6.4% at the start of the 1970s⁷ (Chart 3).

Second, relative consumption of food and non-alcoholic beverages has fallen steadily in all the countries under analysis. In those countries with a high per capita income, its share of total household spending is currently around 13%, except for the U.S., where it is below 7% (Chart 4). Similar evidence can be seen for the group of alcoholic beverages, tobacco and narcotics, whose relative consumption has fallen to converge to a figure close to 3% (Chart 5).

Third, the share of household consumption on recreation and culture, as well as communication services (postal services, telephony, fax and the Internet) has increased significantly in recent decades, as can be seen in Charts 6 and 7. As in other economies, Spanish households increased their relative consumption of recreation and culture from 3.4% in 1973-74 to 10.0% in 2007. Similarly, the share of communication in the consumption basket of Spanish households has increased substantially since the 1970s (it now accounts for about 3.5% of the consumption basket, while in 1973 it only accounted for 0.3%).

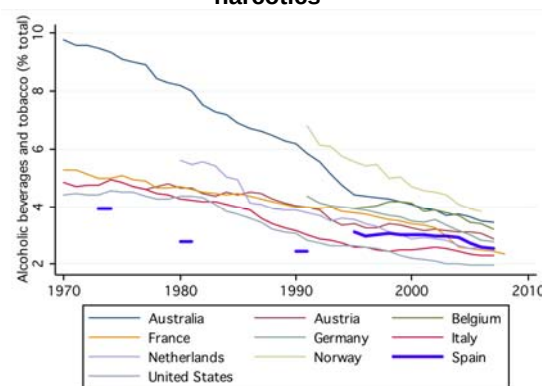
Fourth, consumption related to education services and health services, transport and restaurants and hotels showed a notable stability over time. However, despite their low temporal variability, there was some regional

Chart 4. Relative consumption of food and non-alcoholic beverages



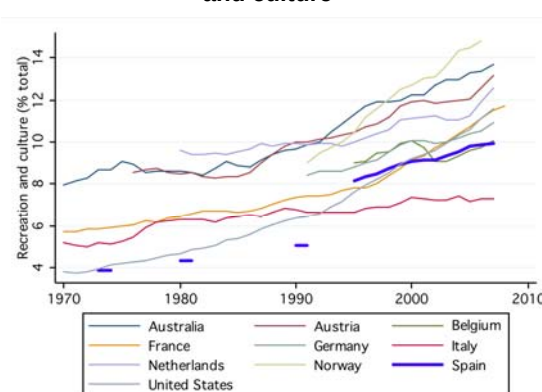
Source: BBVA ERD & Fedea based on Luengo-Prado and Ruiz Castillo (2004) and the OECD.

Chart 5. Relative consumption of alcoholic beverages, tobacco and narcotics



Source: BBVA ERD & Fedea based on Luengo-Prado and Ruiz Castillo (2004) and the OECD.

Chart 6. Relative consumption of recreation and culture



Source: BBVA ERD & Fedea based on Luengo-Prado and Ruiz Castillo (2004) and the OECD.

⁴ The goods and services have been grouped into twelve categories using the classification of individual consumption by purpose (COICOP). For details, see: <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5>

⁵ Engel's law postulates the existence of a negative relationship between consumer expenditure on food and the household income level.

⁶ Unlike the World Bank data, OECD data, available on http://www.oecd.org/document/59/0,3343,en_2649_34259_2008571_1_1_1_1,00.html, are expressed in constant prices, not PPP. However, the similarity of the price structure among the subset of developed countries guarantees the validity of the comparisons made. See BBVA ERD (2009) for a detailed analysis of the differences between the World Bank and OECD data.

⁷ A detailed study of consumption habits in Spain can be found in Luengo-Prado and Ruiz-Castillo (2004).

heterogeneity in the share represented by these expenditures. In particular, the institutional characteristics of the health system in the U.S. mean that relative health consumption by American households is currently 18%, compared with 2-5% in other OECD countries. Another example of regional dispersion is the share of consumption of restaurant and hotel services: while in most countries under analysis it is around 5%, in Spain and Italy it is over 15%.

Finally, other expenditure groups show some variation over time. Specifically, the regional differences in housing policies, as well as the special features of the real estate market in each country, condition the share of home ownership and thus the amount of spending on utilities and repairs. Chart 8 shows that relative consumption of these kinds of goods and services has had a heterogeneous dynamics and is currently within a range of between 16% and 24%. The case of Spain is notable, with expenditure on housing and utilities at only 15.8% of total consumption.

To sum up, the descriptive evidence shown in Chart 9 suggests that there has been a reduction in the degree of dispersion in relative consumption of most expenditure groups. However, in order to verify the existence of convergence in consumption patterns and its quantification, we need a conditional analysis that takes into account the differences in the levels of economic development in different countries.

Estimate of convergence equations by groups of products

To analyze whether there is a process of convergence in the composition of consumption baskets in OECD countries, convergence equations have been estimated for each of the groups of products following the methodology proposed by Kónya and Ohashi (2008). Specifically, the change in year t of the difference between the relative consumption of product j in country i and of reference country (or group of countries)⁸ ($\Delta w_{i,j,t} = w_{i,j,t} - w_{i,j,t-1}$):

$$\Delta w_{i,j,t} = \alpha + \beta w_{i,j,t-1} + \sum_{n=1}^3 \gamma_n \Delta w_{i,j,t-n} + \sum_{k=1}^{12} \delta_{n,k} \Delta p_{i,j,t} + \eta_j m_{i,t} + \sum_{t=5}^T D_t + \varepsilon_{i,j,t}$$

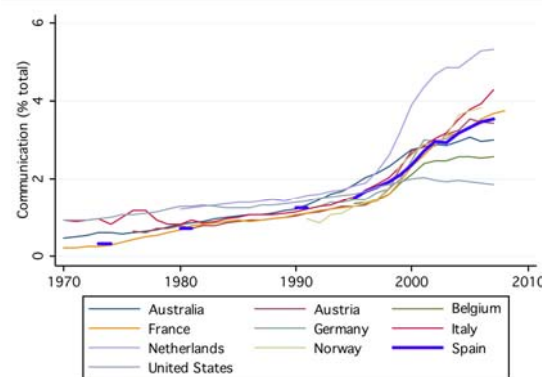
where $p_{i,j,t}$ is the difference between the price of product j in country i in year t with respect to the reference country or group (thus allowing for the existence of substitution effects); $m_{i,t}$ is the logarithmic difference between the real per capita GDP of country i and the reference country or group at time t , which allows for the existence of income effects; and D_t represents a dummy variable that takes the value 1 for year t and 0 otherwise. Finally, $\varepsilon_{i,j,t}$ is the error term⁹. When β is negative and statistically significant, relative consumption of product j of country i converges with the relative consumption of this product in the reference country or group, so that the greater the absolute value of β , the greater the rate of convergence.

As can be seen in Table 1, there is proof of convergence in consumption patterns, although a certain degree of heterogeneity exists between products. In particular, as suggested by the descriptive evidence mentioned above, the results indicate faster relative convergence in the consumption of durable goods as well as food and non-alcoholic beverages, alcoholic beverages, furnishings, household equipment and routine household maintenance and miscellaneous goods and services. In contrast, no regional convergence has been detected in the share of household spending on health services and recreation and culture products. The differences in the

⁸ Two references have been used: the U.S. and a representative subset of OECD countries for which there is a sufficiently long series (Australia, Denmark, France, Italy and the United States).

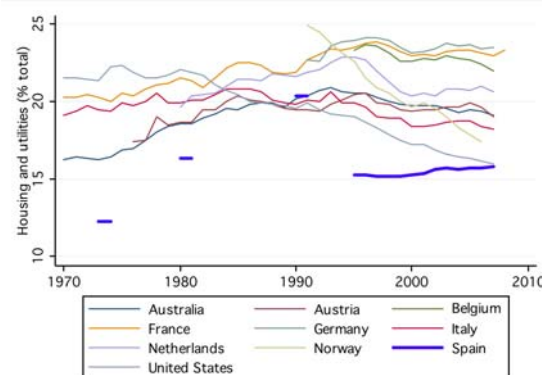
⁹ No problems of non-stationarity in the series have been detected in the first differences. The results of the figures for unit roots are at available.

Chart 7. Relative consumption of communication



Source: BBVA ERD & Fedea based on Luengo-Prado and Ruiz Castillo (2004) and the OECD.

Chart 8. Relative consumption of goods and services relating to housing and utilities



Source: BBVA ERD & Fedea based on Luengo-Prado and Ruiz Castillo (2004) and the OECD.

Chart 9. Regional diversity in the real per-capita consumption by consumption groups



Source: BBVA ERD & Fedea based on Luengo-Prado and Ruiz Castillo (2004) and the OECD.

sources of funding for health systems and leisure preferences among countries explain this result¹⁰. In the case of spending on health, when the U.S. effect is isolated (by introducing a dummy variable) a weak convergence is obtained, with an estimated coefficient of 0.011, only significant at 10%.

Once it has been determined that there is convergence in the consumption habits of developed countries, we can ask to what extent the current composition of the consumption basket of Spanish households differs from the reference group. This allows us to identify what goods and services will probably increase (or reduce) their weight in the consumption basket over the coming years, and thus identify the sectors that will be more (or less) dynamic, assuming that the convergence mechanism operates fully.

Table 2 compares the consumption habits of Spanish households with those of the U.S. and a representative subset of OECD countries. The most notable feature is that despite the increase of nearly 4 pp over the last three decades, the relative consumption of durable goods in Spain (10.3%) is still substantially lower than that observed both in the U.S. (15%) and in the OECD average (14.5%). A similar qualitative result is obtained for the consumption of goods and services related to housing¹¹, health services and miscellaneous goods and services, a varied group that includes products related to personal care, jewelry, insurance, financial services, etc. In contrast, spending on food and non-alcoholic beverages and, above all, restaurant and hotel goods and services, show a comparatively high weight in the consumption basket of Spanish households. This fact, together with the results of the convergence equations, suggests that the “excess” relative consumption of these products will be gradually corrected at a rate of 3% and 1%, respectively, each year.

To sum up, we have demonstrated that international consumer patterns are closely linked to a country's level of development. This means that developed economies are allocating a lower percentage of their income towards the consumption of goods and services that cover basic needs (for example, spending on food), in favor of others that are not considered basic (for example, recreation, restaurants and hotels and communication). The analysis of OECD countries suggests there is a process of convergence towards consumption patterns that are typical of a highly developed economy, except in the case of health services and products related to recreation and culture. In the case of Spain, the comparison of its consumption basket with that of other developed economies indicates that there is a considerable margin for growth in the share of some products in household expenditure. On the assumption that the convergence mechanism operates fully, an increase of around 4 pp in relative consumption of durable goods is expected over the next two decades. In contrast, results suggest that relative expenditure on restaurants and hotels will fall significantly. However, given its low convergence rate, it will take a long time to fall below 10%.

Table 1. Convergence coefficients

Dependent variable (relative consumption)		(1) Beta coefs.	(2) Beta coefs.	(3) Beta coefs.	(4) Beta coefs.
Benchmark		OECD	USA	OECD	USA
Estimation method		OLS	OLS	OLS	OLS
A	Durables	-0.120*** (0.022)	-0.083*** (0.018)	-0.060*** (0.018)	-0.060*** (0.018)
B	Non-durables	-0.012* (0.007)	-0.012** (0.006)	-0.010 (0.006)	-0.010 (0.006)
C	Services	-0.014* (0.008)	-0.015* (0.008)	-0.016** (0.007)	-0.016** (0.007)
1	Food and beverages	-0.027*** (0.007)	-0.023*** (0.006)	-0.026*** (0.007)	-0.026*** (0.007)
2	Alcoholic beverages, tobacco and narcotics	-0.028*** (0.007)	-0.027*** (0.007)	-0.029*** (0.007)	-0.029*** (0.007)
3	Clothing and footwear	-0.022*** (0.007)	-0.025*** (0.007)	-0.022*** (0.007)	-0.022*** (0.007)
4	Housing and utilities	-0.021*** (0.006)	-0.016** (0.007)	-0.020*** (0.006)	-0.020*** (0.006)
5	Furniture and equipment	-0.032*** (0.009)	-0.038*** (0.010)	-0.033*** (0.009)	-0.033*** (0.009)
6	Health	0.002 (0.003)	0.002 (0.003)	0.002 (0.003)	0.002 (0.003)
7	Transport	-0.030** (0.014)	-0.040*** (0.014)	-0.030** (0.013)	-0.030** (0.013)
8	Communications	-0.023* (0.013)	-0.029** (0.011)	-0.008 (0.013)	-0.008 (0.013)
9	Entertaining and culture	0.003 (0.008)	0.004 (0.008)	0.006 (0.008)	0.006 (0.008)
10	Education	-0.013*** (0.004)	-0.011*** (0.004)	-0.010*** (0.004)	-0.010*** (0.004)
11	Catering and hotels	-0.012*** (0.004)	-0.010** (0.004)	-0.010*** (0.004)	-0.010*** (0.004)
12	Other goods and services	-0.028*** (0.009)	-0.026*** (0.010)	-0.023** (0.009)	-0.023** (0.009)
Yearly dummies		NO	NO	SÍ	SÍ

Note: (2), and (4) have been estimated using USA as benchmark. For (1), and (3) the mean of selected OECD countries has been used: Australia, Denmark, France, Italy and United States. Standard errors shown in parentheses. *, ** and *** denote levels of significance at 10, 5 and 1%, respectively. Source: prepared in-house.

¹⁰ As well by the linear regression model, the convergence equations have been calculated by considering the longitudinal structure of the data. The results of the estimates with fixed effects (available for consultation) corroborate the conclusions commented in the text, although they show a degree of convergence that is significantly greater than that presented in Table 2. However, the estimates should be analyzed carefully, given that the coefficients may be affected by problems of inconsistency, as demonstrated by Lee, Pesaran and Smith (1998).

¹¹ The explanation of the relatively small weight of housing services in the real expenditure of Spanish households is mainly the low level of rental, both real and imputed. For example, the share of housing rental in total real expenditure was under 11% in Spain in 2007, while in France it was 17.4%.

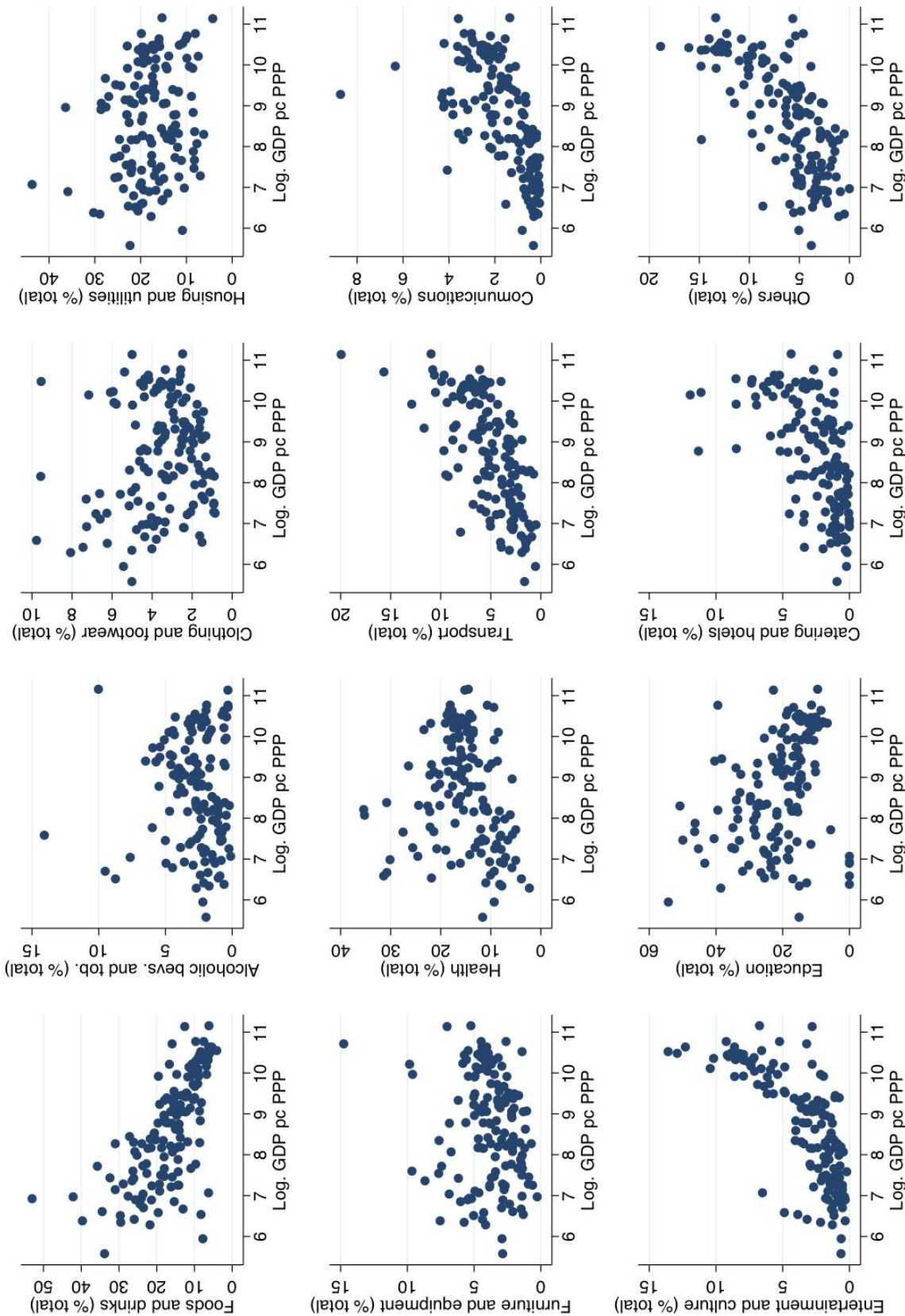
Table 2: The reference consumption basket

		SPAIN	USA	OECD (selected countries*)				
				Mean	Median	Std. Dev	Min.	Max
A	Durables	10.3	15.0	14.5	13.1	3.7	11.0	26.4
B	Non-durables	34.6	28.9	36.0	36.9	4.4	26.0	41.4
C	Services	55.2	56.2	49.4	49.6	4.3	41.2	56.5
1	Food and non-alcoholic beverages	12.9	6.8	11.1	11.0	2.1	6.8	14.8
2	Alcoholic beverages, tobacco and narcotics	2.6	1.9	3.5	2.9	1.4	1.9	7.5
3	Clothing and footwear	5.9	5.6	5.8	5.6	1.3	3.4	8.2
4	Housing and utilities	15.8	16.0	21.2	22.0	2.5	16.0	23.9
5	Furniture and equipment	5.9	5.7	6.5	6.3	1.0	4.7	8.6
6	Health	3.7	18.0	4.5	3.8	3.8	2.0	18.0
7	Transport	11.7	10.9	13.1	13.1	2.1	9.5	18.6
8	Communications	3.5	1.9	3.4	3.4	0.9	1.9	5.4
9	Entertaining and culture	10.0	11.6	11.5	11.6	2.3	7.3	15.2
10	Education	1.3	2.2	1.0	0.7	0.8	0.4	2.9
11	Catering and hotels	16.8	5.9	7.0	6.1	2.5	4.8	13.7
12	Other goods and services	10.3	14.0	11.9	11.3	2.0	8.2	15.6

Source: prepared in-house based on OECD data. *Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Sweden, Switzerland, United Kingdom and United States. Spain is not included.

Annex

Chart A.1. Relative consumption (% of total) and economic development (logarithm of GDP per capita as PPP)



Source: Prepared in-house based on ICP data.

References

Clements, K. W., Y. Wu and J. Zhang (2006): "Comparing international consumption patterns", *Empirical Economics*, vol. 31(1), 1-30.

Deaton, A. S. (1997). *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*. Johns Hopkins University Press, Baltimore, Maryland.

Deaton, A., J. Ruiz-Castillo and D. Thomas (1989): "The Influence of Household Composition on Household Expenditure Patterns: Theory and Spanish Evidence", *Journal of Political Economy*, vol. 97 (1), 179-200.

Houthakker, H. S. (1957). "An International Comparison of Household Expenditure Patterns. Commemorating the Centenary of Engel's Law", *Econometrica*, 25, 532-551.

Kónya, I. and H. Ohashi (2007): "International Consumption Patterns among High-income Countries: Evidence from the OECD Data". *Review of International Economics*, vol. 15(4), 744-757.

Lee, K., M. H. Pesaran and R. Smith (1998): "Growth Empirics: a Panel Data Approach – A Comment", *The Quarterly Journal of Economics*, vol. 113 (1), 319-323.

Luengo-Prado, M. J. and J. Ruiz-Castillo (2004): "Demand Patterns in Spain". DEMPATEM Working Paper N° 4.

BBVA ERD (2009). *Consumption Watch. Second semester*. Economic Research Department. BBVA. Madrid.

Selvanathan, E. A. and S. Selvanathan (2003). *International Consumption Comparisons. OECD Versus LDC*. World Scientific Publishing Co. Pte. Ltd. London.