

READING NOTES: RAQUEL, LABEAGA AND LOPEZ-SALIDO (1999)

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Traditional household consumption models assume time-independent preferences and yield predictions that are at odds with empirical results on multiple dimensions. They predict consumption growth rates that are too smooth and too sensitive to permanent income shocks compared to empirically observed levels. Various studies have tried to resolve this puzzle with habit formation, allowing preference to be time-dependent. Some of these researches focus on aggregate data, thereby introducing many aggregate data specific problems. Other use micro data, but either use panel data that are not rich enough, covering short time spans and containing coarse consumption record, or fail to take into account time invariant unobserved heterogeneity across households. In this paper, Raquel, Labeaga and Lopez-Salido utilize a novel set of longitudinal household consumption data, rich in consumption record and time span, to estimate a model of household utility with time dependent preferences. Comparing estimates for models with and without time in-variant household fixed effect, the authors conclude the existence of strong inter-temporal dependence of preferences for some goods and emphasize the importance of accounting for time invariant unobserved heterogeneity across households.

In their model, the authors look at household consumption, in the presence of borrowing restrictions, of three non-durable goods: food at home, transport and services. Households enjoy utilities discounted to present day that depends on consumption choices, family characteristics, and time-specific preference shocks. Households maximize expected utility and the maximization problem can be analyzed with two representations of its first order condition: marginal rates of substitution (MRS) and Euler equations. While MRS is robust to liquidity constraints as it does not depend on it, Euler equations are not. Thus the authors distinguish liquidity constraints and inter-temporal dependence in preference by comparing the results from the two representations.

The authors estimate MRS and Euler equations both with household fixed effects and without household fixed effects. They construct mean-zero error terms in MRS and Euler equations and conduct estimation through Generalized Method of Moments. Because the error terms are constructed to be functions of lagged and leading consumption, a test for habit formation can be conducted as a test of whether the corresponding coefficients are zero. Their estimates for the model without household fixed effect is named *estiamtes* in “levels” and their estimates for the model with household fixed effects is named *estiamtes* in “differences”. This is because mean zero error terms for the model without household fixed effect can be directly constructed with instrumental variables while mean zero error terms with household fixed effects would need to be constructed with a transformation of MRS

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and Euler equations that involves differencing. To identify inter-temporal dependencies in preferences, the authors utilize temporal variation in relative prices.

To estimate the proposed models, the authors use eleven years of Continuous Family Expenditure Survey (ECPF), which contains a rich set of family characteristics including detailed consumption record. ECPF allows authors to track a household for a maximum of eight consecutive quarters. The authors collect data on the prices of transport, food and services. The temporal record of consumption and temporal variations in relative prices allow authors to identify time dependencies in preferences at a micro-economic level.

Using ECPF and price data, the authors conduct estimation both in “levels” and in “differences”. The estimates in “levels” do not provide evidence for us to reject inter-temporal separability in preference while the estimates in “differences” provide strong evidence in support of habit formation, underscoring the importance of controlling for across household heterogeneity. With controls for household fixed effects, the MRS results suggests that there is habit formation for food and services and the Euler equation result provide evidence for habit formation on food. Further comparing the parameter estimates of MRS and Euler equations, the authors conclude that the parameter estimates from them are not statistically significantly different from each other, suggesting an absence of liquidity constraint. While this can be rationalized since the analysis is conditioned on labor participation variables, which is the primary channel through which households can optimize to mediate liquidity constraints, the authors explore this fact further by examining households headed by younger individuals. They find that, for household heads under 40, MRS does not provide evidence for habit formation while Euler equations do, and the parameters estimated from the two representations are statistically different. This suggests that the young people do not exhibit statistically significant inter-temporal dependent preference and face strong liquidity constraint as they are more likely to be making important decisions regarding housing, career and fertility.

With the above analysis, the authors conclude that failure to account for household fixed effect generates biased estimates and habit formation do exist for food and services. They also show that households headed by individuals younger than 40 face liquidity constraints and seem to exhibit less habit formation. They demonstrate the importance of controlling for unobserved heterogeneity by showing the drastically different results one could get for missing them in their analysis. A potential extension of this paper would be to investigate habit formation on a more granular level, studying more consumption goods and possibly same consumption goods or services provided by different brands.