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Econ 613 Reading Notes #4
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Consumption and Habits: Evidence from Panel Data

In microeconomic research, economic models that assume intertemporally separable preferences have failed to describe what is seen in the empirical evidence. Discrepancies such as the equity premium and the excess sensitivity and smoothness of consumption to permanent income shocks have risen. To address this issue, researchers have begun to allow for habit formation to model time dependence in preferences and to improve the time-separable models. However, these previous attempts have largely relied on aggregate data, resulting in several issues. Carrasco et al. (2005) avoids these issues by studying the presence of habit formation in consumption decisions by using household panel data with eight consecutive quarters. The paper confirms the importance of accounting for time invariant unobserved heterogeneity across households, and, after accounting for these fixed effects, the paper finds evidence of habit formation for food and services consumption from the MRS and Euler equations. Additionally, the paper finds that these MRS dynamics do not persist for households with heads younger than 40, likely due to liquidity constraints, but that non-separabilities appear in the Euler equation.

To obtain these results, the paper adapts the model from Meghir and Weber (1996). Failing to account for liquidity constraints could invalidate the standard Euler equations, so the model presented contains liquidity constraints and looks at several commodities to solve this identification issue. Three non-durable goods are studied: food at home, transport, and services. A fourth group of nondurables goods is also considered but treated as given. The paper assumes that households maximize the present discounted value of lifetime utility. Preferences for the three goods are described using a flexible direct translog utility function modified to allow for time non-separabilities and preference shocks, and the preferences consider demographic and labor supply variables. Two models are considered: one with MRS equations and another with Euler equations. Each model contains two equations: food vs. services and transport vs. services.

To test the theory and these two models, Carrasco et al. (2005) completes an empirical exercise using panel data. The paper uses eleven years (1985-95) of the Continuous Family Expenditure Survey, a rotating panel data set of Spanish households. Due to characteristics of the panel's rotation, a household can be followed for a maximum of eight consecutive quarters. The final data set contains 2,606 observations (from 1,499 households). After the final data set is obtained, both representations are estimated using the generalized method of moments, GMM, as described in Hansen (1982). Equations are estimated in levels and in differences with all within and cross equation restrictions imposed. The paper also uses Sargan tests for instrumental validity to potentially detect correlated heterogeneity in the level estimates. Finally, the implicit within period income and price elasticities, the intertemporal elasticity of substitution (IES), and the degree of habit formation are all calculated to provide the paper's results.

Carrasco et al. (2005) first completes the estimation process in levels. The paper finds that, for both representations, the Sargan test for the validity of instruments before imposing cross equation restrictions is high for both the food vs. services and the transport vs. services equations. This result indicates the presence of correlated fixed effects. The paper also finds evidence that preferences are intertemporally separable. Both findings are in agreement with previous research. To further investigate this finding, the paper then conducts the same

estimation process in differences to examine the potential role of unobserved heterogeneity. As the paper had hypothesized, once time invariant unobserved heterogeneity is accounted for in the preference specification, there is no evidence of misspecification as was detected before. Additionally, for the MRS representation, the existence of habit formation is confirmed for food and services but not transport. For the Euler representation, this existence is only confirmed for food. These findings refute previous findings in the literature and earlier in this paper. They show the importance of accounting for fixed effects. Carrasco et al. (2005) then investigates if liquidity constraints are binding for households with heads younger than 40. Results cannot reject the null hypothesis of intertemporal separability, indicating that these households, which are facing important life decisions, have binding liquidity constraints, further emphasizing the importance of accounting for fixed effects. Then, in calculating the IES, the paper confirms that there are indeed important sources of heterogeneity in the IES. Finally, the paper calculates the degree of habit formation. This parameter is equal to 0.72 for food, 0.01 for transport, and 0.14 for services. The estimates for food are approximately what they would need to be in order to explain some empirical regularities. However, the estimates for transport and services are still not, possibly due to measurement error.

Carrasco et al. (2005) addresses the importance of accounting for fixed effects when analyzing intertemporal consumption decisions, allowing for time non-separabilities. The paper achieves this through utilizing a Spanish panel data set which consists of up to eight consecutive quarters of household consumption decisions. Many previous papers were unable to account for these fixed effects due to using aggregate data or due to the issue of data availability. As a result, Carrasco et al. (2005) contributes uniquely to the literature through confirming the importance of accounting for fixed effects and finding evidence of habit formation for food consumption and services from the MRS and Euler equations. The paper also finds that the MRS dynamics do not persist for households with heads younger than 40, likely due to liquidity constraints, but that non-separabilities appear in the Euler equation. One limitation of the paper is that the habit formation found in the goods modeled might not generalize to broader measures of consumption, which the paper acknowledges. This potentially limits the paper's external validity. Additionally, the data comes from a survey, so selection bias, non-response bias, and misreporting are possible. These issues could impact the data quality and the paper's findings. Despite these limitations, Carrasco et al. (2005) contributes to the literature on the presence of habit formation in consumption decisions and makes significant progress in accounting for important fixed effects in microeconomic models.