

Dynamic Heuristics

Benedict Guttman-Kenney*

February 2, 2023

Abstract

I study the elasticity of consumer heuristics to prices. I examine this in the domain of consumers' petrol (gas) expenditures using UK spending transaction data merged with price data. That reveals approximately one in three pay at pump transactions observed use a heuristic of round numbered expenditure amount (e.g. $PQ = \text{£}20$). The asymmetric distributions of transactions around round numbered expenditure amounts are consistent with consumers being attentive and exerting effort to precisely hit these amounts. Spending is on credit cards and therefore this behavior is not explained by frictions such as choosing a round number to avoid change. Heuristic use appears separate to income: suggesting this is revealing a consumer's psychological characteristic. Consumer use of this heuristic responds to price changes. As prices go up, consumers become less likely to use the heuristic: changing from a peak of near 35% to a trough of near 15%. Although consumers adjust their heuristic use in response to prices, I also find that when prices double, consumers make 50% more trips to the gas station. This suggests consumers (potentially mistakenly) make consumption decisions on the expenditure amount per visit rather than the amount of gas they require.

Keywords: Heuristics, Mental Accounting, Consumer Finance, Household Finance, Household Budgeting, Gas, Price Theory, Environmental Economics.

JEL Codes: G50, E21, Q43, Q50, D12, D90, G40, E70

*University of Chicago, Booth School of Business. benedict@chicagobooth.edu. I am grateful to participants at the Chicago Booth Behavioral Economics Lab Group, Chicago Booth Microeconomics Group, and Russell Sage Foundation Behavioral Economics Summer Institute, Abby Sussman, Alex Imas, Avner Strulov-Shlain, Canice Prendergast, Chad Syverson, Constantine Yannelis, Devin Pope, Emir Kamenica, Eric Budish, George Loewenstein, Ivo Wengraf, John Gathergood, Josh Dean, Karthik Srinivasan, Kilian Huber, Marianne Bertrand, Matt Notowidigdo, Oleg Urminsky, Pascal Noel, Rafael Batista, Rebecca Dizon-Ross, Richard Thaler, Steve Gooding, Thomas Covert, & Walter Zhang for feedback. I thank the transaction data provider and the RAC Foundation for helpful discussions and sharing pricing data for this research. The views expressed are the author's and do not necessarily reflect the views of the transaction data provider or the RAC Foundation.