



Car ownership and hedonic adaptation [☆]



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ABSTRACT

Using panel data from the UK, we study the long-term effect of purchase decisions of automobiles on individuals' happiness. We find a significant and sizable decrease in individual happiness in the years after a car purchase. We develop a model of hedonic adaptation that can explain these results. Applying the model to the data indicates a strong degree of habit persistence of around 80%, and that within five years after a purchase, around one third of the happiness increase is dissipated due to hedonic adaptation.

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1. Introduction

Individual decisions such as consumption and the concept of utility have been one of the pillars of economic analysis. At the same time, determinants of individual well-being or happiness have been increasingly investigated empirically by psychologists. Psychological economics has pulled these two strands of theoretical and empirical literature together, and in the last decades, an increasing empirical literature from psychology has contributed to the development of economic theory about individual behavior. And while utility and happiness should not be confounded (Kimball & Willis, 2006), they share important common features that lend themselves to an interdisciplinary analysis.

One important feature of both fields of research have been the evolution of individuals' utility or happiness over time: in the economics literature, starting from the Easterlin (2001) paradox, reference dependence or habit formation in terms of

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¹ Such a reference level is often referred to as ‘internal’ since it depends on one's own past consumption level, as opposed to an external reference level, which is determined by peer groups (e.g. Alpizar, Carlsson, & Johansson-Stenman, 2005; Johansson-Stenman, Carlsson, & Daruvala, 2002).

consumption have been put forward as an explanation of stagnant levels of reported well-being despite increasing income and consumption levels. This literature dates back to works by Marshall (1890) and notably Duesenberry (1949), and since then has been formalized, for example, in Pollak (1970) or more recently in Clark and Oswald (1998) and Carroll, Overland, and Weil (2000).²

In Psychology, on the other hand, the concept of the hedonic adaptation (or the hedonic treadmill) has been put forward in different contexts; see, for example, Perez-Truglia (2012) who develop an evolutionary explanation for hedonic adaptation, and see Diener, Lucas, and Scollon (2006) for an excellent summary of the relevant literature. Happiness trajectories indicating hedonic adaptation to many economic and non-economic life events have been reported in Fujita and Diener (2005) or Clark, Diener, Georgellis, and Lucas (2008).³

The concepts of hedonic adaptation or habit formation are closely linked, but depend on different concepts of happiness versus utility (Kimball & Willis, 2006), and a large literature in both fields has identified a number of different cognitive biases that can be rationalized as explanations. Moreover, the empirical analysis of data on individual behavior and (self-) reported happiness has produced a large literature about the relevance of these concepts (e.g. Clark, Frijters, & Shields, 2008; Easterlin, 2001; Frey & Stutzer, 2002; Stutzer & Frey, 2008).

For instance, Gilbert, Pinel, Wilson, Blumberg, and Wheatley (1998) found that people tend to overestimate the duration of their affective reactions to negative events. As a consequence, people seem to adapt well to life events such as getting divorced (cf. Clark et al., 2008). Similarly, the notion of getting used to a durable consumption good can be explained by effects of repeated sensory and cognitive stimuli. After a period of enjoyment, the hedonic effects of higher consumption adapt to a base level (Frederick & Loewenstein, 1999). Several other psychological biases in consumption have been studied.⁴ For instance, Loewenstein, O'Donoghue, and Rabin (2003) propose a “projection bias” in the sense that the fluctuation in one's valuation for a particular consumption good over time can lead to sub-optimal buying decisions. Finally, certain consumption goods including as automobiles can convey important extrinsic attributes (material possessions, fame, status or prestige). It has been argued that people might overestimate such extrinsic attributes as compared to intrinsic attributes, see Frey and Stutzer (2008). The authors include underestimation of hedonic adaptation and distorted memories as reasons for this bias.

Our analysis is also closely related to existing work on adaptation to individual income or consumption aspirations such as Guven (2012), Stutzer (2004), D'Ambrosio and Frick (2007) and Di Tella, Haisken-De New, and MacCulloch (2010). In particular, Di Tella et al. (2010) study the link between income and life satisfaction. They conclude that after four years of an income increase, around two third of the initial life satisfaction increase disappears due to hedonic adaptation or habit formation. With regard to specific consumption goods, on the other hand, empirical evidence based on a large sample of individuals and long time horizons is scarce, as longitudinal individual consumption data usually does not include information on life satisfaction. Experimental studies on the other hand necessarily focus on a rather short time frame. In this paper we contribute to this literature studying the temporal pattern of individual consumers' utility after the purchase of a durable good. More specifically, we analyze happiness trajectories several years before and after purchasing a car. We focus on buying decisions for automobiles due to the relatively high cost,⁵ comparable long life time and availability of data.

Notably, the availability of data in the British Household Panel Survey (BHPS) over a total time span of almost two decades makes this analysis feasible in a very robust panel framework. We find that happiness drops after the consumption decision and that this drop is substantial. This result can be explained by a strong level of hedonic adaptation regarding these consumption decisions. We also inquire the robustness of our findings by considering a series of alternative specifications that generate very similar results.

We start by developing a simple model of hedonic adaptation of individual consumption decisions in section two. We summarize the data set we constructed in section three and present the results of the econometric approach in section four. Section five concludes.

2. A model of hedonic adaptation

There are various reasons to assume that consumers are prone to hedonic adaptation in the sense that their utility is affected by the time passed since a given consumption decision. In light of the various channels discussed in the introduction, a potential hypothesis is that experienced utility derived from a particular good (in our case an automobile) is decreasing over time after a purchase. If consumers do not take this adaptation into account, they might make decisions that turn out to be sub-optimal ex-post. In the following, we first develop a simple model of hedonic adaptation similar to economic models of consumption as Constantinides (1990), Clark and Oswald (1998) or Johansson-Stenman et al. (2002). We study the

² It has since then been used including as a possible explanation of the equity premium puzzle (Campbell & Cochrane, 1999; Constantinides, 1990), and of aggregate consumption patterns over time (Alessie & Teppa, 2009; Carrasco, Labeaga, & López-Salido, 2005; Dynan, 2000; Ferson & Constantinides, 1991; Meghir & Weber, 1996).

³ See also Lucas, Clark, Georgellis, and Diener (2003) for a study on adaptation to marriage.

⁴ See Kahneman and Thaler (2006) for an overview.

⁵ We downloaded OECD data for the year 2014 (<https://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE5>) and computed for various countries the fraction of consumption expenditure used for purchasing and operating own transport vehicles. The mean fraction is 0.11 (11 percent of total consumption expenditure) and the standard deviation is 0.03. The smallest fraction is 5 percent in the Slovak Republic and the largest fraction is 19 percent in Luxembourg. It seems likely that the major share of these costs are devoted for cars and therefore it is reasonable that purchasing cars is an economically important consumption decision.

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