


RESEARCH ARTICLE

Towards a realistic view of consumer behaviour

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Abstract

Marginal utility (MU) theories of consumer demand assume that consumers try to maximise a generic benefit ('utility') by selecting purchases giving equal MU per unit of cost, from which are predicted the observed relationships between price changes and quantities of demanded consumer goods. Attempts to remedy the explanatory shortcomings of MU theory usually supplement it with additional assumptions. This paper proposes taking that approach to its logical conclusion by using consumer and psychological research findings not to supplement but to replace the concept of utility entirely with realistic explanations of consumer behaviour.

Keywords: consumer; demand; institutions; motivation; utility

Bringing institutions back in, taking utility out

Economists use a theory of consumer demand primarily to explain consumer behaviour in markets, involving the first law of demand, price and income elasticity, and income and substitution effects. These explanations then contribute to understanding and predicting wider economic processes (e.g. market clearing, trade cycles, growth) and, reciprocally, how consumers react to those and to non-economic events (e.g. policy changes, pandemics). Many economists address the explanatory shortcomings of the marginal utility (MU) theory in these respects by 'bringing back in' supplementary causal assumptions (Fine, 2016), which then do most of the explanatory work for the revised theory. This paper takes 'bringing back in' to its logical conclusion by bringing in sufficient research findings about institutions and motivation to assemble a realistic explanation of consumer behaviour, not to augment but to replace MU theory.

Marginal utility: core, elaborations, revisions

Three core assertions define MU theory. First, consumers seek a generic 'utility', 'pleasure', 'value', or 'benefit' that motivates their preferences and purchasing choices. To maximise it, each consumer, second, applies the decision rule of selecting goods with equal MU per unit of cost. Jointly, the first two assertions predict (third) how price changes alter consumers' behaviour. Each consumer attains an equilibrium that maximises the utility she obtains given her stable preferences and fixed budget. The first law of demand follows: when a commodity's price rises, buyers buy less of it, and *vice versa* when its price falls. More formally, the sign of the substitution effect is usually negative.

More credible, nuanced versions of these core explanations have been formulated. Behavioural and neuro-economics preface the motivational assertion with psychophysical assumptions about (among other things) habits (Houthakker and Taylor, 1974), neurological evidence that simple choice is

stochastic (Hare et al., 2009), and how rats and pigeons respond to reinforcement and stimuli (Battalio et al., 1987). This leads to a three-stage explanation of consumer demand. First, psychophysical mechanisms are described. Next, this description is translated into MU concepts. We read of ‘Nature’ assigning utilities to consumption bundles (Robson, 2002), the activity of consuming as ‘shadow price’ (Stigler and Becker, 1977), ‘internal evaluation’ as a ‘cardinal utility function’, or sensory rewards and evolutionarily adaptive behaviour as the von Neumann–Morgenstern hedonic utility function (Robson, 2002). The term ‘utility signal at consumption’ (Fehr and Rangel, 2011: 15) assimilates neuronal signals to utility and so on. Third, the resulting utility functions are mathematically modelled to predict consumer behaviour.

Other elaborations redefine what consumers maximise. Specifically, the particular characteristics (e.g. colour) of goods are what provide utility (Lancaster, 1966). Utility may include transaction utility from getting unexpectedly cheap or high-quality goods (Thaler, 1999), changes in wealth (Kahneman and Tversky, 1979), the pleasurable anticipation of risk (Allais, 1953), and (negatively) information-search costs. Consumers attach more utility to keeping a good than to gaining it originally: the ‘endowment effect’ (Allais, 1953; Kahneman and Tversky, 1979). In theory, consumers might reach a ‘bliss point’ where their wants are satiated (Gowdy and Mayumi, 2001), but short of that, and usually, they behave as utility maximisers.

Further elaborations relax the second core assumption about how much knowledge and precision consumer decisions involve. Rather than consider every conceivable bundle of goods, consumers approximately maximise utility by choosing among similar goods relevant to their immediate purchasing aims (Lancaster, 1966). They weight decisions by subjective rather than objective probabilities (Kahneman and Tversky, 1979), apply practical, ‘pseudo-maximising’ rules-of-thumb by, say, comparing available goods and prices with the usually expected ones, and use ‘mental accounting’ (Thaler, 1999). Consumers sometimes make inconsistent or misinformed choices (Bernheim and Rangel, 2009), but not to the extent of invalidating MU theory as a generalisation (Buchanan, 1969).

Yet further revisions facilitate the mathematical modelling. Revealed preference theory requires only that utilities be ranked, not cardinally measurable (Houthakker, 1950). Utilities can be weighed for risk and futurity (Friedman and Savage, 1948).

These elaborated *ex ante* forms of MU theory better predict observed consumer behaviour, for example, why consumers sometimes maintain their demand when prices rise, or respond asymmetrically to price reductions and increases. The grouping of goods explains advertising, bandwagon and snob effects, and how universally desired goods contrast with more instrumental consumer goods (Becker, 1962; Erdem et al., 2008). Many such predictions concern consumer ‘irrationality’ in acting, under certain conditions, in ways that do not maximise their utility. Without endorsing them, McChesney (2013) listed 20 such analyses and more have appeared since.

Deeper revisions deny that MU theory describes anything psychological at all (Buchanan, 1969; Friedman and Savage, 1948; McChesney, 2013). Becker (1962) showed that if consumers chose mixtures of goods randomly, and their selections were uniformly distributed across individuals’ consumption possibilities, the mean (and mode) quantities of goods demanded would still change inversely with price. In these views, utility maximisation is not an *ex ante* motivation, the psychological consequence of a pre-defined utility function, but the *ex post* effect of consumer purchases upon satisfaction, well-being, or experienced utility ‘irrespective of the processes generating behaviour’ (Bernheim and Rangel, 2009: 53). Rather, market structures and their Darwinian dynamics are what maximise utility (Becker, 1962; McChesney, 2013). On this view, MU theory does

‘not assert that individuals explicitly or consciously calculate and compare expected utilities. [...] Rather,] in making a particular class of decisions, individuals behave as if they calculated and compared expected utility and as if they knew the odds’. (Friedman and Savage, 1948: 298)

Consequently, the first two defining assertions of MU theory are assumptions or axioms, not observable. The third is an observable behavioural prediction (Samuelson, 1938; McChesney, 2013).

One might object that consumers' errors mean that their purchasing decisions do not necessarily reflect rationality or 'true' preferences (Fehr and Rangel, 2011). However, one can also observe what mistakes consumers make, correct accordingly the preferences that might otherwise have been inferred from their behaviour, and so infer their true underlying preferences (Kőszegi and Rabin, 2007).

Finally, MU theory has been reformulated as purely a logic of choice:

'the simple requirement that returns to like units of outlay or input must be equalized at the margins in order to secure a maximum of output'. (Buchanan, 1969: 48)

Without evidence that people do in fact behave 'economically', this claim is empirically empty. Further assumptions must be added to yield empirically testable predictions about consumers (Buchanan, 1969). It also illustrates how MU theory uses terms, such as 'efficient', 'preferable', 'rational', and here 'must', ambiguously between a factual sense (equalising marginal input-to-cost ratios does maximise output) and normatively (economic agents ought to do so). These ambiguities build normative assumptions into MU theory (Robinson, 1962; Gowdy and Mayumi, 2001).

Redundancy and replacement

The familiar criticisms of MU theory suggest what kind of replacement is warranted and why.

Ex ante MU theory attributes explain consumer behaviour from price changes given stable preferences and preferences by utility-seeking. Between evidentially attested psychophysical mechanisms and attested predictions, behavioural and neuro-economics tend to interpose superfluous, unattested assertions about utility functions. Furthermore, the anterior psychophysical explanations partly contradict the assumption that consumers equalise goods' MU, even unconsciously. Humans' neuronal encoding involves what MU theory defines as 'irrelevant' considerations (Fehr and Rangel, 2011). The more mathematically complex the modelling of MU-based predictions becomes, the less credible a description of consumers' decision rules it offers. 'Fast and frugal' probabilistic algorithms are simpler and more practicable. They necessitate neither compensating one outcome with another, nor outcome-commensurability, nor the accuracy-effort trade-offs which cost-of-information theories assume (Gigerenzer and Brighton, 2009). The act of deciding itself helps formulate and set preferences (Ariely et al., 2003). Changes in habit often alter them. Price changes influence affect as well as cognition, hence preferences besides behaviour (Peine et al., 2009). Since the costs and benefits of further information-gathering are unknowable, consumers can't know when their choice is optimal (Hodgson, 1997). Behavioural economics and industrial safety research report systematic bias in human decision-making and how the framing of choices affects what individuals decide (Kahneman and Tversky, 1979). However, the bigger doubt is whether, biased or not, consumers use utility-maximising decision rules at all, even at a preconscious neurological level. These reasons suggest removing utility analysis from *ex ante* theories and explaining consumer behaviour directly from psychophysical antecedents.

The 'as if' and the logic-of-choice reformulations look stronger. However, asserting that the behavioural predictions, but not the motivation and decision-rule assumptions, are empirically testable tacitly reformulates the connections between them as logical, not causal, relationships. Yet true implications can logically follow from false premises without making the false premises true (Lemmon, 1971). By themselves, neither logical deduction, mathematical modelling, measurement, nor criteria for theory selection are causal explanations (Buchanan, 1969; Coase, 1988). Adding the right supplementary axioms can make the core MU theory predict *any* economic behaviour, so that any behaviour can afterwards be described as what consumers preferred (Hodgson, 2012), but that is predictively empty unless the predictions were first specified independently. Unrestricted retrodiction from observed behaviour often accommodates many, even opposite, explanations. The key, arguably sole, prediction of MU theory is that the substitution effect has a negative sign (Lancaster, 1966), but many theories that do not assume utility maximisation also predict it. Only imagination limits the

range of ‘as if’ explanations. Ariely *et al.* (2003) suggest five. Then, selecting which explanation is valid requires evidence about what causal mechanisms were operating. Evidence of consumers’ motivation is often available from their actual purchases (even if misjudged or if they would have preferred to be in different circumstances) and, with methodological precautions, by questioning. Many neuro-marketing studies describe neural responses to marketing mix or to marketing stimuli (cf. Hubert and Kenning, 2008), rather than the neurological character of motivation. Nevertheless, the neural mechanisms that perform choices, decisions, and hedonic responses are becoming observable, although research is only beginning.

Whether by market-level analyses of consumer spending (e.g. Erdem *et al.*, 2008), directly eliciting consumers’ intentions (e.g. Ramirez and Goldsmith, 2009), or experimentally, empirical studies on balance confirm the first law of demand and negative substitution effects, although these effects are not necessarily the largest determinants of consumer behaviour (Houthakker and Taylor, 1974). However, *ex ante* versions of MU theory give erroneous causal explanations of what links consumer motivation, decision-making, and behaviour. The *ex post* versions give none. If, as Becker (1962) says, we can dispense with *some* of the empirically dubious assumptions of MU theory and still derive (or explain) downward-sloping consumer demand curves and other consumer behaviour, is it then possible to replace *all* of them? A few economists have agreed, but with exceptions (e.g. Earl, 2023; Earl *et al.*, 2022), still fewer have contributed to such an explanation.

By studying the facts of consumer behaviour, what choices consumers face, and how they choose and then behave when prices change, this paper aims to help fill that gap.

Methods

MU theory is deduced from *a priori* ‘foundations’ concerning consumer motivation, decision-making, and behaviour. Since economic theory and consumer research have similar applications (Ratchford, 1975), a realistic replacement for MU theory also starts from consumer motivation, decision-making, and behaviour (Muñoz, 2024) but instead explains them as consumer research does, by assembling findings and hypotheses derived from observations and experiments (Katona, 1974). Consumer research typically examines how firms’ marketing influences consumers’ purchasing and so examines what factors form individual consumer behaviour. The method and contribution of the present paper are therefore to complement such findings with institutional findings, so as to synthesise an alternative, realistic micro-foundation for an economic explanation of how consumer demand is formed at the whole-market level.

To give a first approximation of a systematic, realistic explanatory overview of consumer behaviour requires an integrative review of already published findings. The Engel–Kollat–Blackwell (EKB) model (Engel *et al.*, 1990) offers a widely used framework. It depicts consumer behaviour as a sequence of need recognition (motivation), information search, evaluation, decision rules (criteria), the purchase decision including how consumers implement it, and consumers’ subsequent evaluation of their purchase. To extend such a framework from individual to whole-market level, one must additionally explain the institutional conditions and relationships leading from consumers’ motivational and cognitive mechanisms at a neurological level (common to all economic structures) to market entry and consumer behaviour in markets specifically (rather than in other institutions). One must explain the market-level outcomes when many individual consumer decisions interact and how consumers’ market experiences reciprocally affect demand formation. So the extended, integrated framework depicts the formation of consumer demand in markets in this order:

- (1) Consumer motivation;
- (2) Information acquisition and use;
- (3) Evaluative decision: criteria and processes;
- (4) Market entry;

- (5) Market-level effects;
- (6) Consumption and its consequences.

Including feedback loops gives a dynamic rather than a static explanation of how consumer demand forms.

A systematic review was used to populate and elaborate a first approximation of this framework. Formal review methods made the findings as reproducible and non-subjective as possible. The stages were planning: search, study selection; study quality assessment, data extraction, and data synthesis (Tranfield et al., 2003). Planning consisted of creating the above framework, definition, and critique of MU theory, which provided keywords for searches.

Reviews for grounding a well-defined theory or hypothesis, where none yet exists should 'cast a wide net' (Simonson and Sela, 2011). Business Source Complete, Primo, ProQuest, Science Direct, Scopus, SocIndex, and Web of Science databases were systematically searched for empirical, peer-reviewed studies published in English since Becker (1962) about consumer responses to price changes in developed capitalist economies. A Boolean search of titles, abstracts, and summaries used the keywords ('consum* behav*' AND 'pric*' AND 'retail*' AND 'data'). The search was extended to non-price factors by snowballing references from the full-text papers reviewed after the initial search and by hand-searching two leading consumer research journals (*Journal of Consumer Behaviour*, *Journal of Consumer Research*) from their start until October 2024. Abstracts, summaries, and full texts were retrieved from open-access websites and university libraries.

Titles and abstracts were then reviewed to exclude data-free models, discussions, and opinion pieces; definitional and methodological debates; bibliometry; findings not derived from developed (operationalised as Organisation for Economic Co-operation and Development (OECD)) economies; and non-standard applications of consumer economics, for example, to labour markets. The inclusion criteria were empirical findings about any of the points listed in the integrated framework above, relationships between them, and any moderating or mediating contexts, hence what *ceteris paribus* assumptions apply.

Full texts of 715 papers that apparently satisfied these criteria were then obtained. Having removed those that on closer inspection did not qualify for inclusion, findings were extracted from the remainder to populate the integrated framework, working backwards from the present until the collated findings were sufficient to indicate common patterns, a method analogous to saturation in qualitative analysis. Where available, higher-quality studies were favoured, in descending order (Evans, 2003): umbrella and systematic reviews, but they were rare, historical or narrative reviews, controlled interventional studies, observational mixed-method analyses of consumers' motives and decisions, and single-method observational studies. *In situ* were preferred over laboratory studies, later to earlier studies, and studies of multiple commodities or sites to those of just one. To synthesise the findings, they were collated under the integrated framework headings, giving special attention to causal relationships within and between components of the framework. Common patterns were noted or, for conflicting findings, where the balance of evidence lay. Whilst being populated, the framework was iteratively adjusted, made more consistent, qualified, reformulated, and supplemented as the evidence suggested, to produce the basic theory outlined below. This populated framework used 199 papers, reduced for publication to the 67 cited in the findings section. Appendix 1 is the PRISMA chart.

This method takes to its logical conclusion the approach only incompletely pursued by Becker's and most other attempts to 'bring back in'. Most brought auxiliary assumptions back in only to supplement MU theory whilst preserving its core assumptions. Instead, this paper brings explanatory empirical material back in not to augment MU theory but replace it.

Findings

Figure 1 gives an overview of the synthesised basic theory, including the two main feedback loops, for clarity omitting less important ones. The term 'goods' includes services.

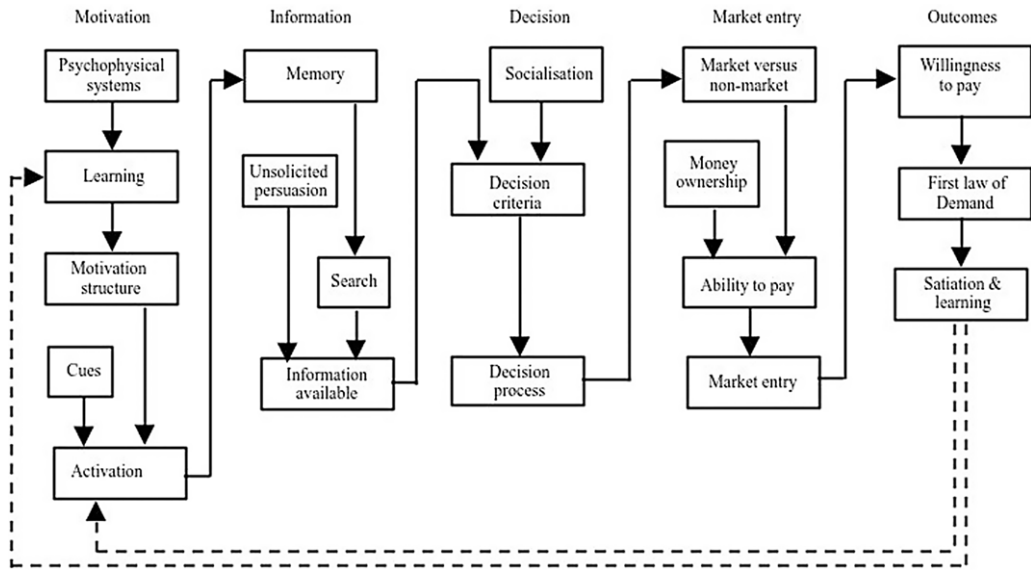


Figure 1. Overview of the synthesised basic theory.

Motivation

A precondition for a consumer's purchase is that she wants the good at all. The evolutionary and genetic origin, and neural embodiment, of human motivation is well-established. Hunger, shelter-seeking, child-rearing, and other instinctual proclivities arise from yet anterior biological processes (e.g. for food, nutrients, gut-driven satiety signals, adiposity-related hormones, and other mechanisms). They stimulate evolutionarily formed behaviours: self-preservation, altruism towards kin, and so on. There appear to be heritable influences on individual pre-dispositions towards some, but not all, decision-making processes (Simonson and Sela, 2011; Wichary and Smolen, 2016).

Consumers' psychological reward systems then develop and supplement these foundational instinctual motives (Hubert and Kenning, 2008) into a complex, hierarchical motivational structure. Among others, some early neo-classical economists (Gossen, Menger, Marshall, Engel [Chai and Moneta, 2010]) proposed that non-instinctual desires arise from instinctual ones, whether as means to obtain instinctually wanted things, by association, or interactively with the development of affect (emotion, mood, attitude) (Holbrook and Hirschman, 1982), in an experiential, path-dependent (Hansen, 2005), and therefore individualised sequence. The resulting structure of motivations is partly instinctual, partly learned, and mutable (Mort and Rose, 2004; Van Osselaer and Janiszewski, 2012). Taxonomies of the motives within it differ, but many studies report the desires for experiences besides tangible things, for sustaining the consumer's self-esteem, self-concept, cultural identity (Weingarten and Goodman, 2021), and social status (many studies since Veblen, 2005). Much consumption is symbolically motivated (Douglas et al., 2021). Consumers' motivations correspondingly range from preconscious to deliberative (Chartrand et al., 2008). Because the more immediately instinctual motives tend to be stronger (Lindenberg, 1996), consumers tend to buy satisfiers for them first, then for the most proximate unsatisfied wants, and so on (Ironmonger, 1972).

To arouse consumer demand, these often latent motives have to be activated. Activation can be excitatory or inhibitory, chronic or temporary (Van Osselaer and Janiszewski, 2012). Homeostatic regulation activates the instinctual motives (e.g. eating). A person's consumption goals, affective states (e.g. boredom [Maccarrone-Eaglen and Schofield, 2017; Yoon and Meyvis, 2024]), and attempts to regulate mood or the emotions (Kemp and Kopp, 2011) may also activate motivation (Wichary and Smolen, 2016). So do external cues (Hansen, 2005; Chartrand et al., 2008), including sensory cues such

as goods associated with previous purchases (Pfeiffer et al., 2022), social norms and pressures, and the opportunity to obtain a desired good (Yoon and Meyvis, 2024) or substitute. A perception of differences between one's actual and desired self-image (Kim and Rucker, 2012), or of a loss of control, can cue compensatory consumption.

Information

As explained above, learning, including information acquisition, extends, modifies, and individualises consumers' motivation structures. In selecting goods, consumers predict the physical, experiential, symbolic, identity, and status effects of consuming them.

Consumers predict these effects partly from memory (previous learning) (Yoon and Meyvis, 2024). Because situational cues may have activating effects, consumers frequently judge goods by appearance, texture, smell, or colour, especially for routine, relatively unimportant purchases, making shopping and trial consumption common methods of information search (Holbrook and Hirschman, 1982). Even deliberative consumers often use 'naïve theories' about goods' quality, social-symbolic, or other characteristics (Deval et al., 2013). For instance, they take price, brand, or appearance as indicators of quality (Völckner and Hofmann, 2007). For many routine purchases, memory, cues, and naïve theories give consumers enough information not to search further. The size of the choice sets they face influences how thorough a search strategy consumers use and their propensity to seek the best possible or just a satisfactory choice (Levav et al., 2012). A minority of consumers seek information from consumer organisations. Many consult social media. This gives shopping a collective character although, at times, it is based on misinformation and fear, for example, panic buying, herding, and bandwagon effects during the COVID-19 pandemic (Naeem and Ozuem, 2021). Consumers also acquire 'incidental information' without searching, above all unsolicited marketing persuasion (Janssen and Fennis, 2017). Extensive research reports how different marketing methods influence consumers' beliefs, attitudes, motivations, and buying behaviour. (Kotler and Armstrong, 2010, is a widely used overview.) Producers, retailers, and advertisers sometimes even bamboozle consumers with, say, bait-and-switch and 'halo-effect' selling (Talukdar et al., 2010).

Learning more general institutional beliefs and norms also exercises 'reconstitutive downwards causation' upon individuals' habits (Earl, 2023) and motivation structures, socialising besides individualising them. Motives based on self-identity, self-presentation, status, social identity, and justifying one's purchasing decisions (cf. Ajzen and Fishbein, 2000) necessarily incorporate knowledge of social conventions, symbols, and norms. Consumers also engage in contagious imitation (Ironmonger, 1972), fads, and fashions (Veblen, 2005; Wakefield and Inman, 2003). Sociologies of consumption (e.g. Douglas et al., 2021; Ritzer, 2009) explain this socialisation in terms of different cultures, micro-cultures, and sub-cultures of consumption, consumer habitus, or practice theory (Arsel and Bean, 2013; Shove and Warde, 2002). Their 'lived culture and social resources', and marketing representations, frame consumers' horizons of feeling, thought, action, sense-making, sensibilities, norms, consumption communities, identities, rituals, and decision rules in acquiring and using consumer goods (Arnould and Thompson, 2005). 'Marketplace institutions such as magazines, websites, and transmedia brands' perpetuate the resulting 'taste regime' (Arsel and Bean, 2013: 889). These cultural differences influence the extent of consumer cosmopolitanism (Han and Won, 2018), how consumers perform mental accounting (Banerjee et al., 2019), and how such ideologies as religion and political conservatism (Lisjak and Ordabayeva, 2023), and marketing (Kotler and Armstrong, 2010), shape consumers' desires. Through default choices, social influence, warnings, reminders, and simplifications, policy-makers and marketers also try to 'nudge' consumers' decisions.

Evaluative decision

As modified by learning, consumers' consumption motives are also their criteria for evaluating the goods they know about. A good's attributes and price both influence what quantity a consumer

demands, but the attributes are causally prior. Unless she evaluates a good as desirable to begin with, its price hardly matters to her. Often, her choice is simultaneously both under-determined (when several products would all suffice) and over-determined (when a good would satisfy several motives at once).

Consumer decision processes range from preconscious to highly deliberative. Many, even most, are low cognition (Chartrand et al., 2008; Hubert and Kenning, 2008), including choices made from memory or which are:

- (1) compulsive (Maccarrone-Eaglen and Schofield, 2017);
- (2) impulsive (Chen and Wang, 2016);
- (3) panicked (Arafat et al., 2020);
- (4) habitual (Hodgson, 1997);
- (5) hurried (Nordfalt, 2009).

Heuristics are more deliberative. Gigerenzer and Brighton (2009) describe eight ‘fast and frugal’ heuristics applicable to consumer choice, other studies at least 19 more. Reported heuristics include:

- (1) affect (‘choose what feels best’) (Slovic et al., 2007);
- (2) recognition (e.g. of a favourite brand) (Hubert and Kenning, 2008);
- (3) satisficing (Levav et al., 2012);
- (4) compromise (‘choose the middle’) (Fehr and Rangel, 2011);
- (5) external rules (Hodgson, 1997; Payne et al., 1993), including suppliers’ suggestions;
- (6) consciously ranking one’s wants hierarchically and, opportunities allowing, satisfying them in that order (Earl et al., 2022; Ironmonger, 1972);
- (7) lexicographic choice: deciding which goods are best in terms of the most desired attribute, then tie-breaking by considering the next most desired attribute, and so on (Wichary and Smolen, 2016). Trivial differences may finally break the tie between otherwise similar goods (Levav et al., 2012);
- (8) scoring goods by a few simple criteria (Degeratu et al., 2000) or a weighted additive rule (WADD), the process closest to explicit utility maximisation calculations but not identical;
- (9) two-stage decision-making (Kahneman and Tversky, 1979): choosing first among, say, product attributes and then among the goods having the favoured attribute;
- (10) allocating money to mental budgets and then to particular goods within each budget (Skwara, 2023).

Consumers sometimes learn, combine, or devise decision rules ‘on the fly’ whilst making their decisions. By repetition, habitual rules-of-thumb form (Levav et al., 2012). Consumers apply different heuristics, or combinations of them, to different decision situations (Hodgson, 1997). Payne *et al.* (1993) give an overview of how individuals trade off accuracy (e.g. not neglecting important information) against cognitive effort (e.g. difficulty) in information processing.

Often, consumers try to avoid trade-offs between goods (Gu et al., 2013), for example, by using non-compensatory decision rules (high levels of another characteristic do not compensate for lacking a necessary characteristic) or using more general goals (e.g. environmentalism) to arbitrate between lower-order goals (Levav et al., 2012). Consumers often under-weigh or ignore opportunity costs (Frederick et al., 2009), although less so when facing tight financial constraints (Dias et al., 2022) or difficult choices (e.g. between undesirable alternatives or conflicting motives) (Gu et al., 2013). In practice, consumers seldom consider the opportunity cost of every good they might conceivably forgo but only a comparison set of perhaps 15, often below 5, similar goods (Huang et al., 2009). When they do consider opportunity costs, a hierarchical motivation structure will tend to favour essential over discretionary purchases (Weingarten and Goodman, 2021). Engel’s ‘law’ states that households with lower incomes spend a greater proportion of income on goods, which directly satisfy their physical needs, as subsequent studies on balance confirm.

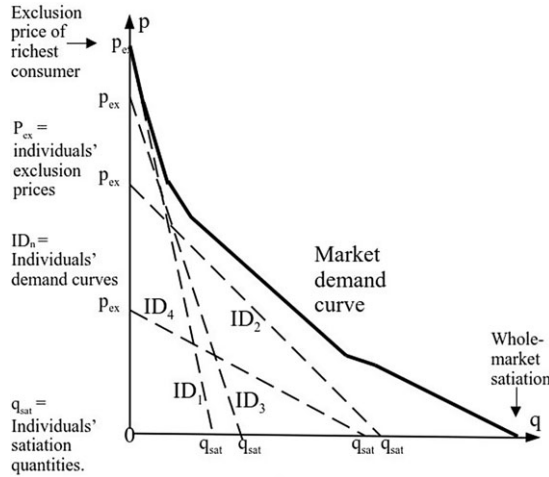


Figure 2. From individual to market demand.

From individual to market demand

Two main mechanisms determine whether consumer demand becomes effective (Becker, 1962). As a price rises, the inability to pay excludes some consumers from the market. Then, differences in willingness to pay make those remaining buy less.

Ability to pay

Markets are just one institution through which consumers obtain goods. Institutional preconditions for consumer demand in a market are that potential consumers:

- (1) Confront property rights. Others own the desired goods but they do not;
- (2) Can readily obtain these goods only by purchase, not by (say) making them, using up stores, borrowing, sharing, barter, gift, or theft. Research on business models, intellectual property, and certain aspects of marketing describes how firms create that precondition;
- (3) Own enough money (income, wealth, savings, credit) to buy the desired good.

At the extreme, a consumer’s exclusion price is the one at which she would have to spend all her money on the focal good except for prior non-discretionary items (e.g. goods such as food whose consumption is hard to reduce below a physical minimum). Many spend all their income on consumption (Martin and Paul Hill, 2012). Even for essentials, low income may drive consumers towards ‘extreme value shopping’ (Carpenter, 2009). The opportunity cost of a purchase, and of an increase in its price, is proportionately greater, the less money they own, and the greater their price sensitivity (Houthakker and Taylor, 1974). Their usually unequal ownership of money (‘budget constraint’, ‘opportunity set’) excludes some consumers from a market before others when prices rise, not through ‘willingness’ but the ability to pay. Being unable to afford a good does not necessarily stop a consumer from wanting it and in that sense being willing to buy, but it does prevent her from revealing that willingness in the market.

This exclusionary amount is the highest point where the individual’s demand curve can meet the vertical axis (Figure 2).

Consumers as product-takers

For mass-produced goods distributed through large retailers, that is, most consumer goods in industrial economies, consumers are usually price-takers (Erdem et al., 2008) and product-takers. The supplier

‘takes the initiative in making all the marketing and production decisions and so reduces the price-takers facing him to playing the purely passive role of quantity adjusters who are free merely to accept or reject the offers they face’. (Scitovsky, 1985: 520)

Consumer research studies and marketing textbooks (e.g. Kotler and Armstrong, 2010) advise firms to base their marketing mix on consumer or market research findings, but typically this is something that the firm decides without much bargaining with individual consumers. Whilst retailers often do adjust their prices, this too is generally without negotiating with consumers, except for some large, non-routine purchases (e.g. cars).

Willingness to pay

Below, usually far below, her exclusion price, a non-excluded consumer typically has a reservation price which only then reflects how intensely she wants the good and how much disposable income she is willing to pay for it (Erdem et al., 2008) – that is, whether to accept the price that suppliers set.

Consumers are often reluctant to exceed an anchoring or reference price (Ariely et al., 2003; Mazumdar et al., 2005), set by their memory or observing what others pay. For fast-moving consumer goods and services, they usually base it on their previous two or three purchases. For durable goods, the suppliers’ ‘default option’ price is the more likely reference point. Consumers may remember reference prices as exact or as approximate numbers, or qualitatively as price ranks, and more often for a brand or particular item than a category of goods (Mazumdar et al., 2005). They tend to buy less only when a price rises above an acceptable range, which varies by product type and brand loyalty (Wakefield and Inman, 2003). A consumer is more likely to buy more of a good whose price falls when her:

- (1) main selection criterion is price, not quality or brand;
- (2) reservation price is already low;
- (3) desire for the commodity is weak;
- (4) usual shopping ‘basket’ is small;
- (5) brand loyalty is weak (Erdem et al., 2008).

Consumers are more price-sensitive when paying by cash (Skwara, 2023), if they feel their budget is tight (Frederick et al., 2009), if the price seems unfair (far above the cost of production) (Spiller and Belogolova, 2017), and when purchasing hedonic than utilitarian goods (Skwara, 2023). They tend to buy more when the price reduction is large, when it falls further below that of substitute goods, or when it looks unusually low (an apparent bargain) or likely to rise (Jacobson and Obermiller, 1990). They are more responsive to price reductions that seem to offer economies of scale and, for unclear reasons possibly related to anchoring, to ‘odd’ prices (e. g. €99.99 not €100). Exceptionally, these responses reverse direction (e.g. for Giffen goods, status goods).

First law of demand

Market-level demand patterns emerge as multiple consumers interact with potential suppliers’ product designs, price-setting, and marketing.

Extensive market research describes how consumer ‘segments’ differ in buying behaviour. Within segments, individual consumers vary in motivation, learning, decision processes, and money ownership. The first law of demand emerges from these cumulatively uneven effects. Represented graphically, each individual’s demand curve (dotted ID1, ID2, . . . etc. in Figure 2) meets the vertical

axis at her exclusion price, or her reservation price when lower, and the horizontal axis at her satiation quantity of consumption (see below). Because individual consumers' behaviour and available money vary, their individual demand curves differ in position. They may cross, be stepped in either direction, multi-segmented, or kinked (e.g. when social norms stipulate what goods to buy for, say, social events such as weddings). Horizontally adding individual curves gives a whole-market demand curve (Figure 2).

The aggregate curve slopes downwards because individual demand curves do, and consumers are excluded cumulatively as price rises. The non-excluded consumers differ in motivation, learning, evaluation processes, and money owned. As prices rise, those with successively higher reservation prices become unwilling to buy and then stop buying, whilst others continue. All that is necessary for the first law of demand to operate is that for some consumers, price changes trigger at least one of the above mechanisms. Assuming that consumers who stop buying because of one price increase seldom resume following another, each mechanism, and *a fortiori*, the combination, has cumulative effects over successive price rises. The exclusionary institutional mechanisms are causally prior twice over. When they apply, they pre-empt the excluded consumers' preferences or 'willingness' altogether, and consumers' preferences don't affect whether, when, and how they work. Together, these motivational and institutional factors imply a down-sloping, possibly stepped, gapped, or non-smooth demand curve.

To understand price elasticity then requires explaining how individual differences in ability and willingness to pay are distributed and why. If a consumer's spending on other goods remains unchanged whilst a price change makes her buy less of the focal good, that decrease is the income effect upon her. If the money she has remains unchanged, she can buy less of other goods, or save less, as the price of the focal good rises. The proportion of her spending on the focal good that she moves to other goods is the substitution effect. The income effect becomes defined either in real terms or the money equivalent at post-change prices and the substitution effect as a proportion of spending. Neither definition involves indifference curves or utility, unlike Hicks', Marshall's, or Slutsky's definitions.

Non-price changes also affect the quantity demanded. They include products (e.g. mobile phones [Yoo et al., 2021]) acquiring additional uses. Goods change in what they symbolise. Their want-satisfying characteristics change (e.g. the sensory properties of food). So does how goods are packaged, promoted, and sold. Marketing studies describe how firms use these changes to stimulate demand and for non-price competition. Consumers' characteristics also change, including life-cycle stage, household size and composition, education, other demographic factors, and their opinions. Purchasing activity itself sometimes changes consumers' preferences, right up to the instant of purchase, as point-of-sale marketing exploits (Degeratu et al., 2000). The above explanations need not assume that consumers' wants, tastes, or preferences are stable or consistent whilst their demand for a good is forming.

Consumption

Purchase enables consumption, whose usual effects on consumer demand are satiation and learning.

Consumers satiate their desires not just by buying goods but by combining them with their own time, effort, and other resources to produce a concrete benefit (e.g. a meal). To an extent depending on the nature of the good, consumption is a household production activity involving effort, cognitive, and embodied knowledge: a 'consumption technology' (Lancaster, 1966). Motivation to buy also depends on the consumer believing herself able to consume the good, most obviously with goods (e.g. motorcycles) that require skill or strength to use. In any event, consumption takes time (Stigler and Becker, 1977), which imposes an upper limit even on the hedonic consumption of free goods. Since consumers' time is finite, so is their capacity to use goods, hence the amount they can actively consume. (Ownership, unlike consumption, has no such limit.) At this amount, the individual's demand curve meets the horizontal axis (Figure 2).

Satiation deactivates the original consumption motive (Chartrand et al., 2008; Pfeiffer et al., 2022; Van Osselaer and Janiszewski, 2012), especially for familiar ‘established’ goods (Ironmonger, 1972) and for the most salient characteristics of the consumed good. Certain goods (e.g. haircuts) have a physical limit on how much a person can consume. The satiation of most instinctual needs, some hedonic experiences (e.g. listening to music [Ariely et al., 2003]), and some other goals (e.g. consistency of choice [Silverman and Barasch, 2023]) are temporary but repeatable. Satiation is also observed when prices are triflingly low, when the consumer pays a flat rate irrespective of how much she consumes, for distress goods of which she consumes the minimum (and would prefer, none), and derived demand, when she only buys in order to achieve some further purpose. For derived demand and distress goods, these patterns appear when non-market institutions allocate the goods free of charge. (Patients do not seek repeat surgery just because it is free.) At the market level, income elasticities that are low and decline as income rises suggest satiation in ‘basic need’ goods (food, housing, energy) (Baxter and Moosa, 1996). As individual consumers cumulatively become satiated, so does market demand, even if slowly. Over 15 years can elapse between the first and the last consumers buying a new high-technology consumer good for the first time (Ironmonger, 1972).

Experience reinforces (Levav et al., 2012) or alters consumer’s expectations about consuming a particular good (Holbrook and Hirschman, 1982). Repeated consumption of a good reduces predicted enjoyment, hence the consumer’s likelihood of purchasing it again (Pasdiora et al., 2020). By learning these predictive associations (Van Osselaer and Janiszewski, 2012), consumers acquire consumption and purchasing habits and skills and inertia in product choices.

Satiation and learning feed back into consumers’ memory and motivation to consume. Because of these feedback loops, the often temporary nature of satiation, and because the other factors mentioned above are continually changing, the formation of consumer demand is dynamic. Any equilibrium in a consumer’s demand and consumption is likely to be transient.

Implications

In summary, consumers:

- (1) Are motivated to obtain consumer goods in order to satiate their desires, of which the instinctual drives have evolutionary origins.
 - (a) Learning and experiential rewards add further motives.
 - (b) That produces a hierarchical motivation structure, ramifying from instinctual and the concomitant practical motives to hedonic, symbolic, identity, or status-related motives, all at varying levels of consciousness.
 - (c) Internal body systems and external cues activate these motives, triggering attempts to consume.
- (2) Learn by combining sensory and cognitive contents and cues from:
 - (a) Memory, products themselves, and information searches.
 - (b) Institutions: suppliers’ unsolicited persuasion; socialised beliefs, attitudes, and taste regimes.
- (3) Evaluate potential purchases by applying different combinations of:
 - (a) Practical, hedonic, symbolic, identity, and status-related criteria.
 - (b) Intuitive, heuristic, and deliberative decision processes.
- (4) Who use markets to obtain goods face:
 - (a) Largely supplier-set product characteristics, options, and prices.
 - (b) An exclusion price (ability to pay), above which they cannot enter the market at all.
 - (c) A reservation price (willingness to pay), reflecting individual reference price, money available, opportunity costs, motivation, learning, and decision processes.

- (5) Enter and leave markets at different price levels, depending on individual variations in exclusion and reference prices.
 - (a) Increasing a price makes consumers cumulatively leave the market.
 - (b) For most consumer goods these mechanisms are described by a usually down-sloping, perhaps stepped and/or gapped, demand curve (first law of demand).
- (6) Who purchase and consume a good then usually experience
 - (a) Satiation, which temporarily deactivates the relevant motivation.
 - (b) Learning, which reinforces or alters their motivation structure and memory.

Synthesising this integrated explanatory structure, enabling consumer research to contribute more fully and directly to economic theory, and proposing to replace MU theory entirely with this synthesis or future developments of it are the main contributions of this paper. Like Ironmonger's, this work illustrates how institutionalist assumptions and methods can yield a formal economic model. 'Realism in assumptions forces us to analyse the world that exists, not some imaginary world that does not' (Coase, 1988: 7). The foregoing explanation starts from a process-based description of choice (cf. Loasby, 1967; Muñoz, 2024), not *a priori* assumptions as conventional economic analysis often does. Such explanations are more complex than MU theory, but that, Katona (1974) argues, is a price worth paying for a realistic, evidential explanation. Because firms do not all respond similarly when market conditions change, a theory that explains the differences is preferable to one that cannot (Loasby, 1967), and analogously for consumer demand. A summary of where the foregoing realistic explanations converge with and diverge from the *ex ante* versions of MU theory (Appendix 2) might be useful to economics instructors and students.

Discussion

The concept of utility is neither necessary nor, usually, accurate for conceptualising rationality, goal-directedness, prudential behaviour, self-interest, choice, ranking or preferring goods or experiences, pursuing or experiencing pleasures, pain avoidance, well-being, gain, or pay-offs. The foregoing does not deny that consumers compare and choose goods but suggests that they compare goods for their uses, qualities, and symbolism, not marginal utilities. Neither does it deny that prices alone sometimes guide consumers' buying decisions. As a counter-explanation of the same observations, the theory proposed above has some predictive overlaps with MU theory, for example, that demand for most consumer goods is price-elastic and income-elastic and less elastic for necessities than luxuries. It concerns demand formation when other prices and the consumer's available money are fixed, something closer to the concept of uncompensated (Marshallian) than compensated (Hicksian) demand, but in relinquishing the concept of utility, different to both. People who consume all their income without saving anything have also been called 'rule of thumb' consumers, a different usage to above. Because behavioural and neuro-economics lack explanatory components specific to markets (McChesney, 2013), it is necessary to complement (not replace) them with institutional components in order to explain consumer demand patterns, the first law of demand, price elasticity, and aspects of consumer psychology itself.

As limitations, the foregoing sets aside such supply-side questions as how firms estimate consumer demand, design products or set prices, and institutionalist theories of organisation. It does not necessarily extend to commodities other than consumer goods. Up-sloping demand curves describing such well-known special cases as Giffen goods and prestige goods require additional explanation. It assumes that how much money the consumer has, the above mechanisms, and other prices remain constant whilst a price changes, making it, to that extent, a *ceteris paribus* theory. Tuck (1976) suggested that integrative, inductive models of consumer demand 'save the phenomena' but cannot be operationalised or tested. However, the model above derives not only from observations but from already- tested hypotheses. The studies cited above, and many others, have already operationalised its components, whether at a general level (e.g. econometric studies of income elasticity, few of which

depend on MU theory [Buchanan, 1969]) or single-component level (e.g. about reasoned behaviour [Ajzen and Fishbein, 2000]). The relationships included in the above model can, therefore, be tested against, and used to analyse, new data at component, multi-component, or general level, and revised as necessary.

Since this initial synthesis derived from studies in particular databases and journals, it may miss some causal findings and nuances in the explanation of consumer behaviour. Mostly the primary studies described quite small parts of consumer markets: one commodity and/or one retailer, in one country. Much consumer research by firms is not publicly available. As far as they go, however, the above explanations are evidence-based and not *a priori* truths. Searching more databases and with additional keywords would reveal further evidence that would qualify, elaborate, correct, or update the above synthesis. For example, ongoing marketing and technological changes such as apps (Silverman and Barasch, 2023) continually influence consumer demand formation in new ways. Still to consider are non-OECD economies, the methodological implications, and the normative and ethical aspects of demand formation, consumption, and consumerism more widely.

Further towards a realistic theory of consumer demand

The foregoing synthesis suggests opportunities for theory development. Institutional economics could work backwards towards psychophysical mechanisms as the end-point for explanatory regressions to ever higher-order preferences, rules, and habits (Earl, 2023). Also, the foregoing synthesis suggests re-theorising the relationships between income distribution and consumer demand, that is, between income elasticity and price elasticity, Engel curves, and the demand-side components of economic explanations of how consumer goods markets clear, and of such macro-economic mechanisms as growth, Schumpeterian competition, credit, saving, business cycles, and fiscal policy. It might be adapted for labour markets. It suggests that consumer behaviour in, say, the public sector or third sector need not be conceptualised only in terms of failure to resemble markets. Replacing MU with a developing synthesis of more realistic explanatory theories creates an opportunity for a more, not less, theoretically informed economics, based partly on research findings in related disciplines.

Consumer, psychological, and neurological research findings can together entirely replace MU theory with a realistic explanation of consumer behaviour. An evidence-based synthesis of institutional with psychological explanations suggests how institutions act upon consumers' motivational and cognitive differences and so tend to produce the consumer behaviour which research studies report. That behaviour occurs because consumers in markets confront property rights, have unequal amounts of money, and react in psychologically disparate ways to the complex of circumstances and institutions that shape their wants, decisions, and behaviour, hence, what they buy, when, where, and why.

References

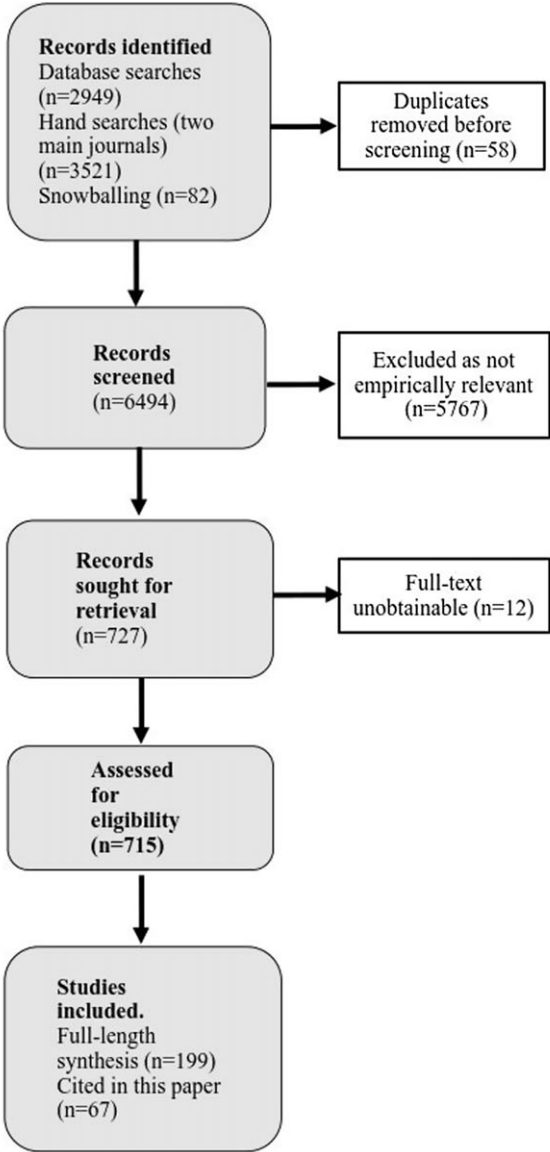
- Ajzen I. and Fishbein M. (2000). Attitudes and the attitude-behavior relation: reasoned and automatic processes. *European Review of Social Psychology* **11**, 1–33.
- Allais M. (1953). Le comportement de l'homme rationnel devant le risque: critique des postulats et axiomes de l'école américaine. *Econometrica: journal of the Econometric Society* **21**, 503–546.
- Arafat S.Y., Kar S.K., Marthoenis M., Sharma P., Apu E.H. and Kabir R. (2020). Psychological underpinning of panic buying during pandemic (COVID-19). *Psychiatry Research* **289**. <https://doi.org/10.1016/j.psychres.2020.113061>.
- Ariely D., Loewenstein G. and Prelec D. (2003). "Coherent arbitrariness": stable demand curves without stable preferences. *The Quarterly Journal of Economics* **118**, 73–106.
- Arnould E.J. and Thompson C.J. (2005). Consumer culture theory (CCT): twenty years of research. *Journal of Consumer Research* **31**, 868–882.
- Arsel Z. and Bean J. (2013). Taste regimes and market-mediated practice. *Journal of Consumer Research* **39**, 899–917.
- Banerjee P., Chatterjee P., Mishra S. and Mishra A.A. (2019). Loss is a loss, why categorize it? Mental accounting across cultures. *Journal of Consumer Behaviour* **18**, 77–88.
- Battalio R.C., Dwyer G.P. and Kagel J.H. (1987). Tests of competing theories of consumer choice and the representative consumer hypothesis. *The Economic Journal* **97**, 842–856.

- Baxter J.L. and Moosa I.A. (1996). The consumption function: a basic needs hypothesis. *Journal of Economic Behavior & Organization* **31**, 85–100.
- Becker G.S. (1962). Irrational behavior and economic theory. *Journal of Political Economy* **70**, 1–13.
- Bernheim B.D. and Rangel A. (2009). Beyond revealed preference: choice-theoretic foundations for behavioral welfare economics. *The Quarterly Journal of Economics* **124**, 51–104.
- Buchanan J.M. (1969). *Is Economics the Science of Choice?* London: Routledge and Kegan Paul, pp. 47–64.
- Carpenter J.M. (2009). Extreme value shoppers in the United States. *International Journal of Retail & Distribution Management* **37**, 804–813. <https://doi.org/10.1108/09590550910975835>.
- Chai A. and Moneta A. (2010). Retrospectives: Engel curves. *Journal of Economic Perspectives* **24**, 225–240.
- Chartrand T.L., Huber J., Shiv B. and Tanner R.J. (2008). Nonconscious goals and consumer choice. *Journal of Consumer Research* **35**, 189–201.
- Chen Y.F. and Wang R.Y. (2016). Are humans rational? Exploring factors influencing impulse buying intention and continuous impulse buying intention. *Journal of Consumer Behaviour* **15**, 186–197.
- Coase R.H. (1988). How should economists choose. In *Ideas, Their Origins and Their Consequences: Lectures to Commemorate the Life and Work of G. Warren Nutter* **63**. Washington DC: American Enterprise Institute for Public Policy Research.
- Degeratu A.M., Rangaswamy A. and Wu J. (2000). Consumer choice behavior in online and traditional supermarkets: the effects of brand name, price, and other search attributes. *International Journal of Research in Marketing* **17**, 55–78.
- Deval H., Mantel S.P., Kardes F.R. and Posavac S.S. (2013). How naive theories drive opposing inferences from the same information. *Journal of Consumer Research* **39**, 1185–1201.
- Dias R.S., Sharma E. and Fitzsimons G.J. (2022). Spending and happiness: the role of perceived financial constraints. *Journal of Consumer Research* **49**, 373–388.
- Douglas M., Wilk R. and Isherwood B. (2021). *The World of Goods*. London: Routledge.
- Earl P.E. (2023). Rules all the way down: consumer behaviour from the standpoint of the ‘ONE behavioural’ research programme. *Journal of Consumer Behaviour* **22**, 531–546.
- Earl P.E., Markey-Towler B. and Coutts K. (2022). 50 years ago: Duncan Ironmonger’s new commodities and consumer behaviour and its relationship with Lancaster’s ‘New Approach’ to consumer behaviour. *History of Economics Review* **83**, 40–67.
- Engel J.F., Blackwell R.D. and Miniard P.W. (1990). *Consumer Behavior*, 6th ed. Orlando, FL: Dryden Press. Available at https://books.google.co.uk/books?id=eZN_FeYQNkIC.
- Erdem T., Keane M.P. and Sun B. (2008). The impact of advertising on consumer price sensitivity in experience goods markets. *Quantitative Marketing and Economics* **6**, 139–176.
- Evans D. (2003). Hierarchy of evidence: a framework for ranking evidence evaluating healthcare interventions. *Journal of Clinical Nursing* **12**, 77–84.
- Fehr E. and Rangel A. (2011). Neuroeconomic foundations of economic choice—recent advances. *Journal of Economic Perspectives* **25**, 3–30.
- Fine B. (2016). *Microeconomics: A Critical Companion*. London: Pluto Press.
- Frederick S., Novemsky N., Wang J., Dhar R. and Nowlis S. (2009). Opportunity cost neglect. *Journal of Consumer Research* **36**, 553–561.
- Friedman M. and Savage L.J. (1948). The utility analysis of choices involving risk. *Journal of political Economy* **56**, 279–304.
- Gigerenzer G. and Brighton H. (2009). Homo heuristicus: why biased minds make better inferences. *Topics in Cognitive Science* **1**, 107–143.
- Gowdy J.M. and Mayumi K. (2001). Reformulating the foundations of consumer choice theory and environmental valuation. *Ecological Economics* **39**, 223–237.
- Gu Y., Botti S. and Faro D. (2013). Turning the page: the impact of choice closure on satisfaction. *Journal of Consumer Research* **40**, 268–283.
- Han C.M. and Won S.B. (2018). Cross-country differences in consumer cosmopolitanism and ethnocentrism: a multilevel analysis with 21 countries. *Journal of Consumer Behaviour* **17**, e52–e66.
- Hansen T. (2005). Perspectives on consumer decision making: an integrated approach. *Journal of Consumer Behaviour: An International Research Review* **4**, 420–437.
- Hare T.A., Camerer C.F. and Rangel A. (2009). Self-control in decision-making involves modulation of the vmPFC valuation system. *Science* **324**, 646–648.
- Hodgson G.M. (1997). The ubiquity of habits and rules. *Cambridge Journal of Economics* **21**, 663–684.
- Hodgson G.M. (2012). On the limits of rational choice theory. *Economic Thought* **1**, 2012.
- Holbrook M.B. and Hirschman E.C. (1982). The experiential aspects of consumption: consumer fantasies, feelings, and fun. *Journal of Consumer Research* **9**, 132–140.
- Houthakker H.S. (1950). Revealed preference and the utility function. *Economica* **17**, 159–174. <https://doi.org/10.2307/2549382>.
- Houthakker H.S. and Taylor L.D. (1974). *Consumer Demand in the United States: Analyses and Projections*. Cambridge, MA: Harvard University Press.

- Huang P., Lurie N.H. and Mitra S. (2009). Searching for experience on the web: an empirical examination of consumer behavior for search and experience goods. *Journal of Marketing* 73, 55–69.
- Hubert M. and Kenning P. (2008). A current overview of consumer neuroscience. *Journal of Consumer Behaviour: An International Research Review* 7, 272–292.
- Ironmonger D.S. (1972). *New Commodities and Consumer Behaviour*. Cambridge: Cambridge University Press.
- Jacobson R. and Obermiller C. (1990). The formation of expected future price: a reference price for forward-looking consumers. *Journal of Consumer Research* 16, 420–432.
- Janssen L. and Fennis B.M. (2017). Mindless resistance to persuasion: low self-control fosters the use of resistance-promoting heuristics. *Journal of Consumer Behaviour* 16, 536–549.
- Kahneman D. and Tversky A. (1979). Prospect theory: an analysis of decision under risk. *Econometrica* 47, 263–292.
- Katona G. (1974). Psychology and consumer economics. *Journal of Consumer Research* 1, 1–8.
- Kemp E. and Kopp S.W. (2011). Emotion regulation consumption: when feeling better is the aim. *Journal of Consumer Behaviour* 10, 1–7.
- Kim S. and Rucker D.D. (2012). Bracing for the psychological storm: proactive versus reactive compensatory consumption. *Journal of Consumer Research* 39, 815–830.
- Kőszegi B. and Rabin M. (2007). Mistakes in choice-based welfare analysis. *American Economic Review* 97, 477–481.
- Kotler P. and Armstrong G. (2010). *Principles of Marketing*. London: Pearson Education.
- Lancaster K.J. (1966). A new approach to consumer theory. *Journal of Political Economy* 74, 132–157.
- Lemmon E.J. (1971). *Beginning Logic*. London: CRC Press.
- Levav J., Reinholdt N. and Lin C. (2012). The effect of ordering decisions by choice-set size on consumer search. *Journal of Consumer Research* 39, 585–599.
- Lindenberg S. (1996). Continuities in the theory of social production functions. In Ganzeboom H. and Lindenberg S. (eds), *Verklarende sociologie: Opstellen voor Reinhard Wippler*. Amsterdam: Thesis Publishers, pp. 169–184.
- Lisjak M. and Ordabayeva N. (2023). How political ideology shapes preferences for observably inferior products. *Journal of Consumer Research* 49, 1014–1031.
- Loasby B.J. (1967). Management economics and the theory of the firm. *The Journal of Industrial Economics* 15, 165–176.
- Maccarrone-Eaglen A. and Schofield P. (2017). Compulsive buying behavior: re-evaluating its dimensions and screening. *Journal of Consumer Behaviour* 16, 463–473.
- Martin K.D. and Paul Hill R. (2012). Life satisfaction, self-determination, and consumption adequacy at the bottom of the pyramid. *Journal of Consumer Research* 38, 1155–1168.
- Mazumdar T., Raj S.P. and Sinha I. (2005). Reference price research: Review and propositions. *Journal of Marketing* 69, 84–102.
- McChesney F.S. (2013). Behavioral economics: old wine in irrelevant new bottles? *Supreme Court Economic Review* 21, 43–76.
- Mort G.S. and Rose T. (2004). The effect of product type on value linkages in the means-end chain: implications for theory and method. *Journal of Consumer Behaviour: An International Research Review* 3, 221–234.
- Muñoz F.-F. (2024). The fundamentally uncertain economic agent: Brian J. Loasby's growth of knowledge approach to the psychology of human action. *Mind & Society* 23, 1–30.
- Naem M. and Ozuem W. (2021). Customers' social interactions and panic buying behavior: insights from social media practices. *Journal of Consumer Behaviour* 20, 1191–1203.
- Nordfalt J. (2009). Unplanned grocery purchases: the influence of the shopping-trip type revisited. *Journal of Consumer Behaviour: An International Research Review* 8, 1–13.
- Pasdiora M.A., Brei V.A. and Nicolao L. (2020). When repetitive consumption leads to predictions of faster adaptation. *Journal of Consumer Behaviour* 19, 450–462.
- Payne J.W., Bettman J.R. and Johnson E.J. (1993). *The Adaptive Decision Maker*. Cambridge: Cambridge University Press.
- Peine K., Heitmann M. and Herrmann A. (2009). Getting a feel for price affect: a conceptual framework and empirical investigation of consumers' emotional responses to price information. *Psychology & Marketing* 26, 39–66.
- Pfeiffer B.E., Deval H. and Kardes F.R. (2022). Financial scarcity and caloric intake: it is not always about motivation. *Journal of Consumer Behaviour* 21, 1454–1463.
- Ramirez E. and Goldsmith R.E. (2009). Some antecedents of price sensitivity. *Journal of Marketing Theory and Practice* 17, 199–214.
- Ratchford B.T. (1975). The new economic theory of consumer behavior: an interpretive essay. *Journal of Consumer Research* 2, 65–75.
- Ritzer G. (2009). *Enchanting a Disenchanted World: Continuity and Change in the Cathedrals of Consumption*. Thousand Oaks, CA: Sage.
- Robinson J. (1962). *Economic Philosophy*. Harmondsworth: Penguin.
- Robson A.J. (2002). Evolution and human nature. *Journal of Economic Perspectives* 16, 89–106.
- Samuelson P.A. (1938). The empirical implications of utility analysis. *Econometrica* 6, 344–356. <https://doi.org/10.2307/1905411>.
- Scitovsky T. (1985). Pricetakers' plenty: a neglected benefit of capitalism. *Kyklos* 38, 517–536.

- Shove E. and Warde A. (2002). Inconspicuous consumption: the sociology of consumption, lifestyles and the environment. In Dunlap R.E., Buttel F.H., Disckens P. and Giswijt A. (eds), *Sociological Theory and the Environment: Classical Foundations, Contemporary Insights*. Lanham, MD: Rowan & Littlefield, pp. 230–251.
- Silverman J. and Barasch A. (2023). On or off track: how (broken) streaks affect consumer decisions. *Journal of Consumer Research* **49**, 1095–1117.
- Simonson I. and Sela A. (2011). On the heritability of consumer decision making: an exploratory approach for studying genetic effects on judgment and choice. *Journal of Consumer Research* **37**, 951–966.
- Skwara F. (2023). Effects of mental accounting on purchase decision processes: a systematic review and research agenda. *Journal of Consumer Behaviour* **22**, 1265–1281.
- Slovic P., Finucane M.L., Peters E. and MacGregor D.G. (2007). The affect heuristic. *European Journal of Operational Research* **177**, 1333–1352.
- Spiller S.A. and Belogolova L. (2017). On consumer beliefs about quality and taste. *Journal of Consumer Research* **43**, 970–991.
- Stigler G.J. and Becker G.S. (1977). De gustibus non est disputandum. *American Economic Review* **67**, 76–90.
- Talukdar D., Gauri D.K. and Grewal D. (2010). An empirical analysis of the extreme cherry picking behavior of consumers in the frequently purchased goods market. *Journal of Retailing* **86**, 336–354.
- Thaler R. (1999). Mental accounting matters. *Journal of Behavioral Decision Making* **12**, 183–206.
- Tranfield D., Denyer D. and Smart P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management* **14**, 207–222.
- Tuck M. (1976). *How Do We Choose?: Study in Consumer Behaviour*. London: Methuen.
- Van Osselaer S.M. and Janiszewski C. (2012). A goal-based model of product evaluation and choice. *Journal of Consumer Research* **39**, 260–292.
- Veblen T. (2005). *The Theory of the Leisure Class: An Economic Study of Institutions*. Delhi: Aakar Books.
- Völckner F. and Hofmann J. (2007). The price-perceived quality relationship: a meta-analytic review and assessment of its determinants. *Marketing Letters* **18**, 181–196.
- Wakefield K.L. and Inman J.J. (2003). Situational price sensitivity: the role of consumption occasion, social context and income. *Journal of Retailing* **79**, 199–212.
- Weingarten E. and Goodman J.K. (2021). Re-examining the experiential advantage in consumption: a meta-analysis and review. *Journal of Consumer Research* **47**, 855–877.
- Wichary S. and Smolen T. (2016). Neural underpinnings of decision strategy selection: a review and a theoretical model. *Frontiers in Neuroscience* **10**, 500.
- Yoo J., Choi S., Hwang Y. and Mun Y.Y. (2021). The role of user resistance and social influences on the adoption of smartphone: moderating effect of age. *Journal of Organizational and End User Computing (JOEUC)* **33**, 36–58.
- Yoon H. and Meyvis T. (2024). Consuming regardless of preference: consumers overestimate the impact of liking on consumption. *Journal of Consumer Research* **51**, 474–496.

Appendix 1



From: Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372.

Figure A1. PRISMA chart.

Appendix 2. Points of contact between realistic and *ex ante* MU theory

Assumptions	Realistic	<i>Ex ante</i> MU theory
Consumer motivation	Partly instinctual, partly learnt motivation-structure.	Fixed preferences.
Consumer goals	Satiation of wants.	Maximum utility.
Information from	Memory, search, unsolicited persuasion.	Memory, search.
Consumers' cognitive load	Comparisons usually of 5-15 goods, often fewer, per purchase.	Comparison within open-ended groups of goods.
Consumers' cognitive limitations	Inexperience, information availability, bias, suggestibility, dependence on supplier-provided information.	Bias, pseudo- not perfect maximisation.
Consumer evaluation process (logic of choice used)	Varies by decision-situation and individual. Diverse processes, sometimes combined: pre-conscious response to stimuli; habit; heuristic(s) of varying degrees of deliberativeness.	Deliberate equalisation of marginal utility per unit of cost, or heuristic approximations.
Consumers' evaluation criteria	The activated motivation(s) to consume.	Utility maximisation.
What consumers evaluate	Multiple motivation-relevant physical and symbolic characteristics of goods; prices.	Marginal utility to price ratios.
Independence of consumers' preferences	Is only partial. Socialisation of motives ('taste regimes'): Institutions of fads, fashions, status-seeking, other symbolic uses of goods, marketing, local culture. Attention to other consumers' experiences.	Ignored, for mathematical tractability.
Consumer non-deliberation	Panic buying, compulsive shopping, impulse shopping, comfort shopping, habit, risk-avoidance.	Consumers normatively irrational or use poor proxies for rationality.
Causes of consumer irrationality	Pre-conscious decision, ill-adapted heuristics, cognitive mistakes or bias, supplier incentives or persuasion.	Cognitive bias, limitations of knowledge, pseudo-maximisation not perfect maximisation.
Conditions for consumer entry to markets	Depends on property rights, business models, and consumer having sufficient money.	Presupposed, not explicit.
Exclusion price determinants	Property rights, consumers' income levels, discretionary incomes, income distribution.	Not distinguished from reservation price.
Reservation price determinants	Vary by individuals' motivation, learning and reference prices, and product characteristics, money owned, opportunity costs.	Preferences and opportunity costs.
Variation among consumers	Many multi-dimensional consumer segmentations.	'Representative consumer' assumed, or small numbers of groups of consumers.
Response to changed product characteristics.	Consumers may change quantity purchased and/or supplier, although decision overload makes that less likely; or leave market.	Consumers may shift change quantity purchased and/or supplier.

(Continued)

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Assumptions	Realistic	<i>Ex ante</i> MU theory
Consumers' response to price rise	Exclusion, fewer willing to pay, change quantity purchased, substitute other products, re-schedule purchases, or no change (e.g. for necessities, or if consumer remains satiated).	Move to another indifference curve or along current indifference curve. Change quantity purchased (to zero if reservation price is reached), substitute the alternative product.
Market-level effect of price changes	Market grows or shrinks; change in quantity and/or quality purchased; learning; individuals may reach or lose satiation, depending on price level.	Quantity purchased changes.
Income effect	Change quantity (or value at post-change prices) of focal good obtained.	Shift to another indifference-curve, change quantity of focal good obtained.
Substitution	Substitution practically limited to functionally similar goods.	All goods substitutable.
Substitute (definition)	Distinguish 1. meeting same want with functionally equivalent alternative(s) to the focal good 2. shifting spending to a different want than what the focal good satisfied.	Any good to which consumer reallocates spending
Substitution effect	Proportional change in spending on focal good.	Shift along indifference-curve, change spending on focal good.
Satiation	Widely reported, especially for basic goods. Markets become saturated. Individuals' motivation to purchase temporarily deactivated.	Conceivable but exceptional.
Consumers' learning from consumption	Preferences, taste and knowledge change.	Preferences and tastes stable.
Methods		
Discovering consumer motivation	From research evidence including behavioural observation, experiment, analysing routine economic data, self-report, brain investigation.	Preferences unobservable, only imputed.
<i>Ceteris paribus</i> assumptions	Consumers' money-ownership, non-focal prices.	Preferences, utilities, tastes, consumer's budget constraint, non-focal prices, consumer's decision rule.
Normative rationality	Prudential: relative to the particular consumer's wants. Consistency and validity of consumer's factual assumptions. Satisfy motives lower in the motivation-hierarchy before higher ones.	<i>A priori</i> : Maximise utility by equalising marginal utility of inputs per unit of cost. Consistency, non-transitivity