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Do markets reveal preferences or shape them?☆

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ABSTRACT

We contrast the proposition that markets reveal independently existing preferences with the alternative possibility that they may help to shape them. Using demand-revealing experimental market institutions, we separate the shaping effects of price cues from the effects of market discipline. We find that individual valuations and prevailing prices are systematically affected by both exogenous manipulations of price expectations and endogenous but divergent price feedback. These effects persist to varying degrees, in spite of further market experience. In some circumstances, market experience may actually consolidate them. We discuss possible explanations for these effects of uninformative price cues on revealed preferences.

1. Introduction

There is now abundant evidence that, contrary to the standard assumptions of economic models, the preferences of economic agents are often affected by salient but informationally irrelevant cues, specific to the particular contexts in which those preferences are revealed (Slovic and Lichtenstein, 1968; Bohm et al., 1997; Ariely et al., 2003; Mazar et al., 2013; Sugden et al., 2013; Maniadis et al., 2014).

In this paper, we focus on a specific form of context-dependence: the systematic effect that observations of, or expectations about, actual market prices exert on the valuations of economic agents, even when those prices have no useful informational content for the formation of private values (see Knetsch et al., 2001; Loomes et al., 2003; Tufano, 2009). This effect poses a challenge to the long-standing view in economics that markets are institutions that simply allow economic agents to reveal their pre-existing and market-independent preferences: it suggests by contrast that markets may, to a considerable extent, *shape* preferences. In the traditional view, the market is liable to penalise traders who misreport their preferences

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and thereby encourages them to correct their behaviour (e.g. Binmore, 1999; List, 2003, 2004). Such *market discipline*, it is argued, helps to refine the revelation of one's underlying preferences when these are not immediately accessible but emerge as the result of a process of 'discovery' (Plott, 1996).

Shaping and market discipline are both mechanisms by which prices generated in one trading period can affect behaviour in subsequent periods, and the effects of both can be cumulative. However, while market discipline is supposed to pull revealed preferences towards their underlying market-independent value, shaping may arbitrarily pull them towards irrelevant cues. In the normal operation of markets, discriminating between these opposing forces may prove extremely challenging, as they can result in observationally equivalent behaviour. Taking up this challenge is the main contribution of our paper. We present an experiment which uses two manipulations aimed at identifying the extent of shaping effects in the absence of market discipline, and the power of market discipline to erode the effects of shaping.

In our experimental setup, price cues are devoid of any relevant informational content: people trade privately owned and individually consumed goods, for which valuations cannot be objectively affiliated (e.g. List and Shogren, 1999). Since these goods only exist in our experiment and are consumed inside the lab, price cues cannot convey any information about alternative trading opportunities (Harrison et al., 2004).

We use an exogenous and non-informative manipulation to influence stated price expectations, which act as cues for valuations. Notice that these are expectations about actual market prices, but have not been influenced by any previous market behaviour. So a pure shaping effect – that is, an effect that cannot be attributed to market discipline – can be observed, if it occurs, in the first round of trading. Then, subsequent rounds allow us to observe the effects of market discipline.

We also use a more innovative manipulation that allows us to 'switch off' market discipline for identifiable subsets of traders: traders who repeatedly trade at prices that are clearly very advantageous, and traders who repeatedly do not trade because they face very disadvantageous prices. By repeating the market in the absence of market discipline, we can observe the cumulative shaping effects of endogenous price feedback. By switching market discipline back on for the same traders, we can observe its power to erode these shaping effects which, given their cumulative nature, could be quite large.

To preview our results we find that, in the absence of market discipline, both manipulations induce extensive shaping effects. When these shaping effects are exposed to the full forces of market discipline, they are sometimes weakened, but are not eliminated.

Ultimately, shaping may arise for a number of reasons. One extreme possibility is that agents do not have preferences when they get to the market, and *construct* them using arbitrary cues as anchors (e.g. Slovic, 1995; Lichtenstein and Slovic, 2006; Ariely et al., 2006; Stewart et al., 2006). Or they may react to price information because they use prices as reference points (e.g. Thaler, 1985; Putler, 1992; Isoni, 2011; Weaver and Frederick, 2012; Bordalo et al., 2012). Our results suggest that the proposition that preferences are completely malleable is too extreme. Rather, they are compatible with the existence of underlying preferences of some form, but suggest that these are susceptible to extraneous influences that may have some long term residual effect, in spite of the disciplining forces operating in markets.

The paper is organised as follows. In Section 2, we describe our market institution – a median price selling auction – and derive the institution-specific hypotheses about shaping and market discipline which our experiments will examine. In Section 3, we describe our broad experimental design. In Section 4, we present our first manipulation, designed to test for shaping effects obtained through exogenously influenced price expectations. Section 5 focuses on our second manipulation, in which we study the role of endogenous price feedback. Some issues raised by our results are discussed in Section 6. In Section 7 we offer some concluding remarks.

2. Shaping and market discipline in repeated selling auctions

All of our treatments employ repeated median-price selling auctions for monetary lotteries. In each auction round, each trader is endowed with a lottery and is asked to consider a set of discrete amounts of money spanning a given range and to say, for each amount, whether or not they would accept it in exchange for the lottery. The elicitation procedure (described in detail in Section 3) is constrained to impose consistency: anyone who reports willingness (unwillingness) to accept some amount x must also report willingness (unwillingness) to accept any higher (lower) amount. The smallest amount of money the trader would accept is their *willingness-to-accept valuation* (WTA); the largest amount of money they would *not* accept is their *not-willing-to-accept valuation* (NWTA). (Implicitly, the trader is reporting that they value the lottery at least as much as NWTA but no less than WTA.) The median NWTA is identified and announced as the market price for that round. Traders whose NWTAs are strictly less than the announced price (i.e. who have reported willingness to accept that price) sell their lotteries back to the experimenter at that price; and if this round of trading is randomly selected at the end of the experiment to be the basis of payment, they are then paid that amount. The other traders keep their lotteries: if this round is selected, they play out the lottery and are paid accordingly. Since we are interested in the shaping effect of price cues, there is no resolution of lotteries until after the last round and there is no information about other traders' responses except in the form of the median NWTA which constitutes the market price.

At the end of each auction round, traders are told the market price for that round and hence whether they have sold or not. According to the *shaping hypothesis*, traders are liable to revise their NWTAs for the next round in the direction of the observed prices. This creates a tendency for NWTAs to be pulled in the direction of price cues, other things being equal.

This tendency is conceptually different from value *affiliation*. Affiliated values reflect a positive correlation between non-observed *objective* properties of a good (e.g. the worth of a common-value resource), while shaping reflects a correlation