CRP Enrollment: Relevant Literature on Nudges and Experiments

Background Nudges: Defaults and Anchoring

Nudges are "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives," (Thaler and Sunstein 2009, p.6). In other words, nudges are low-cost interventions made at the time of a decision, for example, default options, feedback, and anchors. Nudges can have large effects on behavior; in a meta analysis of 100 experiments using nudges, Hummel and Maedche find that two thirds of the effects are statistically significant and the median effect size is 21% (Hummel and Maedche 2019). Nudges are an important tool for policy makers as relatively small interventions with the potential to adjust behavior without significantly changing the incentives or choice options for decision makers (Benartzi et al. 2017).

Defaults are choices or settings which require an individual to make a deliberate action to deviate from the default. *Status quo* bias describes the reluctance of a decision-maker to change from the default. A good example of this is the dramatic differences in organ donor registration between countries that have an opt-in or an opt-out system (Johnson and Goldstein 2003). Defaults have been shown to have large behavioral impacts in a number of contexts, including to increase voluntary contributions (Messer et al. 2007; Messer, Suter and Yan 2013), reducing over-prescription of opioids (Chiu et al. 2018) and tipping behavior for taxi rides (Haggag and Paci 2014).

Anchoring is a cognitive bias that describes a tendency to rely too heavily on the first piece of information available when making a decision. It is a well-studied and well-documented behavioral bias in the literature (Kahneman 2011). In the context of consumer goods, psychologists and behavioral economists have reported that anchoring can influence valuations (Ariely, Loewenstein and Prelec 2003; Maniadis, Tufano and List 2014). Results from these studies, and their interpretations, have generated disagreement about the stability of consumer preferences (Maniadis et al. 2014; Enke et al. 2020). There is further disagreement if anchoring influences inexperienced consumers' valuations more than experienced consumers (Alevy, Landry and List 2015; Clark and Ward 2008; Löfgren et al. 2012). There is some evidence of the impact of anchoring on market outcomes fading over time (Alevy et al. 2015). Anchoring has also been shown change behavior across many contexts, including: WTP for environmental action (Li et al. 2019), the value of bids on initial public offering auctions (Gao et al. 2018), farmers' bidding practices (Holst, Hermann and Musshoff 2015), and others (see a review in Furnham and Boo 2011).

Other nudge strategies include additional information and feedback. Feedback nudges have been shown to have long and persistent effects on water consumption (Chabé-Ferret et al. 2019). Information and social comparisons increase compliance with water protection rules (Peth and Mußhoff 2020).

Experimental Papers on Conservation

Review papers are available for the hundreds of experimental economics studies on auction and auction-like "games" (in the economic sense of the term) (e.g.: Dechenaux et al. 2015) and for the specific domain of conservation auctions (Schilizzi 2017). A subset of the conservation auction literature looks at the issue of information provision during the auctions (Messer et al. 2014)

In addition, the following literature review of conservation auctions is repeated here and is from the ERS white paper on payments (Attachment H to this ICR package).

"In looking for experimental studies of conservation auctions, we identified thirty candidate studies. More than half of these studies did not include sufficient information on payments to participants or estimates of relevant treatment effects to be included here. Eleven studies provide sufficient information and involved estimation of a treatment effect on either average rent or total cost. Some of these studies find that withholding information on ranking can reduce information rents (Cason and Gangadharan 2004, Banerjee et al. 2015), while other studies find that withholding ranking information can also reduce benefits (Conte and Griffin 2007). Several studies suggest that pay-as-bid (discriminatory pricing) can reduce costs (Cason and Gangadharan) relative to uniform pricing, but that ordering can reverse if contract compliance decisions are taken into account (Kawasaki et al. 2012). Other key issues covered in these studies include the way in which the dynamic of repeated auctions can improve net benefits even while increasing rents (Fooks et al. 2015), the prevalence of adverse selection in these auctions (Arnold et al. 2013), incentives for offer quality improvement (Banerjee et al. 2018), the impact of excessively restrictive bid caps (Hellerstein et al 2015), the impact of using benefit-cost ratio ranking (Iftekar and Tisdell 2014, Fooks et al. 2015), multiple, interacting auctions (Tisdell and Iftekar 2013), and the role of communication and trust between participants and program administrators (Vogt et al. 2013).

…
In the studies identified in the above charts, participants were asked to make offers in multiple auctions. Total number of auctions ranged from a low of 8 to a high of 65. In about half of the studies, auctions included multiple rounds, which are opportunities to revise offers within an auction.[1] Usually a participant is given a single item (e.g.: a field) on which to make an offer, but in some cases participants were given multiple items. The combination of auctions, rounds, and multiple items mean that over the course of a single session a participant could be making a lot of offer decisions. The most involved experiments involved 91 (Banerjee et al, 2015), 108 (Cason and Gangadharan, 2004), and 130 decisions (Fooks et al., 2016)."

[1] The terminology used in this literature is extremely inconsistent. The studies use the terms sessions, rounds, periods, trials, and eras. Typically the term "session" refers to a single experimental session, or group of participants doing one full run of the experiment. Here we use the term "round" to refer to one full auction, but several of the papers refer to these as "periods" and use the term "rounds" to refer to the revision opportunities within an auction.

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