Anchoring Effects on Student Loan Decisions: Evidence from an Experimental Design

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Anchoring effects have been a mainstay in lab experiments in economics and psychology. The traditional experimental design primes participants with an arbitrary starting point such as results from a spinning wheel followed by a question on an unrelated subject (Tversky & Kahneman 1982). Regardless of how irrelevant the anchor is to the follow-up question, participants' estimates are partial to the original piece of information provided. While the lab results have been consistent in showing large anchoring effects on the lab (Wilson et al 1996), there is still considerable discussion on how those effects translate to real world situations.

The present research helps explain one of barriers first generation college bound students might encounter. When nobody in their immediate family has had the college and student loan experience, those young adults might be deprived of the necessary support to enroll in college and finance at least part of their own education. Their family and support circle might not recommend attending college by taking student loans despite the still strong return on investment from a college degree. Despite recent gains, first generation students are less likely to attend a four-year college than the overall population and more likely to stop their studies at the associated degree level.

In the present study, survey participants are asked to provide college attendance loan advice to a randomly assigned experimental scenario. The paper finds that participants are influenced by their own student loan experience (or lack of) to determine if and how much student loans should young adults in the hypothetical scenarios take. The study contributes to our understanding of the decision-making process of taking out student loans while providing evidence of an instance of anchoring effects having potential real life implications.

Review of the Literature

The prevalence of anchoring effect in a multitude of human decision-making contexts has been evidenced by numerous studies (see a recent review from Furnham & Boo 2011). Ariely, Loewenstein, & Prelec (2003) showed that the valuations of familiar market goods are strongly influenced by anchors, questioning the economic assumption of market valuation based on one's willingness to pay. Anchoring effects also exist

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when the subject uses a familiar reference point to judge the current task at hand.

Typically, numeric judgement under uncertainty is most susceptible to anchoring effect or assimilation to initial value. The degree of uncertainty of a situation or a judgement object to the judge then could influence the power of anchoring effect. Mussweiler and Strack (2000) demonstrated the extent that anchoring effect persists depend on one's knowledge. With a task to estimate the age of Mahatma Gandhi, their study found that the more knowledge of a judge has about the target, the narrower the probability distribution. In this case the knowledge implies both clarity and unambiguity about the target. Also, the plausibility of the anchor (e.g., whether Mahatma Gandhi was older or younger than 140 year vs. 79 years) affected the speed of the decision, when the question was comparative in nature.

Why does the anchoring and insufficient adjustment in one's decision happen? One of the widely accepted accounts is the Selective Accessibility (Mussweiler and Strack 1999). According to this perspective, individuals will try to first test the hypothesis that the presented anchor is in fact correct in a given task. Our cognitive process then will look for the information that is confirming the hypothesis, and cues that are similar to the anchor will become more accessible and easily retainable. In other words, exposure to a numeric value serves as a reference point in subsequent judgement. Arbitrary in nature, such as one's phone number, birth date, or social security numbers have been used to demonstrate persistent anchoring effect.

In a study on consumer satisfaction, Woodruff, Cadotte, and Jenkins (1983) suggested one's prior experience with the brand or a product would shape the norms and thus operate as a reference point. According to their conceptual model, consumer satisfaction is a result of perceived brand performance, which is driven by the consumer's prior experience with the product or a brand. Prior experience would not only shape performance norms/standards but also attitudes and expectations.

Expanding this mechanism of experience-based norm, this study tested the following hypotheses:

Hypothesis 1: Survey participants will judge the decision to take student loans based on their personal experiences due to anchoring effect

Hypothesis 2: Survey participants will recommend loan amounts based on their own experience with student loans

Methodology

Data

The current study is an output of the NC-2172 multi-state research project "Behavioral economics and financial decision-making and information management across the

lifespan." Data was collected using an online survey panel in September 2014. The panel collection was conducted by an outside sampling firm. A total of 1,928 paid participants between the ages of 18 and 64 were surveyed. The survey included an

experimental component were participants were exposed to one of eight scenarios where gender and framing were randomized. The analysis presented here is focused on matching the characteristics of the survey participant with the characteristics of the hypothetical. For more details on the survey methodology and experimental design, see Cho et al (2016).

Dependent Variables

Participants' recommendation on student loans is the focal point of this study. Survey respondents were initially presented with a scenario where the character is about to make a decision regarding college attendance. Next, participants were asked the following two questions: "Do you think it is wise for Jonathan (or Samantha) to take student loans in order to pursue a college degree?" and "How much in total should Jonathan (or Samantha) be willing to take in student loans in order to pursue this degree?". The participants answered on scales that ranged from "1: Not Wise" to "5: Very Wise" for the first question and an ordered categorical consisting of "1: $0," "2: $1–$9,999," "3: $10,000–$19,999," "4: $20,000–$29,999," "5: $30,000–$39,999," and "6: $40,000 or more" for the loan amount question.

Anchoring and Control Variables

Survey questions related to student loans with the potential to uncover anchoring effects are used in this study. Participants were asked the original amount of their student loan with possible choices ranging from less than $10,000 to over $50,000. Conditional of having taken a student loan, participants were asked how recently was the loan taken with options ranging from this year to over 20 years ago and five-year increments in between. Next, participants were asked about their current loan balance with options to mark the loan as paid off to over $50,000.

Recent anchors seem to have stronger effect on the considered outcome (Cen et al 2013). As such, a control for when the student loan was first taken was included with possible answers ranging from this year to over 20 years ago. Moreover, a survey item measuring how satisfied was the participant with their student loan amount with answers in a Likert-like scale 1-Very Dissatisfied to 5-Very Satisfied was included in the model.

Several independent variables were added as controls based on previous literature. The demographic factors selected for this study included age group (18–24, 25–34, 35–44, or 45–64 years); gender (male or female); race (white or non-white); marital status (living with or without partner); children in house (having children or not), and household income. Further, controls for parental educational achievement using a dichotomous variable (1= if father or mother are college graduates, 0 = if no) and for the cost of attending college by state at the time of the survey availability were also incorporated in the analysis.

To account with participants' college experience, a binary indicator of completion of college degree was included (Yes = 1). Lastly, another binary indicator representing student loans taken to someone else is added to the models to make up for the

possibility that survey participants are dealing with more than one college related debt when answering to the experimental design question.

Estimation Strategy

The analysis was primarily interested in exploring the relationship between participants student loan experience and their advice to the experimental characters. The two main variables of interest – wise to take loans and loan amount recommended - are defined using scales of increasing magnitude. Consequently, these variables are considered to be discrete ordered and were analyzed using Ordered Logistic regression models reporting odds ratio.

Results

Table 1 column (1) shows that those that value college degrees and those that are more satisfied to their student loans are more likely to advise student loans as a wise decision. Column (1) includes the full sample of respondent with or without a college education. In this column, respondents that have student loan increase the odds of a higher value of the Wise to Take Loans scale by 1.46. Columns (2) to (3) comprise of only respondents that have student loan experience. We find evidence that respondents appear to be using their own loan experience – satisfied with amount of loan taken – when recommending student loans as a wise choice to others. This result is also supportive of hypothesis 1.

In Table 2, the recommend student loan amount is the dependent variable. Anchoring effects are displayed by a number of robust correlation between survey respondent's student loan numbers and the recommended amount. Column (1) includes the full sample as a baseline. In Column (2), initial loan amount, current balance and satisfaction with student loan are all positively associated with the amount of loan recommended. As such, the anchoring effects appear to be particularly strong when respondents took out and paid for the student loan themselves. Respondents that benefit from a student loan that is paid by somebody else (Column 3) or by both themselves and somebody else (Column 4) are anchoring their recommendation based on the initial loan amount taken. Findings in Table 2 validate Hypothesis 2.

Discussion and Implications

The results of this study suggest that the perception about how much one should borrow in a given scenario is strongly influenced by anchoring effects. Anchoring effects here take the form of survey respondents drawing from their experience when recommend the prudence of taking out a student and the loan amount recommended. The more one borrowed, the more one is likely to think a higher amount being borrowed by a hypothetical stranger is prudent. The anchor bias, in this scenario, might work in support of attending college. In reverse, when the bias is present, there is also a potential for overborrowing.

Financial educators, advisors and policymakers should be aware of the effects of anchoring biases in student loans decisions when designing financial literacy programs

or interventions to foster postsecondary education. For people growing up without exposure to student loans or even college graduates on their households or close circle of friends, the bias might prevent college attendance by underestimating the benefits of a degree and overestimating the costs of loans. Anchoring effects here add another potential barrier to first-generation college students and might help explain the difficulties they encounter to successfully finance their education,

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Table 1. Ordered Logit, Reporting Odds Ratio, Wise to Take Student Loans as a DV

	(1) Full Sample	(2) Took Out Own Loan	(3) Someone Else Took Loan	(4) Own Loan and Somebody Else
	Wise to Take Loans for Education Odds	Wise to Take Loans for Education Odds	Wise to Take Loans for Education Odds	Wise to Take Loans for Education Odds
Degree Important	2.2176***	2.2177***	5.2158***	3.6130**
	(0.099)	(0.167)	(1.250)	(1.792)
Some College	0.7605*	0.8403	0.4549	0.1828
	(0.085)	(0.237)	(0.465)	(0.185)
College	0.8464	0.8877	0.3900	0.3230
	(0.104)	(0.326)	(0.381)	(0.278)
White	1.1994*	1.4313**	1.4307	0.3533*
	(0.092)	(0.168)	(0.583)	(0.177)
Unmarried Man	0.9981	0.8905	0.6207	1.6963
	(0.136)	(0.127)	(0.482)	(1.532)
Unmarried Woman	1.1031	1.3824	0.2291	0.6046
	(0.146)	(0.277)	(0.236)	(0.545)
Parental Education (0-2)	1.1489*	1.0637	0.9564	1.6238
	(0.071)	(0.073)	(0.143)	(0.552)
Dependents	1.2357*	1.1369	1.3377	0.3977
	(0.102)	(0.129)	(0.777)	(0.256)
Unemployed	1.0857	1.2397	1.3925	1.4634
	(0.107)	(0.166)	(0.839)	(0.964)
Cost of State Attendance	1.0283	0.9667	0.8870	0.7238
	(0.031)	(0.034)	(0.108)	(0.228)
HH Income	1.1025***	1.0718***	1.1512	1.2485*
	(0.014)	(0.022)	(0.090)	(0.141)
Age	1.1377***	1.0747	1.2329	0.8677
	(0.043)	(0.077)	(0.471)	(0.326)
Have Student Loan (Yes=1)	1.4617***			
	(0.135)			
Did not complete degree		0.9944	0.7920	2.0078
		(0.152)	(0.399)	(1.123)

Initial Loan Amount		1.0560	1.1625	1.1472
		(0.068)	(0.217)	(0.163)
Current loan Balance		1.0485	1.0456	0.9787
		(0.052)	(0.126)	(0.133)
Loan Time (1=this year,		1.0253	1.2504	0.9960
6=more than 20 years)		(0.046)	(0.322)	(0.208)
Satisfied with Loan Amount		**1.8700*** **	**1.6225** **	**2.4403** **
		(0.130)	**(0.265)**	**(0.758)**
Pseudo r2	0.0871	0.1288	0.2819	0.2659
Log Likelihood	-2413.9758	-1057.6074	-116.6344	-79.8961
N	1,917	915	133	83

Exponentiated coefficients
Student Loan Experimental Survey
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2. Ordered Logit, Reporting Odds Ratio, Recommended Loan Amount as a DV

	(1) Full Sample	(2) Took Out Own Loan	(3) Someone Else Took Loan	(4) Own Loan and Somebody Else
	Recommended Loan Amount Odds	Recommended Loan Amount Odds	Recommended Loan Amount Odds	Recommended Loan Amount Odds
Degree Important	1.2738***	1.1336*	1.2631	1.5203
	(0.064)	(0.067)	(0.324)	(0.451)
Some College	0.8936	0.9334	0.6573	0.3627
	(0.116)	(0.206)	(0.466)	(0.342)
College	1.0540	0.7604	0.2766	0.5261
	(0.123)	(0.153)	(0.205)	(0.412)
White	1.3327***	1.3908**	1.0598	1.5540
	(0.099)	(0.171)	(0.430)	(0.839)
Unmarried Man	1.0756	1.2315	0.7398	1.1582
	(0.111)	(0.168)	(0.436)	(0.778)
Unmarried Woman	1.0768	1.5739**	0.8709	1.9354
	(0.126)	(0.236)	(0.511)	(1.420)
Parental Education (0-2)	1.0432	0.9816	1.2869	0.9911
	(0.069)	(0.090)	(0.256)	(0.408)
Dependents	1.1769	1.1112	1.1819	2.0997
	(0.104)	(0.154)	(0.678)	(1.441)

Unemployed	0.8964	0.8773	1.7192	0.6086
	(0.081)	(0.126)	(0.736)	(0.333)
Cost of State Attendance	1.3708***	1.3518***	1.0688	1.1207
	(0.047)	(0.063)	(0.182)	(0.200)
HH Income	1.1082***	1.1157***	1.2356*	1.1657
	(0.015)	(0.029)	(0.130)	(0.149)
Age	1.0327	0.9327	0.8362	0.8987
	(0.042)	(0.061)	(0.265)	(0.320)
Have Student Loan (Yes=1)	1.1305			
	(0.104)			
Did not complete degree		0.9947	0.8204	1.2762
		(0.130)	(0.356)	(0.949)
Initial Loan Amount		**1.2859*** **	**1.7740*** **	**1.5399***
		(0.069)	**(0.235)**	**(0.320)**
Current loan Balance		**1.1922****	1.0297	1.2838
		(0.080)	(0.117)	(0.241)
Loan Time (1=this year, 6=more than 20 years)		1.0253	1.2504	0.9960
		(0.046)	(0.322)	(0.208)
Satisfied with Loan Amount		**1.5752*** **	0.9157	1.5405
		(0.091)	(0.134)	(0.399)
Pseudo r2	0.0519	0.1052	0.1392	0.1831
Log Likelihood	-2904.1442	-1261.7382	-178.8790	-107.5956
N	1,914	914	133	83

Exponentiated coefficients
Student Loan Experimental Survey
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$