Measuring Time Preferences in Large Surveys*

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Abstract

Time preferences may explain public opinion about a wide range of long-term policy problems with costs and benefits realized in the distant future. However, mass publics may discount these costs and benefits because they are later or because they are more uncertain. Standard methods to elicit individual-level time preferences tend to conflate risk and time attitudes and are susceptible to social desirability bias. A potential solution relies on a costly lab-experimental method, convex time budgets (CTB). We present and experimentally validate an affordable version of this approach for implementation in mass surveys. We find that the theoretically preferred CTB patience measure predicts attitudes toward a local, delayed investment problem but fails to predict support for more complex, future-oriented policies.

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1 Introduction

Countries have long been struggling with addressing major policy challenges such as climate change, excessive public deficits, or the insolvency of pension funds. These challenges may be difficult to solve because they are political marshmallow problems (Mischel, 2014) that entail costly intertemporal trade-offs between immediate gratification and long-term benefits. In trying to explore this potential source of conflict over future-oriented policies, social scientists have become increasingly interested in measuring individual time preferences (Sheffer et al., 2018; Falk et al., 2018; Andersen et al., 2008; Frederick, Loewenstein and O'Donoghue, 2002; Laibson, 2007) and assessing whether temporal discounting explains political behavior (Kertzer, 2017; Jacobs, 2016).[1] In political science, the concept of time discounting has typically been used in formal models of the dynamics of public goods provision (Baron, 1996), legislative decisionmaking (Baron and Ferejohn, 1989; Buisseret and Bernhardt, 2017), and international cooperation (Fearon, 1998). More recently, time preferences have, for example, been included in empirical studies of mass support for contributions to local public goods (Sheffer et al., 2018), balanced budgets (Battaglini, Nunnari and Palfrey, 2020), investments in public infrastructure (Jacobs and Matthews, 2015, 2012), and military interventions (Kertzer, 2017).

A significant portion of previous research on political marshmallow problems has examined the mass politics of long-term policy challenges relying on time preference measures that are subject to two types of criticism. First, the long-term payoffs to policy investment today are not only temporally distant, but also more uncertain. Therefore, scholarship interested in explaining support for future-oriented policy would benefit from individual-level measures that are able to disentangle patience from risk acceptance. Yet, the most widespread methods to elicit time and risk preferences are suscepti-

[1] In fact, the number of articles published in political science, economics, sociology, and psychology that engage with aspects of decisionmaking related to time discounting has increased from 5 in 1990 to over 4,000 in 2018. These numbers are based on a web of science search for "discounting", "time preferences", or "patience". These data are available as part of the replication archive for this study.

ble to conflating these two forces. This is problematic because if opposition to investing in long-term policy such as climate mitigation, disaster preparedness, or the solvency of pension funds, is driven by risk aversion, then uncertainty-reducing efforts promise to increase public support for such investments. If, however, voter preferences reflect impatience, raising long-term policy support would require focusing on and re-designing the temporal distribution of benefits and costs. In addition, voters who are risk averse may not necessarily also be impatient and vice versa. This illustrates that whether patience or risk aversion accounts for political conflict over long-term investment has important implications for the optimal design of public policy.

A second concern could be that when asked to self-assess and state their level of patience as well as attitudes toward policy, respondents may be affected by social desirability bias. A potential solution to both of these problems introduces convex time budgets (Andreoni and Sprenger, 2012; Andreoni, Kuhn and Sprenger, 2015) to generate estimates of patience and risk acceptance. This technique rests on a choice exercise in which respondents choose between combinations of sooner and later payments. So far, the convex time budgets (CTB) approach has only been used in lab experiments and is very costly due to the considerable monetary incentives.

We show using an experimental design that changing the costly, original payoff mechanism of the CTB approach by either reducing the payoffs by an order of magnitude or employing hypothetical decisions yields measures of time preferences with nearly identical distributions in a large, non-probability quota sample meant to be representative of the adult population in the United States. We then evaluate the validity of the CTB patience measure by exploring whether it predicts future-oriented policy opinions. Using a local delayed investment problem in which respondents select between a constant and a backloaded investment schedule to address water supply issues, we find that patience correlates in theoretically meaningful ways with individuals' choices. However, when examining support for a wide range of large-scale, future-oriented policies such as cli-

mate mitigation, climate technology, human capital investment, and fiscal discipline we find that patience as measured by the CTB approach does not predict individuals' policy views. In contrast, the stated-preference patience measure tends to predict both support for policies with a significant dynamic component and approval of a policy that lacks a clear temporal dimension. These results are consistent with the view that the relationship between stated-preference patience measures and future-oriented policy positions may be spurious and could potentially result from social desirability bias.

2 Measuring Time Preferences

The widely used stated preference approach asks respondents to indicate on how willing they are to give up something that is beneficial today in order to benefit more from that in the future (see Appendix A). This survey item and others like it are easy for respondents to understand and require only a single question for which almost all respondents provide an answer. The measure, however, has at least two weaknesses. First, it may conflate risk and time preferences (Andersen et al., 2008; Andreoni and Sprenger, 2012; Andreoni, Kuhn and Sprenger, 2015). Respondents could be reluctant to sacrifice a current benefit for a future gain because they do not value the future or because they are risk averse and view the later gain as more uncertain. Second, respondents' self-assessments may be influenced by social desirability bias. Individuals who indicate to be willing to give up something today for a later benefit may value the future or they may be providing the response they think describes themselves positively. Both weaknesses seem important for studies that seek to understand support for future-oriented policies.

A second widely used approach to measuring patience is the staircase method, which relies on multiple price lists. This choice-based technique asks individuals several times to make a choice between a payment today and larger payments at some point in the

future.[2] The staircase method allows researchers to identify the switching point, i.e., the point where a respondent switches from selecting the sooner over the later payment to preferring the later payment over the sooner payment. This information is used to compute an approximate discount rate for each respondent. The staircase method seems less prone to social desirability bias as there is no clear answer option that would make the respondent conform with what is perceived as socially desirable. Further, in applications that actually pay respondents for one of their choices, the measurement strategy is substantially incentivized. Yet, individuals could prefer the payment today because they do not value the larger later payment as much as the present smaller payment because of the temporal delay or because they are averse to the higher risk associated with the later payment. As a consequence, measures of patience would be confounded by risk aversion. This potential confounding problem is an important limitation that motivates the Convex Time Budget (CTB) method (Andreoni and Sprenger, 2012; Andreoni, Kuhn and Sprenger, 2015) as an alternative way of eliciting time preferences.

The CTB method starts with considering the allocation of payments x_t and x_{t+k} between two periods t and $t+k$. Preferences over these two payments are assumed to be described by the following utility function:

$$U(x_t, x_{t+k}) = \begin{cases} x_t^\alpha + \beta\delta^k x_{t+k}^\alpha, & \text{if } t = 0. \\ x_t^\alpha + \delta^k x_{t+k}^\alpha, & \text{if } t > 0. \end{cases} \tag{1}$$

The parameter δ measures long-run exponential time discounting, β measures the preference for payments now ($t = 0$) and thus captures present bias, and α measures utility function curvature or the extent of risk aversion. The objective of the CTB approach is to obtain a valid measure of time preference (δ) at the individual level that is not conflated by risk aversion. To this end, the CTB technique asks respondents to choose repeatedly

[2] Appendix B reports the exact question wording in typical implementations.

between a bundle of payments that will be received at time t and at $t + k$ in the future. Each budget includes both extreme cases in which the full payment is realized at time t or at time $t + k$ as well as four convex combinations of these payoffs (see Appendix Figure A.1).

The choices an individual makes under varying levels of delay provide information about time discounting or patience δ. The introduction of the four convex combinations, which distinguishes the CTB approach from the staircase method, allows the researcher to hold the delay in convex combinations of sooner and later payments constant (e.g., 5 weeks) and to examine the sensitivity of an individual to changes in prices. With the delay in the later payments held constant, this price sensitivity provides information about utility function curvature which captures an individual's level of risk aversion (α). Choices at the extremes are consistent with risk-neutrality ($\alpha = 1$). Interior choices indicate risk aversion ($\alpha < 1$). In addition, the approach also allows for the separate identification of present bias β. The parameters of interest δ, α, and β can be estimated by ordinary least squares or nonlinear least squares.

3 CTB Time Preferences, Costs, and Alternative Payoff Mechanisms

Measuring time preferences using CTB as most commonly implemented costs about $20 per respondent in incentives only. Given that most social science surveys have 1,000 respondents or more, these costs could be prohibitive. We investigate modifications of the standard payoff mechanism for the CTB approach such that it produces similar estimates at a substantially lower cost.[3]

We implement the CTB method with four different, randomly assigned payoff mech-

[3]The study was reviewed by the Institutional Review Boards at Stanford University (eProtocol # 46325) and Washington University in St. Louis (IRB ID #: 201803178). The survey instrument is available as part of the replication archive for this study.

anisms. The *Benchmark CTB* payoff mechanism is an exact replication of the laboratory protocols in Andreoni, Kuhn and Sprenger (2015): respondents make 24 choices and are told that one of their 24 decisions will be randomly selected to determine their actual payments. This payoff mechanism is costly to implement in mass surveys, but providing weaker incentives or merely hypothetical payouts could inflate measures of patience. We evaluate whether this is the case by testing *Benchmark CTB*, which uses the fully incentivized payoff mechanism that results in an average payoff of about $20 per respondent, against three more affordable alternatives. *CTB Lottery* asks respondents to make the same 24 choices as in the benchmark case but are told that only twenty percent of the respondents will actually receive a payment. In *CTB Hypothetical Low* no actual payments are promised. We add a fourth payoff mechanism, *CTB Hypothetical High*, in which the 24 choices range from sooner payments of $0 to $1,900 and later payments from $0 to $2,000 as opposed to $0 to $19 and $0 to $20 in the other payoff mechanisms and no actual payments are promised. Appendix C reports the exact instructions.[4] The experiment was fielded in June 2018 to an online, non-probability quota sample of 5,820 adult respondents in the United States (see Appendix E).[5] Quotas were set on age, education, and gender and the sample matches the margins of the adult population with respect to these sociodemographics.

We estimate patience (δ) at the individual level by regressing the natural log of the ratio of the sooner and later combination of payments chosen by the respondent on the number of days to the first payment (t), the number of days that the payment is delayed (k), and the natural log of the price ratio of the later payments to the sooner payments.

[4] In a follow-up survey (see section I) we explored respondents' levels of understanding of the CTB task using four quiz items. 91% of the respondents answered at least one question correctly, 78% answered at least two questions correctly, 64% answered at least three questions correctly, and 40% answered all four questions correctly. Appendix D reports the wording for these quiz items.

[5] Ansolabehere and Rivers (2013) show that opt-in Internet panel samples produce estimates of political variables that are very similar to those found in samples that rely on random digit dialing of landlines and cell phones or recruitment by mail. Bechtel, Hainmueller and Margalit (2014) find that a non-probability online quota sample replicates the correlational structures of political attitudes in a random-digit-dialing telephone sample.

The estimate of an individual's discount factor δ is then equal to the exponent of the ratio of the coefficient on k and the coefficient on the natural log of the price ratio.[6]

Two important issues become evident. First, some respondents always choose one of the corner options in "sooner" and "later" space which makes it impossible to estimate parameters for these individuals.[7] We follow Andreoni, Kuhn and Sprenger (2015) and exclude these observations. Second, given the relatively small number of choices, it is possible for the estimates for any one person to take on extreme and implausible values. Therefore, we trim our CTB estimates of individual time preferences by setting all values below the 5th percentile and above the 95th percentile equal to missing. We are using the trimmed measure for all analyses unless indicated otherwise.

We compare several statistics of the CTB patience parameters in Table 1 which reports the mean, median, difference-in-means, and the p-value for the Kolmogorov-Smirnov test of the null hypothesis of the distributions of patience (δ) being equal across the four payoff mechanisms. The mean and median is close or equal to 1 in all four samples. While there exist small differences in the means at the third decimal place, only the difference between *CTB Hypothetical High* and the other three payoff mechanisms is statistically significant.[8]

Appendix Figure A.2 suggest that the distributions of time preferences by payoff mechanism are tight and very similar.[9] This impression is confirmed by the small standard deviation of the patience parameters which is .01 or less. In addition, we formally test whether the variance of the benchmark patience parameter is significantly different from those that rely on weakly incentivized payoff mechanisms. Table 1 reports the p-

[6]Following the replication code for Andreoni, Kuhn and Sprenger (2015), we substitute all payouts equal to 0 with 0.001.

[7]Andreoni, Kuhn and Sprenger (2015) note that this occurred for about 10% (6 out of 64) of the undergraduate students which served as subjects in their laboratory setting. In our mass survey, it occurred for 16% of respondents. In addition, we explored whether corner options were more frequent for respondents that spent less time on the survey. We find that the correlation between selecting corner options and interview length is close to zero and insignificant (r=-.01, p=.51). Also, choosing corner options is neither strongly nor systematically correlated with how much time respondents spent on a CTB choice page before submitting their answer (r=-.03, p=.11).

[8]See also Appendix Table A.1.

[9]Appendix F reveals that our individual-level and aggregate-level estimates for *Benchmark CTB* are quite comparable to the laboratory results in Andreoni, Kuhn and Sprenger (2015).

value for Levene's variance equality test. We find that the variance of *Benchmark CTB* is not significantly different from the variance of patience elicited by the other payoff mechanisms. The p-values for the nonparametric Kolmogorov-Smirnov (KS) suggest that we cannot reject the null of equality for each combination of *Benchmark CTB*, *CTB Lottery*, and *CTB Hypothetical Low*. However, the KS test does reject the null hypothesis for the *CTB Hypothetical High* payoff mechanism. These results indicate that the CTB method can be adopted with fewer or arguably no respondents actually paid for their choices. Since the *CTB Hypothetical High* payoff mechanism generates patience estimates that differ systematically from the *Benchmark CTB*, we exclude these observations from all subsequent analyses and pool the estimates based on the remaining three payoff mechanisms.

Table 1: Means and Distributions of CTB Patience Measures by Randomized Payoff Mechanism

Payoff Mechanism	Median	Mean	N		CTB Lottery	CTB Hypothetical Low	CTB Hypothetical High
Benchmark CTB (Fully Incentivized)	0.998	1.000	1,066	Difference	0.000	0.000	-0.001
				p(t)	0.476	0.890	0.005
				p(L)	0.122	0.119	0.770
				p(KS)	0.979	0.345	0.000
CTB Lottery	0.998	0.999	1,097	Difference		0.000	-0.001
				p(t)		0.585	0.000
				p(L)		0.002	0.006
				p(KS)		0.166	0.000
CTB Hypothetical Low	0.998	1.000	1,065	Difference			-0.001
				p(t)			0.005
				p(L)			0.188
				p(KS)			0.000
CTB Hypothetical High	1.000	1.001	1,163	Difference			
				p(t)			
				p(L)			
				p(KS)			

Note: The table reports the mean, median, and number of observations (N) of the estimated discount factor (δ, trimmed) by treatment condition along with the difference-in-means. In the fully incentivized Benchmark CTB condition the payout average was \$20 per respondent. p(t) is the p-value of a t-test of the null hypothesis of no difference between the estimated parameters. p(L) is the p-value of Levene's test of the null hypothesis of equal variances centered at the mean. p(KS) is the p-value of a Kolmogorov-Smirnov test of the null hypothesis of equal distributions.

4 Patience and Public Opinion about Dynamic Policy Problems

4.1 Patience and Delayed Investment

We validate the CTB measure of patience in a delayed investment problem in which we inform respondents that the water pipe system in their region needs upgrades and repairs to secure the supply of fresh water to households.[10] The survey item instructs respondents that engineers have approved two repair plans that will solve the problem but differ in their timing of household payments. One plan has constant payments over five years. The other plan starts with lower payments and ends with higher ones (Appendix G shows the exact schedules and question wording). When discounting the future payments as part of computing the net present costs for each of the plans, the relative attractiveness of the constant payment option increases as patience increases. This is because for patient respondents the higher later payments will entail higher present costs. As a result, the total net present costs for the backloaded plan increase. Thus, if time preferences were the main factor driving the choice over these two investment options, we would expect more patient individuals to be more likely to choose the constant payment option while less patient individuals should select the backloaded plan.

We embedded this item in a survey that we fielded together with YouGov in December 2018 and January 2019 to an online quota sample meant to be representative of the U.S. population (N=4,075).[11] We constructed the variable *Constant Payment* equal to one if respondents selected "Option 1", i.e., the constant investment plan, in the question above and zero if they selected "Option 2", i.e., the backloaded plan. The survey contained a CTB module using the *Hypothetical Low* approach described above.

We estimate a linear regression of *Constant Payment* on patience (including dichotomized

[10] The order in which this part of the survey, the CTB module, and other time preference items were placed rotated randomly across different respondents. There was no evidence of order effects in the results.

[11] Appendix H describes the sampling methodology and provides descriptive statistics.

versions of both the CTB and stated-preference measure which were both set equal to 1 if above the median and 0 otherwise) and, in some specifications sociodemographic control variables. Table 2 reports these results. Columns 1 and 2 report the estimates for the CTB patience measure with and without control variables. It should be noted that the CTB measurement approach generated higher levels of missingness in the waterpipe survey than in the CTB study discussed above. We obtain a significantly positive coefficient for CTB patience in column 1 which is consistent with the hypothesis that more patient respondents are more likely to choose the constant payment option. Adding sociodemographic controls in column 2 attenuates the coefficient on CTB patience somewhat but the estimate remains positive and statistically significant. Columns 3 and 4 show that estimates are also positive and statistically significant using *Patience CTB (trimmed): High*, the dichotomized version of the CTB measure. Having an above-median value on the CTB patience score is correlated with a 5 to 7 percentage point increase in the probability of choosing the constant payment option.

The estimates for the raw and the dichotomous version of the stated-preference measures, which rely on the standard question wording (see Appendix A,) suggest magnitudes that parallel those for the CTB measure (Columns 5-8). Taken together, the results reported in Table 2 are consistent with the common conjecture that heterogeneity in how much individuals value the future accounts for lower than desirable investment levels for long-term projects. These results remain substantively unchanged when estimated on the weighted data (see Appendix Table A.2) and when adding the CTB risk acceptance parameter as a predictor (see Appendix Table A.3).[12]

[12]Appendix I reports additional results on the waterpipe problem that are based on an online, non-probability quota sample of Americans. Appendix I also provides details about the sample and sampling approach used for this additional study.

Table 2: Patience and Support for Constant Investment Schedules (Waterpipe Problem)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Patience CTB (trimmed)	1.191**	1.029*						
	(0.534)	(0.555)						
Patience CTB (trimmed): High			0.067***	0.053***				
			(0.017)	(0.018)				
Patience Stated					0.015***	0.012***		
					(0.002)	(0.003)		
Patience Stated: High							0.081***	0.052***
							(0.013)	(0.014)
Sociodemographics		Yes		Yes		Yes		Yes
Observations	2,543	2,278	2,543	2,278	4,075	3,605	4,075	3,605

Note: This table reports linear regression coefficients in which support for the constant investment plan is regressed on patience measures and sociodemographic variables. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White.

4.2 Patience and Support for Future-oriented Policy

We now explore mass support for "delayed gratification investments" that are needed to address political marshmallow problems across a range of long-term policy challenges. Our interest is in whether patience is predictive of the willingness to support cutting greenhouse gas emissions to address climate change, investing in new technologies to remove carbon from the air (carbon harvesting), cutting public spending to improve the sustainability of public debt, and investing in human capital to increase economic growth. We expect more patient respondents to be more supportive of such investments. We also analyze the relationship between patience and support for a short-term, placebo policy which would require all firms to offer paid maternity leave for 90 days. Our expectation is that patience should not predict support for paid maternity leave. This analysis utilizes our original survey data conducted in June 2018 and described above and in Appendix E. Appendix J provides the exact question wording for these survey items. To relax functional form assumptions we convert the 11-point disagree-agree scale into an indicator variable that is 1 if the level of agreement exceeds the median (which is 7 for all outcome variables) and is 0 otherwise.

Table 3 reports the results. We find that across a wide range of long-term policy issues, the CTB measure of patience fails to predict policy support. This result also holds when using a dichotomized version of the CTB measure. In contrast, the stated-preference patience measure predicts agreement across a range of long-term policies. To probe the ability of the patience measures to discriminate between more long-term and less long-term policies, we also measured support for paid maternity leave for which the intertemporal dimension is considerably less pronounced than for policy challenges such as climate changes. We find that the stated-preference measure is also predictive of support for paid maternity leave.[13] The findings are robust across alternative specifications (see Appendix Tables A.4, A.5, A.6, and A.7). Moreover, the patterns replicate in a follow-up study (see Appendix I and J) that featured the original policy view items with revised answer scales and an alternative placebo outcome (promoting gender equality in the military, see Table A.8) along with a set of alternative policy items that relied on different question wording and answer options (Table A.9).

[13]In a follow-up survey we also find that the stated preference measure is predictive of whether one would like policymakers to do more to promote gender equality in the military which is another placebo policy that lacks a strong intertemporal component.

Table 3: Time Preference Measures and Support for Public Policy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Paid Maternity Leave			
Patience CTB	-0.104				-0.573				-0.913				-1.507				-0.255			
	(1.063)				(1.059)				(1.048)				(1.068)				(1.043)			
Patience CTB: High		-0.017				-0.014				-0.039**				-0.030				-0.030		
		(0.019)				(0.019)				(0.019)				(0.019)				(0.019)		
Patience Stated			0.015***				0.013***				0.018***				0.011***				0.008***	
			(0.003)				(0.003)				(0.003)				(0.003)				(0.003)	
Patience Stated: High				0.072***				0.064***				0.109***				0.058***				0.035**
				(0.016)				(0.016)				(0.016)				(0.016)				(0.016)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015
R-squared	0.018	0.019	0.020	0.020	0.016	0.016	0.020	0.020	0.009	0.011	0.016	0.020	0.008	0.009	0.014	0.014	0.050	0.051	0.044	0.044

Note: Coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Policy views were converted into indicator variables that are 1 if the level of agreement exceeds 7 on the 1 to 11 answer scale and 0 otherwise. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** p<0.01, ** p<0.05, * p<0.1.

5 Discussion

Evidence on whether public opinion about long-term policies depends on time discounting rely on measures that conflate time and risk attitudes and may be prone to social desirability bias. We show that affordable versions of the theoretically appealing CTB method to elicit individual-level time preferences are feasible in mass surveys, and that alternative payoff mechanisms relying on either lottery or hypothetical versions of the original instrument produce valid estimates compared to the costly benchmark incentivization. We validate the CTB measures in a simplified delayed investment problem where those who are more patient prefer a sequencing of costs that avoids high future payments. We find little evidence, however, that time horizons correlate with mass preferences over more complex, future-oriented policies. In contrast, the widely used stated-preference patience measure predicts support for all policies and placebo outcomes which could be due to social desirability bias.

Taken together, we believe that there is a reasonable case for considering the CTB approach for measuring time preferences in large surveys. However, important caveats should be kept in mind and improved upon in future research. Implementing the CTB method still causes significant costs because it requires a lot of survey time and generates missing observations. Future research could test omitting the present bias parameter from the estimation, decreasing the number of questions needed for producing patience parameters, or minimizing the number of respondents who do not switch between sooner and later payments by altering the payoff combinations or the length of time between payments.

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Online Appendix for

"Measuring Time Preferences in Large Surveys"

A The Stated Preference Measure

The following question is the standard wording used for stated-preference measures of patience (see, e.g., Falk et al. 2018):

> "We now ask for your willingness to act in a certain way. Please indicate your answer on a scale from 0 to 10, where 0 means you are "completely unwilling to do so" and a 10 means you are "very willing to do so". You can also use any numbers between 0 and 10 to indicate where you fall on the scale, like 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
>
> How willing are you to give up something that is beneficial for you today in order to benefit more from that in the future?"

B The Staircase Method

An example of the choice-based approach which asks respondent to choose between a sequence of sooner or later payments is the staircase method. A typical implementation looks as follows:

> "Suppose you were given the choice between the following: receiving a payment today or a payment in 12 months. We will now present to you five situations. The payment today is the same in each of these situations. The payment in 12 months is different in every situation. For each of these situations we would like to know which you would choose.
>
> Would you rather receive $100 today or $153.80 in 12 months?"

The choices presented to the respondent vary depending on their answers to each question until the respondent switches from the sooner to the later payment or vice versa. These choices are used to calculate a discount rate for each respondent based on how large the value of the later payment needed to be for the respondent to forego the payment today for the later payment.

C CTB Items: Question Wording and Treatment Conditions

The exact instructions for each of the four randomly assigned payoff mechanisms are:

1. *Benchmark CTB*. "In this example, you are asked to choose your favorite combination of payment today and payment in 5 weeks. As you can see, the sooner payment varies in value from \$19 to \$0 and the later payment varies in value from \$0 to \$20. Note that there is a trade-off between the sooner payment and the later payment across the options. As the sooner payment goes down, the later payment goes up. Among the 24 decisions that you will make in the following, a computer will randomly draw one of the decisions to determine your actual payout. Hence, for the decision that is drawn, your sooner and later payment will be paid out to you at the sooner and later date stated in the question."
2. *CTB Lottery*. "In this example, you are asked to choose your favorite combination of payment today and payment in 5 weeks. As you can see, the sooner payment varies in value from \$19 to \$0 and the later payment varies in value from \$0 to \$20. Note that there is a trade-off between the sooner payment and the later payment across the options. As the sooner payment goes down, the later payment goes up. Among the 24 decisions that you will make in the following, a computer will randomly draw one of the decisions to determine your actual payout. Hence, for the decision that is drawn, your sooner and later payment will be paid out to you at the sooner and later date stated in the question. After completing the survey, you will automatically participate in a lottery together with the other participants in the survey. In this lottery, one-fifth of all participants will be randomly selected to receive the payout determined by the one decision which is drawn."
3. *CTB Hypothetical Low*. "In this example, you are asked to choose your favorite combination of payment today and payment in 5 weeks. As you can see, the sooner payment varies in value from \$19 to \$0 and the later payment varies in value from \$0 to \$20. Note that there is a trade-off between the sooner payment and the later payment across the options. As the sooner payment goes down, the later payment goes up. In this set of questions, we are not providing any actual payout to you. However, we nevertheless ask you to carefully think about each decision that you make in the survey, and to think about how you would respond if money was at stake. Hence, please make your choices between options as if the amounts would in fact be paid out to you at the sooner and later date stated in the questions."
4. *CTB Hypothetical High*. "In this example, you are asked to choose your favorite combination of payment today and payment in 5 weeks. As you can see, the sooner payment varies in value from \$1,900 to \$0 and the later payment varies in value from \$0 to \$2,000. Note that there is a trade-off between the sooner payment and the later payment across the options. As the sooner payment goes down, the later payment goes up. In this set of questions, we are not providing any actual payout to you. However, we nevertheless ask you to carefully think about each decision that you make in the survey, and to think about how you would respond if money was at stake. Hence, please make your choices between options as if the amounts would in fact be paid out to you at the sooner and later date stated in the questions."

D CTB Patience: Quiz Items

We used four quiz items to measure respondents' understanding of the CTB task and its payoff structure:

Question 1: "In this example, you are shown combinations of payment today and payment in 5 weeks. As you can see, the sooner payment varies in value from \$19 to \$0 and the later payment varies in value from \$0 to \$20. Note that there is a trade-off between the sooner payment and the later payment across the options. As the sooner payment goes down, the later payment goes up.

Here is an example of a decision. You do not have to answer this question, as it is only an example.

- Payment TODAY of \$19.00 and payment in 5 WEEKS of \$0
- Payment TODAY of \$15.20 and payment in 5 WEEKS of \$4.00
- Payment TODAY of \$11.40 and payment in 5 WEEKS of \$8.00
- Payment TODAY of \$7.60 and payment in 5 WEEKS of \$12.00
- Payment TODAY of \$3.80 and payment in 5 WEEKS of \$16.00
- Payment TODAY of \$0 and payment in 5 WEEKS of \$20.00

"Regarding the payment combinations shown above, which of the following is true?"

- The sooner and the later payment are always the same.
- As the sooner payment goes down, the later payment goes down.
- As the sooner payment goes down, the later payment goes up.
- As the sooner payment goes down, the later payment stays the same.

Question 2: "Which of the following combinations has the highest payment TODAY?"

- Payment TODAY of \$19.00 and payment in 5 WEEKS of \$0
- Payment TODAY of \$15.20 and payment in 5 WEEKS of \$4.00
- Payment TODAY of \$11.40 and payment in 5 WEEKS of \$8.00
- Payment TODAY of \$7.60 and payment in 5 WEEKS of \$12.00
- Payment TODAY of \$3.80 and payment in 5 WEEKS of \$16.00
- Payment TODAY of \$0 and payment in 5 WEEKS of \$20.00

Question 3: "Which of the following combinations has the highest payment in 5 WEEKS?"

- Payment TODAY of \$19.00 and payment in 5 WEEKS of \$0
- Payment TODAY of \$15.20 and payment in 5 WEEKS of \$4.00
- Payment TODAY of\$11.40 and payment in 5 WEEKS of \$8.00
- Payment TODAY of \$7.60 and payment in 5 WEEKS of \$12.00
- Payment TODAY of \$3.80 and payment in 5 WEEKS of \$16.00
- Payment TODAY of \$0 and payment in 5 WEEKS of \$20.00

Question 4: "Which of the following combinations has the highest payment TOTAL?"

- Payment TODAY of \$19.00 and payment in 5 WEEKS of \$0
- Payment TODAY of \$15.20 and payment in 5 WEEKS of \$4.00
- Payment TODAY of\$11.40 and payment in 5 WEEKS of \$8.00
- Payment TODAY of \$7.60 and payment in 5 WEEKS of \$12.00
- Payment TODAY of \$3.80 and payment in 5 WEEKS of \$16.00
- Payment TODAY of \$0 and payment in 5 WEEKS of \$20.00

E Description of CTB Survey (Survey 1, United States, N=5,820)

The survey was conducted online by Respondi in June 2018 on a quota sample of the adult population in the United States. Quotas were set on age, education, and gender. The final number of observations was 5,820. This survey contained the question items needed to generate the CTB patience measure, the stated patience measure, and the staircase patience measure. It also contained the items used to measure policy views. Table A.12 reports the distribution of quota-relevant sociodemographics in the target population, the raw sample, and the weighted sample. Table A.19 reports the distributions of income and ethnicity in the survey and the population.

F Replication of Aggregate and Individual CTB Estimates

We examine whether our *Benchmark CTB* method recovers estimates similar to those reported in previous CTB studies implemented in laboratory settings. We note that we might expect some differences between the mass and laboratory results due to variation in the characteristics of the subject pool—all adults versus students. For this analysis, we consider aggregate and individual-level estimates of time preferences δ, risk preferences α, and present bias β and focus on those respondents in our study who were exposed to the *Benchmark CTB* payoff mechanism. We compare the estimated parameters to those reported in Andreoni, Kuhn and Sprenger (2015).

To produce aggregate estimates of δ, α, and β, we pool the 28,488 choices made by the 1,184 respondents in the *Benchmark CTB* payoff mechanism. We regress the natural log of the ratio of the sooner and later combination of payments chosen on the number of days to the first payment (t), the number of days that the payment is delayed (k), and the natural log of the price ratio of the later payments to the sooner payments and calculate standard errors clustered by respondent. Our estimate of δ is then equal to the exponent of the ratio of the coefficient on k and the coefficient on the natural log of the price ratio. Our estimate of α is the inverse of the coefficient on the price ratio and the estimate of β is equal to the exponent of the ratio of the coefficient on t and the coefficient on the natural log of the price ratio.[14]

[14]Following the replication code for Andreoni, Kuhn and Sprenger (2015), we substitute all payouts equal to 0 with 0.001. Note that the text of Andreoni, Kuhn and Sprenger (2015) indicates that the number for this substitution was 0.01 but the replication code indicates that it was 0.001.

G Support for Delayed Investment: The Waterpipe Problem

The exact wording for the waterpipe problem is:

> Now we would like you to consider the following scenario related to water supply issues in your region.
>
> Suppose that the water pipe system in your region is deteriorating. Upgrades and repairs seem vital to secure the supply of fresh water to households.
>
> Engineers have determined that either of the following repair plans will work, although the required timing of household contributions is different.
>
> Please let us know which of the following two options you prefer [Random Order]:

Option 1					
Year	2020	2021	2022	2023	2024
Monthly household contributions	$50	$50	$50	$50	$50
Option 2					
Year	2020	2021	2022	2023	2024
Monthly household contributions	$20	$20	$20	$95	$95

H Description of Waterpipe Survey (Survey 2, N=4,075)

The survey was conducted online by YouGov on representative samples of the adult population in the United States. The survey contained the CTB module and the stated patience question item. The field period was December 18, 2018 to January 3, 2019. The sampling frames are constructed from the full 2016 American Community Survey. YouGov employs matched sampling in which interviews are conducted from participants in YouGov's online panel. The matched cases were weighted to the sampling frame using propensity scores. The matched cases and the frame were combined and a logistic regression was estimated for inclusion in the frame. The propensity score model included gender, age, race/ethnicity, region, and education. The propensity scores were grouped into deciles of the estimated propensity score in the frame and post-stratified according to these deciles. All matched respondents were then assigned weights stratified on 2016 presidential vote, age, sex, race, and education to correct for remaining imbalances. The final number of observations was 4,075. Table A.14 reports the distribution of quota-relevant sociodemographics in the target population, the raw sample, and the weighted sample. Table A.19 reports the distributions of income and ethnicity in the survey and the population.

I Description of Long-Term Public Policy Survey (Survey 3, N=2,995)

The survey was conducted on an online, non-probability sample of respondents in the United States provided by Lucid. The objective of this survey was to explore the robustness of the correlational patterns between the two patience measures (CTB and self-assessed) and long-term policy views are robust to varying question wording and answer scales. The field period was January 2022. The final number of completes for our analysis was 2,995. We randomly assigned one quarter of the respondents to a version of the survey instrument that contained a quiz component to investigate respondents' levels of understanding of the CTB task. These questions are described in section D. To avoid priming effects that could confound the patience measures, this group (786 respondents) was not asked to complete the CTB portion of the survey. Table A.13 reports the sociodemographic margins in the sample. The follow-up survey contained two sets of policy view batteries that are described in detail in Appendix J. The survey also included an implementation of the waterpipe problem. In contrast to the results reported in the main study which rely on a large sample of higher quality, neither the CTB nor the stated-preference patience measures in this sample were robustly positively correlated with choices between the constant and the backloaded investment plans. We speculate that this could be due to differences in the quality of the samples, but this would need to be investigated in future research.

J Long-term Policy Views: Question Items

J.1 Policy Views Questions

"Please let us know how strongly you agree or disagree with each of the following statements where 1 means strongly disagree and 11 means strongly agree.

The United States should...
... address climate change by cutting greenhouse gas emission
... address climate change by investing in new technologies to remove carbon from the air and store it
... increase the sustainability of the public debt by cutting public spending
... increase the sustainability of the public debt by investing in human capital to increase economic growth
...increase gender equality by requiring all firms to offer paid instead of unpaid maternity leave for 90 days."

J.2 Revised and Additional Policy Views Questions

For the long-term public policy survey described in section I, we revised the answer scales for the original policy items such that they ranged from strongly agree to strongly disagree on a 1-5 scale (all answer options were fully labeled) and included a "don't know" option. We also replaced the placebo policy question above (paid maternity leave) with the following question about gender equality in the military: "The United States should increase gender equality by prohibiting gender-based discrimination in the military." Finally, we included additional policy view question items that were taken from the GSS and the ANES (see section I). These read as follows:

(GSS) "Let's begin with some things people think about today. We are faced with many problems in this country, none of which can be solved easily or inexpensively. For each of the following problems, please indicate whether you think we're spending too much money on it, too little money, or about the right amount." (page break)

- "Are we spending too much, too little, or about the right amount on the environment?"
- "Are we spending too much, too little, or about the right amount on mass transportation?"
- "Are we spending too much, too little, or about the right amount on developing alternative energy sources?"

For each of these questions the answer options were: Too little, About right, Too much, Don't know.

We complemented these items with a climate policy action question taken from the ANES:
"Do you think the federal government should be doing more about rising temperatures, should be doing less, or is it currently doing the right amount?"
Answer options were: Should be doing more, Should be doing less, Is currently doing the right amount. Respondents who selected "should be doing more" were then asked "Should it be doing a great deal more, a moderate amount more, or a little more?" Answer options were: A great deal, A moderate amount, A little. Similarly, respondents who selected "should be doing less" were asked: "Should it be doing a little less, a moderate amount less, or a great deal less?" Answer options were: A little, A moderate amount, A great deal"

K Who Is Patient? The Sociodemographics of Time Preferences by Measurement Approach

We use our individual-level estimates of time discounting to investigate the sociodemographics of patience and how these vary across measurement techniques. Our dependent variable is *Patience* and is coded from each of the time preference measures so that it is increasing in the extent that a respondent values the future. To relax functional form assumptions, we dichotomize the dependent variable and regress this binary patience measure on a full set of sociodemographic variables in a linear model. To facilitate interpretation, we report the results graphically in Figure A.3. The most striking finding is the strong variation in the sociodemographic predictors of patience across measurement approaches. For example, while the CTB method suggests that patient individuals are more or less equally distributed across age groups, the staircase method and the self-stated measure generate diverging results: whereas the staircase method suggests that patience is more prevalent among older individuals, the self-stated measure suggests the exact opposite since higher levels of patience are less likely among older cohorts. All three measures indicate that higher educational attainment correlates positively with patience, albeit the strength of that association again varies by measurement technique. We also find contrasting patterns when investigating the distribution of time preferences by gender and race.

We perform several additional estimations that leave the substantive findings unaltered. Appendix Table A.15 reports coefficients from quantile (median) regressions of the three different individual-level measures of time preferences on the sociodemographic characteristics of individuals. Quantile regression results are more robust to outliers and even after trimming the individual-level CTB estimates, the possibility of influential outliers remains. The results remain robust to re-estimation using survey weights (see Appendix Tables A.17 and A.18. The results are quite similar to the OLS estimates reported in Appendix Table A.16 and those reported in Figure A.3.

L Appendix Tables

Table A.1: The Causal Effect of Payoff Mechanism on CTB Patience

Model	(1) Linear	(2) Linear	(3) Linear	(4) Linear	(5) Quantile	(6) Quantile
Weights	No	Yes	No	Yes	No	No
Benchmark CTB	Reference group	Reference group	Reference group	Reference group	Reference group	Reference group
CTB Lottery	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
CTB Hypothetical Low	-0.000	-0.000	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
CTB Hypothetical High	0.001***	0.001***	0.001**	0.001**	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Age: 35-49			0.000	0.001		0.000
			(0.000)	(0.000)		(0.001)
Age: 50-64			0.000	0.000		0.000
			(0.000)	(0.000)		(0.001)
Age: 65+			0.000	0.000		0.001
			(0.000)	(0.000)		(0.001)
Education: High School			0.001	0.001		0.002**
			(0.001)	(0.001)		(0.001)
Education: Some College			0.001***	0.001**		0.002***
			(0.001)	(0.001)		(0.001)
Education: BA or higher			0.002***	0.002***		0.003***
			(0.001)	(0.001)		(0.001)
Income: Lower Middle			0.001***	0.001**		0.001*
			(0.000)	(0.000)		(0.001)
Income: Upper Middle			0.001**	0.001**		0.001
			(0.000)	(0.000)		(0.001)
Income: High			0.002***	0.001***		0.002***
			(0.000)	(0.000)		(0.001)
Female			0.001***	0.001***		0.002***
			(0.000)	(0.000)		(0.000)
White			0.001**	0.001***		0.001***
			(0.000)	(0.000)		(0.001)
Constant	1.000***	1.000***	0.996***	0.996***	0.999***	0.993***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)
Observations	4,391	4,391	4,062	4,062	4,391	4,062

Note: This table reports coefficients from linear and quantile (median) regressions of CTB patience on randomly assigned payoff mechanism. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.2: Patience and Support for Long-Term Investment (Waterpipe Problem, Weighted Data)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Patience CTB (trimmed)	1.136*	0.800						
	(0.592)	(0.602)						
Patience CTB (trimmed): High			0.071***	0.050**				
			(0.019)	(0.020)				
Patience Stated					0.016***	0.012***		
					(0.003)	(0.003)		
Patience Stated: High							0.089***	0.055***
							(0.015)	(0.015)
Sociodemographics		Yes		Yes		Yes		Yes
Observations	2,543	2,278	2,543	2,278	4,075	3,605	4,075	3,605

Note: This table reports linear regression coefficients in which support for the constant investment plan is regressed on patience measures and sociodemographic variables using the weighted data. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.3: Patience and Support for Long-Term Investment (Waterpipe Problem), Risk Aversion CTB Included

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Patience CTB (trimmed)	1.205**	1.096*						
	(0.599)	(0.624)						
Patience CTB (trimmed): High			0.064***	0.051***				
			(0.018)	(0.019)				
Patience Stated					0.019***	0.016***		
					(0.003)	(0.004)		
Patience Stated: High							0.095***	0.070***
							(0.017)	(0.018)
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sociodemographics		Yes		Yes		Yes		Yes
Observations	2,371	2,124	2,371	2,124	2,545	2,268	2,545	2,268

Note: This table reports linear regression coefficients in which support for the constant investment plan is regressed on patience measures, risk aversion, sociodemographic variables. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.4: Time Preference Measures and Support for Public Policy (Including Party Identification)

Outcome:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Paid Maternity Leave			
Patience CTB	-0.610				-0.732				-0.767				-1.707				-0.260			
	(1.053)				(1.037)				(1.075)				(1.097)				(1.024)			
Patience CTB: High		-0.022				-0.013				-0.033*				-0.031				-0.024		
		(0.019)				(0.019)				(0.019)				(0.019)				(0.019)		
Patience Stated			0.020***				0.016***				0.020***				0.010***				0.010***	
			(0.003)				(0.003)				(0.003)				(0.003)				(0.003)	
Patience Stated: High				0.096***				0.078***				0.115***				0.045***				0.045***
				(0.016)				(0.016)				(0.016)				(0.016)				(0.016)
Party Identification	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755
R-squared	0.082	0.082	0.085	0.085	0.078	0.078	0.077	0.077	0.013	0.014	0.021	0.025	0.031	0.031	0.031	0.031	0.097	0.098	0.085	0.085

Note: This table reports coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Policy views are indicator variables that are 1 if the level of agreement exceeds 7 on the 1 to 11 answer scale and are 0 otherwise. Party Identification: Republican, Independent, Democrat (reference group). Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.5: Time Preference Measures and Support for Public Policy (Weighted Data)

Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Paid Maternity Leave			
Patience CTB	-0.238				-0.417				-0.844				-1.329				-0.410			
	(1.078)				(1.067)				(1.059)				(1.077)				(1.056)			
Patience CTB: High		-0.019				-0.013				-0.038**				-0.025				-0.031*		
		(0.018)				(0.019)				(0.019)				(0.019)				(0.019)		
Patience Stated			0.015***				0.012***				0.018***				0.011***				0.008***	
			(0.003)				(0.003)				(0.003)				(0.003)				(0.003)	
Patience Stated: High				0.074***				0.063***				0.106***				0.055***				0.036**
				(0.016)				(0.016)				(0.016)				(0.016)				(0.016)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015
R-squared	0.019	0.019	0.021	0.020	0.017	0.016	0.020	0.020	0.011	0.012	0.017	0.021	0.009	0.008	0.014	0.014	0.050	0.050	0.043	0.043

Note: This table reports coefficients from linear probability models with robust standard errors clustered by respondent in parentheses using weighted data. Policy views are indicator variables that are 1 if the level of agreement exceeds 7 on the 1 to 11 answer scale and are 0 otherwise. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** p<0.01, ** p<0.05, * p<0.1.

Table A.6: Time Preference Measures and Support for Public Policy (Including Party Identification, Weighted Data)

Outomce:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Paid Maternity Leave			
Patience CTB	-0.629				-0.524				-0.615				-1.540				-0.281			
	(1.064)				(1.040)				(1.086)				(1.107)				(1.036)			
Patience CTB: High		-0.022				-0.011				-0.030				-0.026				-0.024		
		(0.018)				(0.019)				(0.019)				(0.019)				(0.019)		
Patience Stated			0.020***				0.015***				0.019***				0.009***				0.010***	
			(0.003)				(0.003)				(0.003)				(0.003)				(0.003)	
Patience Stated: High				0.098***				0.077***				0.113***				0.041**				0.046***
				(0.016)				(0.016)				(0.016)				(0.016)				(0.016)
Party Identification	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755	2,651	2,651	3,755	3,755
R-squared	0.085	0.086	0.087	0.087	0.081	0.081	0.079	0.079	0.015	0.016	0.022	0.025	0.032	0.032	0.032	0.032	0.097	0.098	0.085	0.085

Note: This table reports coefficients from linear probability models with robust standard errors clustered by respondent in parentheses estimated using weighted data. Party Identification: Republican, Independent, Democrat (reference group). Policy views are indicator variables that are 1 if the level of agreement exceeds 7 on the 1 to 11 answer scale and are 0 otherwise. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.7: Time Preference Measures and Support for Public Policy: Alternative Threshold

Outcome:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Paid Maternity Leave			
Patience CTB	-1.067				-0.735				-0.385				-2.002**				0.138			
	(0.978)				(0.977)				(0.881)				(0.971)				(0.967)			
Patience CTB: High		-0.040**				-0.024				-0.030*				-0.044***				-0.029*		
		(0.017)				(0.017)				(0.016)				(0.017)				(0.018)		
Patience Stated			0.008***				0.006*				0.010***				0.004				0.003	
			(0.003)				(0.003)				(0.003)				(0.003)				(0.003)	
Patience Stated: High				0.036**				0.028*				0.061***				0.021				0.008
				(0.015)				(0.015)				(0.014)				(0.014)				(0.015)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015	2,828	2,828	4,015	4,015
R-squared	0.021	0.022	0.020	0.019	0.020	0.020	0.022	0.022	0.010	0.011	0.011	0.012	0.005	0.006	0.006	0.006	0.057	0.058	0.051	0.051

Note: Coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Policy views are indicator variables that are 1 if the level of agreement exceeds 6 on the 1 to 11 answer scale and are 0 otherwise. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** p<0.01, ** p<0.05, * p<0.1.

Table A.8: Time Preference Measures and Support for Public Policy: Revised Answer Scale and Alternative Placebo Outcome (Long-Term Public Policy Survey)

	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Promote Gender Equality in Military			
Patience CTB	0.81				0.53				1.64*				0.45				0.82			
	(0.65)				(0.63)				(0.65)				(0.66)				(0.66)			
Patience CTB: High		0.04+				0.03				0.02				-0.002				0.03		
		(0.02)				(0.02)				(0.03)				(0.03)				(0.03)		
Patience Stated			0.02***				0.02***				0.01*				0.003				0.01**	
			(0.004)				(0.004)				(0.004)				(0.004)				(0.004)	
Patience Stated: High				0.11***				0.11***				0.12***				0.09***				0.09***
				(0.02)				(0.02)				(0.02)				(0.02)				(0.02)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,551	1,551	2,081	2,081	1,550	1,550	2,081	2,081	1,506	1,506	2,018	2,018	1,524	1,524	2,044	2,044	1,553	1,553	2,083	2,083
R-squared	0.04	0.04	0.05	0.06	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.03	0.03	0.04	0.04

Note: Coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Policy views are indicator variables that are 1 if the level of agreement exceeds 3 on the 1 to 5 answer scale and are 0 otherwise. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. Section J reports the question wording for the policy items. *** p<0.01, ** p<0.05, * p<0.1.

Table A.9: Time Preference Measures and Support for Public Policy: Alternative Question Items (Long-Term Public Policy Survey)

Should spend more on:	The Environment				Mass Transportation				Developing Alternative Energy Sources				Do More About Rising Temperatures			
Patience CTB	-1.24+				-1.27+				-2.27***				0.13			
	(0.69)				(0.65)				(0.69)				(0.65)			
Patience CTB: High		-0.05+				-0.02				-0.07**				0.002		
		(0.03)				(0.03)				(0.03)				(0.03)		
Patience Stated			0.02***				0.01**				0.01**				0.02***	
			(0.004)				(0.004)				(0.004)				(0.004)	
Patience Stated: High				0.07**				0.04				0.04+				0.13***
				(0.02)				(0.02)				(0.03)				(0.02)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,441	1,441	1,938	1,938	1,430	1,430	1,896	1,896	1,458	1,458	1,950	1,950	1,607	1,607	2,167	2,167
R-squared	0.04	0.04	0.05	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.03	0.03

Note: Coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Policy views are indicator variables that are 1 if the level of agreement exceeds the midpoint of the answer scale. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. Section J reports the question wording for the policy items. *** p<0.01, ** p<0.05, * p<0.1.

Table A.10: Time Preference Measures and Support for Public Policy by Partisan Identification

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Agree: Cut GHG Emissions		Agree: Invest in New Climate Technology		Agree: Invest in Human Capital		Agree: Cut Public Spending		Agree: Paid Maternity Leave	
	Republicans	Democrats	Republicans	Democrats	Republicans	Democrats	Republicans	Democrats	Republicans	Democrats
Patience CTB	0.332	0.073	-0.193	0.070	0.038	0.175	-0.046	0.498	-1.068	0.482
	(1.805)	(1.632)	(1.848)	(1.550)	(1.843)	(1.756)	(1.822)	(1.879)	(1.758)	(1.617)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	885	843	885	843	885	843	885	843	885	843
R-squared	0.030	0.027	0.026	0.018	0.010	0.023	0.019	0.012	0.078	0.046

Note: Coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.11: Time Preference Measures and Support for Public Policy by Age Group

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Agree: Cut GHG Emissions				Agree: Invest in New Climate Technology				Agree: Invest in Human Capital				Agree: Cut Public Spending				Agree: Paid Maternity Leave			
	Age: 18 to 34	Age: 35-49	Age: 50-65	Age: 65+	Age: 18 to 34	Age: 35-49	Age: 50-65	Age: 65+	Age: 18 to 34	Age: 35-49	Age: 50-65	Age: 65+	Age: 18 to 34	Age: 35-49	Age: 50-65	Age: 65+	Age: 18 to 34	Age: 35-49	Age: 50-65	Age: 65+
Patience CTB	0.102	-1.935	-0.427	-0.909	-2.307	3.081	-1.237	-2.947	-1.486	2.033	-3.549	1.847	-2.979	-1.406	1.902	-4.809*	-3.193*	0.991	-0.743	3.347
	(1.819)	(2.188)	(2.276)	(2.301)	(1.847)	(2.082)	(2.218)	(2.352)	(1.867)	(2.254)	(2.231)	(2.449)	(1.909)	(2.350)	(2.213)	(2.476)	(1.757)	(2.123)	(2.181)	(2.397)
Sociodemographics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Risk Acceptance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	833	618	647	553	833	618	647	553	833	618	647	553	833	618	647	553	833	618	647	553
R-squared	0.037	0.095	0.104	0.158	0.050	0.084	0.093	0.134	0.010	0.033	0.054	0.024	0.027	0.035	0.065	0.071	0.048	0.084	0.116	0.097

Note: Coefficients from linear probability models with robust standard errors clustered by respondent in parentheses. Sociodemographic covariates: Age: 35-49, Age: 50-64, Age: 65+, Education: High School, Education: Some College, Education: BA or Higher, Income: Lower Middle, Income: Upper Middle, Income: High, Gender: Female, Race: White. *** p<0.01, ** p<0.05, * p<0.1.

Table A.12: CTB Survey: Distribution of Socio-Demographics in the Target Population, the Raw Sample, and the Weighted Sample (N=5,820)

	Population	Raw Sample	Weighted Sample
Age: 18-34	30	34	30
Age: 35-49	25	24	25
Age: 50-64	25	23	25
Age: 65+	20	19	20
Education: Less than High School	12	12	12
Education: High School Degree	28	25	28
Education: Associate's Degree or Some College	31	36	31
Education: BA or higher	29	27	29
Gender: Male	48	47	49
Gender: Female	52	53	51

Note: Population margins are taken from the 2016 American Community Survey.

Table A.13: Long-Term Public Policy Survey: Distribution of Socio-Demographics in the Target Population and the Raw Sample (N=2,995)

	Population	Raw Sample
Age: 18-34	30	29
Age: 35-49	25	28
Age: 50-64	25	24
Age: 65+	20	19
Education: Less than High School	12	6
Education: High School Degree	28	24
Education: Associate's Degree or Some College	31	32
Education: BA or higher	29	38
Gender: Male	48	48
Gender: Female	52	52

Note: Population margins are taken from the 2016 American Community Survey.

Table A.14: Waterpipe Survey: Distribution of Socio-Demographics in the Target Population, the Raw Sample, and the Weighted Sample (Total N=4,075)

	Population	Raw Sample	Weighted Sample
Age: 18-34	30	27	30
Age: 35-49	25	22	22
Age: 50-64	25	30	28
Age: 65+	20	22	20
Education: Less than High School	12	7	9
Education: High School Degree	28	29	30
Education: Associate's Degree or Some College	31	32	31
Education: BA or higher	29	32	30
Gender: Male	48	47	48
Gender: Female	52	53	52

Note: Population margins are taken from the 2016 American Community Survey.

Table A.15: Sociodemographic Predictors of Patience

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CTB			Staircase			Stated		
Age: 35-49	0.001	0.001	0.000	5.200***	4.992***	5.506***	-0.333**	-0.500***	-0.500***
	(0.001)	(0.001)	(0.001)	(1.631)	(1.633)	(1.715)	(0.164)	(0.104)	(0.186)
Age: 50-64	0.000	0.001	0.000	8.025***	7.908***	7.800***	-0.667***	-0.500***	-0.500***
	(0.001)	(0.001)	(0.001)	(1.412)	(1.446)	(1.510)	(0.167)	(0.121)	(0.189)
Age: 65+	0.000	0.000	0.001	10.125***	10.875***	10.825***	-0.667***	-0.500***	-0.500**
	(0.001)	(0.001)	(0.001)	(1.489)	(1.504)	(1.590)	(0.180)	(0.135)	(0.201)
Education: High School	0.001*	0.001	0.001*	3.450**	2.992*	4.206***	-0.333*	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(1.659)	(1.654)	(1.617)	(0.180)	(0.182)	(0.205)
Education: Some College	0.002***	0.002***	0.002***	10.075***	9.467***	10.350***	0.000	0.500**	0.500**
	(0.001)	(0.001)	(0.001)	(1.796)	(1.772)	(1.784)	(0.181)	(0.195)	(0.234)
Education: BA or higher	0.004***	0.003***	0.004***	17.250***	16.550***	17.425***	0.667***	1.000***	1.000***
	(0.001)	(0.001)	(0.001)	(1.652)	(1.660)	(1.664)	(0.226)	(0.226)	(0.287)
Income: Lower Middle	0.001	0.001	0.001*	0.000	0.517	0.000	0.000	-0.000	0.000
	(0.001)	(0.001)	(0.001)	(1.630)	(1.653)	(1.635)	(0.151)	(0.114)	(0.152)
Income: Upper Middle	0.000	0.000	0.000	0.825	1.433	0.881	0.667***	0.500***	0.500**
	(0.001)	(0.001)	(0.001)	(1.621)	(1.642)	(1.678)	(0.175)	(0.117)	(0.209)
Income: High	0.001*	0.001*	0.001**	2.875*	3.483**	3.119*	0.667***	0.500***	0.500**
	(0.001)	(0.001)	(0.001)	(1.617)	(1.638)	(1.638)	(0.176)	(0.108)	(0.206)
Female	0.002***	0.001***	0.002***	-2.000**	-2.000**	-1.994*	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(1.007)	(1.020)	(1.061)	(0.109)	(0.077)	(0.114)
White	0.001***	0.001***	0.001**	1.275	1.183	1.113	-0.333**	-0.500***	-0.500***
	(0.001)	(0.000)	(0.001)	(1.338)	(1.396)	(1.393)	(0.152)	(0.112)	(0.175)
Ideology: Right		-0.000			1.025			0.000	
		(0.001)			(1.505)			(0.128)	
Ideology: Middle		0.001			1.025			-0.500***	
		(0.001)			(1.167)			(0.096)	
Republican			-0.000			2.237			0.500***
			(0.001)			(1.371)			(0.143)
Independent			0.001			2.237*			-0.000
			(0.001)			(1.309)			(0.141)
Constant	0.994***	0.994***	0.993***	115.125***	114.400***	113.044***	6.333***	6.500***	6.000***
	(0.001)	(0.001)	(0.001)	(1.757)	(1.946)	(1.882)	(0.177)	(0.204)	(0.229)
Observations	2,975	2,975	2,788	2,968	2,968	2,787	4,015	4,015	3,755

Note: This table reports coefficients from quantile (median) regressions of individual-level measures of time preferences on sociodemographic and political characteristics. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.16: Sociodemographic Predictors of Patience (OLS Estimates)

	(1)	(2)	(3)
	CTB	Staircase	Stated
Age: 35-49	0.001*	2.075**	-0.212*
	(0.000)	(0.865)	(0.112)
Age: 50-64	0.001	4.785***	-0.192*
	(0.000)	(0.838)	(0.114)
Age: 65+	0.000	6.166***	-0.389***
	(0.001)	(0.902)	(0.122)
Education: High School	0.001	4.268***	0.075
	(0.001)	(1.157)	(0.165)
Education: Some College	0.002**	7.253***	0.262
	(0.001)	(1.125)	(0.161)
Education: BA or higher	0.002***	11.336***	0.450***
	(0.001)	(1.218)	(0.172)
Income: Lower Middle	0.001	0.700	0.192*
	(0.000)	(0.857)	(0.110)
Income: Upper Middle	0.000	1.628*	0.492***
	(0.001)	(0.922)	(0.121)
Income: High	0.001	3.751***	0.573***
	(0.001)	(0.950)	(0.125)
Female	0.001***	-1.082*	0.014
	(0.000)	(0.604)	(0.082)
White	0.001**	1.480*	-0.259**
	(0.000)	(0.830)	(0.112)
Constant	0.996***	117.949***	5.889***
	(0.001)	(1.181)	(0.169)
Observations	2,975	2,968	4,015

Note: This table reports coefficients from linear regressions of individual-level measures of time preferences on the sociodemographic characteristics of individuals. Robust standard errors are reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A.17: Sociodemographic Predictors of Patience (Weighted Data)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CTB			Staircase			Stated		
Age: 35-49	0.001*	0.001*	0.001	2.075**	2.062**	2.238**	-0.212*	-0.212*	-0.222*
	(0.000)	(0.000)	(0.000)	(0.865)	(0.865)	(0.896)	(0.112)	(0.112)	(0.116)
Age: 50-64	0.001	0.001*	0.001	4.785***	4.754***	4.708***	-0.192*	-0.207*	-0.227*
	(0.000)	(0.000)	(0.001)	(0.838)	(0.840)	(0.866)	(0.114)	(0.114)	(0.118)
Age: 65+	0.000	0.001	0.000	6.166***	6.133***	6.542***	-0.389***	-0.409***	-0.385***
	(0.001)	(0.001)	(0.001)	(0.902)	(0.904)	(0.928)	(0.122)	(0.122)	(0.126)
Education: High School	0.001	0.001	0.001	4.268***	4.258***	4.527***	0.075	0.074	0.174
	(0.001)	(0.001)	(0.001)	(1.157)	(1.161)	(1.219)	(0.165)	(0.165)	(0.173)
Education: Some College	0.002**	0.002**	0.002**	7.253***	7.243***	7.389***	0.262	0.255	0.336**
	(0.001)	(0.001)	(0.001)	(1.125)	(1.128)	(1.189)	(0.161)	(0.162)	(0.170)
Education: BA or higher	0.002***	0.002***	0.002***	11.336***	11.344***	11.593***	0.450***	0.437**	0.530***
	(0.001)	(0.001)	(0.001)	(1.218)	(1.218)	(1.283)	(0.172)	(0.173)	(0.181)
Income: Lower Middle	0.001	0.001	0.001	0.700	0.703	0.405	0.192*	0.195*	0.118
	(0.000)	(0.000)	(0.001)	(0.857)	(0.858)	(0.891)	(0.110)	(0.110)	(0.116)
Income: Upper Middle	0.000	0.001	0.000	1.628*	1.622*	1.111	0.492***	0.476***	0.460***
	(0.001)	(0.001)	(0.001)	(0.922)	(0.922)	(0.954)	(0.121)	(0.121)	(0.126)
Income: High	0.001	0.001*	0.001	3.751***	3.749***	3.344***	0.573***	0.563***	0.547***
	(0.001)	(0.001)	(0.001)	(0.950)	(0.950)	(0.984)	(0.125)	(0.125)	(0.131)
Female	0.001***	0.001***	0.001***	-1.082*	-1.074*	-1.105*	0.014	0.033	0.006
	(0.000)	(0.000)	(0.000)	(0.604)	(0.606)	(0.622)	(0.082)	(0.082)	(0.085)
White	0.001**	0.001**	0.001**	1.480*	1.466*	1.451*	-0.259**	-0.271**	-0.321***
	(0.000)	(0.000)	(0.000)	(0.830)	(0.831)	(0.864)	(0.112)	(0.112)	(0.119)
Ideology: Right		-0.001			0.358			0.204	
		(0.000)			(0.894)			(0.128)	
Ideology: Middle		0.000			0.130			-0.104	
		(0.000)			(0.731)			(0.099)	
Republican			-0.000			0.788			0.196*
			(0.000)			(0.768)			(0.106)
Independent			0.000			1.541**			0.081
			(0.000)			(0.765)			(0.103)
Constant	0.996***	0.996***	0.996***	117.949***	117.831***	117.186***	5.889***	5.924***	5.804***
	(0.001)	(0.001)	(0.001)	(1.181)	(1.248)	(1.306)	(0.169)	(0.181)	(0.187)
Observations	2,975	2,975	2,788	2,968	2,968	2,787	4,015	4,015	3,755

Note: This table reports coefficients from linear regressions of individual-level measures of time preferences on sociodemographic and political characteristics using weighted data. Standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A.18: Sociodemographic Predictors of Patience (Binary, Weighted Data)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CTB: High			Staircase: High			Stated: High		
Age: 35-49	0.035	0.035	0.026	0.070***	0.069***	0.072***	-0.055***	-0.052***	-0.051***
	(0.026)	(0.026)	(0.027)	(0.023)	(0.023)	(0.023)	(0.019)	(0.019)	(0.020)
Age: 50-64	0.016	0.017	0.008	0.110***	0.110***	0.106***	-0.066***	-0.066***	-0.069***
	(0.026)	(0.026)	(0.027)	(0.022)	(0.022)	(0.023)	(0.019)	(0.019)	(0.020)
Age: 65+	0.001	0.004	0.006	0.156***	0.156***	0.160***	-0.106***	-0.107***	-0.104***
	(0.028)	(0.028)	(0.029)	(0.023)	(0.023)	(0.024)	(0.021)	(0.021)	(0.021)
Education: High School	0.055	0.054	0.049	0.092***	0.092***	0.088***	-0.001	-0.001	0.008
	(0.035)	(0.035)	(0.037)	(0.031)	(0.031)	(0.033)	(0.027)	(0.027)	(0.028)
Education: Some College	0.082**	0.083**	0.082**	0.173***	0.172***	0.168***	0.044*	0.042	0.048*
	(0.034)	(0.034)	(0.036)	(0.030)	(0.030)	(0.032)	(0.026)	(0.026)	(0.027)
Education: BA or higher	0.139***	0.141***	0.138***	0.272***	0.274***	0.268***	0.095***	0.089***	0.101***
	(0.037)	(0.037)	(0.039)	(0.032)	(0.032)	(0.034)	(0.028)	(0.028)	(0.029)
Income: Lower Middle	0.038	0.038	0.042	0.022	0.022	0.016	0.027	0.027	0.020
	(0.026)	(0.026)	(0.027)	(0.022)	(0.022)	(0.023)	(0.019)	(0.019)	(0.020)
Income: Upper Middle	0.041	0.045	0.049*	0.062**	0.062**	0.051**	0.081***	0.077***	0.073***
	(0.028)	(0.028)	(0.029)	(0.024)	(0.024)	(0.025)	(0.021)	(0.021)	(0.021)
Income: High	0.073**	0.075***	0.075**	0.101***	0.101***	0.097***	0.086***	0.083***	0.082***
	(0.028)	(0.028)	(0.030)	(0.024)	(0.024)	(0.025)	(0.021)	(0.021)	(0.022)
Female	0.061***	0.058***	0.065***	-0.054***	-0.055***	-0.052***	0.003	0.008	0.003
	(0.019)	(0.019)	(0.019)	(0.016)	(0.016)	(0.016)	(0.014)	(0.014)	(0.014)
White	0.064***	0.066***	0.063**	0.041*	0.041*	0.040*	-0.017	-0.020	-0.024
	(0.024)	(0.024)	(0.026)	(0.022)	(0.022)	(0.023)	(0.018)	(0.018)	(0.019)
Ideology: Right		-0.019			0.006			0.031	
		(0.028)			(0.023)			(0.020)	
Ideology: Middle		0.023			0.015			-0.048***	
		(0.022)			(0.019)			(0.017)	
Republican			-0.007			0.020			0.025
			(0.024)			(0.020)			(0.018)
Independent			0.036			0.013			-0.006
			(0.023)			(0.020)			(0.018)
Constant	0.266***	0.254***	0.254***	0.208***	0.199***	0.205***	0.547***	0.570***	0.547***
	(0.035)	(0.037)	(0.039)	(0.032)	(0.034)	(0.035)	(0.028)	(0.030)	(0.030)
Observations	2,975	2,975	2,788	3,908	3,908	3,691	5,319	5,319	4,987

Note: This table reports coefficients from linear regressions of individual-level measures of time preferences dichotomized at the median on sociodemographic and political characteristics using weighted data. Robust standard errors are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

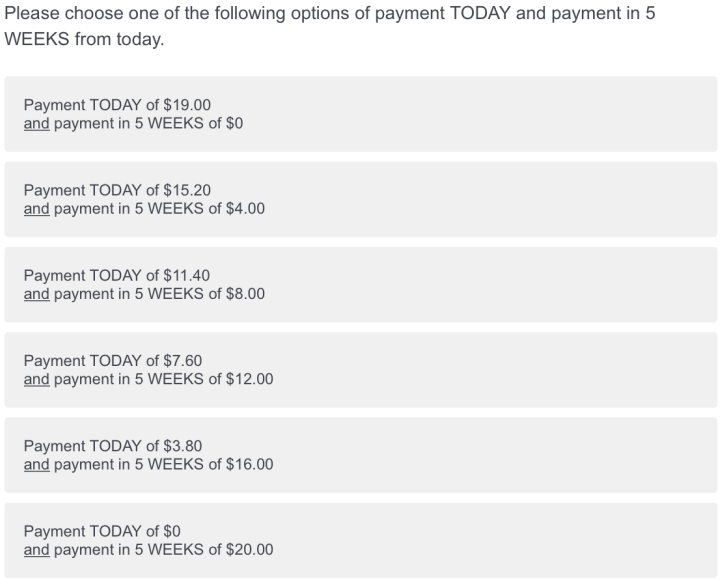
Table A.19: Distribution of Income and Ethnicity in the CTB Survey and the Waterpipe Survey

	Population (ACS 2016)	CTB Survey	Waterpipe Survey
Income: Low	25.9	25.3	29.6
Income: Lower Middle	26.6	29.4	31.4
Income: Upper Middle	21.1	21.9	18.8
Income: High	26.2	23.3	19.9
Race: White	72.6	79.7	66.6
Race: Black/African American	12.7	6.27	11.9
Race: American Indian/Alaska Native	0.8	0.67	1.0
Race: Other	13.9	13.7	20.2

Note: Population margins are taken from the 2016 American Community Survey (ACS).

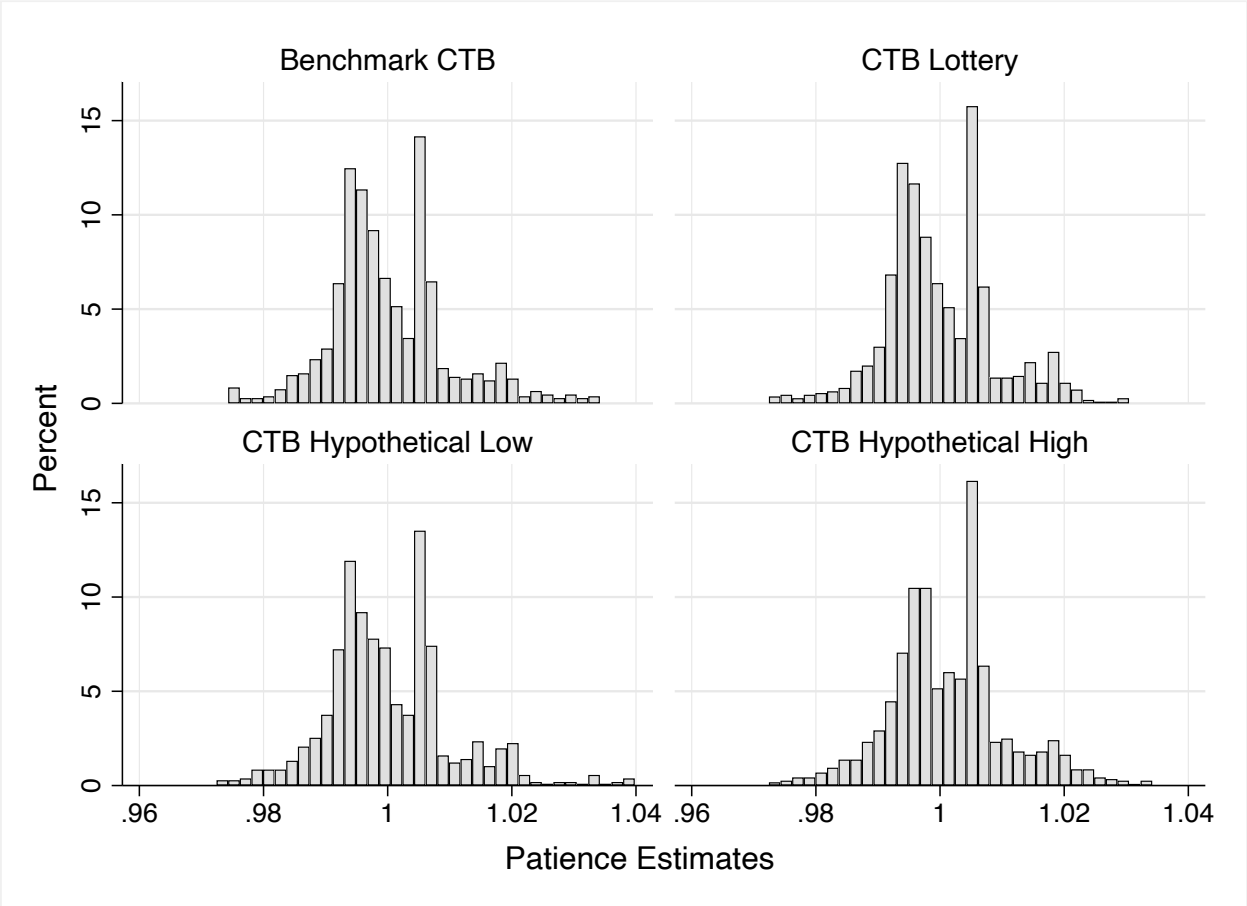
M Appendix Figures

Figure A.1: CTB Example Screenshot



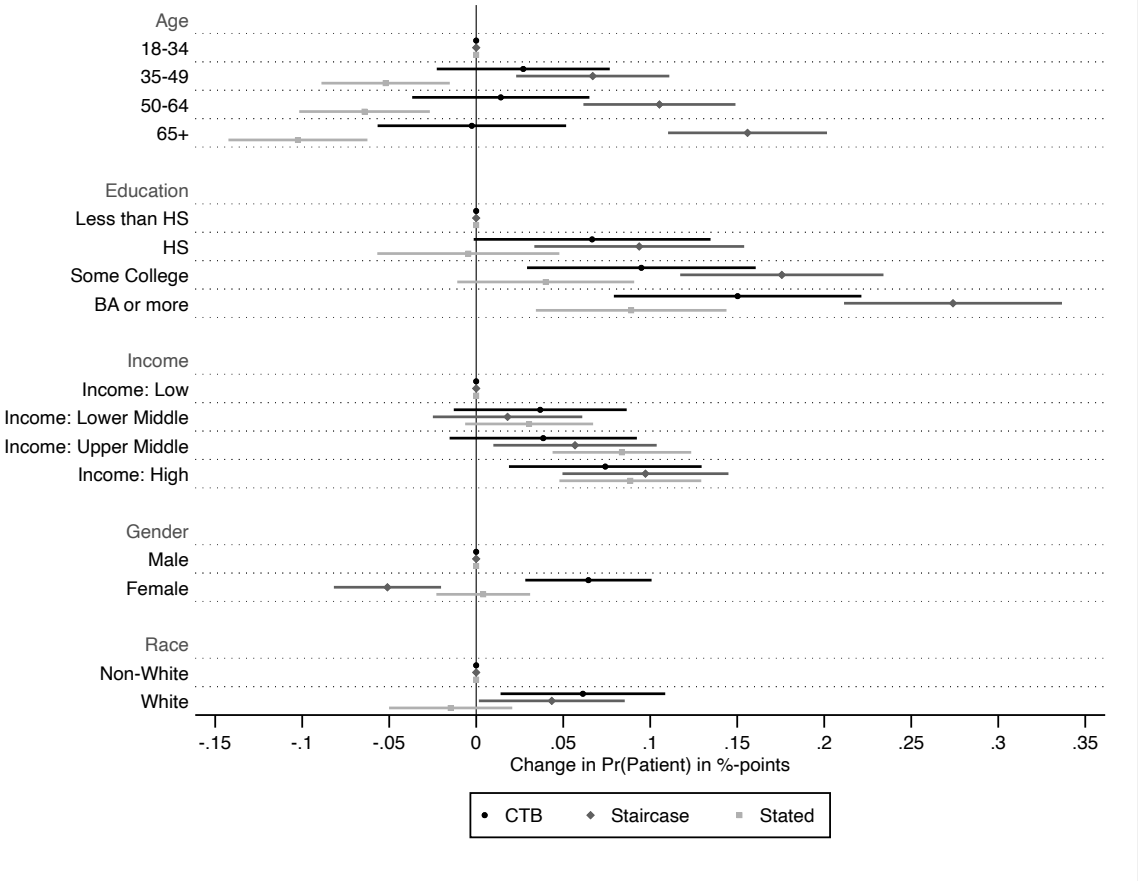
Note: This figure shows a screenshot of a CTB choice task.

Figure A.2: The Distribution of Patience by Payoff Mechanism



Note: This figure shows the distribution of individual-level patience estimates by treatment group. N(Benchmark CTB)= 1,066, N(Lottery)= 1,097, N(Hypothetical Low)=1,065, N(Hypothetical High)=1,160.

Figure A.3: The Sociodemographic Predictors of Patience by Elicitation Method



Note: This figure shows coefficients from linear regressions of a binary patience indicator (split at the median) on sociodemographic variables. Error bars indicate 95% robust confidence intervals. Point estimates without confidence intervals denote reference categories. Model 2 includes interactions between benefits and timing indicators. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. N(CTB)=2,975, N(Staircase)=3,908, N(Stated)= 5,319. Numerical estimates are reported in Table A.15.