

Saving Regret and Procrastination: Appendix for Online Publication

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Abstract

We define saving regret as the wish in hindsight to have saved more earlier in life. We measured saving regret and possible determinants in a survey of U.S. households in which respondents were aged 60-79. We find high levels of saving regret, affirmed by some 58%. Saving regret exhibits significant and plausible correlations with personal characteristics and wealth: Married, older, healthier and wealthier respondents are less likely to report saving regret, suggesting the measure's validity. We find only weak evidence for correlations between saving regret and measures of procrastination: persons with traits associated with procrastination express saving regret about as often as those without those traits.

Keywords:

Retirement saving, procrastination, uncertainty, regret,

JEL codes:

D91, D83, D84, D14, D15

Appendix: For Online Publication

A. Variables, Survey Questions, and Data Access

Variable	Survey Question /Coding
Saving regret	
Wish saved more (before revision)	Indicator if respondent wished to have saved more (version a) / spend less and saved more (version b) over the years
Wish saved more (after revision)	Wish saved more set to 0 if respondents answered "No way I could have cut spending. I could not have saved more."
Sociodemographic characteristics	
Age	respondent age in years
Female	respondent gender
Married or marriage-like relationship	respondent household status
High school or less	indicator for respondents education
(some) College education	indicator for respondents education
Bachelor's degree	indicator for respondents education
Master's degree or higher	indicator for respondents education
Households assets	Total household assets in \$US
Household income	Total household income in \$US
Black	indicator for respondent race/ethnicity
Hispanic	indicator for respondent race/ethnicity
Poor self rated health	Indicator if respondents rates own health as poor
Poor self rated memory	Indicator if respondent rates own memory as poor
Psychometric variables	
<i>Personal traits</i>	<i>Do you agree or disagree with the following statements? Evaluated on a five-point Likert scale: strongly disagree/disagree/neither/agree/strongly agree:</i>
Relaxed person	I am a relaxed person
Creature of habits	I am a creature of habits
Open for change	I am open for change
Optimistic person	I am an optimistic person
Self-confident	I am a self-confident person.
Cheerful person	I am a cheerful person
Pessimistic person	I am a pessimistic person
	<i>Answer categories: never/sometimes/most of the time/always:</i>
Like exciting or risky activities	How often do you like to do exciting or risky activities?

A. Variables, Survey Questions, and Data Access (continued)

Variables	Survey Questions
<i>Procrastination and perseverance</i>	<i>Answer categories: never/sometimes/most of the time/always:</i>
Put off things you should do	How often do you put things off you should do but aren't really interested in?
Give up before starting	How often do you give up before you start a task because you don't know where to start?
Try several tasks, don't complete many	How often do you try to do several things at once, not completing many?
Settle for mediocre results	How often do you settle for mediocre results when you could do better?
Put off things not good at	How often do you put things off you are not good at?
Give up task when difficult	How often do you give up a task when it gets difficult?
Lose motivation during tasks	How often do you lose motivation in the middle of a task?
	<i>Do you agree or disagree with the following statements? Evaluated on a five-point Likert scale: strongly disagree/disagree/neither/agree/strongly agree:</i>
Works best under pressure	I am a person who works best under pressure.
Do what you like today.	"People should do what they like today rather than putting it off until tomorrow"
Life is about having fun	"Life is about having fun and spending all affordable money on that"
Supporting Skills	
Probability Numeracy	<p>Score ranging from 0 to 4 depending on the number of correctly answered numeracy questions:</p> <p>First, suppose this bowl has 10 white balls and no red balls. You will be asked to draw one ball without looking. On a scale from 0 percent to 100 percent, what is the percent chance that the ball you draw is red?</p> <p>Now suppose that the bowl has 7 white balls and 3 red balls. You will be asked to draw one ball without looking. What is the percent chance that the ball you draw is white?</p> <p>Imagine that the weather report tells you that the chance it will rain tomorrow is 70 percent. Assuming the weather report accurately reports the chance of rain, what is the chance it will NOT rain tomorrow?</p> <p>Imagine that whether it rains in your town and whether it rains in Paris are unrelated. The chance that it will rain in your town tomorrow is 50 percent. The chance that it will rain in Paris is also 50 percent. What is the chance that it will rain both in your town and in Paris tomorrow?</p>

A. Variables, Survey Questions, and Data Access (continued)

Variables	Survey Questions
Financial literacy	Score ranging from 0 to 3 depending on the number of correct answers to the financial literacy questions:
Interest rate	Suppose you had \$100 in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow: [more than \$102, exactly \$102, less than \$102? Don't know.]
Inflation	Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After 1 year, would you be able to buy: [more than, exactly the same as, or less than today with the money in this account? Don't know.]
Investment risk	Do you think that the following statement is true or false? "Buying a single company stock usually provides a safer return than a Unit Trust. [True, False, Don't know.]
Financial planning horizon	Financial planning horizon: next few months/ next year/ next few years/ next 5-10 years/ longer than 10 years/ I don't plan
Self-assessed adequacy of resources	
HH total income sufficient	Is [fill for total income] sufficient to meet your spending needs each month? Yes, always/ Most of the time / Rarely/ Never
HH resources for future financial needs	And now a view into the future: Taking into consideration all of your household's wealth and future income and comparing them to your needs in the future, do you think that your household's total financial resources are...? More than enough to meet your future needs/ Just enough to meet your future needs/ Not enough to meet you future needs/ Not nearly enough to meet your future needs/ Uncertain/ Don't know
Probability of running out of money	What are the chances that you will run out of money sometime in the future? Please click a point on the scale. [0 ... 100]

Catalog of studies and questionnaires are available here:

<https://alpdata.rand.org/?page=data>

First saving regret survey: <https://alpdata.rand.org/index.php?page=data&p=showsurvey&syid=455>

Second saving regret survey: <https://alpdata.rand.org/index.php?page=data&p=showsurvey&syid=487>

To register for data access (free of charge):

<https://www.rand.org/research/data/alp/data-access.html>

B. Additional Tables

Table A1. Summary Statistics

	N	Mean	SD	Min	Max
Saving regret					
Wish saved more (before revision)	1590	0.636	0.481	0	1
Wish saved more (after revision)	1590	0.585	0.493	0	1
Sociodemographic characteristics					
Age	1590	68.0	5.6	60	79
Female	1590	0.534	0.499	0	1
Married or marriage-like relationship	1589	0.619	0.486	0	1
High school or less	1590	0.465	0.499	0	1
(some) College education	1590	0.246	0.431	0	1
Bachelor's degree	1590	0.140	0.347	0	1
Master's degree of higher	1590	0.150	0.357	0	1
Households assets	815	542,858	1,085,240	-250,000	13,300,000
Household income	1570	55,375	75,282	0	2,000,000
Black	1590	0.096	0.294	0	1
Hispanic	1590	0.101	0.301	0	1
Poor self-rated health	1590	0.244	0.429	0	1
Poor self-rated memory	1590	0.123	0.329	0	1
Shocks					
Any negative shocks	1590	0.561	0.496	0	1
Any positive shocks	1590	0.441	0.497	0	1
Self-perceived personal traits					
A) relaxed person	1590	3.609	0.916	1	5
B) creature of habits	1590	3.813	0.802	1	5
C) open for change	1588	3.536	0.869	1	5
D) optimistic person	1590	3.783	0.907	1	5
E) self-confident	1590	3.854	0.838	1	5
F) cheerful person	1589	3.864	0.791	1	5
G) pessimistic person	1590	2.363	0.972	1	5
H) like exciting or risky activities	1590	1.743	0.624	1	4
Procrastination and perseverance					
I) put off things you should do	1590	2.144	0.500	1	4
J) give up before starting	1590	1.583	0.603	1	4
K) try several tasks, don't complete many	1590	1.777	0.697	1	4
L) settle for mediocre results	1590	1.598	0.583	1	4
M) put off things not good at	1590	2.069	0.619	1	4
N) put off difficult things	1590	1.642	0.636	1	4
O) lose motivation during tasks	1590	1.709	0.554	1	4
P) works best under pressure	1590	3.024	0.977	1	5
Q) do what you like today	1590	3.954	0.828	1	5
R) life about having fun	1590	2.557	1.053	1	5
Supporting Skills					
Probability numeracy	1173	2.565	0.982	0	4
Financial literacy	983	2.198	0.946	0	3
Financial planning horizon	1202	3.187	1.495	1	6
Self-assessed adequacy of resources					
HH total income sufficient	1590	1.731	0.774	1	4
HH resources for future financial needs	1590	3.047	2.024	1	9
Probability of running out of money	1581	33.644	26.219	0	100

Table A2: Saving Regret by self-perceived personal traits

	N	%	Saving Regret (after revision)		
			Mean	Strd. Err.	T-test
A) Relaxed person					
Strongly disagree	33	2.1	0.621	0.101	ns
Disagree	186	11.7	0.639	0.033	ns
Neither agree or disagree	345	21.7	0.582	0.027	ns
Agree	833	52.4	0.573	0.017	ref.
Strongly agree	194	12.2	0.583	0.035	ns
B) Creature of habits					
Strongly disagree	19	1.2	0.801	0.1	ns
Disagree	93	5.9	0.556	0.052	ns
Neither agree or disagree	296	18.6	0.586	0.029	ns
Agree	941	59.2	0.596	0.016	ref.
Strongly agree	241	15.2	0.536	0.031	ns
C) Open for change					
Strongly disagree	25	1.5	0.4	0.126	ns
Disagree	181	11.4	0.593	0.043	ns
Neither agree or disagree	451	28.4	0.544	0.024	ns
Agree	784	49.4	0.597	0.017	ref.
Strongly agree	148	9.3	0.665	0.037	ns
D) Optimistic person					
Strongly disagree	36	2.2	0.627	0.103	ns
Disagree	106	6.7	0.548	0.054	ns
Neither agree or disagree	332	20.9	0.579	0.029	ns
Agree	811	51	0.601	0.017	ref.
Strongly agree	305	19.2	0.556	0.027	ns
E) Self-confident					
Strongly disagree	12	0.8	0.434	0.157	ns
Disagree	111	7	0.597	0.047	ns
Neither agree or disagree	284	17.9	0.607	0.03	ns
Agree	871	54.8	0.589	0.017	ref.
Strongly agree	312	19.6	0.555	0.027	ns
F) Cheerful person					
Strongly disagree	19	1.2	0.551	0.166	ns
Disagree	53	3.3	0.557	0.061	ns
Neither agree or disagree	347	21.9	0.554	0.029	*
Agree	876	55.1	0.617	0.016	ref.
Strongly agree	294	18.5	0.534	0.028	*
G) Pessimistic person					
Strongly disagree	325	20.4	0.596	0.025	ns
Disagree	586	36.9	0.601	0.019	ref.
Neither agree or disagree	474	29.8	0.583	0.025	ns
Agree	187	11.7	0.522	0.041	ns
Strongly agree	18	1.2	0.564	0.108	ns
H) Like exciting or risky activities					
Never	553	34.8	0.637	0.022	**
Some-time	905	56.9	0.567	0.016	ref.
Most of the time	119	7.5	0.474	0.045	ns
Always	13	0.8	0.684	0.113	ns

Note: We report the mean of saving regret and the standard error of the mean, pooling respondents across the two question formats for saving regret (unframed and framed). The t-test refers to a t-test of the indicated category vs. the reference category (ref). The most prevalent category is used as the reference group. ns= not significant, * $p<0.05$, ** $p<0.01$, *** $p<0.001$. Data are weighted.

Table A3: Saving Regret by measures of procrastination and perseverance

	N	%	Saving Regret (after revision)		
			Mean	Strd. Err.	T-test
I) Put off things you should do					
Never	76	4.8	0.459	0.061	*
Sometimes	1232	77.5	0.589	0.014	ref.
Most of the time	258	16.2	0.599	0.03	ns
Always	24	1.5	0.639	0.096	ns
J) Give up before starting					
Never	750	47.2	0.547	0.018	*
Sometimes	760	47.8	0.611	0.018	ref.
Most of the time	72	4.6	0.711	0.066	ns
Always	8	0.5	0.524	0.177	ns
K) Try several tasks, don't complete many					
Never	564	35.5	0.537	0.021	**
Sometimes	855	53.8	0.625	0.016	ref.
Most of the time	132	8.3	0.569	0.043	ns
Always	39	2.4	0.459	0.109	*
L) Settle for mediocre results					
Never	715	45	0.588	0.018	ns
Sometimes	802	50.4	0.591	0.018	ref.
Most of the time	69	4.4	0.471	0.065	ns
Always	3	0.2	0.858	0.202	ns
M) Put off things not good at					
Never	230	14.5	0.585	0.033	ns
Sometimes	1044	65.6	0.574	0.015	ref.
Most of the time	293	18.4	0.607	0.03	ns
Always	23	1.5	0.798	0.09	*
N) Put off difficult things					
Never	697	43.8	0.567	0.019	ns
Sometimes	776	48.8	0.592	0.017	ref.
Most of the time	106	6.7	0.62	0.053	ns
Always	11	0.7	0.882	0.144	ns
O) Lose motivation during tasks					
Never	534	33.6	0.601	0.021	ns
Sometimes	993	62.4	0.58	0.016	ref.
Most of the time	55	3.5	0.526	0.07	ns
Always	8	0.5	0.579	0.175	ns
P) Works best under pressure					
Strongly disagree	96	6.0	0.665	0.051	*
Disagree	359	22.6	0.604	0.027	ns
Neither agree or disagree	639	40.2	0.556	0.02	ref.
Agree	404	25.4	0.58	0.023	ns
Strongly agree	92	5.8	0.651	0.051	ns
Q) Do what you like today					
Strongly disagree	23	1.4	0.555	0.128	ns
Disagree	65	4.1	0.515	0.056	ns
Neither agree or disagree	251	15.8	0.551	0.03	ns
Agree	875	55.0	0.591	0.017	ref.
Strongly agree	377	23.7	0.609	0.025	ns
R) Life is about having fun					
Strongly disagree	237	14.9	0.621	0.032	ns
Disagree	613	38.5	0.603	0.019	ref.
Neither agree or disagree	420	26.4	0.523	0.024	*
Agree	256	16.1	0.616	0.033	ns
Strongly agree	64	4.0	0.558	0.065	ns

Note: We report the mean of saving regret and the standard error of the mean, pooling respondents across the two question formats for saving regret (unframed and framed). The t-test refers to a t-test of the indicated category vs. the reference category (ref). The most prevalent category is used as the reference group. ns= not significant, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Data are weighted.

Table A4: Linear probability model, wealth included. Effect on Probability of Expressing Saving Regret

	(1)	(2)	(3)	(4)	(5)
Age: 60-64 (Ref.)					
Age: 65-69	-0.026 (0.029)	-0.013 (0.029)	-0.014 (0.029)	-0.011 (0.029)	-0.011 (0.029)
Age: 70-74	-0.083** (0.033)	-0.054 (0.033)	-0.047 (0.035)	-0.047 (0.035)	-0.046 (0.035)
Age: 75-79	-0.187*** (0.042)	-0.154*** (0.041)	-0.156** (0.048)	-0.148** (0.048)	-0.146** (0.048)
Female	-0.019 (0.025)	-0.017 (0.024)	-0.018 (0.025)	-0.032 (0.026)	-0.040 (0.026)
Spouse	-0.073** (0.026)	-0.038 (0.026)	-0.030 (0.026)	-0.031 (0.026)	-0.029 (0.026)
High school or less (Ref.) (some) College education	0.061 (0.037)	0.047 (0.036)	0.040 (0.037)	0.028 (0.037)	0.025 (0.037)
Bachelor's degree	0.015 (0.042)	0.010 (0.041)	0.015 (0.042)	-0.003 (0.042)	-0.005 (0.042)
Master's degree or higher	-0.053 (0.043)	-0.054 (0.043)	-0.039 (0.044)	-0.061 (0.045)	-0.061 (0.045)
Income (lowest quartile) (Ref.)					
Income (2nd quartile)	-0.011 (0.039)	-0.005 (0.039)	-0.000 (0.039)	0.002 (0.039)	-0.000 (0.039)
Income (3rd quartile)	0.005 (0.039)	0.031 (0.038)	0.037 (0.039)	0.028 (0.039)	0.019 (0.039)
Income (highest quartile)	-0.060 (0.039)	-0.018 (0.039)	-0.014 (0.040)	-0.023 (0.040)	-0.035 (0.040)
Income (missing)	-0.162 (0.110)	-0.124 (0.109)	-0.128 (0.110)	-0.128 (0.110)	-0.152 (0.110)
Wealth(lowest quartile) (Ref.)					
Wealth(2nd quartile)	0.003 (0.054)	-0.001 (0.053)	0.007 (0.053)	0.022 (0.053)	0.020 (0.053)
Wealth(3rd quartile)	-0.070 (0.050)	-0.059 (0.049)	-0.053 (0.050)	-0.044 (0.050)	-0.045 (0.050)
Wealth(highest quartile)	-0.257*** (0.052)	-0.205*** (0.051)	-0.185*** (0.053)	-0.172** (0.053)	-0.167** (0.054)
Wealth(missing)	-0.096* (0.043)	-0.075 (0.042)	-0.083 (0.045)	-0.068 (0.045)	-0.072 (0.045)
Black	0.061 (0.049)	0.060 (0.049)	0.057 (0.050)	0.043 (0.050)	0.029 (0.050)
Hispanic	0.089* (0.050)	0.097* (0.049)	0.092* (0.050)	0.081 (0.050)	0.071 (0.050)
Poor self-rated health	0.095** (0.034)	0.058 (0.034)	0.070* (0.034)	0.085* (0.035)	0.091** (0.035)
Poor self-rated memory	-0.036 (0.043)	-0.044 (0.043)	-0.044 (0.043)	-0.038 (0.043)	-0.051 (0.043)

Note: * p<0.05, **p<0.01, *** p<0.001

Table A4: Linear probability model, wealth included (continued)

	(1)	(2)	(3)	(4)	(5)
Self-perceived personal traits					
A) relaxed person				-0.020 (0.015)	-0.016 (0.015)
B) creature of habits				0.017 (0.015)	0.017 (0.015)
C) open for change				0.055*** (0.017)	0.052** (0.017)
D) optimistic person				0.002 (0.021)	-0.000 (0.021)
E) self-confident				-0.014 (0.018)	-0.019 (0.018)
F) cheerful person				0.009 (0.021)	0.008 (0.021)
G) pessimistic person				-0.024 (0.015)	-0.029 (0.015)
H) like exciting or risky activities				-0.031 (0.020)	-0.035 (0.020)
Procrastination and perseverance					
I) put off things you should do					0.037 (0.027)
J) give up before starting					-0.004 (0.025)
K) try several tasks, don't complete many					0.056** (0.021)
L) settle for mediocre results					-0.017 (0.025)
M) put off things not good at					-0.010 (0.024)
N) put off difficult things					0.031 (0.026)
O) lose motivation during tasks					-0.039 (0.027)
P) works best under pressure					0.034** (0.013)
Q) do what you like today					0.017 (0.015)
R) life about having fun					-0.019 (0.013)
Constant	0.764*** (0.061)	0.679*** (0.062)	0.611*** (0.104)	0.565*** (0.160)	0.401* (0.183)
Numeracy, Financial literacy, Planning			X	X	X
Financial shocks		X	X	X	X
N	1589	1589	1589	1586	1586
Adj. R-squared	0.077	0.104	0.111	0.115	0.122

Note: * p<0.05, **p<0.01, *** p<0.001