Learning to values annuities: The role of information and engagement

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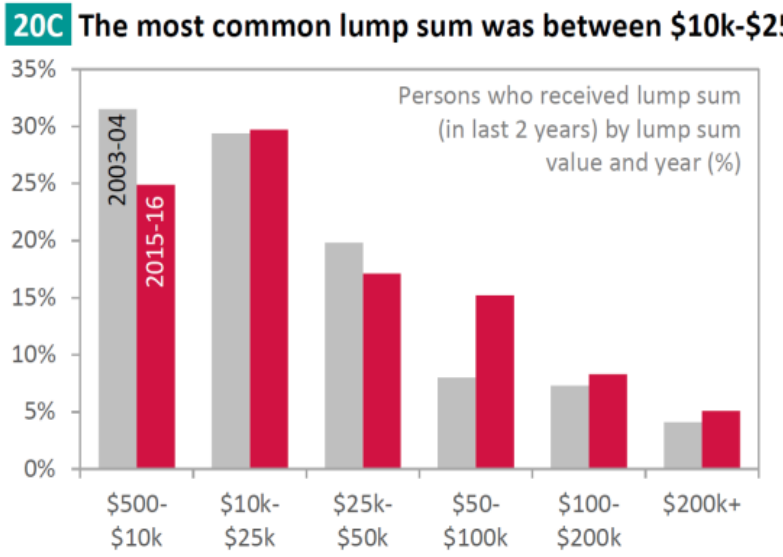
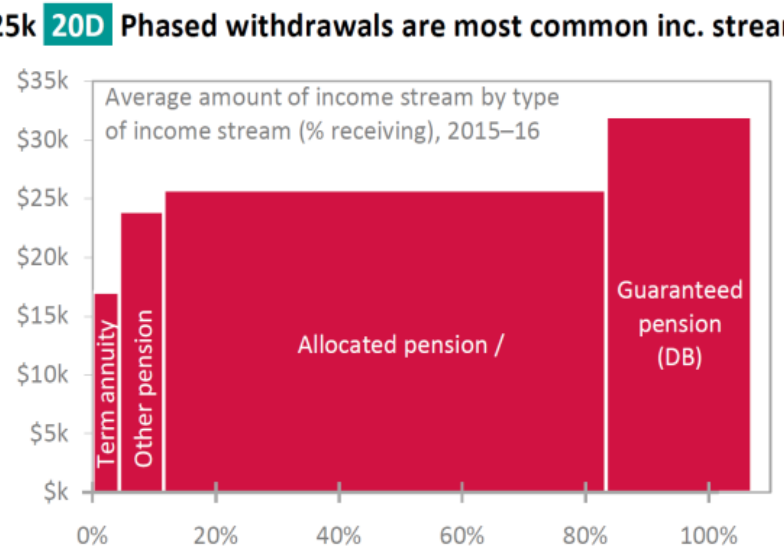
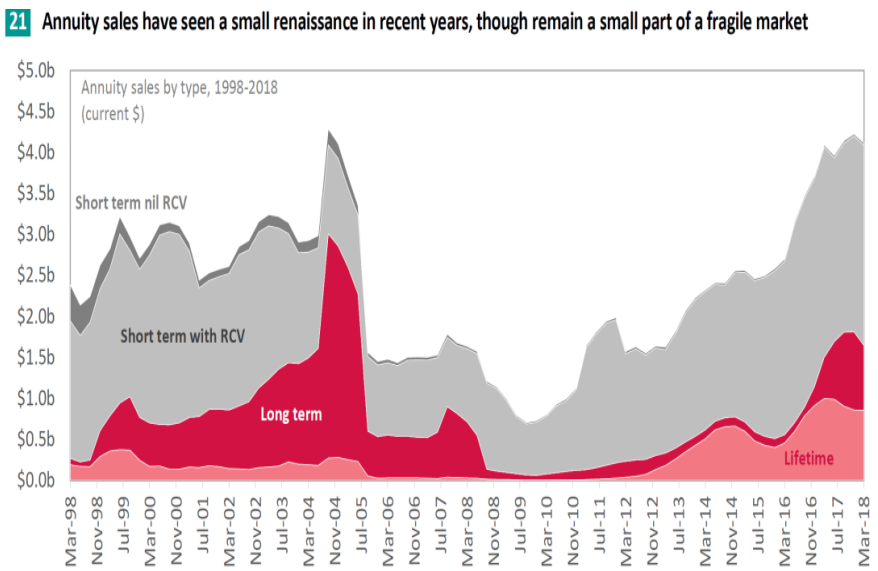
Network for Studies on Pensions, Aging and Retirement

Motivation

- Global: greater emphasis on DC (choice of benefits), but some DB systems considering greater flexibility
- Australia: compulsion and defaults in accumulation to build balances, choice in decumulation (mainly account-based pension, small lump sum, very little annuitization) => policy intention to increase annuitization







- Netherlands: considering some benefit flexibility

Little voluntary annuitization

- Lifecycle models suggest large utility gains from lifetime annuities (*Maurer et al 2013 and others*)

  …….. but low observed demand

- Explanations: Demand, Supply, Regulatory
- Demand-side literature
  - Defaults (*Benartzi et al 2011*) and heuristics (*Bateman et al 2017*)
  - Framing (*Agnew et al 2008, Brown et al 2018, Bockweg et al 2017*)
  - Endowment effect (*Bockweg et al 2017*)
  - Financial competence and effort (*Bateman et al 2018*)
  - Complexity (gap WTP and WTA) (*Brown et al 2017*)
  - Choice bracketing (*Brown et al 2019*)

Our aims

- To investigate **perceptions** (interest) and **valuation** (purchase decision) of lifetime annuities vs. drawdown products

- Role of information framing, financial capabilities, endowment effect, demographics

- Role of institutional setting: Australia, the Netherlands

Pension systems in Australia and the Netherlands – many similarities, but differences in decumulation

Australia

- General revenue financed Age Pension (means-tested)
- Mandatory superannuation guarantee
  - DC
  - choice of benefit: lump sum, phased withdrawal, annuity
- Voluntary saving

The Netherlands

- Non-contributory public pension
- Mandatory pension coverage
  - DB
  - Benefits paid as life-time pensions
- Voluntary saving

Experimental survey to elicit perceptions and valuation of annuity & drawdown products

Online 'experimental' surveys conducted in July 2017 in Australia and the Netherlands (Survey Sampling International)

- 1000 Australians (in English), 1003 Dutch (in Dutch)
- Employed or partner employed; 50-64 (relevant choice)
- +/- 30 mins, paid (A$7/5 Euro) + bonus points for quiz

Survey structure

1. **Screening** (age, gender, employment status, household income [4])
2. **Experimental task**
   - Between subjects: country (2), marital status (2), income (4), information framing (4: consumption gain/loss, investment gain/loss), product endowment (2: WTP/ WTA)
   - Within subjects: 6 choice tasks differ by benchmark allocation to annuity
3. **Covariate collection** – demographics, preferences, income, wealth, financial capability, personality, health

Experimental Task – 5 components

1) Information about products (lifetime annuity: **Guaranteed Lifetime Income Product** AND drawdown product: **Flexible Drawdown Product**)
   Framed summary description + Neutral detailed information

2) Incentivized product knowledge quiz

3) Elicitation of *perceptions* of products

4) Six choice tasks to elicit v*alue* of annuity product

5) Likelihood to actually exchange one product for the other

1) Framed summary description - eg, consumption frames

Guaranteed Lifetime Income product	**Flexible Account product**
Consumption Gain	
This product provides guaranteed **income** for your regular **expenses** for as long as you and your partner live, even if you or your partner live longer than expected. The **more** you buy of this product the **more** you have for regular **expenditures** for the rest of your life.	This product allows you to choose you and your partners **income** level depending on your **expenses**. If the account balance is **sufficient** you will be able to pay for unexpected **expenses** while maintaining the same standard of living. The **more** you buy of this product the **higher** the flexibility you will have to match your **expenditures**.
Consumption Loss	
This product provides guaranteed **income** for your regular **expenses** for as long as you and your partner live, even if you need more for unexpected **expenses**. The **more** you buy of this product the **less** flexibility you have for unexpected **expenses**.	This product allows you to choose your **income** level depending on you and your partner's **expenses**. If the account balance is insufficient you will not be able to pay for unexpected **expenses** and you may not be able to maintain your **standard of living**. The **more** you buy of this product the **lower** your flexibility to match **expenses** when your account balance is insufficient.

1) Neutral detailed information

	Lifetime Guaranteed Income Product	Flexible Account Product
How much income will I receive?	You and your partner will receive a regular income	You can choose how much to withdraw each month
How long do payments last?	Your regular income will be paid for as long as you *or* your partner live	You and your partner can continue to withdraw as long as your account balance is positive
What happens if I or my partner dies?	If one of you passes away, the surviving spouse will receive the regular income. However, the income will be reduced by one third (similar to age pension)	If one of you passes away, the remaining money in your account will be left to the surviving spouse
What happens if I *and* my partner die?	If both you and your partner have passed away, there will be no inheritance for your dependents or your estate	If both you and your partner have passed away, the remaining money in your account will be inherited by your dependents or your estate
What happens if the prices of things I buy increase?	Your regular income is automatically adjusted to the price level	The amount you withdraw is not automatically adjusted to the price level. However, you can increase the amount you withdraw when the prices increase
What happens if there are fluctuations in financial markets (such as interest rates or share prices)?	Your regular income will be unchanged	Your account balance will fluctuate with financial markets
What happens if I live longer than expected?	As long as you or your partner live, you will receive a regular income	When you or your partner live long you may run the risk of outliving your account

2) Incentivized product knowledge quiz

Now we would like you to review your knowledge of the retirement income products. You will receive 50 cents in bonus earnings for every correct answer.

Which of the following statements apply to each of the products – **Lifetime Guaranteed Income Product** and the **Flexible Account**? Please check the tick box under the product name whenever the statement applies to it.

Each statement applies to only one product.

	Lifetime Guaranteed Income Product	Flexible Account Product
I will receive a regular payment for as long as I live.	◉	○
I will have money in an account which I can access at any time. I can choose the amount I receive.	◉	○
If I die, payments stop and the remaining value of the product will be inherited by my dependents or estate.	◉	○
Payments automatically adjust with price increases.	◉	○
My account could fluctuate with financial markets.	◉	○

Below are the results; showing the correct answer to each statement with a green tick and whether your response was correct or incorrect:

	Lifetime Guaranteed Income Product	Flexible Account	Your Responses
I will receive a regular payment for as long as I live.	✓		Correct
I will have money in an account which I can access at any time. I can choose the amount I receive.		✓	Incorrect
If I die, payments stop and the remaining value of the product will be inherited by my dependents or estate.		✓	Incorrect
Payments automatically adjust with price increases.	✓		Correct
My regular payments could fluctuate with financial markets.		✓	Incorrect

3) Elicitation of perceptions of products –understanding, risk, control

Think about the **Lifetime Guaranteed Income Product**. How well do you think you understand the features of the **Lifetime Guaranteed Income Product**?

Please tick one box on the scale where 0 means 'don't understand at all' and 10 means 'understand very well'.

Don't understand at all										Understand very well
0	1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	◉	○	○	○

Think about the **Flexible Account Product**. How well do you think you understand the features of the **Flexible Account Product**?

Please tick one box on the scale where 0 means 'don't understand at all' and 10 means 'understand very well'.

Don't understand at all										Understand very well
0	1	2	3	4	5	6	7	8	9	10
○	○	○	◉	○	○	○	○	○	○	○

4) Choice tasks using iMPL to elicit valuation of Guaranteed Lifetime Income Product vs. Flexible Drawdown product

Random assignment to [WTP, WTA]

- Explain *iMPL* example
- Six choice sets (randomized) → 6 benchmark portfolios (Option A/Option B)
  - 100% annuitization [1] vs. 2/3 annuitization [2/3]
  - 1 vs. 1/3
  - 1 vs. 0
  - 2/3 vs. 1/3
  - 2/3 vs. 0
  - 1/3 vs. 0

Calculator provided to illustrate implication of choice

4. *iMPL* choice task

Task 1 of 6

Recall the general product features:

- **Lifetime Guaranteed Income Product**: This product provides you with a guaranteed **return** for as long as you live. If the markets perform well the value of the product will not increase. If you **die early** you get **less** then you paid for. The **more** you buy of this product the **more** you lose when you do **not live long**.
- **Flexible Account Product**: This product allows you to choose your **investment portfolio**. The less risk you're willing to take the **lower** the expected **return**. Your **account balance** might be insufficient if you live long. The **more** you buy of this product the **higher** your **account balance** if the financial markets perform **poorly**.

Imagine that you are at retirement and you have retirement savings to allocate between the **Lifetime Guaranteed Income Product** and the **Flexible Account Product**. All options are ***after tax*** and ***include public pension payments***.

Now suppose you had the following choice:

- **Either Option A** - You and your partner **have $762,198** in your Flexible Account and you would receive a Lifetime Guaranteed Income of **$23,200** per year, for life
- **Or Option B** - You and your partner **do not have any amount** in your Flexible Account and you would receive a Lifetime Guaranteed Income of **some amount** per year, for life

What we would like you to do is to cast your eye down the rows of the table and **select the ROW for which you prefer the combination of the two products in Option B to the combination of the two products in Option A.** You select this row by clicking 'Preferred Option B' in the column at the end of the row.

Option A		Option B		Preferred Option	
Flexible Account (account balance)	Lifetime Guaranteed Income (per year, including Age Pension)	Flexible Account (account balance)	Lifetime Guaranteed Income (per year, including Age Pensionr)	Option A	Option B
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$762,198	$23,200	$0	$54,205	◉	○
$762,198	$23,200	$0	$67,047	○	◉
$762,198	$23,200	$0	$85,209	○	◉
$762,198	$23,200	$0	$110,894	○	◉

Retirement Calculator

Option B refers to the FIRST ROW you prefer Option B to Option A.

	Option A	Option B
Income from ages 65 - 80	$77,665	$67,047
Income after age 80	$23,200	$67,047

The numbers in the table above are in today's dollars and calculated by assuming:

I would like to ensure the Flexible Account provides an income until age:	80
I would like to keep the following amount from the Flexible Account for inheritance or unexpected expenses:	$0
I would like to spend MORE of the Flexible Account in the first FIVE years of retirement:	○ Yes ◉ No
The Flexible Account provides an average annual return, greater than inflation by:	1%

Adjust the options above to see the effect it has on your choices in this task.

4. *iMPL* choice task

Repeat FRAMED product information

Task 1 of 6

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Select row – prefer B to A

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Retirement calculator to assist choice

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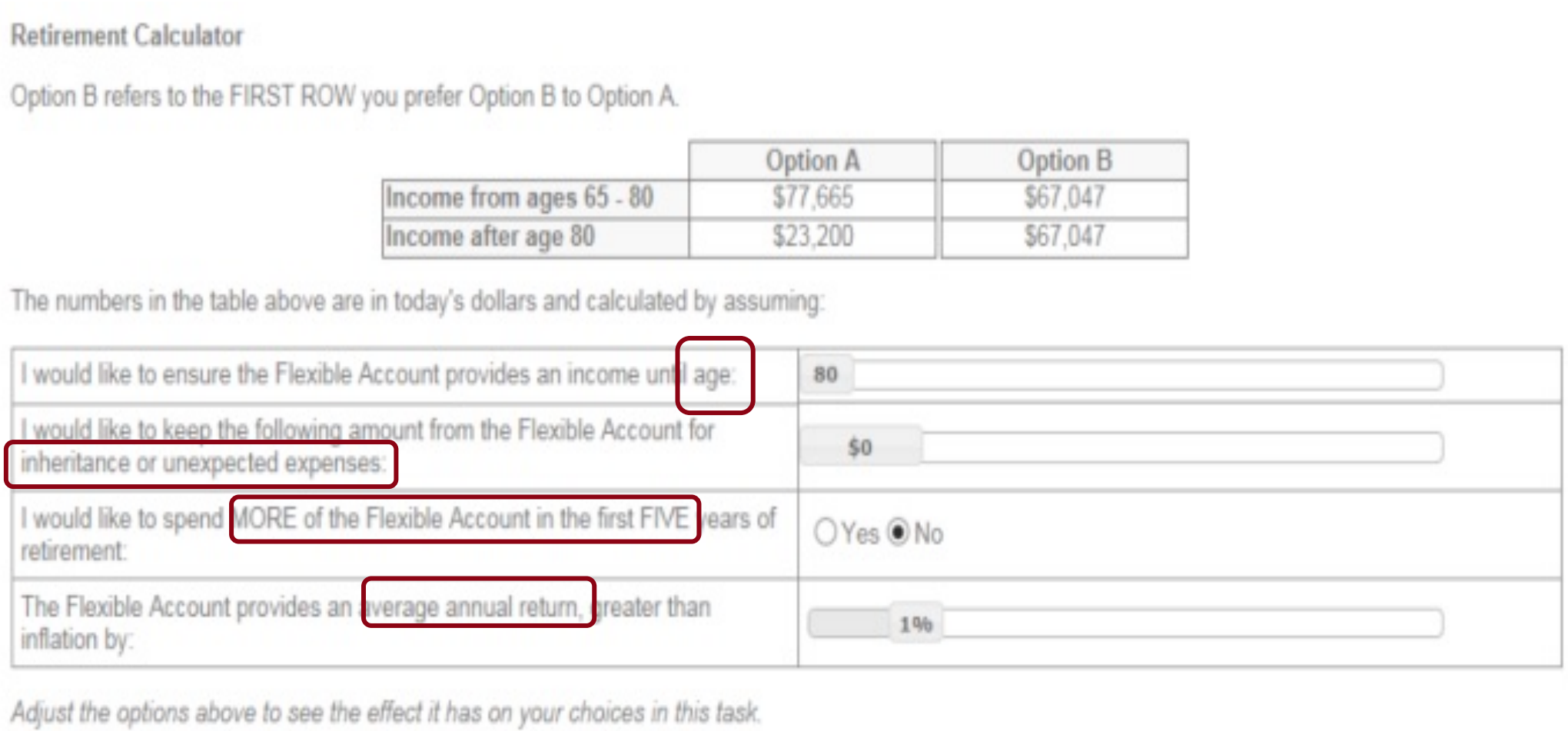

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Adjust the options above to see the effect it has on your choices in this task.

Stage 2: refine choice - with 4 more sets of choices between rows 2 and 3

Switching point in Stage 2 is mapped to money's worth → how much they are willing to pay/accept

5) Likelihood to act

1. Suppose you have $0 in your Flexible Account and a Lifetime Guaranteed Income of $38,980.

On a scale of 0 to 10 where 0 is very unlikely and 10 is very likely, how likely is it that you would reduce your Lifetime Guaranteed Income by $1,393 to receive an additional $32,046 in your Flexible Account?

Very unlikely										Very likely
0	1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○	○

Results

Perception of Lifetime Guaranteed Income Product vs. Flexible Account product

(OLS regressions, dep var: difference in Likert scores)

	Understanding			Riskiness			Control		
	NL	AU	sample	NL	AU	sample	NL	AU	sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Institutional settings									
Australian			−0.174 * **			−0.621 * **			−1.921 * **
			(−2.97)			(−3.37)			(−8.79)
Australian LOW			−0.160			0.738 * *			1.502 * **
			(−1.09)			(2.51)			(5.01)
Information framing									
Gain framing	0.153 * *	−0.0272	0.0649	0.603 * **	0.0219	0.322 * *	−0.531*	0.0573	−0.188
	(2.10)	(−0.41)	(1.31)	(2.69)	(0.10)	(2.02)	(−1.75)	(0.23)	(−0.95)
Consumption framing	−0.0501	0.0335	0.0000306	−0.536 * *	0.0153	−0.252	0.501	0.0421	0.267
	(−0.68)	(0.53)	(0.00)	(−2.37)	(0.07)	(−1.57)	(1.63)	(0.17)	(1.35)
Gain framing LOW	−0.685 * **	0.0996	−0.296 * *	−0.417	−0.0119	−0.216	0.347	−0.347	−0.0618
	(−2.98)	(0.62)	(−2.13)	(−0.94)	(−0.03)	(−0.78)	(0.79)	(−0.91)	(−0.21)
Consumption framing LOW	0.325	−0.123	0.0995	−0.0945	−0.0742	−0.0137	−0.464	−0.131	−0.348
	(1.34)	(−0.76)	(0.69)	(−0.22)	(−0.20)	(−0.05)	(−1.06)	(−0.34)	(−1.21)
Financial capabilities									
SA fin lit	−0.00703	−0.0796 * *	−0.0455*	−0.0791	−0.130	−0.115	0.0395	0.163	0.0920
	(−0.17)	(−2.32)	(−1.69)	(−0.65)	(−1.09)	(−1.37)	(0.24)	(1.24)	(0.91)
Fin lit	−0.0335	−0.0203	−0.0336	0.687 * **	0.435 * **	0.561 * **	−0.398*	−0.604 * **	−0.497 * **
	(−0.53)	(−0.43)	(−0.85)	(4.38)	(2.65)	(4.97)	(−1.82)	(−3.31)	(−3.49)
Numeracy	−0.0561	0.0137	−0.0183	0.345 * **	0.401 * **	0.385 * **	−0.644 * **	−0.499 * **	−0.554 * **
	(−1.19)	(0.40)	(−0.62)	(2.64)	(3.21)	(4.27)	(−3.98)	(−3.68)	(−5.20)
SA fin lit LOW	−0.0410	0.0468	0.00446	0.291*	0.273*	0.258 * *	−0.280	−0.147	−0.270 * *
	(−0.47)	(0.91)	(0.09)	(1.66)	(1.91)	(2.35)	(−1.49)	(−1.00)	(−2.34)
Fin lit LOW	0.138	0.0238	0.0971	−0.429*	−0.204	−0.309*	0.728 * **	0.197	0.468 * *
	(1.13)	(0.25)	(1.27)	(−1.74)	(−0.83)	(−1.79)	(2.71)	(0.77)	(2.55)
Numeracy LOW	0.147	−0.0353	0.0319	−0.0747	0.0227	−0.0245	0.303	0.487 * *	0.374 * *
	(1.27)	(−0.39)	(0.43)	(−0.30)	(0.10)	(−0.14)	(1.26)	(2.10)	(2.22)
Experimental design	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Retirement income replacement rate	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Health & life expectancy	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Saving & planning	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Personality Traits	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
N	1,003	1,000	2,003	1,003	1,000	2,003	1,003	1,000	2,003

Engaged vs. less engaged participants

- Experimental design offers multiple opportunities to learn about the 2 products
- Define a group ‘less engaged’ (LOW) if:
  - Participant makes 3 or more mistakes in the product recall quiz; or
  - Within 10% fastest survey completions

Perception of Lifetime Guaranteed Income Product vs. Flexible Account product

Strong country/institutional effects: for familiar product – except less engaged

	Understanding			Riskiness			Control		
	NL	AU	sample	NL	AU	sample	NL	AU	sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Institutional settings									
Australian			−0.174 * **			−0.621 * **			−1.921 * **
			(−2.97)			(−3.37)			(−8.79)
Australian LOW			−0.160			0.738 * *			1.502 * **
			(−1.09)			(2.51)			(5.01)
Information framing									
Gain framing	0.153 * *	−0.0272	0.0649	0.603 * **	0.0219	0.322 * *	−0.531*	0.0573	−0.188
	(2.10)	(−0.41)	(1.31)	(2.69)	(0.10)	(2.02)	(−1.75)	(0.23)	(−0.95)
Consumption framing	−0.0501	0.0335	0.0000306	−0.536 * *	0.0153	−0.252	0.501	0.0421	0.267
	(−0.68)	(0.53)	(0.00)	(−2.37)	(0.07)	(−1.57)	(1.63)	(0.17)	(1.35)
Gain framing LOW	−0.685 * **	0.0996	−0.296 * *	−0.417	−0.0119	−0.216	0.347	−0.347	−0.0618
	(−2.98)	(0.62)	(−2.13)	(−0.94)	(−0.03)	(−0.78)	(0.79)	(−0.91)	(−0.21)
Consumption framing LOW	0.325	−0.123	0.0995	−0.0945	−0.0742	−0.0137	−0.464	−0.131	−0.348
	(1.34)	(−0.76)	(0.69)	(−0.22)	(−0.20)	(−0.05)	(−1.06)	(−0.34)	(−1.21)
Financial capabilities									
SA fin lit	−0.00703	−0.0796 * *	−0.0455*	−0.0791	−0.130	−0.115	0.0395	0.163	0.0920
	(−0.17)	(−2.32)	(−1.69)	(−0.65)	(−1.09)	(−1.37)	(0.24)	(1.24)	(0.91)
Fin lit	−0.0335	−0.0203	−0.0336	0.687 * **	0.435 * **	0.561 * **	−0.398*	−0.604 * **	−0.497 * **
	(−0.53)	(−0.43)	(−0.85)	(4.38)	(2.65)	(4.97)	(−1.82)	(−3.31)	(−3.49)
Numeracy	−0.0561	0.0137	−0.0183	0.345 * **	0.401 * **	0.385 * **	−0.644 * **	−0.499 * **	−0.554 * **
	(−1.19)	(0.40)	(−0.62)	(2.64)	(3.21)	(4.27)	(−3.98)	(−3.68)	(−5.20)
SA fin lit LOW	−0.0410	0.0468	0.00446	0.291*	0.273*	0.258 * *	−0.280	−0.147	−0.270 * *
	(−0.47)	(0.91)	(0.09)	(1.66)	(1.91)	(2.35)	(−1.49)	(−1.00)	(−2.34)
Fin lit LOW	0.138	0.0238	0.0971	−0.429*	−0.204	−0.309*	0.728 * **	0.197	0.468 * *
	(1.13)	(0.25)	(1.27)	(−1.74)	(−0.83)	(−1.79)	(2.71)	(0.77)	(2.55)
Numeracy LOW	0.147	−0.0353	0.0319	−0.0747	0.0227	−0.0245	0.303	0.487 * *	0.374 * *
	(1.27)	(−0.39)	(0.43)	(−0.30)	(0.10)	(−0.14)	(1.26)	(2.10)	(2.22)
Experimental design	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Retirement income replacement rate	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Health & life expectancy	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Saving & planning	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Personality Traits	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
N	1,003	1,000	2,003	1,003	1,000	2,003	1,003	1,000	2,003

Perception of Lifetime Guaranteed Income Product vs. Flexible Account product

Framing only relevant to Dutch: gain frame assists understanding (except less engaged)

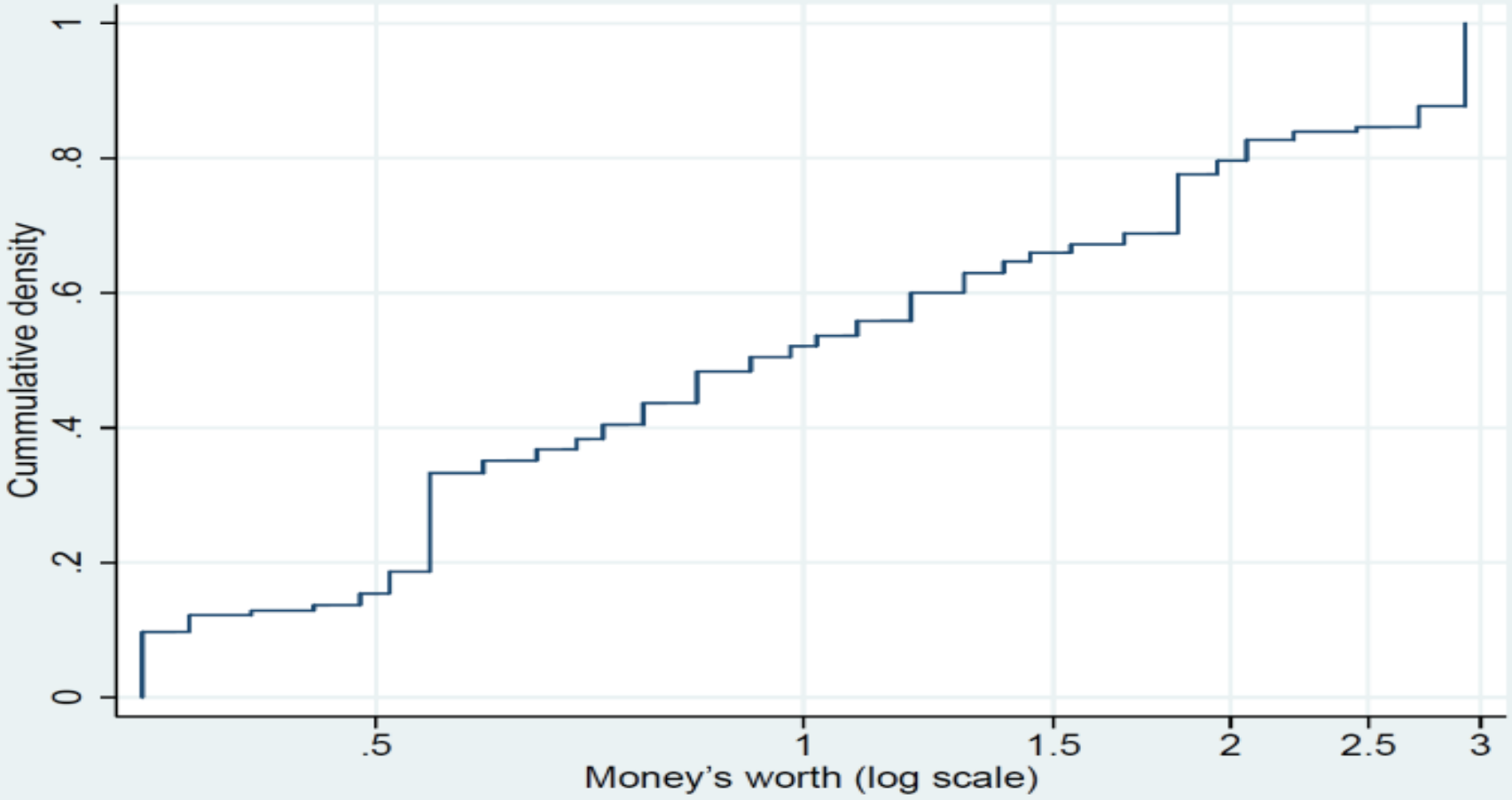
	Understanding			Riskiness			Control		
	NL	AU	sample	NL	AU	sample	NL	AU	sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Institutional settings									
Australian			−0.174 * **			−0.621 * **			−1.921 * **
			(−2.97)			(−3.37)			(−8.79)
Australian LOW			−0.160			0.738 * *			1.502 * **
			(−1.09)			(2.51)			(5.01)
Information framing									
Gain framing	0.153 * *	−0.0272	0.0649	0.603 * **	0.0219	0.322 * *	−0.531*	0.0573	−0.188
	(2.10)	(−0.41)	(1.31)	(2.69)	(0.10)	(2.02)	(−1.75)	(0.23)	(−0.95)
Consumption framing	−0.0501	0.0335	0.0000306	−0.536 * *	0.0153	−0.252	0.501	0.0421	0.267
	(−0.68)	(0.53)	(0.00)	(−2.37)	(0.07)	(−1.57)	(1.63)	(0.17)	(1.35)
Gain framing LOW	−0.685 * **	0.0996	−0.296 * *	−0.417	−0.0119	−0.216	0.347	−0.347	−0.0618
	(−2.98)	(0.62)	(−2.13)	(−0.94)	(−0.03)	(−0.78)	(0.79)	(−0.91)	(−0.21)
Consumption framing LOW	0.325	−0.123	0.0995	−0.0945	−0.0742	−0.0137	−0.464	−0.131	−0.348
	(1.34)	(−0.76)	(0.69)	(−0.22)	(−0.20)	(−0.05)	(−1.06)	(−0.34)	(−1.21)
Financial capabilities									
SA fin lit	−0.00703	−0.0796 * *	−0.0455*	−0.0791	−0.130	−0.115	0.0395	0.163	0.0920
	(−0.17)	(−2.32)	(−1.69)	(−0.65)	(−1.09)	(−1.37)	(0.24)	(1.24)	(0.91)
Fin lit	−0.0335	−0.0203	−0.0336	0.687 * **	0.435 * **	0.561 * **	−0.398*	−0.604 * **	−0.497 * **
	(−0.53)	(−0.43)	(−0.85)	(4.38)	(2.65)	(4.97)	(−1.82)	(−3.31)	(−3.49)
Numeracy	−0.0561	0.0137	−0.0183	0.345 * **	0.401 * **	0.385 * **	−0.644 * **	−0.499 * **	−0.554 * **
	(−1.19)	(0.40)	(−0.62)	(2.64)	(3.21)	(4.27)	(−3.98)	(−3.68)	(−5.20)
SA fin lit LOW	−0.0410	0.0468	0.00446	0.291*	0.273*	0.258 * *	−0.280	−0.147	−0.270 * *
	(−0.47)	(0.91)	(0.09)	(1.66)	(1.91)	(2.35)	(−1.49)	(−1.00)	(−2.34)
Fin lit LOW	0.138	0.0238	0.0971	−0.429*	−0.204	−0.309*	0.728 * **	0.197	0.468 * *
	(1.13)	(0.25)	(1.27)	(−1.74)	(−0.83)	(−1.79)	(2.71)	(0.77)	(2.55)
Numeracy LOW	0.147	−0.0353	0.0319	−0.0747	0.0227	−0.0245	0.303	0.487 * *	0.374 * *
	(1.27)	(−0.39)	(0.43)	(−0.30)	(0.10)	(−0.14)	(1.26)	(2.10)	(2.22)
Experimental design	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Retirement income replacement rate	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Health & life expectancy	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Saving & planning	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Personality Traits	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
N	1,003	1,000	2,003	1,003	1,000	2,003	1,003	1,000	2,003

Perception of Lifetime Guaranteed Income Product vs. Flexible Account product

Fin Lit and numeracy skills assists understanding of insurance features

	Understanding			Riskiness			Control		
	NL	AU	sample	NL	AU	sample	NL	AU	sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Institutional settings									
Australian			−0.174 * **			−0.621 * **			−1.921 * **
			(−2.97)			(−3.37)			(−8.79)
Australian LOW			−0.160			0.738 * *			1.502 * **
			(−1.09)			(2.51)			(5.01)
Information framing									
Gain framing	0.153 * *	−0.0272	0.0649	0.603 * **	0.0219	0.322 * *	−0.531*	0.0573	−0.188
	(2.10)	(−0.41)	(1.31)	(2.69)	(0.10)	(2.02)	(−1.75)	(0.23)	(−0.95)
Consumption framing	−0.0501	0.0335	0.0000306	−0.536 * *	0.0153	−0.252	0.501	0.0421	0.267
	(−0.68)	(0.53)	(0.00)	(−2.37)	(0.07)	(−1.57)	(1.63)	(0.17)	(1.35)
Gain framing LOW	−0.685 * **	0.0996	−0.296 * *	−0.417	−0.0119	−0.216	0.347	−0.347	−0.0618
	(−2.98)	(0.62)	(−2.13)	(−0.94)	(−0.03)	(−0.78)	(0.79)	(−0.91)	(−0.21)
Consumption framing LOW	0.325	−0.123	0.0995	−0.0945	−0.0742	−0.0137	−0.464	−0.131	−0.348
	(1.34)	(−0.76)	(0.69)	(−0.22)	(−0.20)	(−0.05)	(−1.06)	(−0.34)	(−1.21)
Financial capabilities									
SA fin lit	−0.00703	−0.0796 * *	−0.0455*	−0.0791	−0.130	−0.115	0.0395	0.163	0.0920
	(−0.17)	(−2.32)	(−1.69)	(−0.65)	(−1.09)	(−1.37)	(0.24)	(1.24)	(0.91)
Fin lit	−0.0335	−0.0203	−0.0336	0.687 * **	0.435 * **	0.561 * **	−0.398*	−0.604 * **	−0.497 * **
	(−0.53)	(−0.43)	(−0.85)	(4.38)	(2.65)	(4.97)	(−1.82)	(−3.31)	(−3.49)
Numeracy	−0.0561	0.0137	−0.0183	0.345 * **	0.401 * **	0.385 * **	−0.644 * **	−0.499 * **	−0.554 * **
	(−1.19)	(0.40)	(−0.62)	(2.84)	(3.21)	(4.27)	(−3.98)	(−3.68)	(−5.28)
SA fin lit LOW	−0.0410	0.0468	0.00446	0.291*	0.273*	0.258 * *	−0.280	−0.147	−0.270 * *
	(−0.47)	(0.91)	(0.09)	(1.66)	(1.91)	(2.35)	(−1.49)	(−1.00)	(−2.34)
Fin lit LOW	0.138	0.0238	0.0971	−0.429*	−0.204	−0.309*	0.728 * **	0.197	0.468 * *
	(1.13)	(0.25)	(1.27)	(−1.74)	(−0.83)	(−1.79)	(2.71)	(0.77)	(2.55)
Numeracy LOW	0.147	−0.0353	0.0319	−0.0747	0.0227	−0.0245	0.303	0.487 * *	0.374 * *
	(1.27)	(−0.39)	(0.43)	(−0.30)	(0.10)	(−0.14)	(1.26)	(2.10)	(2.22)
Experimental design	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Retirement income replacement rate	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Health & life expectancy	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Saving & planning	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Personality Traits	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
N	1,003	1,000	2,003	1,003	1,000	2,003	1,003	1,000	2,003

Valuation: distribution of money's worth of Lifetime Guaranteed Income Product (annuity) from 2003 participants in 6 within-subject treatments



- **Averaged logged value close to actuarial fair value**
- **Substantial heterogeneity**

Summary statistics – average of logged money's worth for sub-populations

	Full	Sample		LOW engagement		Engaged	
	sample	1st	2nd	1st	2nd	1st	2nd
AU vs NL	-0.003	-0.017*	0.011	0.031	-0.021	-0.029***	0.019*
	(0.006)	(0.009)	(0.009)	(0.021)	(0.021)	(0.010)	(0.010)
Female vs male	-0.003	-0.020**	0.013	-0.015	0.021	-0.021**	0.010
	(0.006)	(0.010)	(0.009)	(0.023)	(0.019)	(0.010)	(0.010)
Single vs couple	-0.003	0.086***	-0.044***	0.065**	-0.026	0.092***	-0.048***
	(0.006)	(0.012)	(0.008)	(0.026)	(0.018)	(0.013)	(0.008)
WTP vs WTA	-0.003	-0.088***	0.082***	-0.144***	0.163***	-0.074***	0.063***
	(0.006)	(0.009)	(0.009)	(0.020)	(0.021)	(0.010)	(0.010)
Gain vs Loss	-0.003	0.013	-0.019**	0.071***	-0.056***	-0.000	-0.010
frame	(0.006)	(0.009)	(0.009)	(0.021)	(0.020)	(0.010)	(0.010)
Cons vs Invest	-0.003	0.004	-0.010	-0.021	0.028	0.010	-0.021**
frame	(0.006)	(0.009)	(0.009)	(0.022)	(0.020)	(0.010)	(0.010)
Confused vs not	-0.003	-0.087***	0.013*	-0.033	0.018	-0.111***	0.012
	(0.006)	(0.016)	(0.007)	(0.030)	(0.017)	(0.019)	(0.008)
Observations	12,018	12,018		2,394		9,624	

Average of logged money's worth for sub populations

Australians lower than Dutch

	Full	Sample		LOW engagement		Engaged	
	sample	1st	2nd	1st	2nd	1st	2nd
AU vs NL	-0.003	-0.017*	0.011	0.031	-0.021	-0.029***	0.019*
	(0.006)	(0.009)	(0.009)	(0.021)	(0.021)	(0.010)	(0.010)
Female vs male	-0.003	-0.020**	0.013	-0.015	0.021	-0.021**	0.010
	(0.006)	(0.010)	(0.009)	(0.023)	(0.019)	(0.010)	(0.010)
Single vs couple	-0.003	0.086***	-0.044***	0.065**	-0.026	0.092***	-0.048***
	(0.006)	(0.012)	(0.008)	(0.026)	(0.018)	(0.013)	(0.008)
WTP vs WTA	-0.003	-0.088***	0.082***	-0.144***	0.163***	-0.074***	0.063***
	(0.006)	(0.009)	(0.009)	(0.020)	(0.021)	(0.010)	(0.010)
Gain vs Loss	-0.003	0.013	-0.019**	0.071***	-0.056***	-0.000	-0.010
frame	(0.006)	(0.009)	(0.009)	(0.021)	(0.020)	(0.010)	(0.010)
Cons vs Invest	-0.003	0.004	-0.010	-0.021	0.028	0.010	-0.021**
frame	(0.006)	(0.009)	(0.009)	(0.022)	(0.020)	(0.010)	(0.010)
Confused vs not	-0.003	-0.087***	0.013*	-0.033	0.018	-0.111***	0.012
	(0.006)	(0.016)	(0.007)	(0.030)	(0.017)	(0.019)	(0.008)
Observations	12,018	12,018		2,394		9,624	

Average of logged money's worth for sub populations

Females lower than males

	Full sample	Sample 1st	Sample 2nd	LOW engagement 1st	LOW engagement 2nd	Engaged 1st	Engaged 2nd
AU vs NL	-0.003	-0.017*	0.011	0.031	-0.021	-0.029***	0.019*
	(0.006)	(0.009)	(0.009)	(0.021)	(0.021)	(0.010)	(0.010)
Female vs male	-0.003	-0.020**	0.013	-0.015	0.021	-0.021**	0.010
	(0.006)	(0.010)	(0.009)	(0.023)	(0.019)	(0.010)	(0.010)
Single vs couple	-0.003	0.086***	-0.044***	0.065**	-0.026	0.092***	-0.048***
	(0.006)	(0.012)	(0.008)	(0.026)	(0.018)	(0.013)	(0.008)
WTP vs WTA	-0.003	-0.088***	0.082***	-0.144***	0.163***	-0.074***	0.063***
	(0.006)	(0.009)	(0.009)	(0.020)	(0.021)	(0.010)	(0.010)
Gain vs Loss	-0.003	0.013	-0.019**	0.071***	-0.056***	-0.000	-0.010
frame	(0.006)	(0.009)	(0.009)	(0.021)	(0.020)	(0.010)	(0.010)
Cons vs Invest	-0.003	0.004	-0.010	-0.021	0.028	0.010	-0.021**
frame	(0.006)	(0.009)	(0.009)	(0.022)	(0.020)	(0.010)	(0.010)
Confused vs not	-0.003	-0.087***	0.013*	-0.033	0.018	-0.111***	0.012
	(0.006)	(0.016)	(0.007)	(0.030)	(0.017)	(0.019)	(0.008)
Observations	12,018	12,018		2,394		9,624	

Average of logged money's worth for sub populations

Couples lower than singles

	Full sample	Sample 1st	Sample 2nd	LOW engagement 1st	LOW engagement 2nd	Engaged 1st	Engaged 2nd
AU vs NL	-0.003	-0.017*	0.011	0.031	-0.021	-0.029***	0.019*
	(0.006)	(0.009)	(0.009)	(0.021)	(0.021)	(0.010)	(0.010)
Female vs male	-0.003	-0.020**	0.013	-0.015	0.021	-0.021**	0.010
	(0.006)	(0.010)	(0.009)	(0.023)	(0.019)	(0.010)	(0.010)
Single vs couple	-0.003	0.086***	-0.044***	0.065**	-0.026	0.092***	-0.048***
	(0.006)	(0.012)	(0.008)	(0.026)	(0.018)	(0.013)	(0.008)
WTP vs WTA	-0.003	-0.088***	0.082***	-0.144***	0.163***	-0.074***	0.063***
	(0.006)	(0.009)	(0.009)	(0.020)	(0.021)	(0.010)	(0.010)
Gain vs Loss	-0.003	0.013	-0.019**	0.071***	-0.056***	-0.000	-0.010
frame	(0.006)	(0.009)	(0.009)	(0.021)	(0.020)	(0.010)	(0.010)
Cons vs Invest	-0.003	0.004	-0.010	-0.021	0.028	0.010	-0.021**
frame	(0.006)	(0.009)	(0.009)	(0.022)	(0.020)	(0.010)	(0.010)
Confused vs not	-0.003	-0.087***	0.013*	-0.033	0.018	-0.111***	0.012
	(0.006)	(0.016)	(0.007)	(0.030)	(0.017)	(0.019)	(0.008)
Observations	12,018	12,018		2,394		9,624	

Average of logged money's worth for sub populations

WTP lower than WTA, smaller gap for engaged

	Full sample	Sample 1st	Sample 2nd	LOW engagement 1st	LOW engagement 2nd	Engaged 1st	Engaged 2nd
AU vs NL	-0.003	-0.017*	0.011	0.031	-0.021	-0.029***	0.019*
	(0.006)	(0.009)	(0.009)	(0.021)	(0.021)	(0.010)	(0.010)
Female vs male	-0.003	-0.020**	0.013	-0.015	0.021	-0.021**	0.010
	(0.006)	(0.010)	(0.009)	(0.023)	(0.019)	(0.010)	(0.010)
Single vs couple	-0.003	0.086***	-0.044***	0.065**	-0.026	0.092***	-0.048***
	(0.006)	(0.012)	(0.008)	(0.026)	(0.018)	(0.013)	(0.008)
WTP vs WTA	-0.003	-0.088***	0.082***	-0.144***	0.163***	-0.074***	0.063***
	(0.006)	(0.009)	(0.009)	(0.020)	(0.021)	(0.010)	(0.010)
Gain vs Loss	-0.003	0.013	-0.019**	0.071***	-0.056***	-0.000	-0.010
frame	(0.006)	(0.009)	(0.009)	(0.021)	(0.020)	(0.010)	(0.010)
Cons vs Invest	-0.003	0.004	-0.010	-0.021	0.028	0.010	-0.021**
frame	(0.006)	(0.009)	(0.009)	(0.022)	(0.020)	(0.010)	(0.010)
Confused vs not	-0.003	-0.087***	0.013*	-0.033	0.018	-0.111***	0.012
	(0.006)	(0.016)	(0.007)	(0.030)	(0.017)	(0.019)	(0.008)
Observations	12,018	12,018		2,394		9,624	

Average of logged money's worth for sub populations
information framing plays minor role – except for less engaged

	Full	Sample		LOW engagement		Engaged	
	sample	1st	2nd	1st	2nd	1st	2nd
AU vs NL	-0.003	-0.017*	0.011	0.031	-0.021	-0.029***	0.019*
	(0.006)	(0.009)	(0.009)	(0.021)	(0.021)	(0.010)	(0.010)
Female vs male	-0.003	-0.020**	0.013	-0.015	0.021	-0.021**	0.010
	(0.006)	(0.010)	(0.009)	(0.023)	(0.019)	(0.010)	(0.010)
Single vs couple	-0.003	0.086***	-0.044***	0.065**	-0.026	0.092***	-0.048***
	(0.006)	(0.012)	(0.008)	(0.026)	(0.018)	(0.013)	(0.008)
WTP vs WTA	-0.003	-0.088***	0.082***	-0.144***	0.163***	-0.074***	0.063***
	(0.006)	(0.009)	(0.009)	(0.020)	(0.021)	(0.010)	(0.010)
Gain vs Loss	-0.003	0.013	-0.019**	0.071***	-0.056***	-0.000	-0.010
frame	(0.006)	(0.009)	(0.009)	(0.021)	(0.020)	(0.010)	(0.010)
Cons vs Invest	-0.003	0.004	-0.010	-0.021	0.028	0.010	-0.021**
frame	(0.006)	(0.009)	(0.009)	(0.022)	(0.020)	(0.010)	(0.010)
Confused vs not	-0.003	-0.087***	0.013*	-0.033	0.018	-0.111***	0.012
	(0.006)	(0.016)	(0.007)	(0.030)	(0.017)	(0.019)	(0.008)
Observations	12,018	12,018		2,394		9,624	

Money's worth ratio regressions - 1

dep var: logged money's worth ratio

	Netherlands		Australia		Sample	
Institutional settings						
Australian					-0.012	(-0.34)
Australian LOW					0.128**	(2.03)
Endowment effect						
WTP treatment	-0.146***	(-3.80)	-0.140***	(-3.39)	-0.132***	(-4.68)
WTP treatment LOW	-0.106	(-1.18)	-0.246***	(-2.79)	-0.197***	(-3.17)
Information framing						
Gain framing	0.035	(0.90)	-0.022	(-0.53)	0.007	(0.27)
Consumption framing	0.011	(0.28)	0.014	(0.35)	0.014	(0.50)
Gain framing LOW	0.100	(1.06)	0.038	(0.43)	0.089	(1.40)
Cons. framing LOW	-0.073	(-0.78)	-0.082	(-0.93)	-0.088	(-1.38)

Institutional setting not signif except low engaged

Product endowment important for valuation BUT being well informed reduces the endowment effect

Valuation unaffected by information framing

Money's worth ratio regressions - 2

dep var: logged money's worth ratio

	Netherlands		Australia		Sample	
Financial capabilities						
SA Fin Lit	-0.018	(-0.92)	0.001	(0.05)	-0.008	(-0.53)
Fin Lit	0.034	(1.13)	0.015	(0.49)	0.026	(1.18)
Numeracy	-0.035	(1.62)	-0.002	(-0.08)	-0.018	(-1.16)
SA Fin Lit LOW	-0.014	(-0.51)	0.066**	(2.41)	0.014	(0.74)
Fin Lit LOW	-0.089	(-1.63)	-0.038	(-0.67)	-0.065*	(-1.68)
Numeracy LOW	0.123***	(2.69)	-0.007	(-0.13)	-0.063*	(1.84)
Liquidity (Base 1:2/3)						
1:1/3	-0.026	(-1.49)	0.038**	(1.97)	-0.020	(-1.20)
1:0	-0.016	(-0.85)	0.021	(1.08)	-0.024	(-1.38)
2/3:1/3	-0.015	(-0.75)	0.037*	(1.76)	-0.015	(-0.81)
2/3:0	-0.019	(-0.92)	0.034	(1.59)	-0.019	(-1.03)
1/3:0	-0.046**	(-2.06)	0.003	(0.13)	-0.048**	(-2.46)

Financial capabilities not important for the engaged

Helps less engaged value annuities

Australians: willing to pay more for income if they keep some liquidity

Dutch: not willing to exchange a bit more wealth for even more

Money's worth ratio regressions – other results

Higher value for Lifetime Guaranteed Income Product (annuity):

- Perceptions (annuity having lower risk, more control)
- Income (Australians); Non-homeowner (Dutch)
- Savings habit (Australians); Patience (Dutch)
- Single

Lower value for Lifetime Guaranteed Income Product (annuity):

- Non-homeowner (Dutch)
- Self assessed planning knowledge (Australian)

Health & SLE variables are insignificant

Conclusions - 1

For perception of product features:

- Institutional/country effects are large (product familiarity)
- Financial capabilities – financial literacy/numeracy - important
- Framing important for Dutch sub sample

NUDGING VIA INFORMATION FRAMING ASSISTS DEVELOPMENT OF PRODUCT UNDERSTANDING AND PERCEPTIONS OF INSURANCE FEATURES

Conclusions - 2

For valuing annuities (Lifetime Guaranteed Income product):

- WTP-WTA gap present but much less for the ‘engaged’ (took time with survey and scored well in product quiz)
- Information framing not important (unlike for product perception)
- Institutional/country effect not present if ‘engaged’
- Financial competence not important (except for less engaged)

Provision of multiple opportunities to learn about products (neutral information, incentivized quiz with feedback, calculator to illustrate ‘impact’ of choice) assisted valuation