An Econometric Analysis of Value of Advice in Canada

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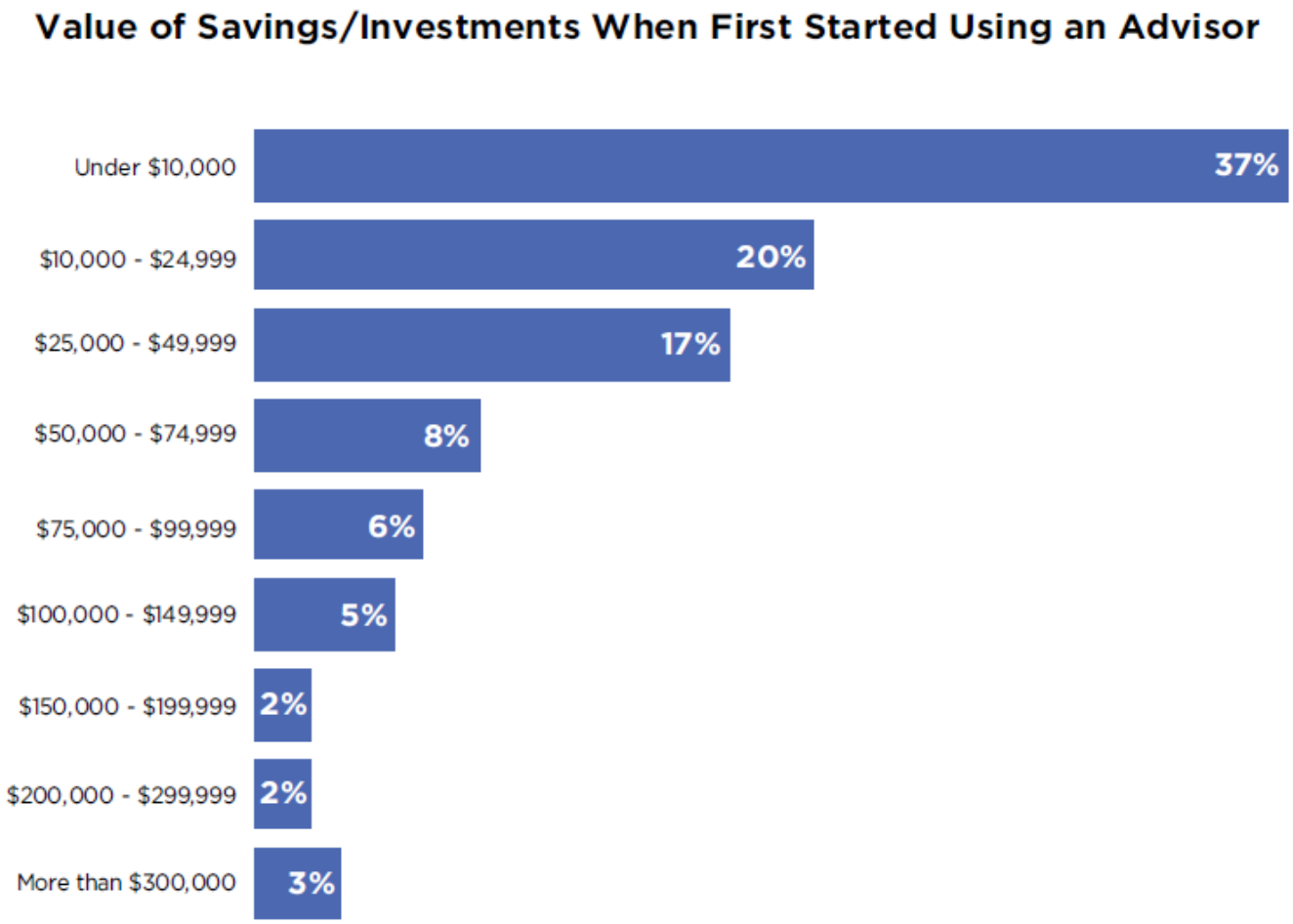
Advice relationships start early…

Average Length of Advisor Relationship

Age Group	Years Using Advisor (Average)
18 to 34	8.4
35 to 44	12.8
45 to 54	17.1
55 to 64	20.7
65 and older	23.0
All	18.0

Source: Pollara Canadians' Perceptions of Mutual Funds and the Mutual Fund Industry, 2011

… and begin with relatively little assets



Source: Pollara Canadians' Perceptions of Mutual Funds and the Mutual Fund Industry, 2011

Industry results have continued to face credibility challenges

- Are these descriptive results convincing?
  - Statistical significance:
    - How statistically significant are the results?
  - Omitted variables:
    - What variables have been left out? Better explanations may exist
  - Correlation does not mean causation:
    - *"Advice finds wealth and not the other way around"*

Contributions of the CIRANO study

- Uses large systematic survey of Canadian households' financial lives:
  - Data complied by Ipsos Reid in December 2010
  - Sample of 10,505 households
  - Confirming data from 3,610 households in a return to sample survey 6 months later
  - Extensive data collected on:
    - Financial situation
    - Savings and investment behavior
    - Attitudes toward retirement savings and advice

Contributions of the CIRANO study

- Statistical significance/Omitted variables?
    - Large sample and richness of data allow the researchers to account for the many factors that affect financial assets, including demographic, economic and attitudinal differences
- Correlation vs Econometric Modelling?
    - A clearer picture of the causal chain emerges from this study. Econometric techniques are applied which show that having an advisor raises the probability that an individual will save, and that savings rates increase with the length of time an investor works with an advisor. These greater savings and savings rates are instrumental in building the greater financial assets that we observe in the portfolios of advised households

Contributions of the CIRANO study

A summary of results:

- Advice has a positive and significant impact on financial assets after accounting for various socio-economic, demographic, and attitudinal variables that also affect individual financial assets
- The financial assets multiplier effect of advice cannot be explained by asset performance alone – the greater savings discipline acquired through advice plays an important role
- Advice positively impacts retirement readiness, again after accounting for the myriad of other variables also at play
- Having advice also is shown to be an important contributor to levels of satisfaction and trust with which individuals view financial advisors – no doubt a reflection of financial assets creation

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Financial advisors perform vital tasks in the financial lives of consumers

- Improve financial literacy
- Develop a culture of savings and investment
- Assist the development and execution of a financial plan
- Select appropriate financial vehicles and products
- Improve investment decision-making

Establishing the statistical significance of survey results is critical for broad-based credibility

- Characteristics of the sample
  - Representative of the population at large
  - Sufficient information to test alternative hypotheses
- Standardization of the sample via *ceteris paribus* or 'all things being equal' analysis
- "Statistically significant" means that measurable relationships between variable and outcome has been identified, with the chance of making this claim wrongly being
  - 1 in 10 ($p<0.10$, " * ")
  - 1 in 20 ($p<0.05$, or " ** ")
  - 1 in 100 ($p<0.01$, or " *** ")

Academic research on the value of advice is promising but relatively nascent

Demand for Advice

- Individuals actively soliciting advice perform better than those who do not
- Advice seekers are more likely to be older, wealthier, risk averse or female
- Achievement of financial objectives requires management of critical factors
  - Goal-setting, rationality, discipline
- Cognitive heuristics & biases have important consequences
  - Panic, loss aversion, framing, hyperbolic discounting, status quo & home biases
- Representative work: *Bluethgen, 2008; Hung & Yoong, 2010; Kahneman, 2003; Samuelson & Zeckhauser, 1988; Thaler & Benartzi, 2004*

Impact of Advice

- Positive behavioral effects
  - Greater use of tax-advantaged savings vehicles
  - Improved asset allocation
  - More diversified portfolios
  - Less speculative trading
- Financial knowledge increases the likelihood of planning
  - The process of planning appears to be a strong predictor for wealth
- Pre-commitment to rational behavior reduces likelihood of deviation
- Indeterminate impact on financial returns
- Representative work: *Fischer & Gerhardt, 2007; Gale & Levine, 2010; Gerhardt & Hackethal, 2009; Giné, 2010; Horn, et.al., 2009; Lusardi & Mitchell, 2006, 2007, 2009; Maymin & Fisher; 2011 Willis, 2009*

The central contributions of the research program

- Canada's largest and most systematic survey of households' financial lives
  - Financial situation
  - Savings and investment behavior
  - Attitudes towards retirement savings and advice
- Analyses need to account for clear differences in attitudes/perceptions towards advice, in particular thresholds for seeking advice, that would otherwise distort results and conclusions
- Survey results can be assessed for their statistical significance using econometric techniques that ensures *ceteris paribus* conditions prevail
- *Ceteris paribus*, the presence of advice is a causal factor that is statistically highly significant
  - Sizeable and positive for financial assets, the effect of which increases with the tenure of advice
  - Sizeable and positive for savings, as a critical driver for financial assets
- *Ceteris paribus*, the presence of advice is also a causal factor for key measures of satisfaction that are statistically highly significant
  - Perceived retirement readiness
  - Satisfaction, confidence and trust in financial advice

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Survey filtering process

- Initial December 2010 survey

18,333 household responses to 42-question survey

Out-of-scope and incomplete answers

- (-) Test group
- (-) Retired households
- (-) Household income >$250K and <$10K
- (-) No financial assets and income greater than Canadian average ($59K)
- (-) Pension contribution >30%
- (-) Savings rate >90%

10,505 household sample used in the initial analysis

- Update July 2011 survey

4,978 of 10,505 households respond to 45 question follow-up survey questions

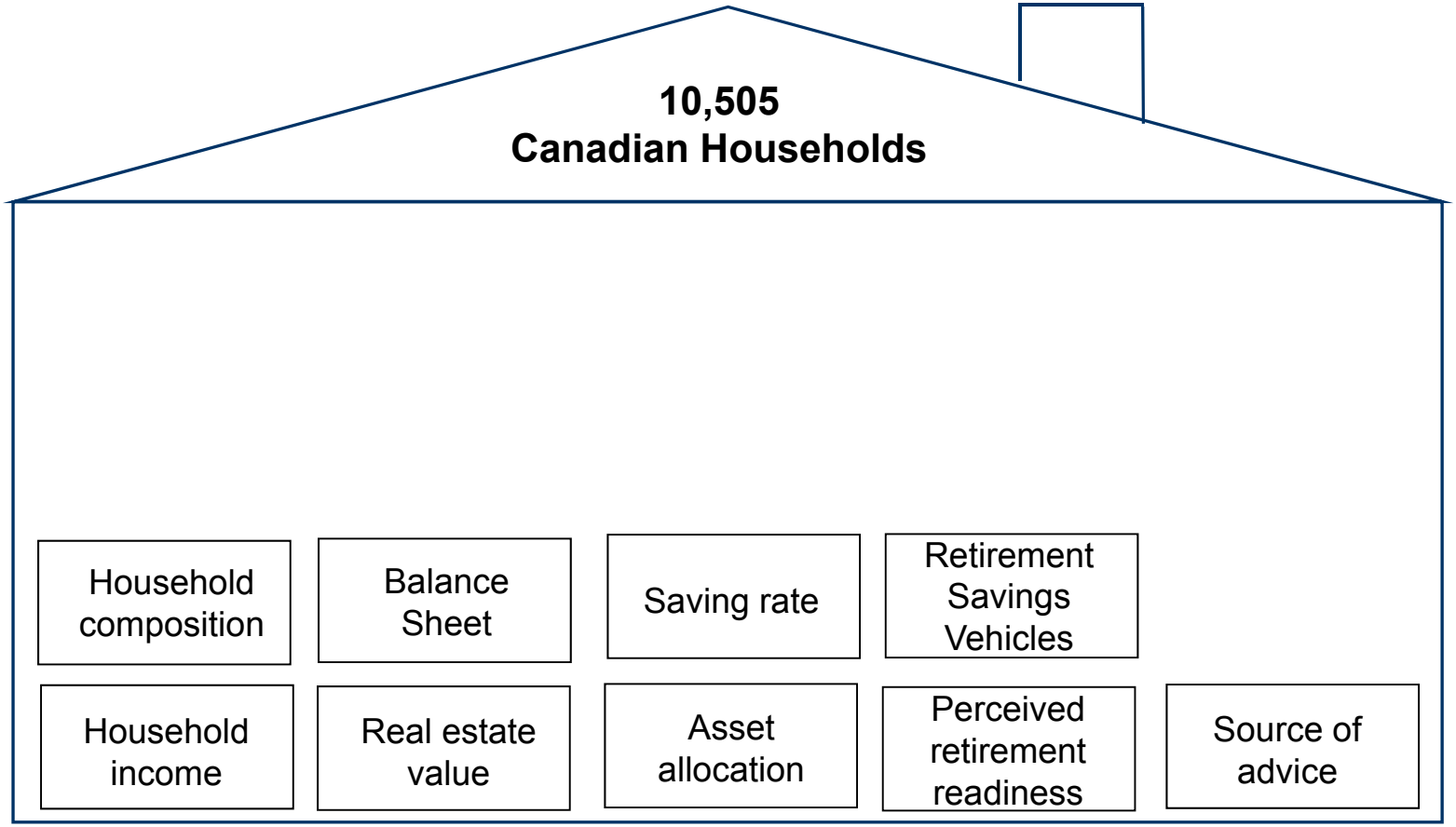
Out-of-scope and incomplete answers

- (-) Inconsistent responses within the survey
- (-) Misinterpreted investment questions
- (-) Survey completion time <10 minutes
- (-) Investment <$1,000
- (-) Expected retirement age <45 years old
- (-) Investment-to-income ratio >50

3,610 households remain in sample used in the analysis

One of the largest and most comprehensive surveys of household financial situation was commissioned in 2010

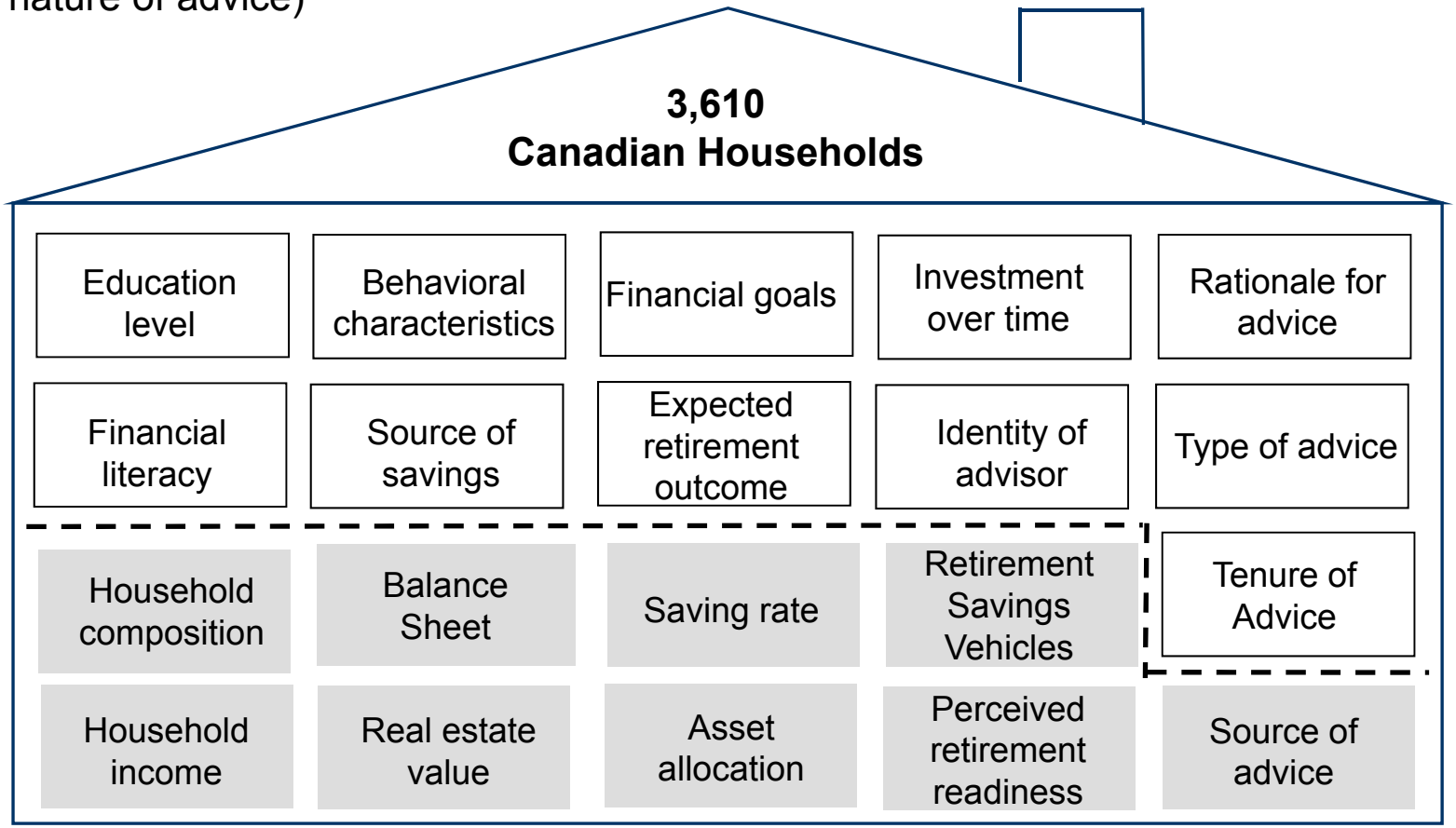
- A national survey of working age households December 2010 conducted by Ipsos Reid
  - 10,505 respondents[1] in a representative sample of the Canadian population
  - Uniquely comprehensive information gathered about financial situation (net worth, savings, long-term investments, use of advice)



1. A total of 18,333 household responses were collected by internet survey, of which 10,505 were retained after adjustments for out-of-scope and incomplete surveys

Six months later, a follow-up survey of these same households added significant detail about their financial situation

- A national re-survey of respondents conducted July 2011 by Ipsos Reid
  - 3,610 respondents[1] in a representative sample of the Canadian population
  - Confirmation of previous responses
  - Significant detail added on Canadians' financial lives (attitudes, behavior, literacy, nature of advice)



1. Of 10,505, A total of 4,978 household responses were collected. After a granular filtering process, for out-of-scope and incomplete answers, a total of 3,610 observations remained.

A selection of the explanatory variables tested

Demographic characteristics

1) Sex
2) Age
- Less than 45
- Between 45 and 54
- Between 54 and 65

3) Post-secondary diploma
4) Financial literacy
5) Risk aversion
6) Preference for investing or receiving cash today
7) Number of income earners
- One
- Two
- Three of more

8) Marital status
- Single
- Couple with children
- Couple without children
- Single parent family

9) Regions

Economic situation

1) Household's annual income
- Less than $35K
- Between $35K and $60k
- Between $60k and $90k
- More than $90k

2) Annual Savings
- More than $0 to $3k
- $3k and $10k
- More than $10k

3) Source of income
- Wages and salaries
- Self-employment income
- Working full time
- Fully retired
- Workplace pension

4) Employment sector
- Good-producing industries
- Service-producing industries
- Public administration

5) Minimum living needs at retirement
- Less than 40%
- 50%
- 60%
- 70%
- More than 80%

6) Willingness to save for retirement

Advice Thresholds

1) Level of financial assets requires to seek advice

Tenure of Advice

1) Tenure of advice
- Less than 4 yrs
- Between 4 and 6 yrs
- Between 7 and 14 yrs
- 15 years and more

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The survey population by investor type

Total Sample
3,610 (100%)

Advised Households
1,785 (49%)

- Use a financial advisor

Tenure < 4 years
- 340 households (19% of advised)

Tenure 4-6 years
- 308 households (17% of advised)

Tenure 7-14 years
- 642 households (36% of advised)

Tenure >15 years
- 495 households (28% of advised)

Non-Advised households
1,825 (51%)

- Do not use a financial advisor

Non-Advised
1,598 (44%)

- 81% of non-advised believe they do not have enough money to need advice
- 68% of non-advised believe financial advice is too expensive
- 13% of non-advised declare they will never save for retirement

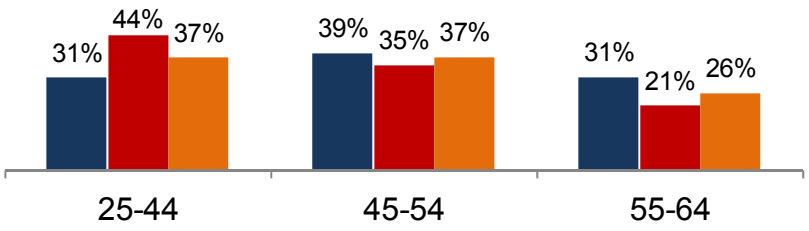
Traders
227 (6%)

- Self-manage their investments
- 100% of traders declare their own investment decisions and planning are their main source of advice
- 100% of traders do not use a financial advisor because they are capable of managing their investment

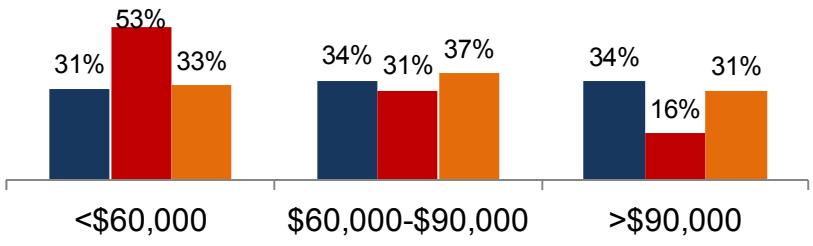
The three investor segments have distinct demographic characteristics

Advised | **Non-Advised** | **Traders**

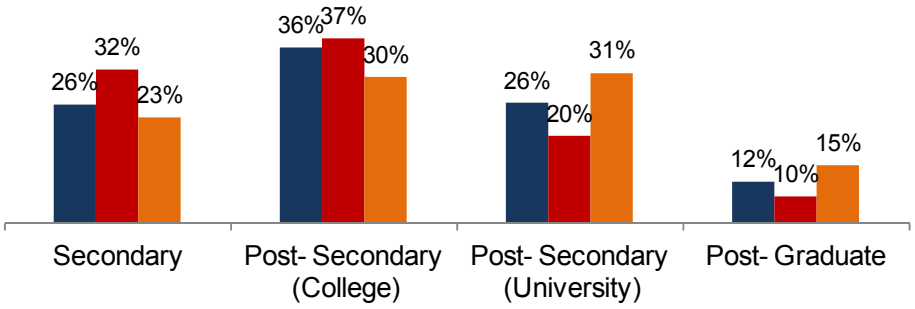
Age



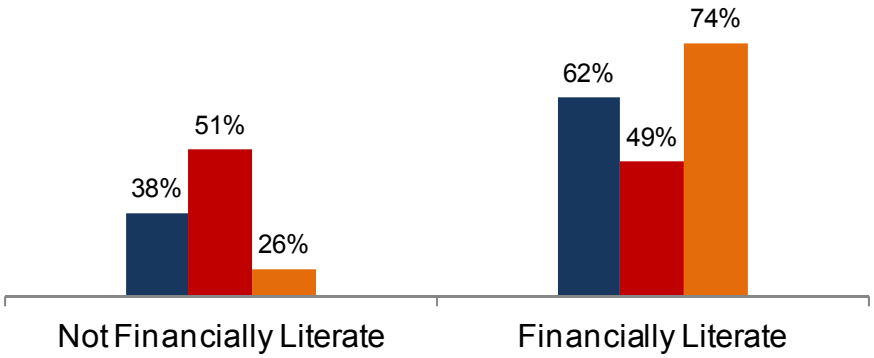
Income



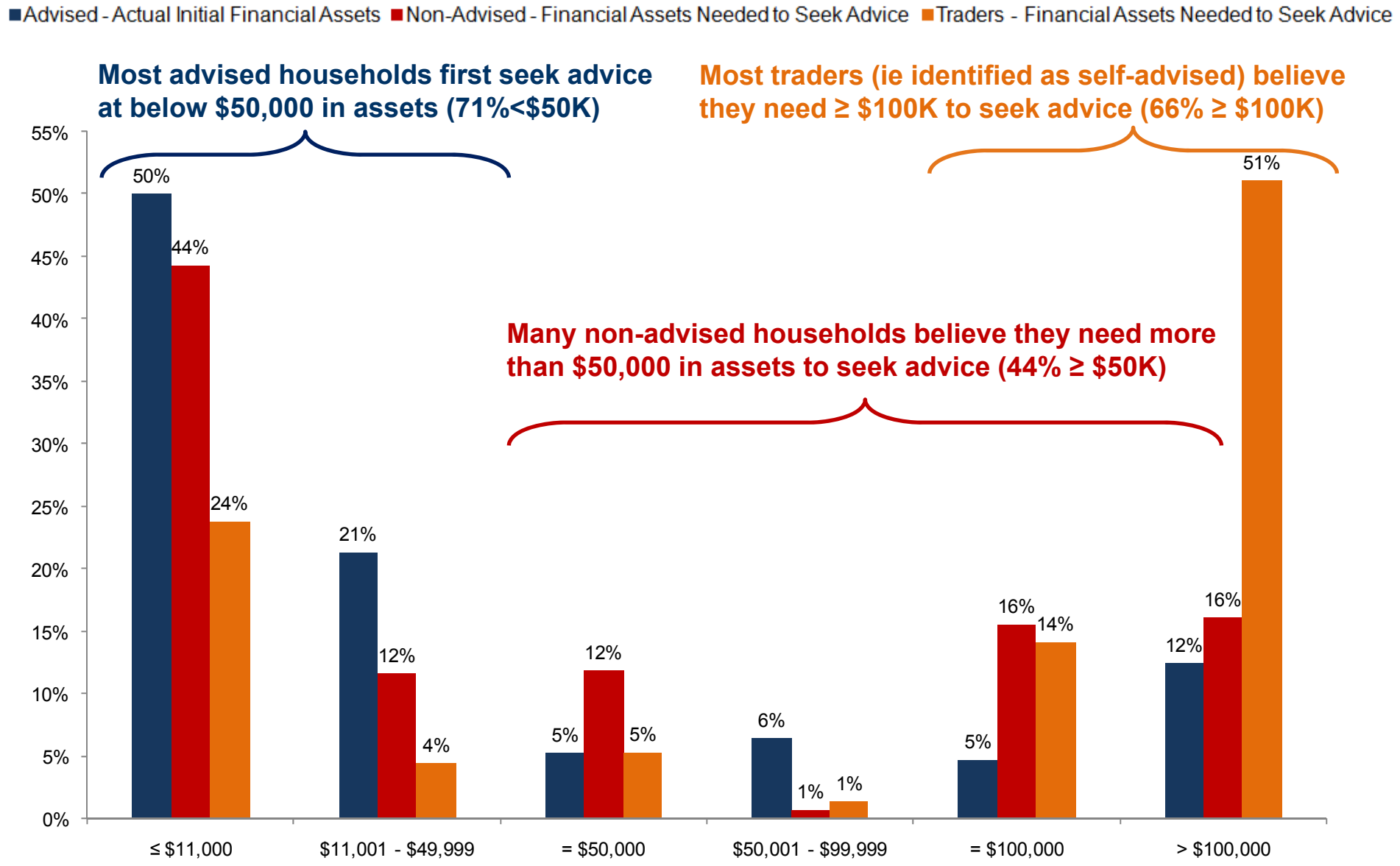
Education



Financial Literacy

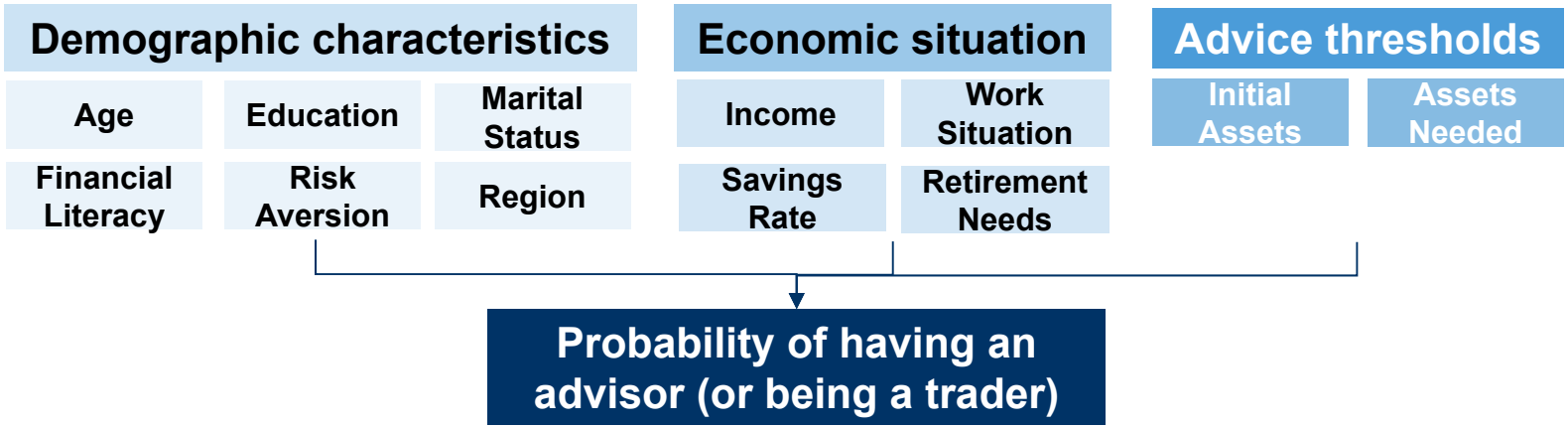


The attitude towards advice seeking appears to be a key variable



Note: "Actual value of initial assets" and "Perceived value of assets needed" represents median investment

Equation 1 Why do households use financial advice?



- The use of financial advice depends on several groups of factors
  - Demographic characteristics
  - Economic situation
  - Advice-seeking thresholds
- Thresholds for advice-seeking prove to be a key variable
  - The decision to seek advice is a choice made by households given their demographic and economic situation
  - The survey results captured attitudes of respondents to advice-seeking
    - Advised: starting financial assets when advice was first sought
    - Non-Advised: needed assets to seek advice
    - Traders (self-advised): needed assets to seek advice

The probability of having advice 1) depends on household defined thresholds of assets; and 2) increases with rate of savings and age

Advice thresholds (in $)	▪ Households with greater advice thresholds are less likely to be advised	√ √ √
	▪ Households with greater advice thresholds are more likely to be trader	√ √
Economic situation	▪ Households with income above $90K are more likely to be advised	√ √ √
	▪ The greater the household annual savings, the greater the likelihood of being advised	√ √ √
Demographic characteristics	▪ The greater the age of the household primary income earner, the greater the chances of having an advisor	√ √ √

The probability of having advice 1) depends on household defined thresholds of assets; and 2) increases with rate of savings and age

A probit analysis determined the probability of having an advisor given the known demographic, economic, and attitudinal characteristics of survey respondents

		Probability (Coefficient)	
	Variable	Advised in All Sample	Trader in Non-Advised
A. Advice threshold	Initial assets	-1.62e-06***	
	Assets needed		2.15e-08**
B. Economic situation	Income ≥ $90K	0.416***	0.070
	$0K<savings≤$3K	0.255***	0.500***
	$3K<savings≤$10K	0.444***	0.798***
	Savings>$10K	0.673***	0.956***
C. Demographic characteristics	45 ≤ age < 54	0.294***	0.158
	54 ≤ age < 65	0.535***	0.255**

*Note: Statistical significance is denoted by asterisks (*). At ***, the chance of wrongly making the claim is 1% (1 in 100 or p<0.01). At **, it is 5% (1 in 20 or p<0.05). Surveys are typically evaluated at a 5% threshold*

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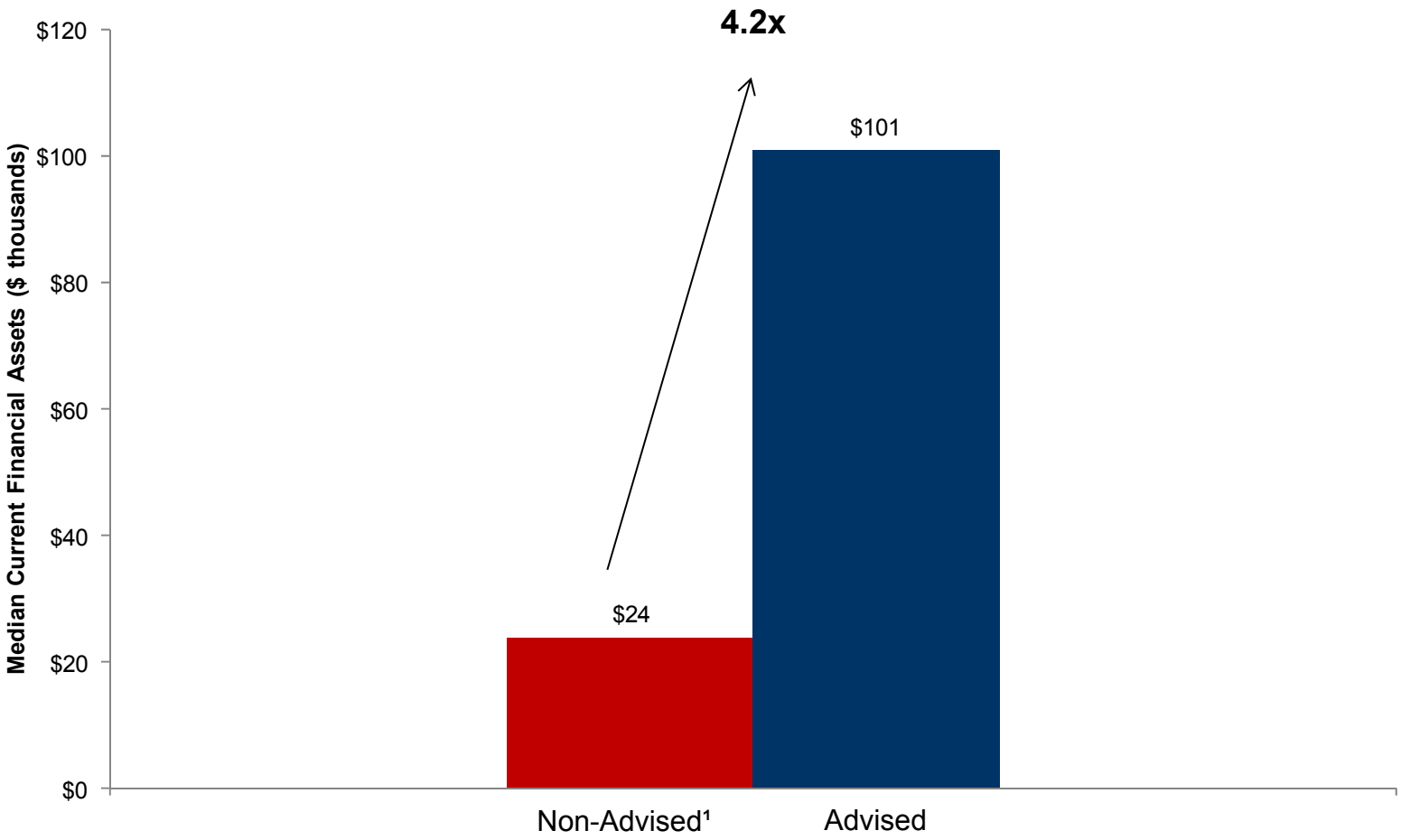
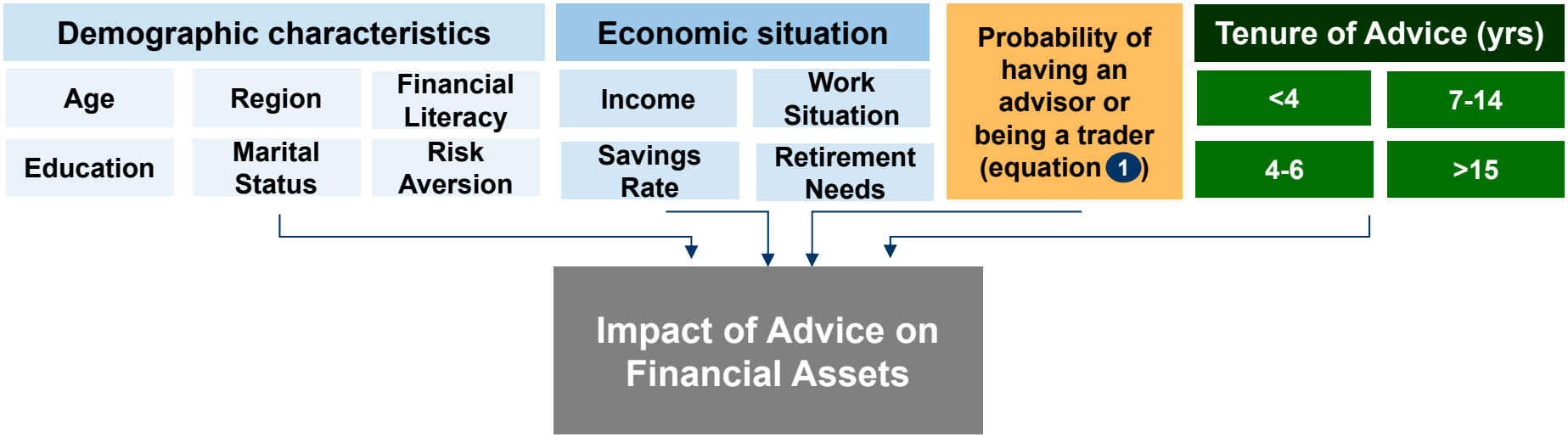
Survey results indicated that advised households have more financial assets than non-advised households



Note: Financial assets includes cash, GICs and term deposits, stocks, bonds, ETFs, investment funds, and other

1. Includes both non-advised and traders (1,825 observations).

Equation 2 What is the value of advice?



- The financial assets level of households depends on several groups of factors
  - Demographic characteristics
  - Economic situation
  - Probability of having an advisor (estimated in equation 1)
  - Tenure of advice received
- The tenure of advice received proves to be a key variable
  - The impact on financial assets increases with tenure of advice
  - The effect is discernible when tenure reaches 4 years
- The financial assets of advised and non-advised households can be compared
  - The asset impact of advice is statistically significant
  - The impact is sizeable but smaller than what raw survey results would suggest

Financial advice has a positive impact on financial assets

Tenure of Advice	▪ Households actively advised for at least 4 years have more financial assets than non-advised households	√ √ √
	▪ The longer the advice tenure, the greater the financial assets	√ √ √
Probability of being advised (or a trader)	▪ It is tenure, not the probability of being advised, that increases assets	NS
	▪ Traders have more financial assets than non-advised households	√ √ √
Economic situation	▪ The greater the household income the greater the financial assets, starting with income levels as low as $35K	√ √ √
Demographic characteristics	▪ The greater the primary income earner age, the greater the assets	√ √ √
	▪ Financial literate households have more financial assets	√ √ √
	▪ Male primary income earners have more financial assets	√ √ √

Financial advice has a positive impact on financial assets

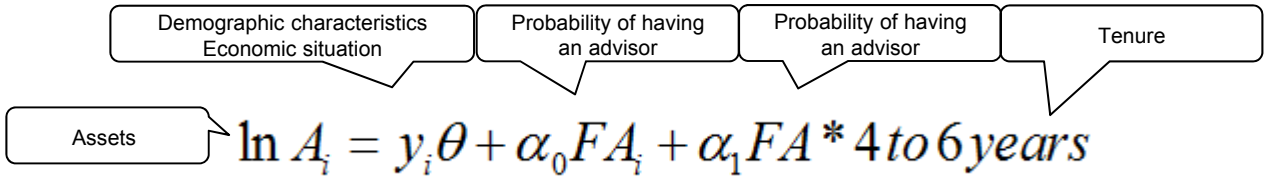
An instrumented linear least squares model creates credible *ceteris paribus* and allows to measure the value of advice holding all other variables constant

	Variable	Ln (Coefficient)	Financial Assets Ratio
A. Tenure of advice	4 to 6 years	0.456***	1.58x
	7 to 14 years	0.687***	1.99x
	15 years or more	1.006***	2.73x
B. Probability of being advised (or a trader)	Probability of being advised	-0.123	
	Probability of being a trader	0.834***	
C. Economic situation	$35K≤income<$60K	0.482***	
	$60K≤income<$90K	1.081***	
	Income≥$90K	1.682***	
D. Demographic characteristics	45 ≤ age < 54	0.586***	
	54 ≤ age < 65	0.950***	
	Financial literate	0.288***	
	Male	0.196***	

*Note: Statistical significance is denoted by asterisks (*). At ***, the chance of wrongly making the claim is 1% (1 in 100 or p<0.01). At **, it is 5% (1 in 20 or p<0.05). Surveys are typically evaluated at a 5% threshold*

The differential impact of advice on financial assets can be assessed

- The assets of a given, advised household (i) was estimated:



- If a given, non-advised household (j) does not have a financial advisor (i.e. FA = 0), the assets would be:

$$\ln A_j = y_j\theta$$

- The Advised household (i) can be compared to the equivalent Non-Advised household (j)

$$\ln A_i - \ln A_j = \alpha_0 + \alpha_1$$

- Which can be re-written as a multiple of advised financial assets vs non-advised financial assets

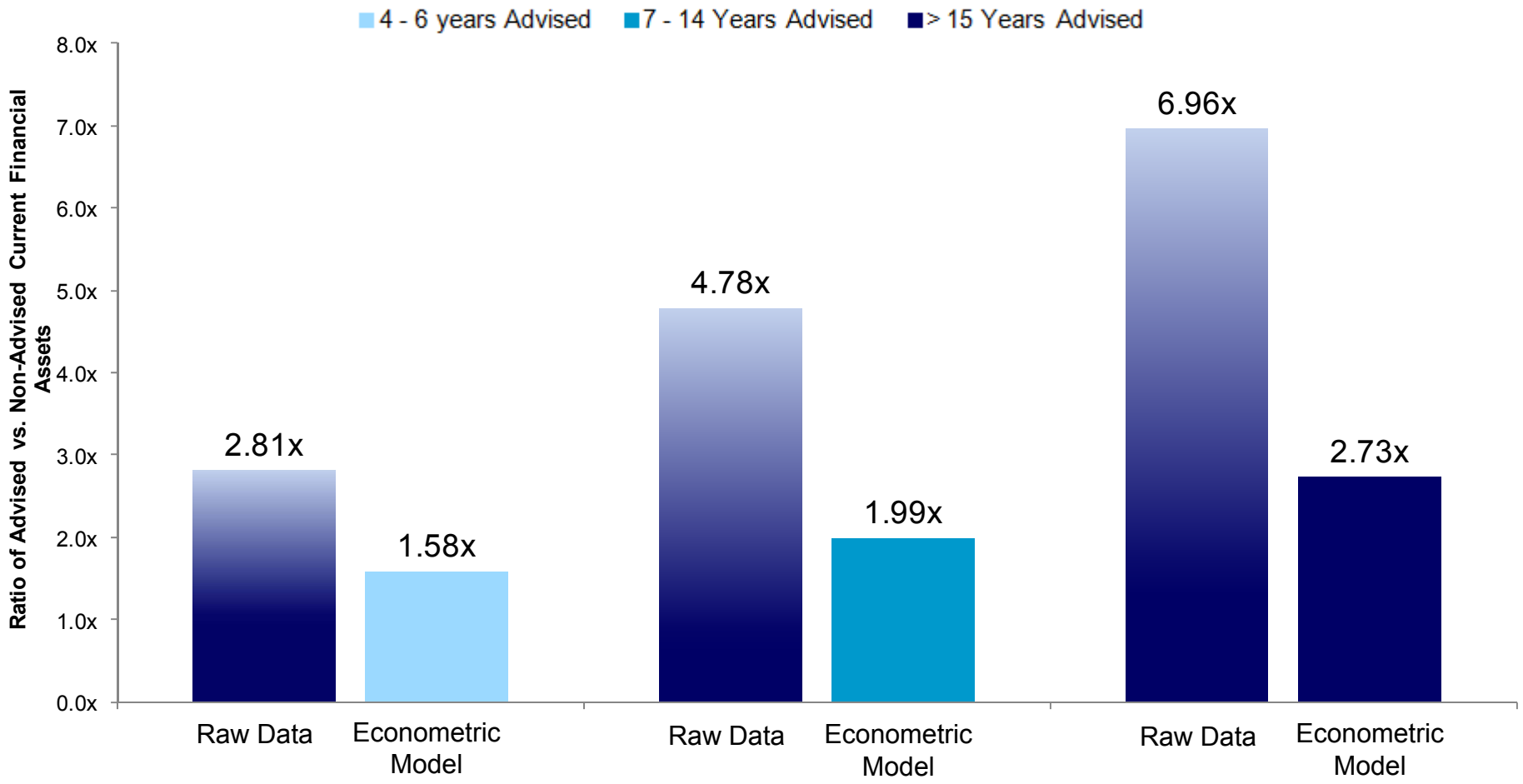
$$A_i / A_j = \exp(\alpha_0 + \alpha_1)$$

- By way of example, where α_0 = approximately 0 (5% level of confidence), ar $\alpha_1 = 0.456$

$$A_i / A_j = \exp(\ 0.456\ )$$

$$A_i / A_j = \ 1.58$$

Advice has a sizeable, positive impact on financial assets that grows with tenure, even when controlling for the probability of having advice and all other variables



Median Current Financial Assets ($ thousands)

	4-6 Years			7-14 Years			> 15 Years	
Advised (observed)	$68	$68	**1.58x**	$115	$115	**1.99x**	$167	$167 **2.73x**
Non-Advised[1]	$24	$43 *Implied*		$24	$58 *Implied*		$24	$61 *Implied*

Note: Financial assets includes cash, GICs and term deposits, stocks, bonds, ETFs, investment funds, and other

1. Includes both non-advised and traders (1,825 observations).

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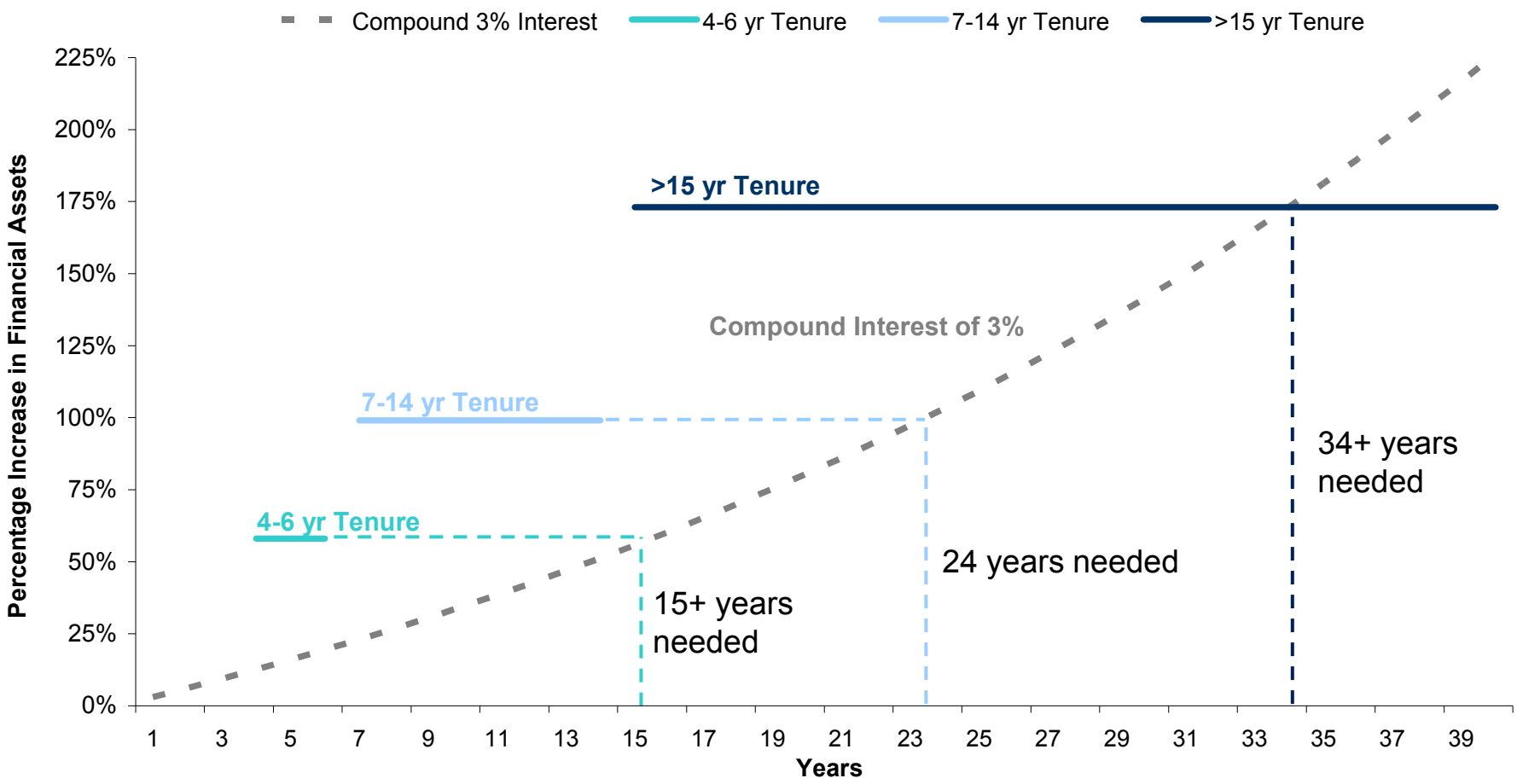
Why is there value in advice?

- Assuming advised households achieve 3% higher net return[1] over non-advised households



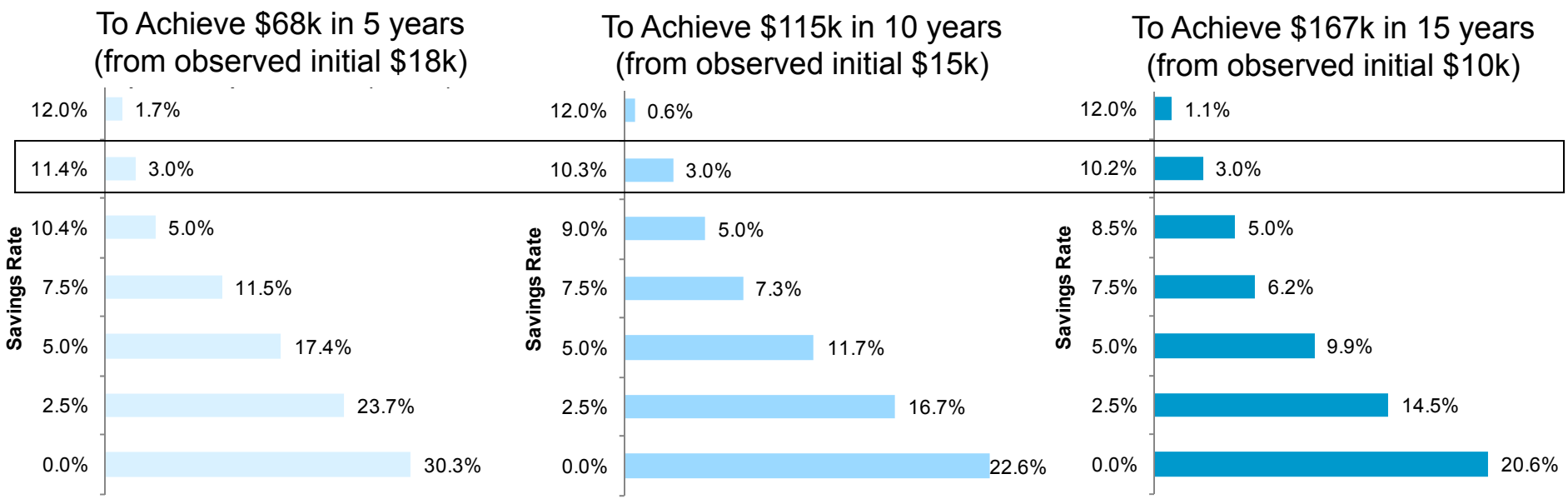
1. Aon Hewitt and Financial Engines report "Help in Defined Contribution Plans: 2006 through 2010."

Consistent, higher savings are likely to be important for financial assets accumulation

Observed Savings Behavior

	4 – 6 Year Advice Tenure	7 – 14 Year Advice Tenure	> 15 Year Advice Tenure	Total
Advised	8.3%	8.6%	8.6%	8.6%
Passive Non-Advised[1]	na	na	na	4.3%
Traders	na	na	na	10.4%

Required Annual Savings to Achieve the Observed Financial Asset Level of Advised Households



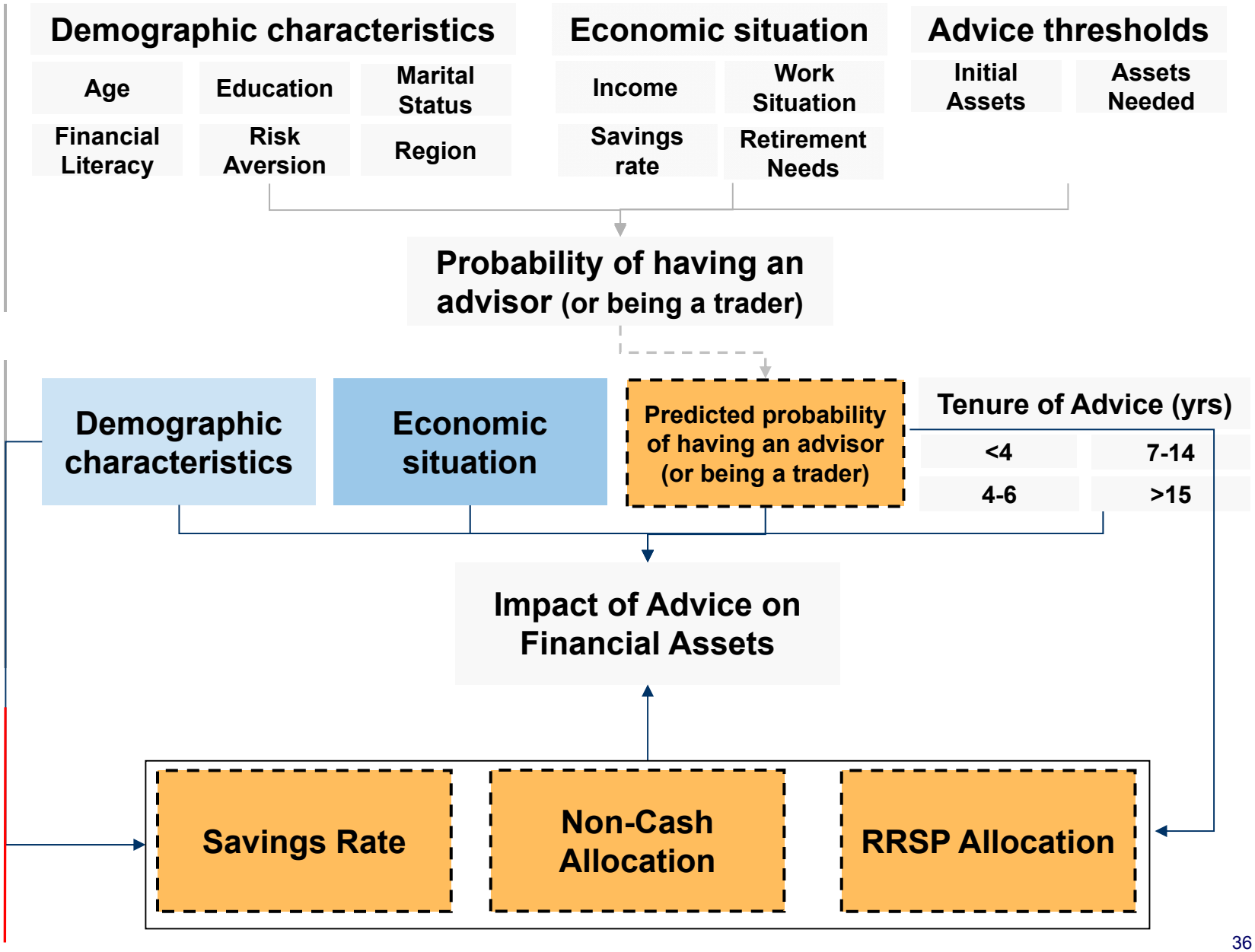
1. Excludes traders (1,598 observations).

Equation 3 Why is there value in advice?

1. Why do households use financial advice?

2. What is the value of advice?

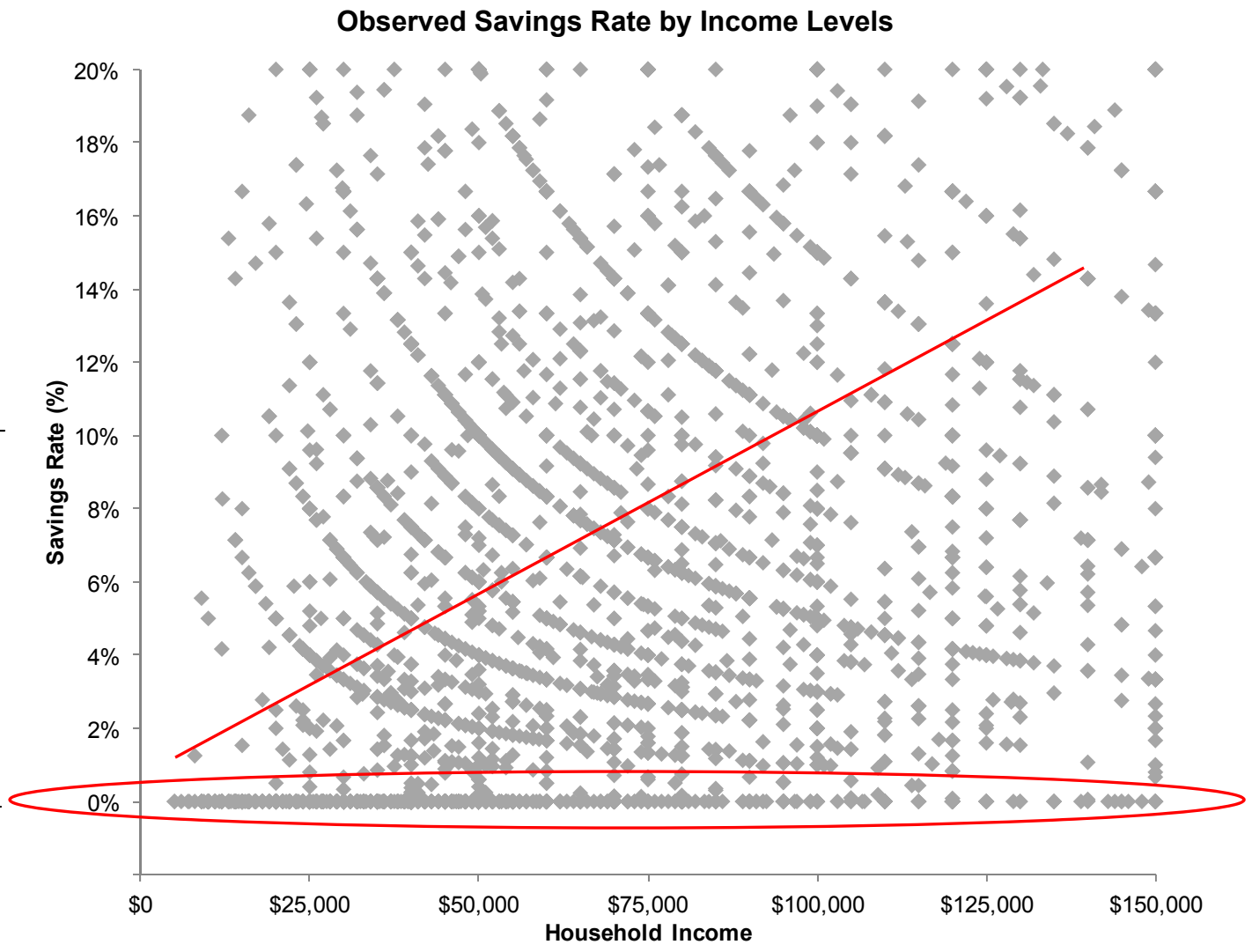
3. Why is there value in advice



3A Impact of advice through savings discipline was analyzed on two fronts 1) probability of saving rate being non-zero, and 2) magnitude of savings

2) Factors impacting the magnitude of the savings rate via Tobit Type II analysis

1) Probability of savings being non-zero via Probit analysis



3A Among behavioral disciplines (savings rate, non-cash allocation, tax efficiency of savings), savings are most affected by the presence of advice

Probability of being advised (or a trader)	▪ Advised households are more likely to save than non-advised	√ √ √
	▪ Advised households save more than non-advised households	√ √ √
	▪ Traders are more likely to save than non-advised	√ √ √
Economic situation	▪ The greater the household income the greater the probability to save, starting with income levels as low as $35K	√ √ √
Demographic characteristics	▪ The greater the age, the lower the likelihood to save	√ √ √
	▪ Couples with no children are less likely to save	√ √ √
	▪ Couples with no children save less	√ √ √

3A Among behavioral disciplines (savings rate, non-cash allocation, tax efficiency of savings), savings are most affected by the presence of advice

- Of the three behavioral disciplines, savings rates were impacted by the presence of advice in a statistically significant way on the basis of the following analyses:
  - 1) Probability of savings being non-zero via Probit analysis
  - 2) The factors impacting savings rate via Tobit Type II analysis

	Variable	Probability (Coefficient)	Regression (Coefficient)
A. Probability of being advised (or a trader)	Probability of being advised	1.421***	0.059***
	Probability of being a trader	6.710***	0.023
B. Economic situation	$35K≤income<$60K	0.343***	-0.130
	$60K≤income<$90K	0.689***	-0.020*
	Income≥$90K	0.872***	-0.011
C. Demographic characteristics	45 ≤ age < 54	-0.240***	-0.016***
	54 ≤ age < 65	-0.407***	-0.009
	Couples with no children	-0.456***	-0.028***

*Note: Statistical significance is denoted by asterisks (*). At ***, the chance of wrongly making the claim is 1% (1 in 100 or p<0.01). At **, it is 5% (1 in 20 or p<0.05). Surveys are typically evaluated at a 5% threshold*

3B Savings rate and non-cash allocation ratios improve the level of financial assets

The instrumented value of the savings rate, non-cash allocation ratio, and RRSP ratios from equation 3A were modeled to predict the level of assets

- From results in 3A and 3B, the effect of having a financial advisor on the level of financial assets was isolated and inferred that respondents with a financial advisors have 2.06x the level of financial assets of comparable non-advised respondents

		Variable	Regression (Elasticity Estimate)
A. Savings rate	▪ The greater the household savings rate, the greater the financial assets	Savings rate (%)	5.678***
B. Non-cash allocation	▪ Greater allocation into non-cash investment vehicles increases the value of financial assets	Allocation into non-cash assets (%)	6.240***
C. RRSP allocation	▪ Greater allocation in RRSP vehicles does not have a statistically significant impact	Allocation into RRSP assets (%)	-0.238

*Note: Statistical significance is denoted by asterisks (*). At ***, the chance of wrongly making the claim is 1% (1 in 100 or p<0.01). At **, it is 5% (1 in 20 or p<0.05). Surveys are typically evaluated at a 5% threshold*

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Households perceive the value of advice in numerous forms

Economic models determined that advised households:

- Feel more confident they will have enough money to retire comfortably
- Perceive positively their financial advisors
- Have a higher level of trust towards financial advisors
- Are satisfied with the services and advice received

Advised households feel confident they will retire comfortably

Tenure of Advice	▪ Households actively advised for at least 10 years are more likely to feel confident they will retire comfortably	√
Probability of being advised (or a trader)	▪ Advised households are more likely to be confident towards retirement	√ √ √
	▪ Traders are more likely to be confident about retirement readiness	√ √ √
Economic situation	▪ The greater the income, the greater the probability of being confident towards retirement, starting with income levels as low as $35K	√ √ √
	▪ Households with a workplace pension are more likely to feel confident	√ √ √
Demographic characteristics	▪ The greater the age, the lower the likelihood of feeling confident towards retirement readiness	√ √ √

Advised households feel confident they will retire comfortably

Simultaneous probit models determined if being advised influences the probability of being confident to have enough money to retire comfortably

	Variable	Probability (Coefficient)
B. Tenure of advice	10 years or more	0.111*
A. Probability of being advised (or a trader)	Probability of being advised	1.091*** (1)
	Probability of being a trader	1.902***
C. Economic situation	$35K≤income<$60K	0.262***
	$60K≤income<$90K	0.494***
	Income≥$90K	0.651***
	Workplace pension	0.187***
D. Demographic characteristics	45 ≤ age < 54	-0.254***
	54 ≤ age < 65	-0.338***

*Note: Statistical significance is denoted by asterisks (*). At ***, the chance of wrongly making the claim is 1% (1 in 100 or p<0.01). At **, it is 5% (1 in 20 or p<0.05). Surveys are typically evaluated at a 5% threshold.*

1. In other words, the probability of a respondent with an advisor to be confident about his or her retirement is on average 13 percentage points higher than for an average comparable non-advised respondent.

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Conclusions

- Ceteris paribus, the presence of advice has subjective impacts that are statistically highly significant
  - Retirement readiness
  - Satisfaction, confidence and trust in financial advice
- Advised households seek advice with modest levels of financial assets, confirming previous IFIC survey work
- Segmenting the survey sample by advice-seeking thresholds is important to understand behaviors
  - Non-advised households' more variable and higher thresholds suggest a potential advice perception problem
  - Traders' high thresholds suggest that segmenting the non-advised population is important
- Ceteris paribus, the presence of advice has financial impacts that are statistically highly significant
  - Sizeable and positive for financial asset, which increases with the tenure of advice
  - Sizeable and positive for savings rates, which in turn impacts financial assets

Thank You

Appendix

CIRANO – Mission

- Claude Montmarquette, President and CEO
- 180 professor-researchers active in a variety of disciplines
- Two-fold mission
  - Research focused on public policy, risk, finance, sustainable development
  - Liaison/transfer of cutting edge knowledge to public/private organizations

Academic Partners

Université Concordia University

McGill

Université Laval

Université de Sherbrooke

Université de Montréal

École Polytechnique Montréal

UQÀM

Université du Québec

CIRANO – Public and Private Partners

Public Sector Partners

Private Sector Partners

CIRANO – Claude Montmarquette

- CEO & President of CIRANO
- Professor Emeritus, Department of Economics, at Université de Montréal
  - Bell – CDPQ Chair of Experimental Economics
  - Ph.D from the University of Chicago
- Author or editor of 8 books, 75 scientific publications, and 55 public documents
- Relevant domains of interest
  - Applied econometrics
  - Econometrics of Education & Human Resources
  - Experimental economics
- Selected scientific publications
  - Loan Aversion among Canadian High School Students (Nov 2011)
  - Competitive Insurance Markets and Adverse Selection in the Lab (Aug 2010)
  - Willingness to Pay to Reduce Future Risk (Aug 2009)
  - Tax Evasion: Cheating Rationally or Deciding Emotionally? (Oct 2007)
  - Individual Responsibility and the Funding of Collective Goods (Sept 2007)