Comparative Analysis of the Relative Impact of Two Stimuli on DC Participant Deferral Rates:

Probability of A Successful Retirement versus Replacement Ratio

Prepared by Boston Research Technologies

Prepared for:

EBRI

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Introduction

Much attention has been given to providing DC participants with information regarding their likelihood of having adequate retirement income. We know, however, that it is very difficult for participants to understand the meaning of that information and translate it into changes in employee behavior.

The research question is whether or not this information causes a behavioral change regarding deferral rate and retirement age. To address this issue we give one set of DC participants their projected replacement rate based on their actual circumstances and a second set the probability of NOT running short of money in retirement .

In each case we provided information on the impact of changing the contribution rate and. Armed with this information, participants are asked to describe their reaction to the information and their intent to alter their savings behavior.

Methodology

Two separate, but demographically similar samples of approximately 550 DC participants MSE ~ +/-4 percentage points.

Limited to ages 25-60.

Actively contributing to a DC plan.

Full time, part-time or contract workers.

On-line survey using a national sample procured from Survey Sampling International.

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Methodology (con't)

Questionnaire and study design jointly developed by BRT and EBRI.

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Methodology (con't)

Both samples self -reported their:

- **Age**
- **Current deferral rate**
- **Employer contribution**
- **Personal total income from their plan sponsor**
- **DC account balance in their current employer's plan**

Methodology (con't)

One sample was shown their replacement ratio.

The other sample was shown their probability of not running short of money throughout retirement.

Both estimates were based on the EBRI Retirement Security Projection Model.

Subsequently, respondents were shown a table describing the impact of various deferral rate increases and decreases on the metric they were shown.

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Methodology (con't)

Projected probabilities of not running out of money throughout retirement from the sample self-reported data were similar to the EBRI projections for the same demographic cohort based on data reported by recordkeepers.

	EBRI RSPM	Survey Data
Projected Probability of Success		
100%	22%	17%
90%-100%	35%	48%
Less than 50%	26%	17%

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Stimuli – Probability of Success

Based on your answers, the chance of your workplace retirement savings plan combined with Social Security providing you with enough income to NOT run short of money throughout your retirement is ____%.

The table below shows your chances that your current workplace retirement savings plan combined with Social Security will provide you with enough income to NOT run short of money at different percentages of your income that is contributed in total between you and your employer each pay period. Based on this information, what changes, if any are you likely to make to the percentage of your pay you contribute to your workplace retirement savings plan, if any?

Stimuli – Probability of Success

If I change the percent of my pay that is contributed in the following way:	...then the combination of my workplace retirement savings plan and Social Security will give me the chance of having a successful retirement of:
Decrease by 10 percentage points	71%
Decrease by 9 percentage points	73%
Decrease by 8 percentage points	76%
Decrease by 7 percentage points	78%
Decrease by 6 percentage points	80%
Decrease by 5 percentage points	82%
Decrease by 4 percentage points	83%
Decrease by 3 percentage points	85%
Decrease by 2 percentage points	86%
Decrease by 1 percentage points	87%
No change	**88%**
Increase by 1 percentage points	89%
Increase by 2 percentage points	89%
Increase by 3 percentage points	90%
Increase by 4 percentage points	90%
Increase by 5 percentage points	91%
Increase by 6 percentage points	91%
Increase by 7 percentage points	92%
Increase by 8 percentage points	92%
Increase by 9 percentage points	93%
Increase by 10 percentage points	93%

Stimuli – Replacement Ratio

Based on your answers, your workplace retirement savings plan, combined with projected Social Security benefits is estimated to provide you with ____% of your pre-retirement income throughout your retirement.

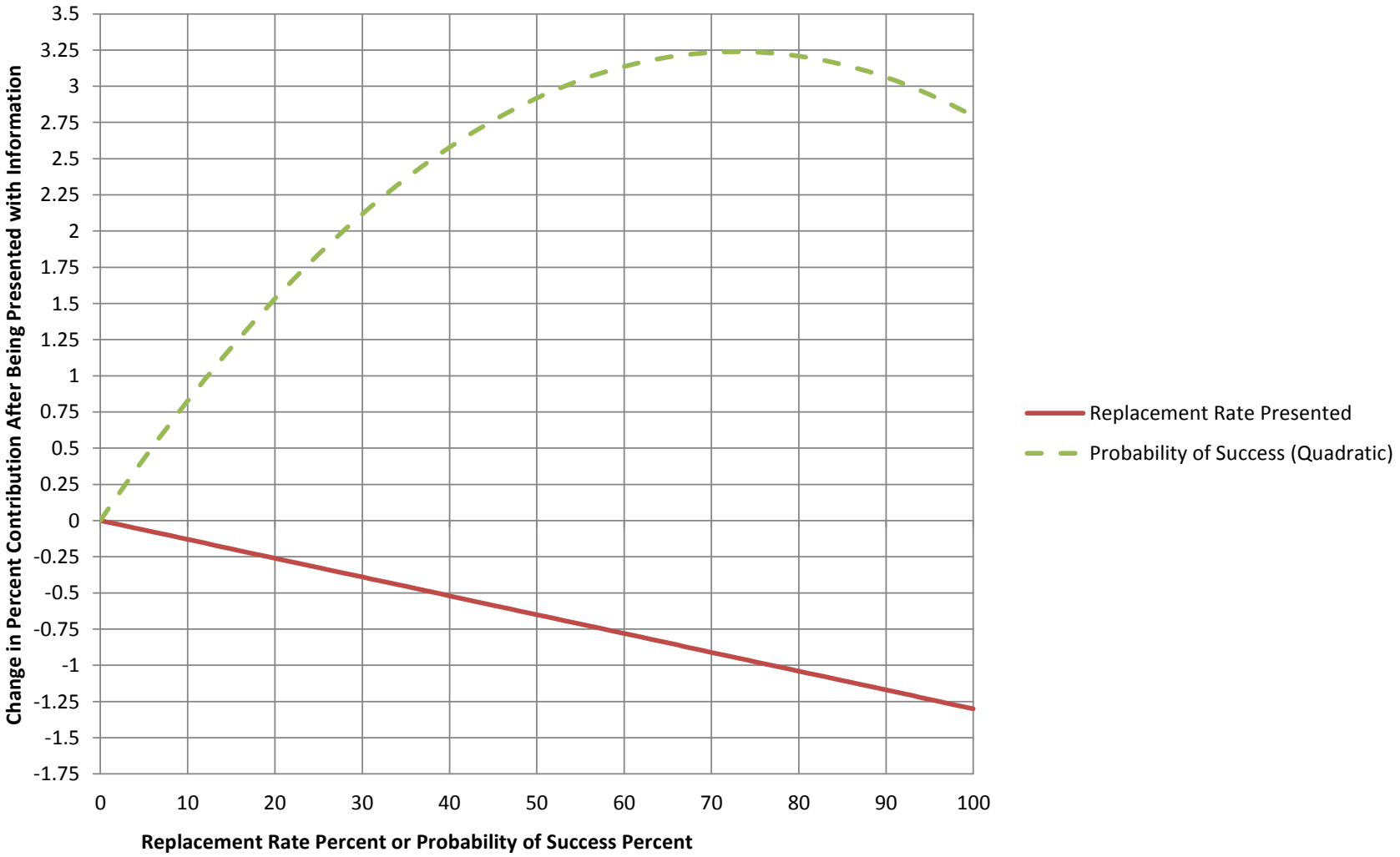
The table below shows the percentage of your pre-retirement income that the combination of your workplace retirement savings plan and Social Security will provide you at different percentages of your income that is contributed in total between you and your employer each pay period. Based on this information, what changes, if any, are you likely to make to the percentage of your pay you contribute to your workplace retirement savings plan?

Stimuli – Replacement Ratio

If I change the percent of my pay that is contributed in the following way:	...then the percentage of my pre-retirement income that the combination of my workplace retirement savings plan and Social Security will provide throughout my retirement is....
Decrease by 6 percentage points	48%
Decrease by 5 percentage points	50%
Decrease by 4 percentage points	53%
Decrease by 3 percentage points	55%
Decrease by 2 percentage points	57%
Decrease by 1 percentage points	59%
No change	**62%**
Increase by 1 percentage points	64%
Increase by 2 percentage points	66%
Increase by 3 percentage points	69%
Increase by 4 percentage points	71%
Increase by 5 percentage points	73%
Increase by 6 percentage points	75%
Increase by 7 percentage points	78%
Increase by 8 percentage points	80%
Increase by 9 percentage points	82%
Increase by 10 percentage points	84%

KEY CONCLUSIONS

Impact of Stimuli on Change in Contribution Percent - Nonlinear Analysis



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Power of the Models in Predicting Change in Deferral Rate

Probability of Success Model

Probability of Success NOT included in the model – linear model:

9.2% of variability in the deferral changes explained

Probability of Success INCLUDED in the model – curvilinear model

11.3% of variability in the deferral changes explained

Weak marginal improvement due to success probability

Age and income not significant predictors of change

Power of the Models in Predicting Change in Deferral Rate

Replacement Ratio Model

Total variability in changes in deferral rate explained by the model: 18.7%

Age, Income, Contribution Percent, and Current Balance account for 17.6%

Replacement Ratio explained, by itself: 1.1% of variance

No curvilinear relationships found in the data

Weaker marginal improvement due to replacement ratio

Age and income not significant predictors of change

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Power of the Models in Predicting Change in Deferral Rate

Conclusion:

Probability of success has a positive impact on deferral rate, appears to be a motivating and intuitive metric

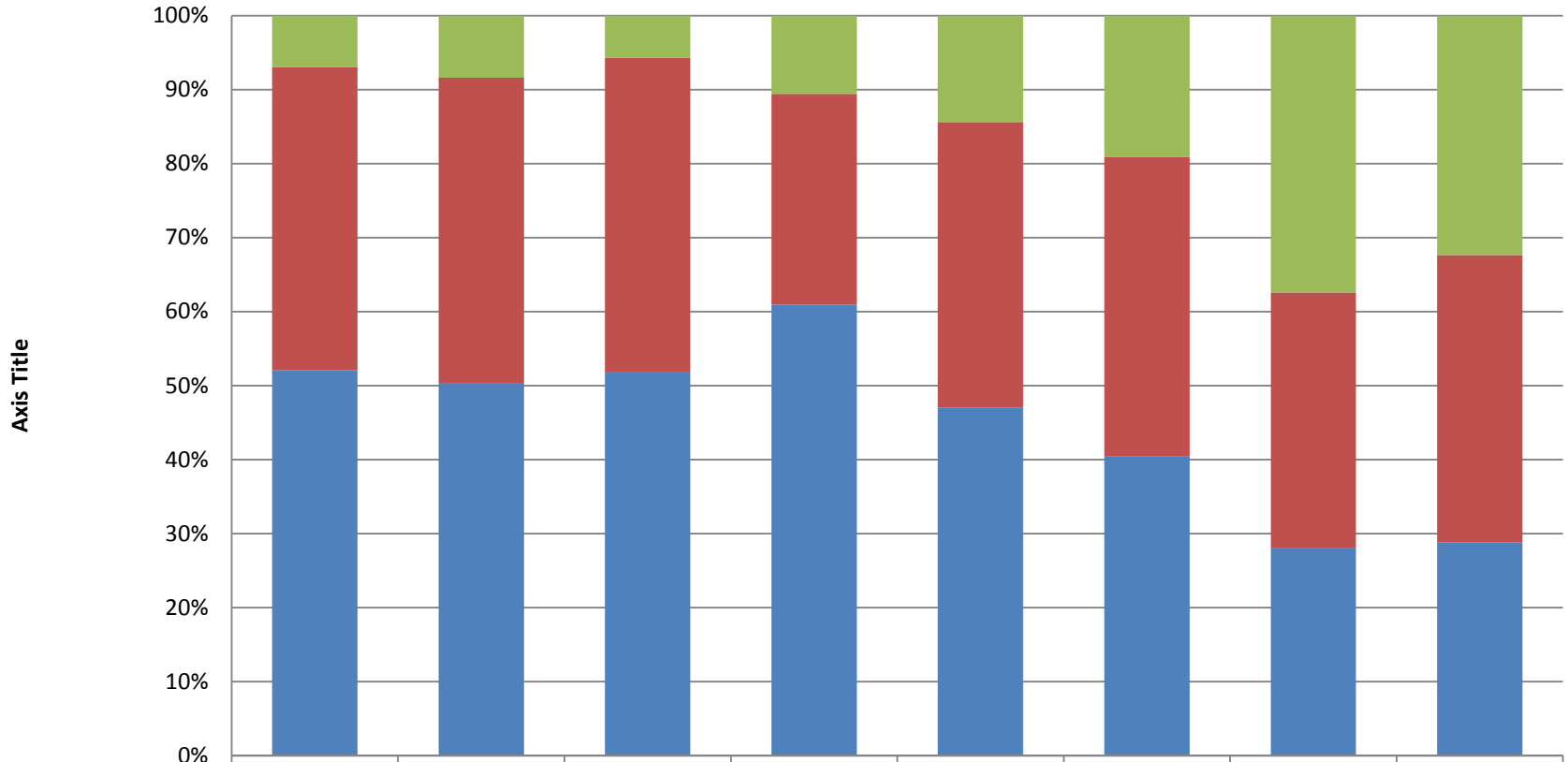
Retirement replacement ratio has a slightly negative impact on deferral rate, may not be as intuitive

However, the power of both metrics is very weak

Other factors such as cognitive biases, cognitive errors, framing and heuristics are likely major drivers of change in deferral rate and overwhelm both test metrics

DETAILED DEMOGRAHIC FINDINGS

Distribution of Type (+/-) of Contribution Change by Quartile of Each Projected Metric



	1		2		3		4	
	rr	RRR	rr	RRR	rr	RRR	rr	RRR
Sum of decrease	6.9%	8.4%	5.7%	10.6%	14.4%	19.1%	37.4%	32.4%
Sum of no change	41.0%	41.3%	42.6%	28.5%	38.6%	40.5%	34.5%	38.8%
Sum of increase	52.1%	50.4%	51.8%	60.9%	47.0%	40.5%	28.1%	28.8%

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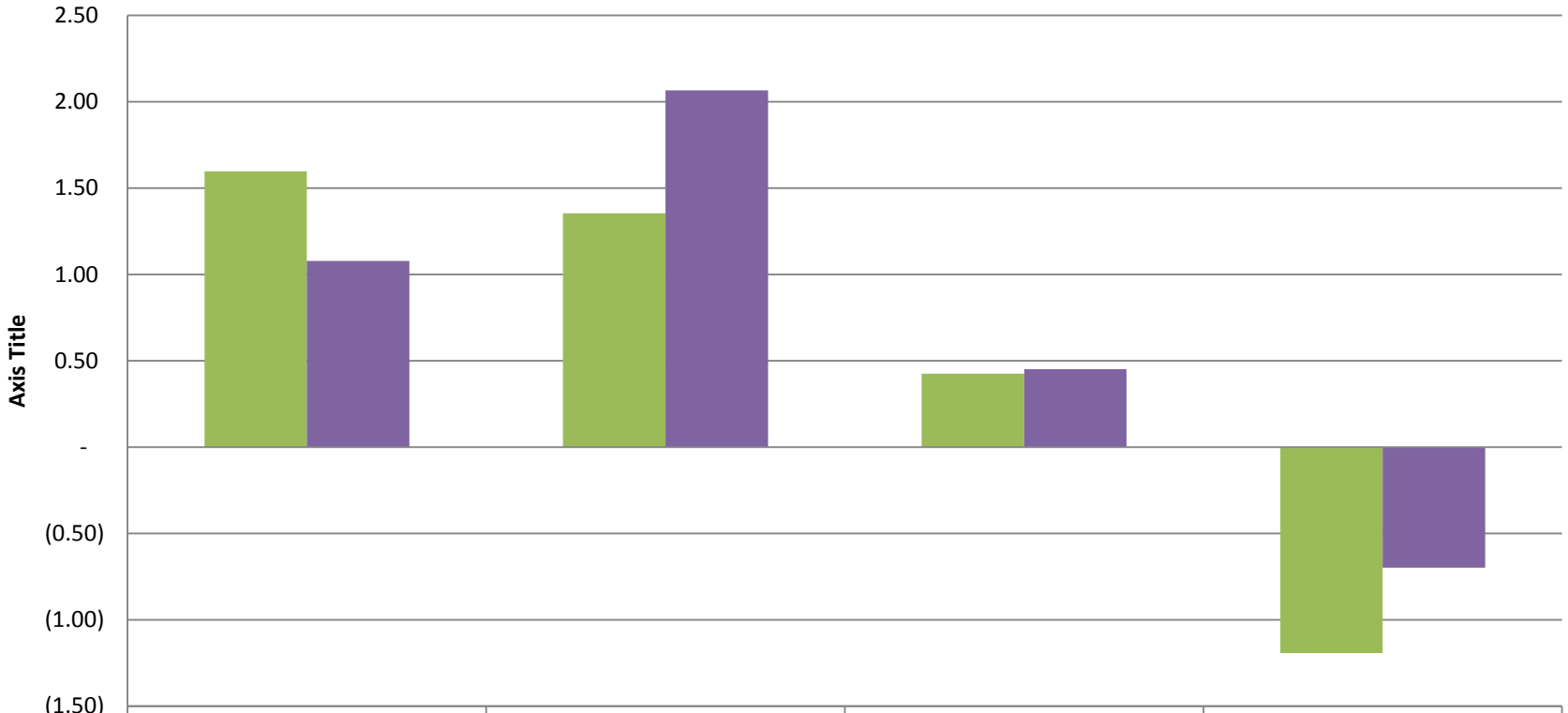
Average change in contributions by quartile of rr/rrr (includes zeroes)



	1	2	3	4
rr	1.60	1.35	0.42	(1.19)
RRR	1.08	2.07	0.45	(0.70)

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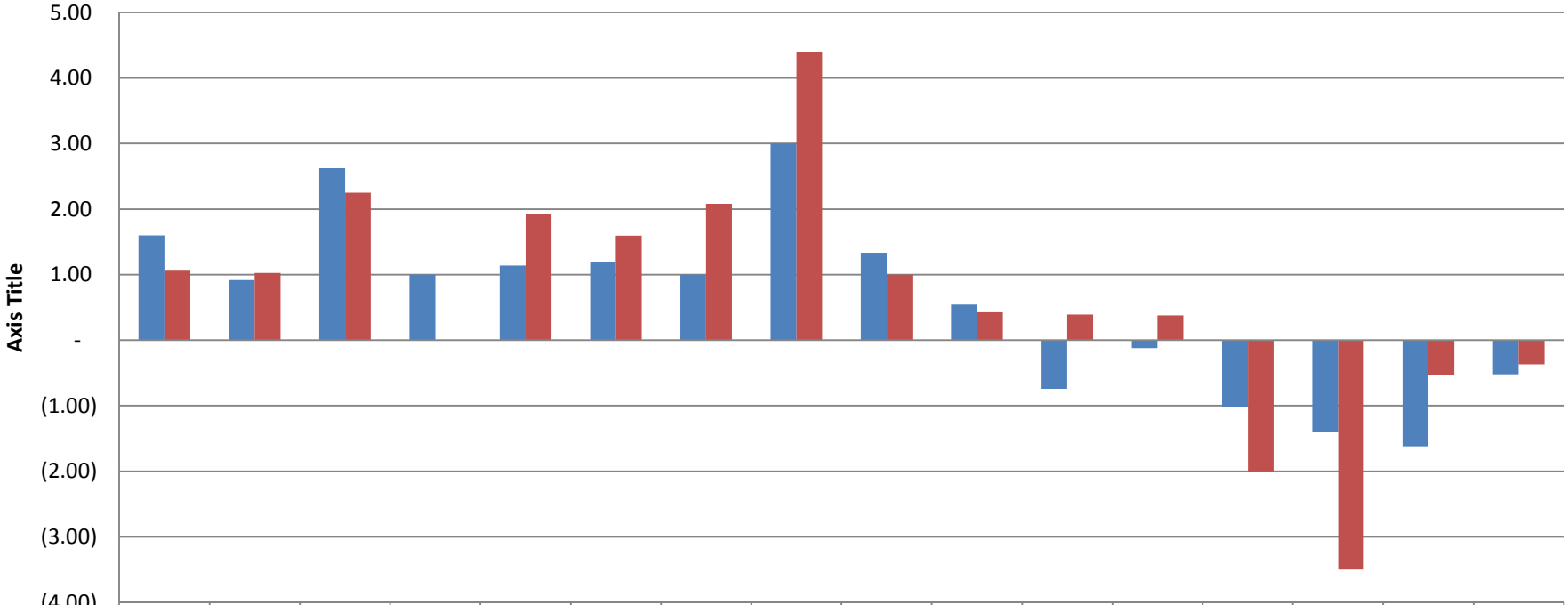
2397

Average change in contributions by income and quartile of rr/rrr



	low income	2	3	high income	low income	2	3	high income	low income	2	3	high income	low income	2	3	high income
	1				2				3				4			
rr	1.60	0.92	2.63	1.00	1.14	1.19	1.00	3.00	1.33	0.54	(0.74)	(0.12)	(1.03)	(1.41)	(1.62)	(0.52)
RRR	1.06	1.03	2.25	-	1.92	1.59	2.08	4.40	1.00	0.43	0.39	0.38	(2.00)	(3.50)	(0.54)	(0.37)

Note: income quartiles set at 40k, 65k and 100k

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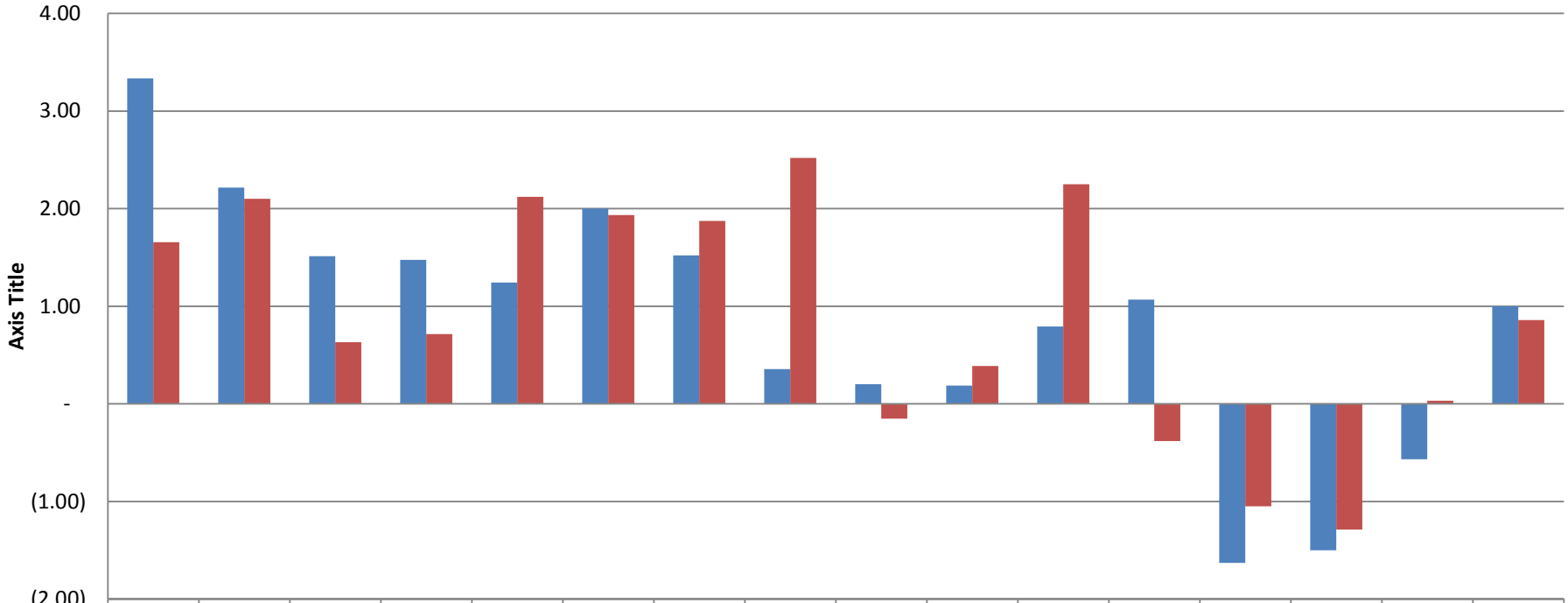
Average change in contributions by age and quartile of rr/rrr



	young	2	3	old	young	2	3	old	young	2	3	old	young	2	3	old
	1				2				3				4			
rr	3.33	2.21	1.51	1.48	1.24	2.00	1.52	0.36	0.20	0.19	0.79	1.07	(1.63)	(1.50)	(0.57)	1.00
RRR	1.66	2.10	0.63	0.71	2.12	1.93	1.88	2.52	(0.15)	0.39	2.25	(0.38)	(1.05)	(1.29)	0.03	0.86

age quartiles are based on breaks at 32, 40 and 50

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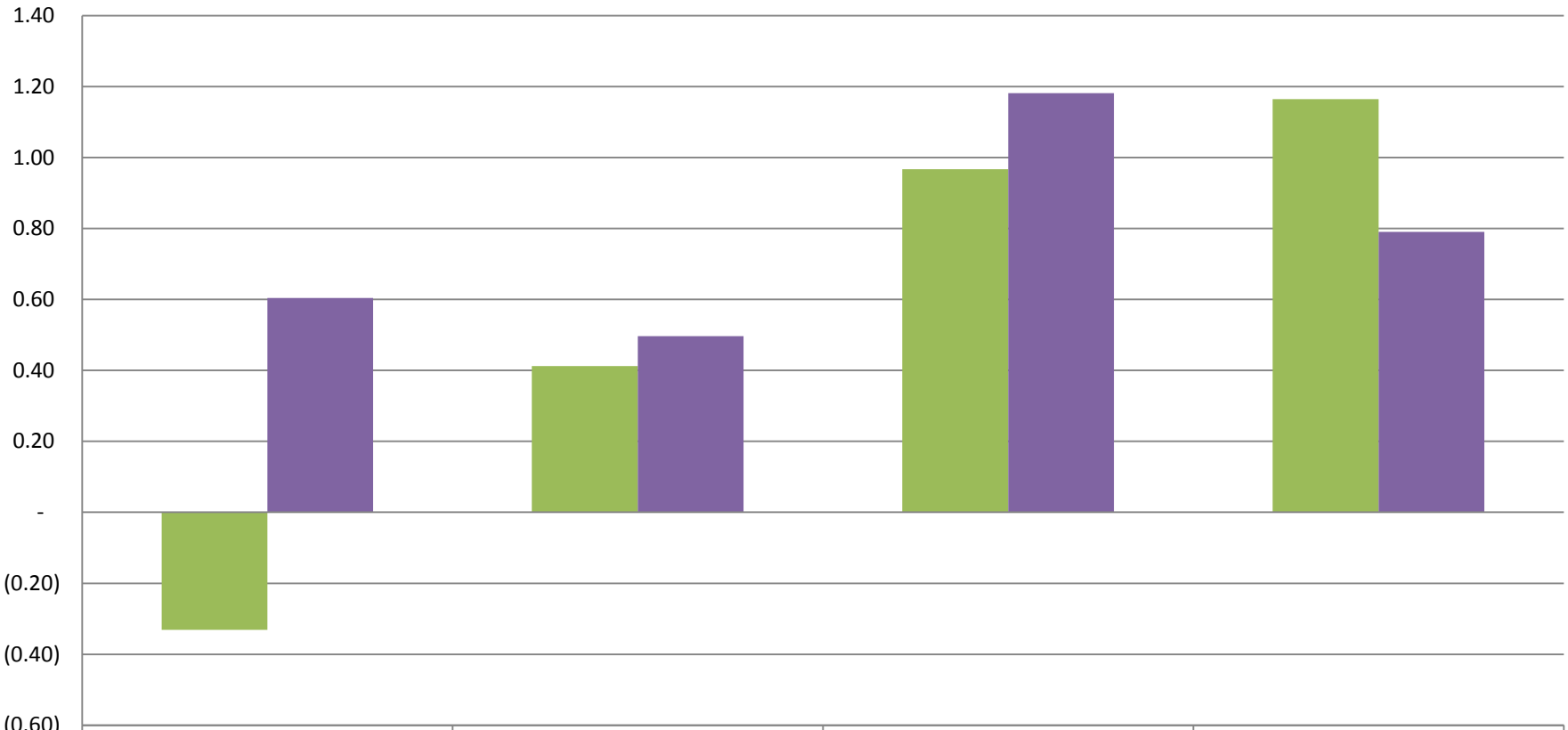
Average change in contributions by age: rr vs rrr



	<33	33-40	40-50	>50
rr	(0.33)	0.41	0.97	1.16
RRR	0.60	0.50	1.18	0.79

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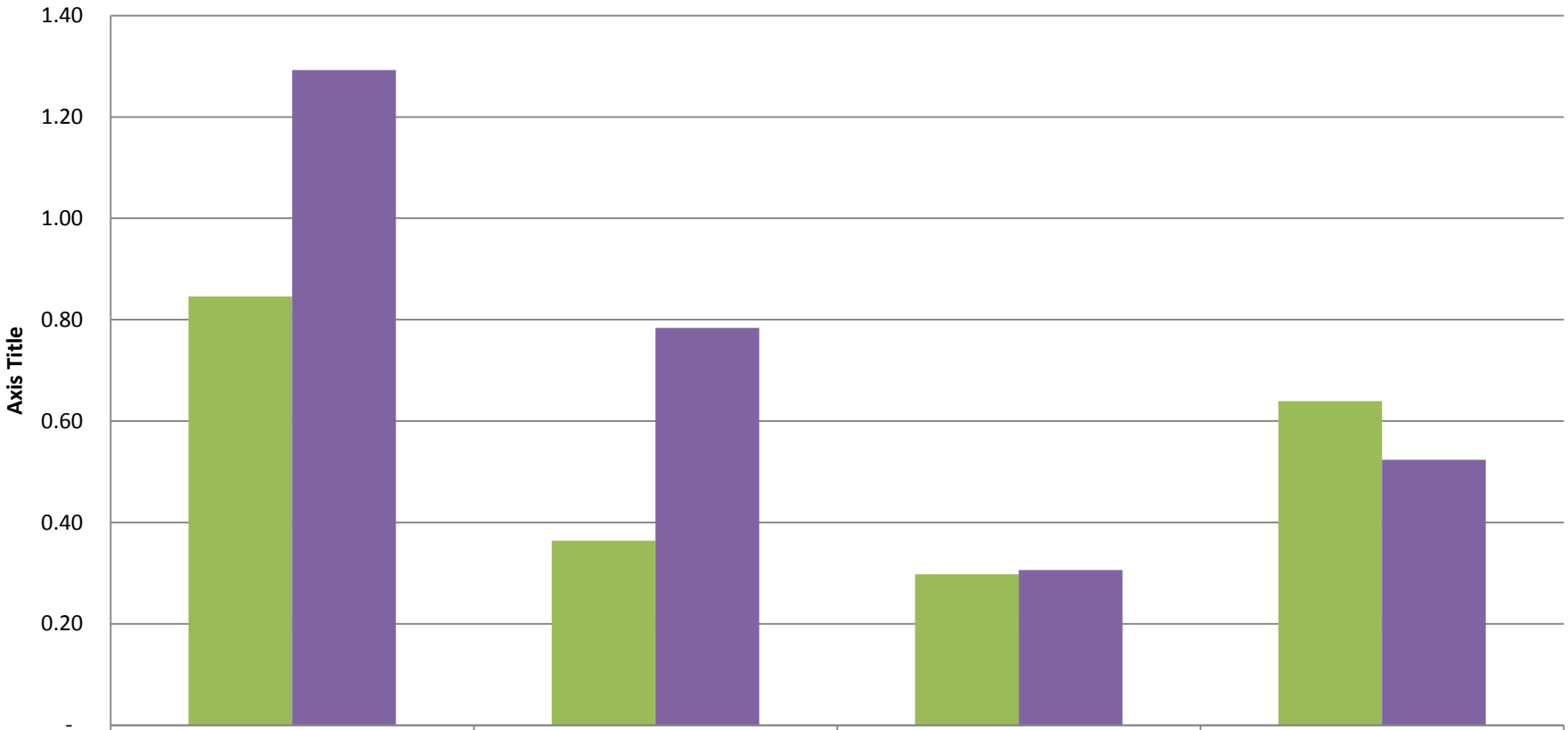
Average change in contributions by income: rr vs rrr



	<40k	40-65k	65-100k	>100k
rr	0.85	0.36	0.30	0.64
RRR	1.29	0.78	0.31	0.52

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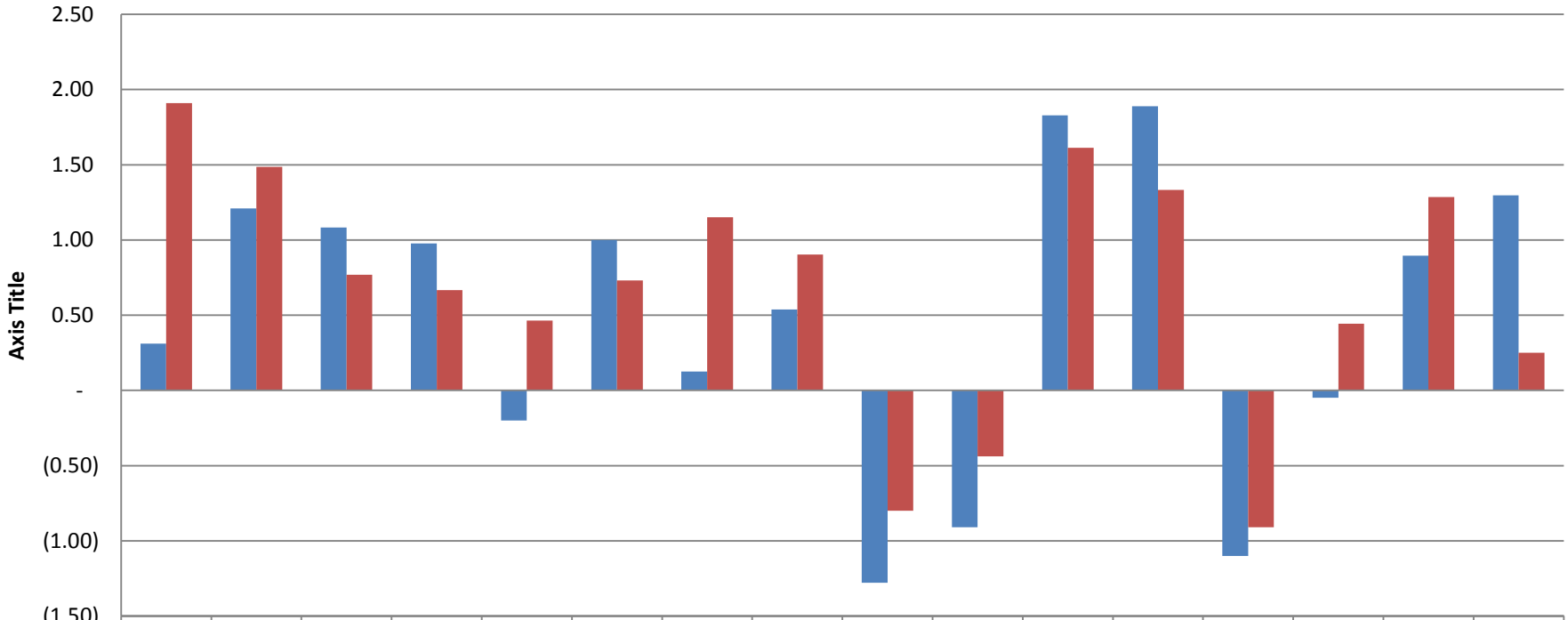
Average change in contributions by income and age: rr vs rrr



	young	2	3	old	young	2	3	old	young	2	3	old	young	2	3	old
	1				2				3				4			
rr	0.31	1.21	1.08	0.98	(0.20)	1.00	0.13	0.54	(1.28)	(0.91)	1.83	1.89	(1.10)	(0.05)	0.90	1.30
RRR	1.91	1.49	0.77	0.67	0.47	0.73	1.15	0.90	(0.80)	(0.44)	1.61	1.33	(0.91)	0.44	1.29	0.25

Note: income quartiles set at 40k, 65k and 100k; age quartiles are based on breaks at 32, 40 and 50

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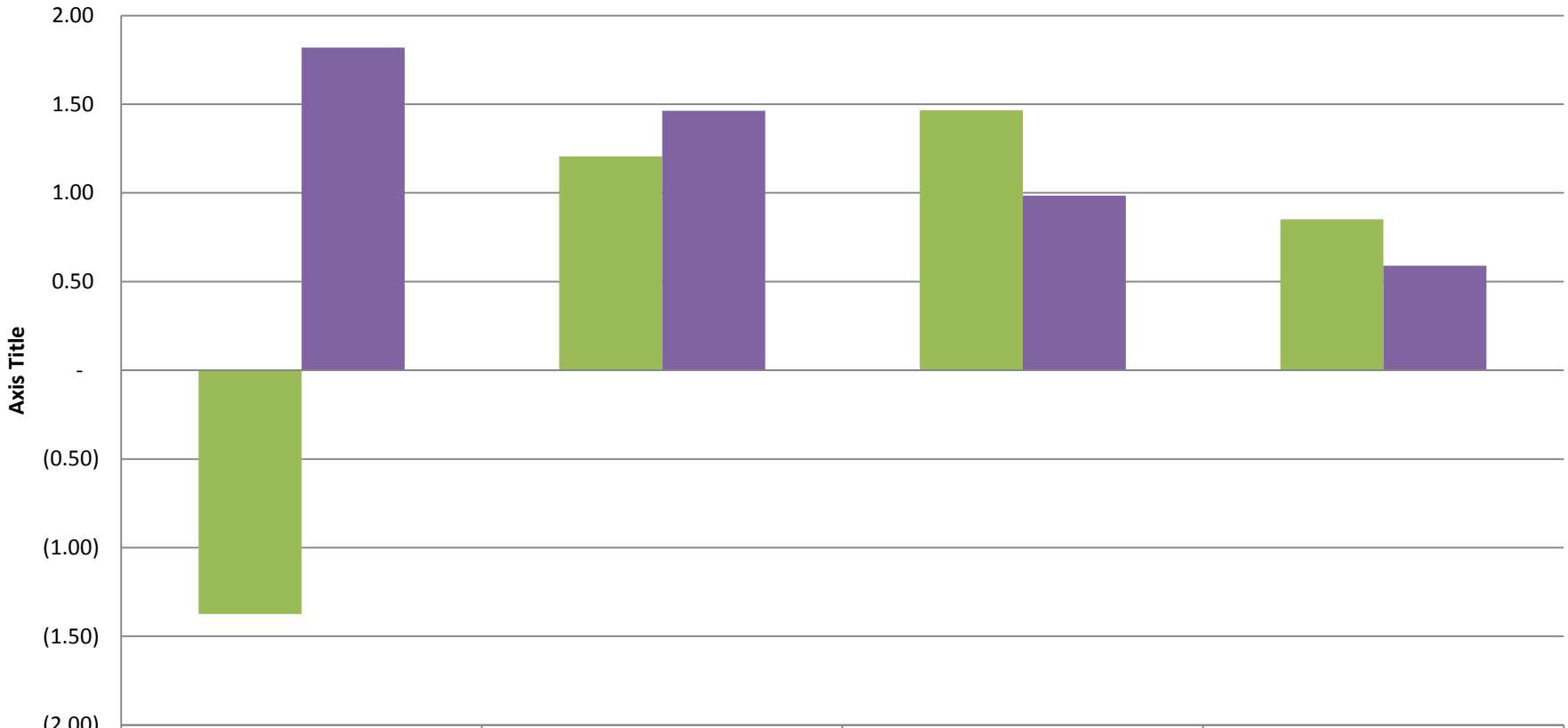
Average change in rr/rrr (in percentage points) by age quartile



	1	2	3	4
rr	(1.37)	1.21	1.47	0.85
RRR	1.82	1.46	0.99	0.59

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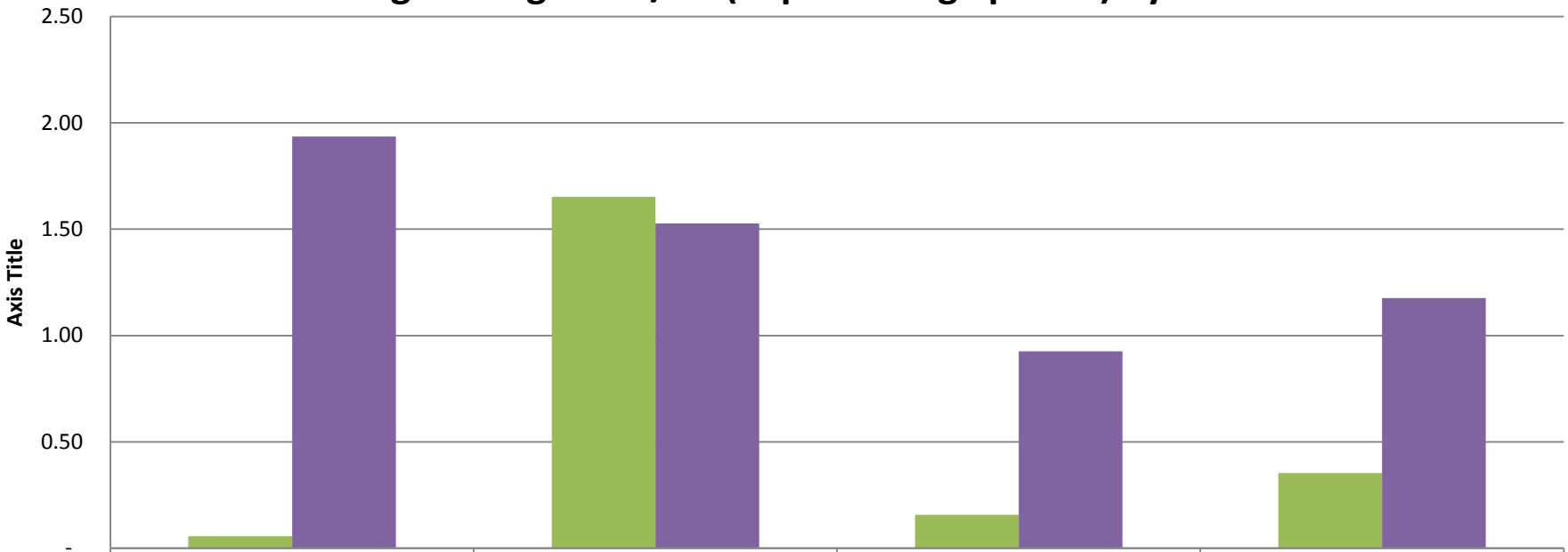
Average change in rr/rrr (in percentage points) by education



	1	2	3	4
rr	0.06	1.65	0.16	0.35
RRR	1.94	1.53	0.93	1.18

education breaks:
1 = hs or less
2= 1=3 years of college or tech
3=college grad

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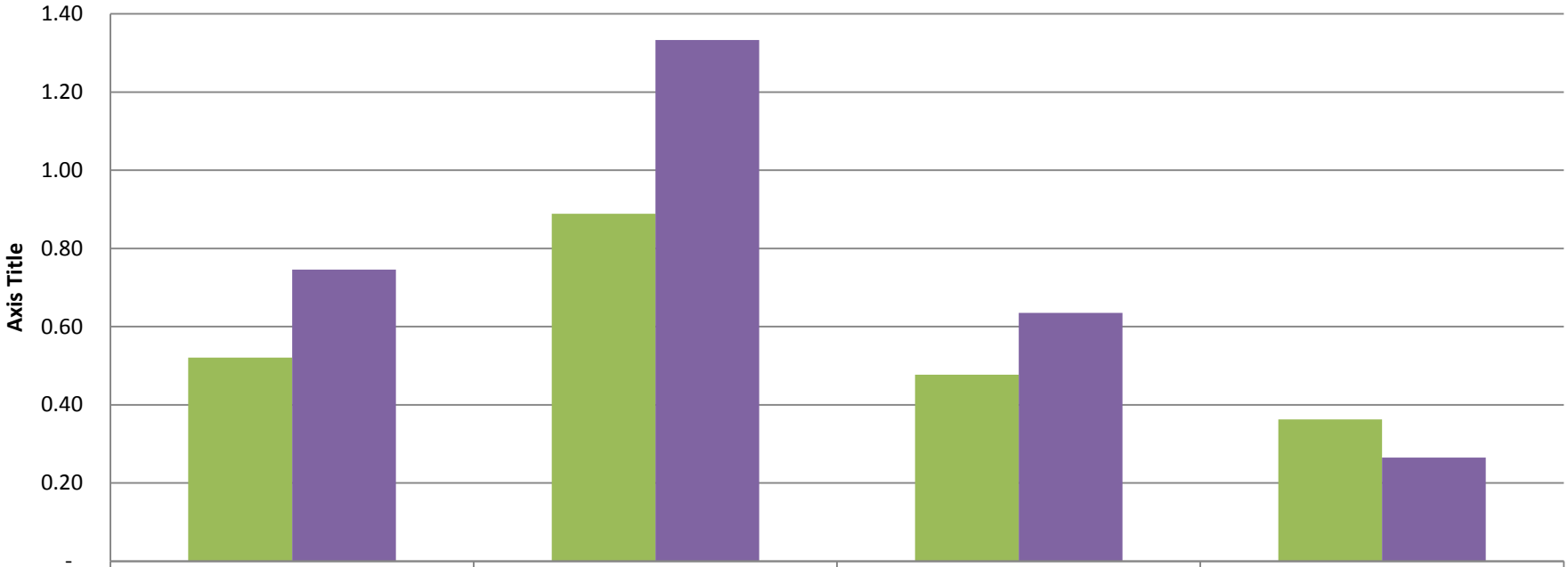
Average change in contributions by education



	1	2	3	4
rr	0.52	0.89	0.48	0.36
RRR	0.75	1.33	0.64	0.26

education breaks:
1 = hs or less
2= 1=3 years of college or tech
3=college grad
4= attended or completed grad school

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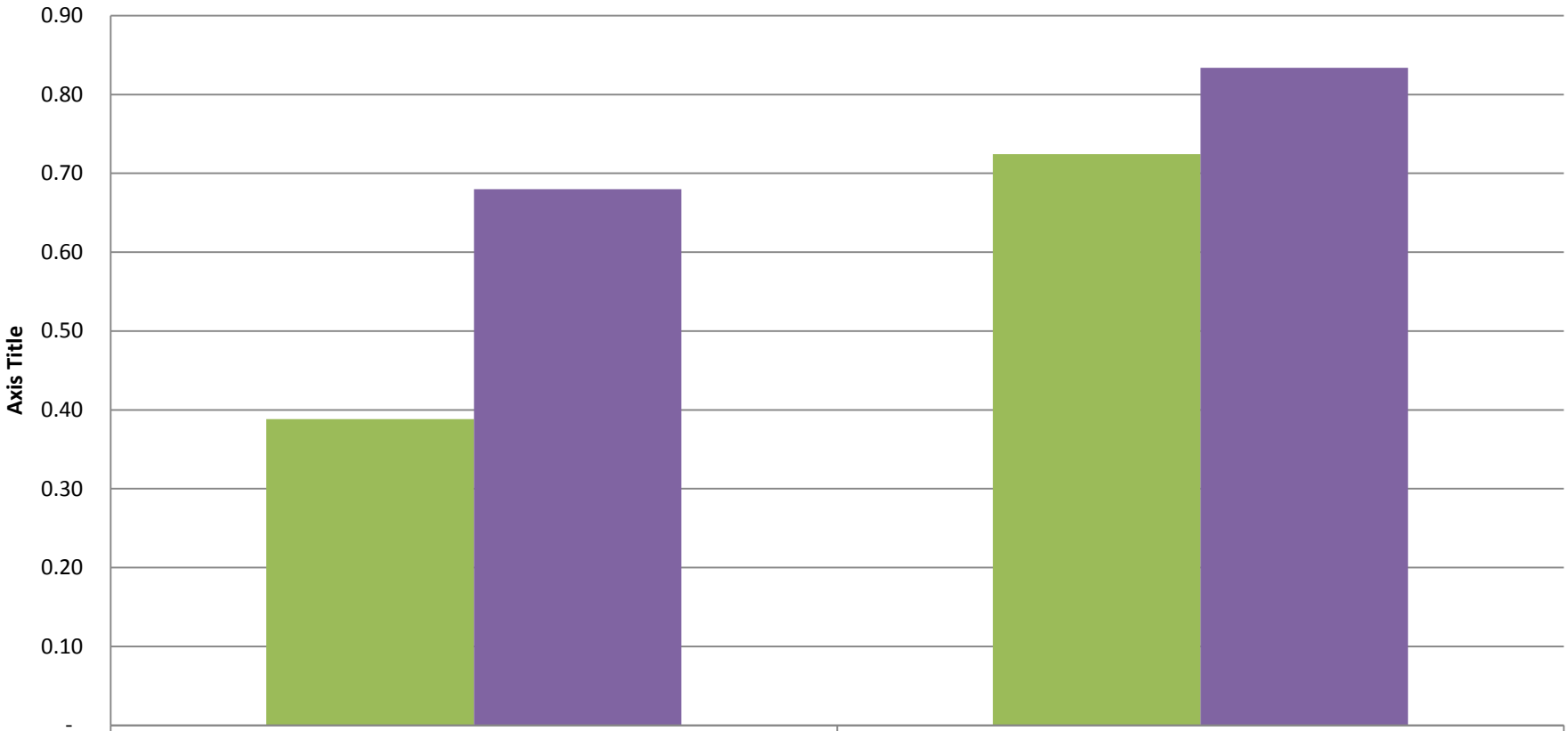
Average change in contributions by gender



	male	female
rr	0.39	0.72
RRR	0.68	0.83

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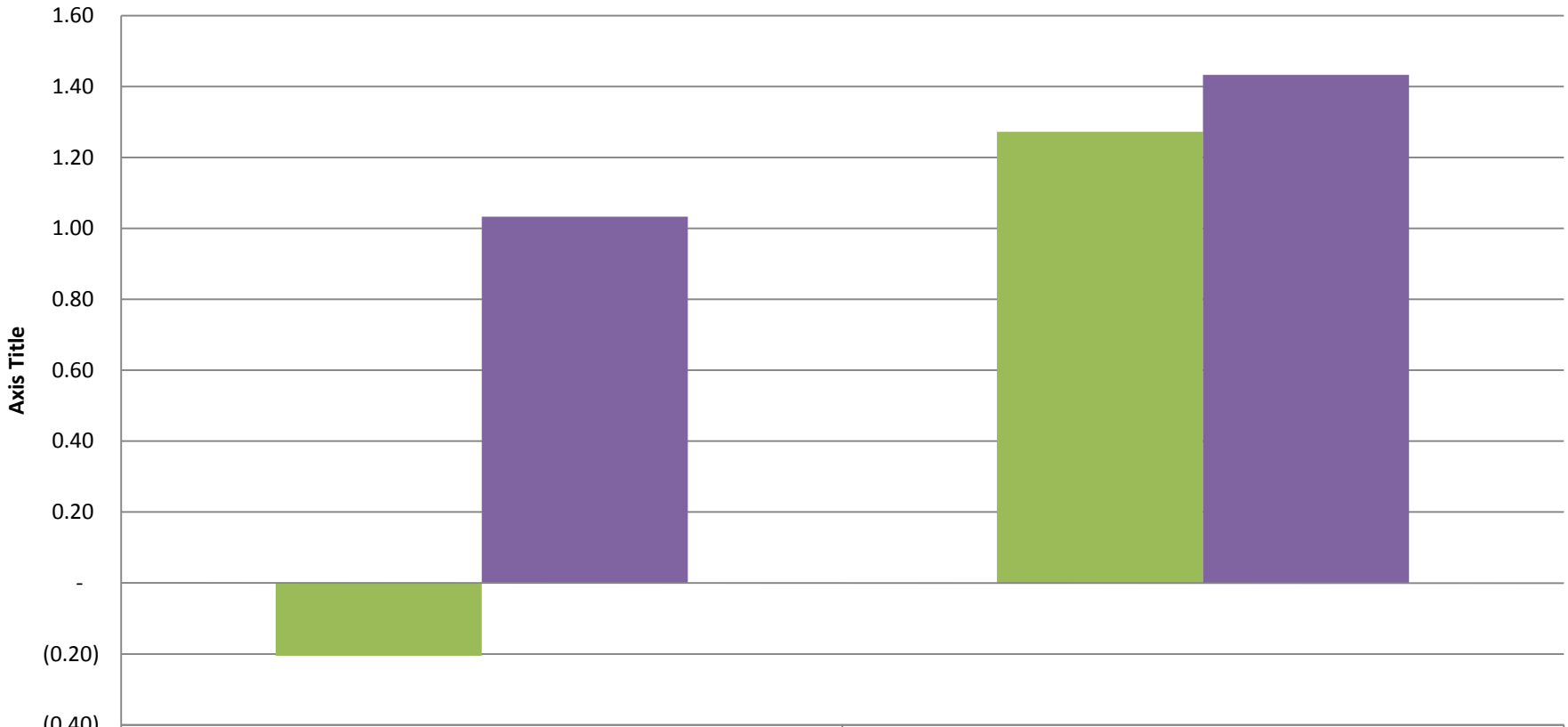
Average change in rr/rrr (in percentage points) by gender



	male	female
rr	(0.21)	1.27
RRR	1.03	1.43

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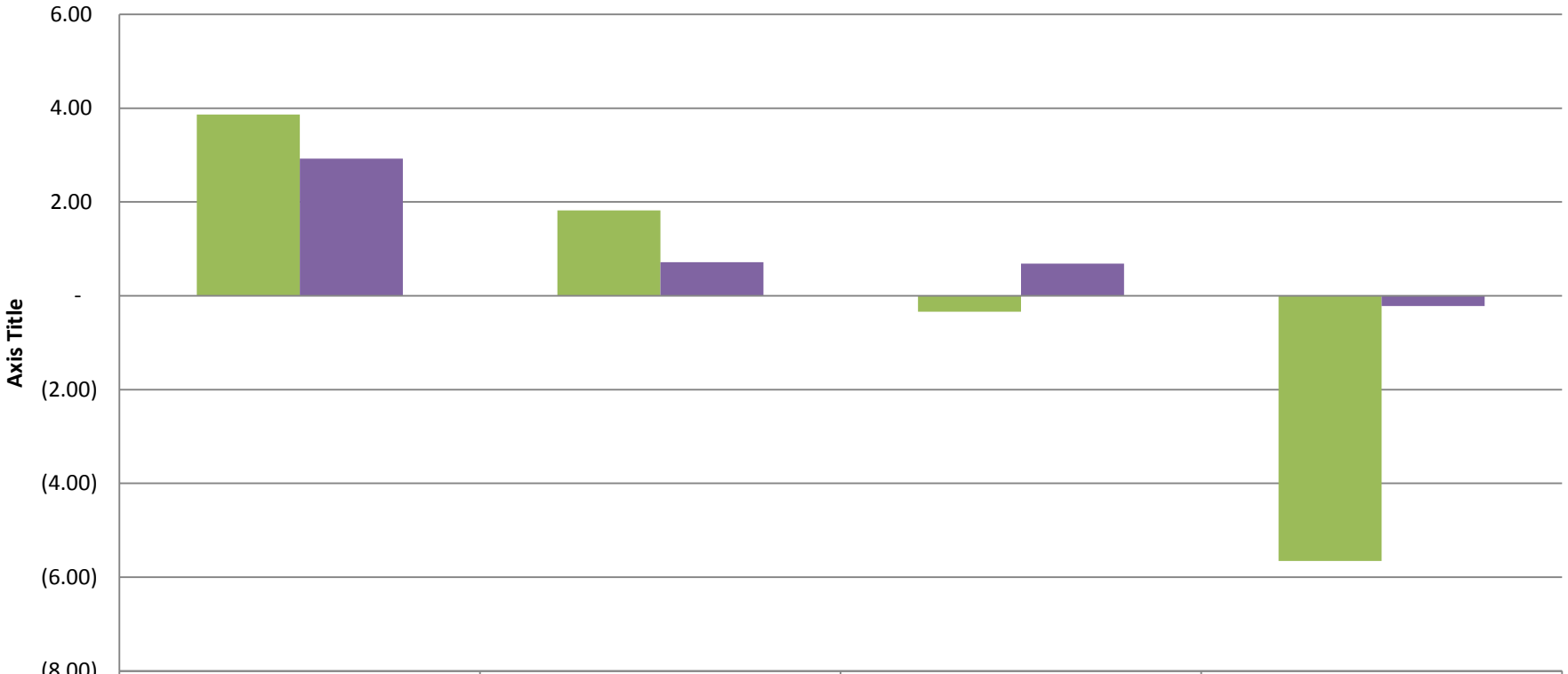
Average change in rr/rrr (in percentage points) by current employee contribution rate



	0-4	>4-6	>6-10	>10
rr	3.86	1.82	(0.34)	(5.65)
RRR	2.92	0.72	0.68	(0.22)

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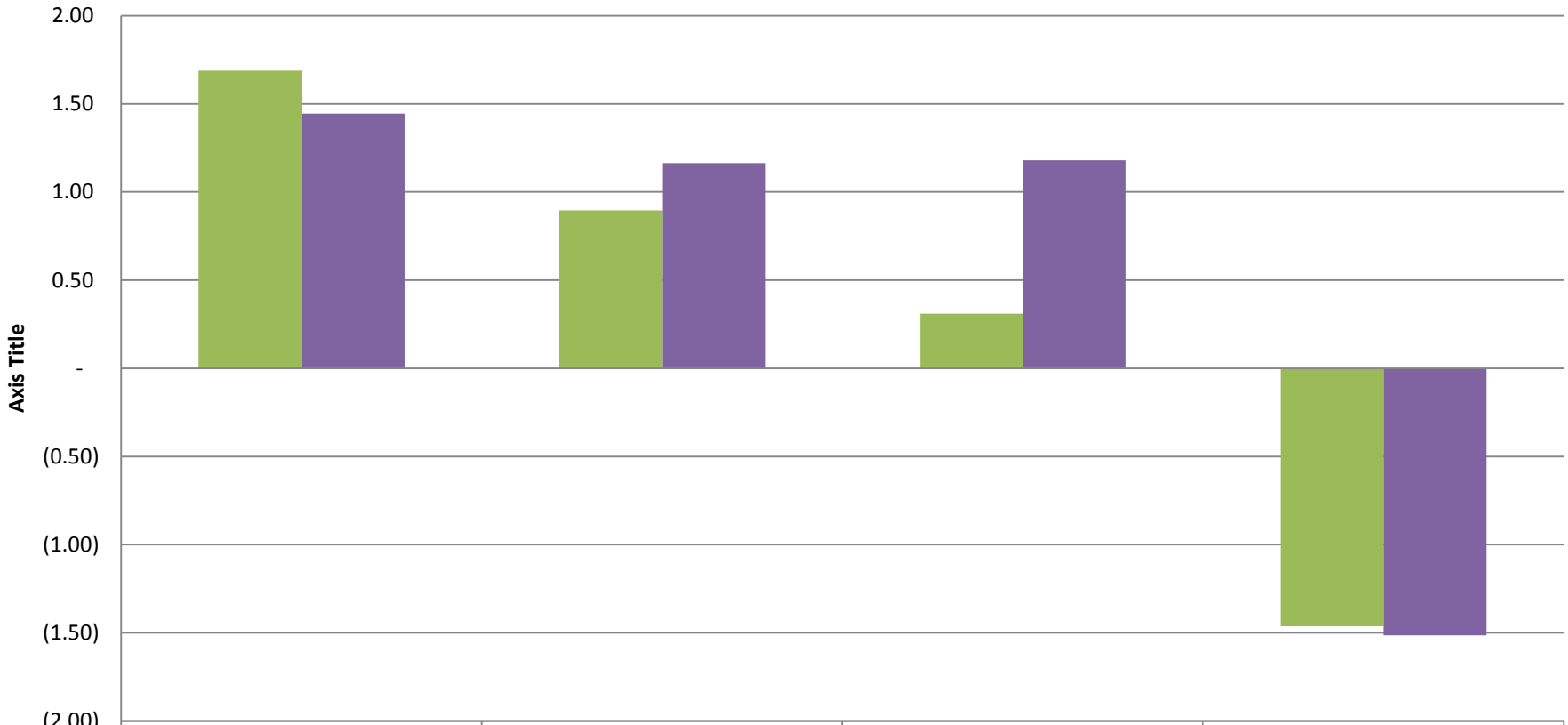
Average change in contributions by current employee contribution rate



	0-4	>4-6	>6-10	>10
rr	1.69	0.90	0.31	(1.46)
RRR	1.44	1.16	1.18	(1.51)

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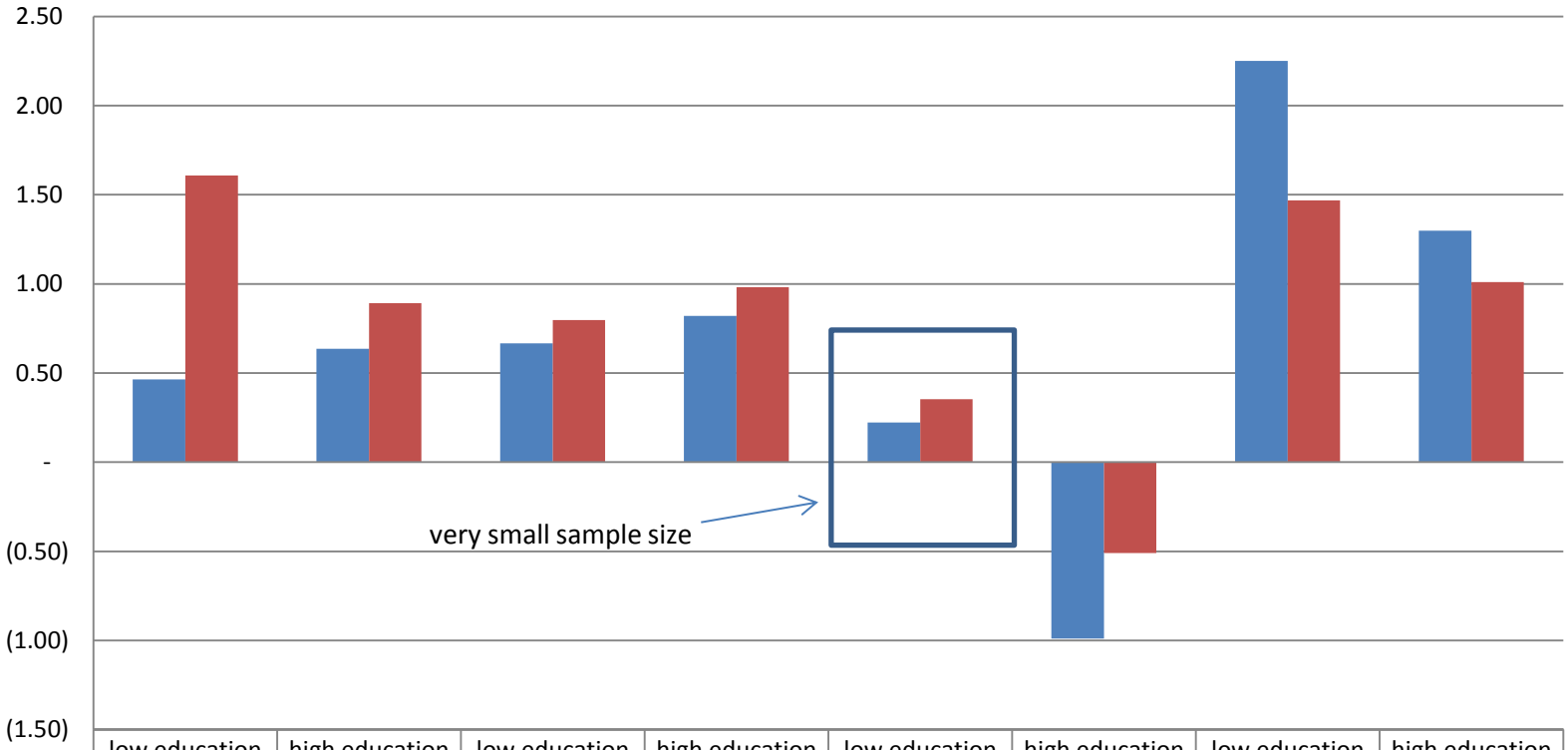
Average change in contributions by demographic combinations



	low income				high income			
	low age		high age		low age		high age	
	low education	high education	low education	high education	low education	high education	low education	high education
replacement rate	0.46	0.64	0.67	0.82	0.22	(0.99)	2.25	1.30
probability of success	1.61	0.89	0.80	0.98	0.35	(0.51)	1.47	1.01

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