How does Consumers' Financial Vulnerability Relate to Positive and Negative Financial Outcomes? The Mediating Role of Individual Psychological Characteristics

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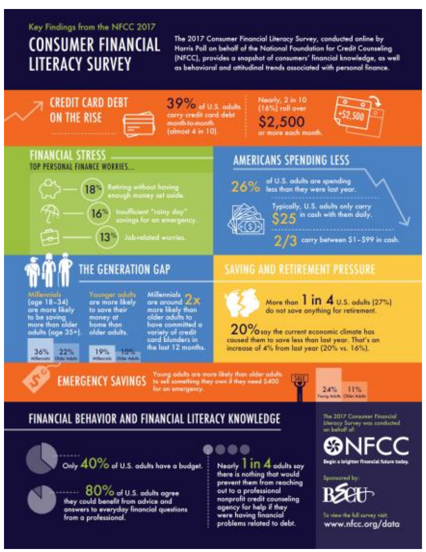
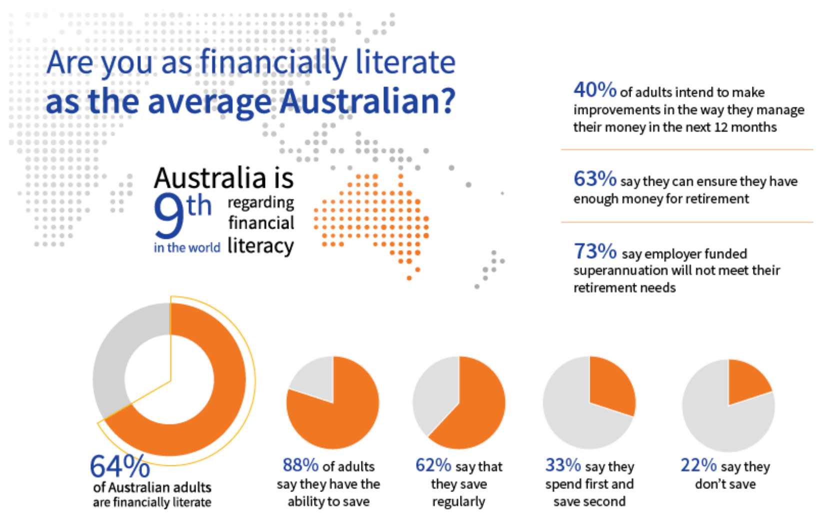
Motivation and Contribution

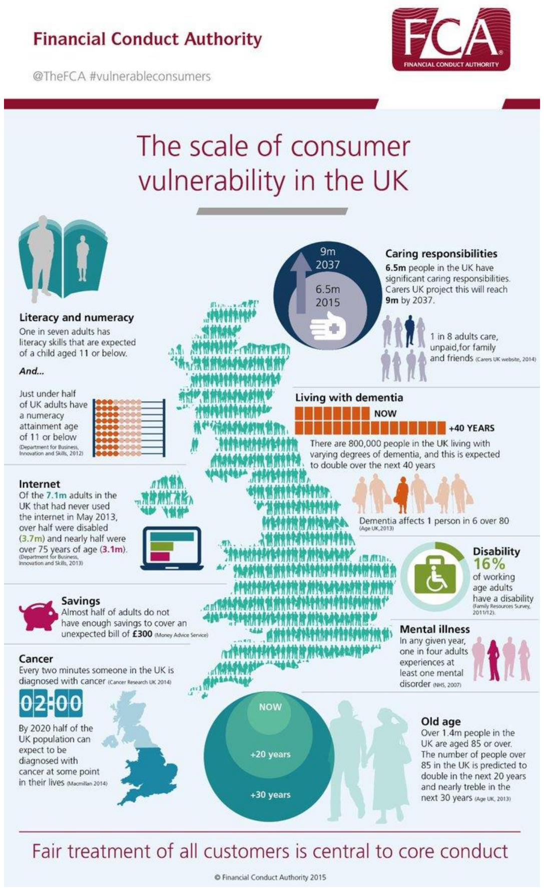
- Today's consumers face increasing self-responsibility for making consequential financial decisions affecting their immediate as well as future financial well-being:
  - E.g., shift from DB to DC pension plans increases challenge to smooth consumption over one's life.
- Are consumers prepared/able to take on such increased financial responsibility?
  - Probably not, given overall low levels of financial literacy and dropping savings rates (OECD, 2017).





Motivation and Contribution

- Aforementioned challenges are magnified for "vulnerable" consumers, for whom the negative consequences of poor financial choices are even direr:
  - Vulnerability is often conceptualized as a limited ability to engage effectively in the marketplace or a state of powerlessness, driven by the interaction of individual characteristics (e.g., age, health, cognitive capacity, SES); individual states (e.g., life transitions), and external conditions (e.g., discrimination) (Baker et al., 2005).
  - Vulnerable consumers are more likely to make poor financial choices and suffer financially when service providers do not act with appropriate care (Personal Finance Research Centre, 2017).
  - Vulnerable consumers have tenuous financial stability (CFPB, 2013), and behavior is driven more by short-term circumstances.
  - Typical risk factors for vulnerability include low financial literacy/numeracy; high debt; low income; impactful changes in personal circumstances (e.g., death of a spouse) (see FCA, 2015).



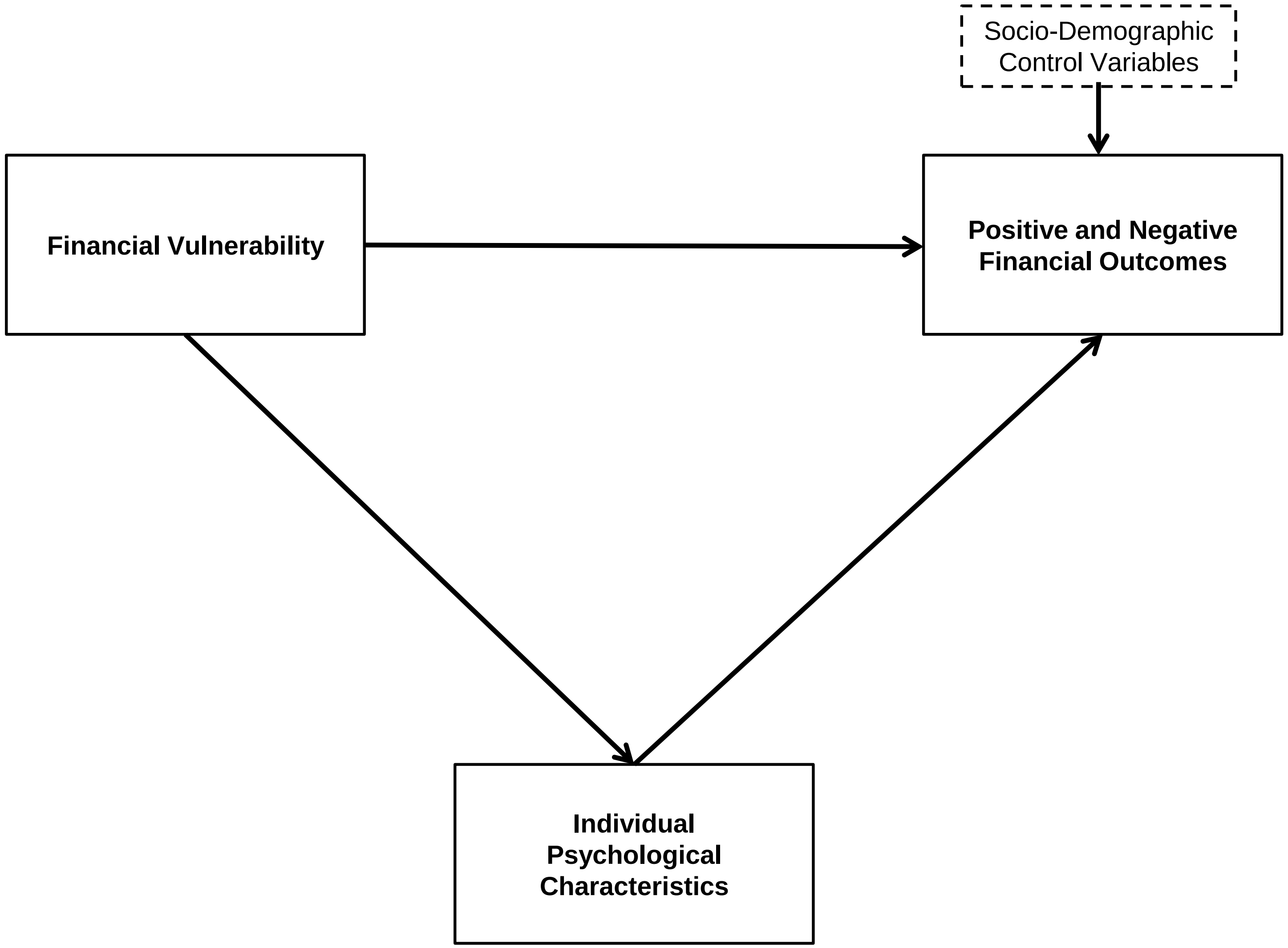
≈ 100 million people (1/3 of U.S. population) (CFPB, 2013).

Motivation and Contribution

- Policy makers seem aware of relevance and importance of financial vulnerability, and developed an overview of risk factors. Academic work, however, remains scarce:
  - The literature is fragmented and has not developed a comprehensive measure of financial vulnerability that integrates the risk factors identified by policy makers, such as the CFPB and FCA, or explored how such a measure relates to key financial outcomes and psychological characteristics.
  - Emerging interest in consumer financial decision-making in general, and research starts to identify how individual psychological characteristics of consumers relate to realizing key financial outcomes.
  - Risk factors of financial vulnerability, such as poverty, can have causal effect on consumers' psychological characteristics such as time discounting and risk aversion (Haushofer and Fehr, 2014), while attitudes towards debt can be a consequence as much as a driver of debt (Davies and Lea, 1995).
  - However, the extant literature has not examined how psychological characteristics could mediate the associations between financial vulnerability and achieving positive and negative financial outcomes.

→ Identifying salient psychological characteristics linking vulnerability with financial outcomes could serve as a basis for tailored financial advice or policy interventions.

Conceptual Framework



Overview of Studies

- We conducted two studies in which we collected data from U.S. individuals on financial vulnerability, key psychological characteristics, and financial outcomes:
  - Study 1: convenience sample (N=360) recruited through Amazon Mechanical Turk (MTurk).
  - Study 2: nationally representative sample (N=515) recruited from Qualtrics consumer panel.
- Preview of results:
  - Our measure of consumers' financial vulnerability:
    - is negatively associated with positive financial outcomes and positively associated with negative financial outcomes.
    - is negatively associated with personal savings orientation; money management skills; financial self-efficacy; consideration of future consequences; future-oriented time-preference; and regulatory focus (goal orientation).
    - is mediated by personal savings orientation, money management skills, and financial self-efficacy re its effects.
  - Some importance for practical money management skills in tempering association of vulnerability with negative outcomes, but similar importance of "non-skills based" psychological characteristics.

  → Extends meta-analyses suggesting limited effectiveness of financial education (Fernandes et al., 2014) and calls by the CFPB (2013) and Money Advice Service (2015) that stress the importance of paying attention to psychological factors in better understanding issues of financial capability.

Measurements: Financial Vulnerability

- We assessed nine vulnerability "risk factors" as per the CFPB/FCA guidelines:

Risk Factor	Source	Study 1	Study 2
1. Numeracy incorrect answer	Cokely et al., 2012	56%	25.8%
2. Financial Literacy < 3 out of 4	Klapper et al., 2015	28.7%	29.4%
3. Physical / Cognitive disability	Health and Retirement Study	12.5%	30%
4. Monthly Income < Poverty Guideline	U.S. Consumer Finance Monthly Survey	18.1%	7.1%
5. Debt-to-Income Ratio > 36%	U.S. Consumer Finance Monthly Survey	33%	41.5%
6. Being a Carer	AARP/National Alliance for Caregiving, 2015	3.7%	12.1%
7. Major Change in Personal Circumstances	Holmes & Rahe, 1967 (Social Readjustment)	11%	22.2%
7.1 Divorce / Separation			
7.2 (Spousal) Bereavement			
7.3 Redundancy / Job Loss			
8. Age > 80 or between 18-34 years	Financial Conduct Authority, 2015	68%	15.4%
9. English is Second Language	Financial Conduct Authority, 2015	1.9%	6.5%

- Vulnerability score 0–11 reflecting number of areas for which Ps are vulnerable.

Measurements: Psychological Characteristics

Characteristic	Description	Source	Study 1	Study 2
Time Preference	Relative preference for immediate versus delayed consumption.	Binswanger & Carman, 2012	✓	✓
Propensity to Plan for Money	Extent to which one proactively manages/ plans financial life.	Lynch et al. 2010	✓	✓
Personal Savings Orientation	Positive sentiment or merit attributed to being a proactive saver.	Dholakia et al. 2016	✓	
Regulatory Focus	Priority on achieving gains (promotion) vs. minimizing losses (prevention).	Higgins et al. 2001	✓	
Money Management Skills	Pro-activity regarding managing practical money matters.	Garðarsdóttir & Dittmar, 2012		✓
Financial Self-Efficacy	Personal agency regarding financial matters reflecting a belief one can succeed.	Lown, 2011		✓
Consideration of Future Consequences	Extent to which one considers distant vs. immediate consequences of behavior.	Strathman et al., 1994		✓

Measurements: Financial Outcomes

Outcome	Response Type	Study 1	Study 2
1. Total Amount of Savings ($)	12 ranges (Study 1) / exact amount (Study 2)	✓	✓
2. Total Amount of Investments ($)	12 ranges (Study 1) / exact amount (Study 2)	✓	✓
3. Arrears in Past 12 Months:	No; Yes (Once) / Yes (More than Once)	✓	
3.1 Utilities			
3.2 Rent/Mortgage			
3.3 Consumer Credits			
4. Currently Receiving Welfare Payments	Yes; No	✓	✓
5. Repay Full Credit Card Balance Each Month	Yes; No		✓
6. Save Money from Each Paycheck	Yes; No		✓
7. Savings to Cover 3 months of expenses	Agreement on 7-point Likert scale		✓

Summary of Results: Study 1

- Nomological validity of the financial vulnerability measure:
  - Higher vulnerability scores were significantly positively correlated with having been in arrears and receiving welfare, and significantly negatively correlated with savings and investments levels; personal savings orientation; either regulatory focus; and future-oriented time preference.
- Predictive validity of the financial vulnerability measure:
  - Hierarchical multiple linear regressions show that vulnerability explains key financial outcomes.
  - Reduced size of some coefficients when including psychological characteristics points to mediation.
- Mediation of financial vulnerability on financial outcomes:
  - Personal savings orientation only psychological characteristic with significant mediation of financial vulnerability, with mediation occurring for all outcomes, except rent/mortgage arrears.

Detailed Results: Zero-Order Correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1. Financial Vulnerability	--											
2. Propensity to Plan	.03	--										
3. Personal Savings Orientation	-.09†	.67***	--									
4. Future Time Preference	-.17**	.03	.11†	--								
5. Prevention-Focus	-.14*	.15**	.18**	.06	--							
6. Promotion-Focus	-.16**	.33***	.31***	.08	.12*	--						
7. Savings	-.30***	.11*	.25***	.02	.11†	.16**	--					
8. Investments	-.19**	.14*	.26***	.01	.09	.18**	.76***	--				
9. Arrears (1)	.24***	-.11*	-.19**	-.06	-.10†	-.02	-.29***	-.23***	--			
10. Arrears (2)	.29***	-.11*	-.21***	-.01	-.08	-.02	-.31***	-.22***	.50***	--		
11. Arrears (3)	.25**	-.06	-.12*	-.13*	-.17**	-.03	-.21***	-.13*	.64***	.43***	--	
12. Receive Welfare	.32***	-.15**	-.18**	.06	-.05	-.08	-.24***	-.17**	.17**	.23***	.20***	--

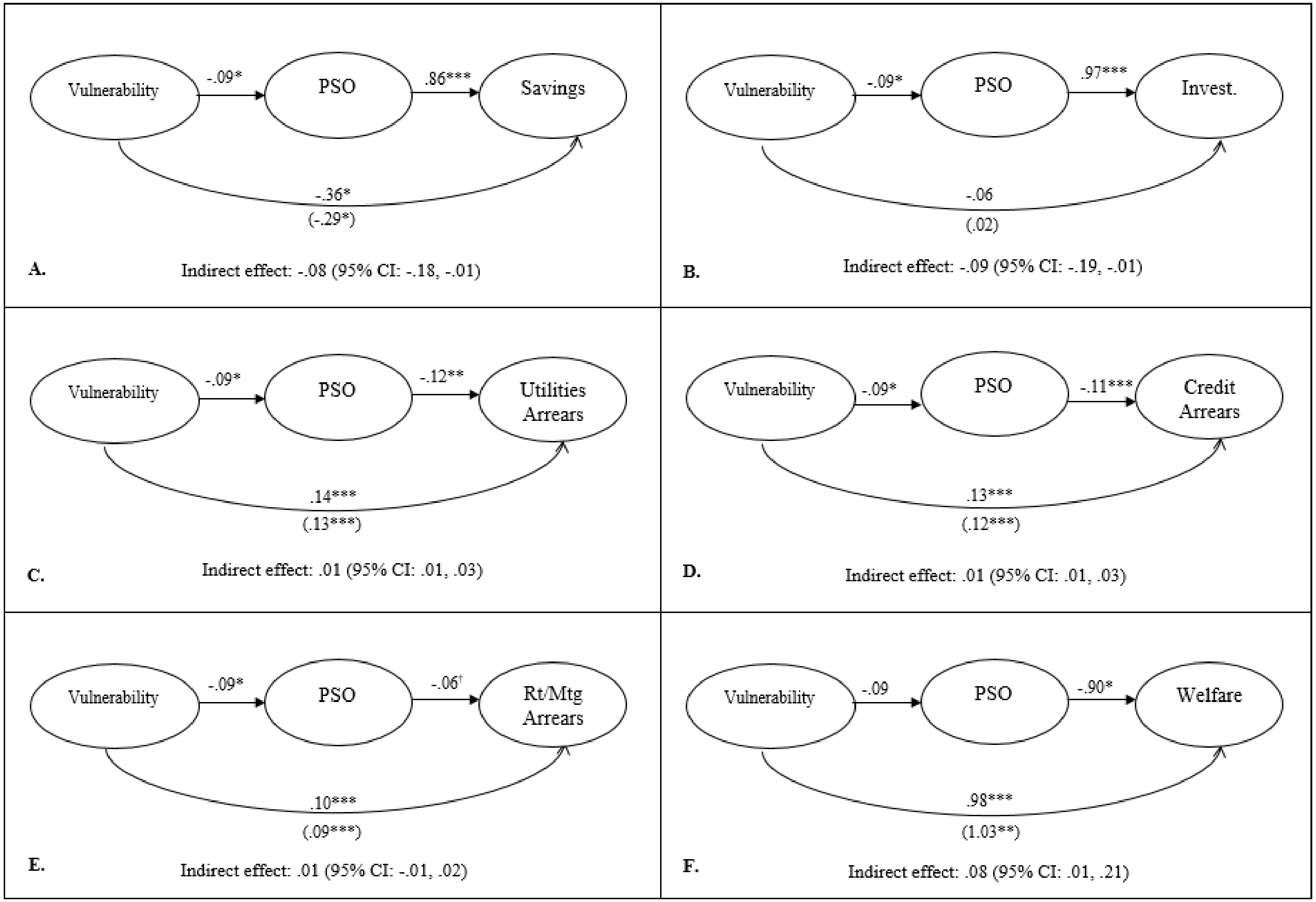
Detailed Results: Predictive Validity 1/2

	Savings level			Investments level			Household Utilities Arrears		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	β	β	β	β	β	β	β	β	β
Financial Vulnerability	-.29***	-.15*	-.10†	-.19***	-.03	.02	.24***	.28***	.25***
Age		.14**	.15**		.25***	.25***		.15**	.14*
Gender		-.14**	-.15**		-.10†	-.10*		.01	.02
Ethnicity		-.08	-.09†		-.07	-.07		.01	.01
Education		.29***	.31***		.25***	.27***		-.05	-.06
Propensity to Plan			-.11†			-.08			-.01
Personal Savings Orientation			.31***			.31***			-.18*
Time Preference			-.01			-.01			-.02
Regulatory Focus: Prevention			-.02			-.02			-.04
Regulatory Focus: Promotion			.05			.06			.07
R^2	.09	.20	.27	.04	.15	.22	.06	.08	.12
Model fit	29.93***	15.3***	11.23***	11.67**	10.83***	8.95***	19.53***	5.69***	4.10***
ΔR^2		.11	.07		.11	.06		.03	.03
ΔModel fit		10.73***	5.94***		10.27***	6.18***		2.16†	2.38*

Detailed Results: Predictive Validity 2/2

	Consumer Credit Arrears			Rent/Mortgage Arrears			Receiving Welfare		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	β	β	β	β	β	β	Exp(B)	Exp(B)	Exp(B)
Financial Vulnerability	.29***	.30***	.29***	.25***	.24***	.21**	2.69***	2.66***	3.13***
Age		.10†	.08		.01	.01		1.04	1.01
Gender		.10†	.10†		.01	.01		.88	1.00
Ethnicity		.50	.04		-.05	-.05		.18	.14†
Education		-.02	-.03	-.02	-.02	-.02		.08	.10
Propensity to Plan			-.02			-.01			.78
Personal Savings Orientation			-20*			-.08			-.41†
Time Preference			.04			-.08			1.25
Regulatory Focus: Prevention			-.01			-.13*			1.45
Regulatory Focus: Promotion			.08			.06			1.35
R^2	.08	.10	.14	.06	.07	.10	.09	.15	.18
Model fit	28.15***	7.33***	5.19***	21.43***	4.42**	3.37***	1.07	1.64	1.64
ΔR^2		.02	.04		.01	.03		.06	.03
ΔModel fit		2.03†	2.84*		.22	2.34*		--	--

Detailed Results: Mediation



Direct effect presented in parentheses.

Summary of Results: Study 2

- Nomological validity of the financial vulnerability measure:
  - Higher vulnerability scores were significantly positively correlated with receiving welfare, and significantly negatively correlated with saving and investments levels; emergency savings; saving from each paycheck; paying off cc balances in full each month; money management skills, financial self-efficacy, consideration of future consequences, and having a future-oriented time preference.
- Predictive validity of the financial vulnerability measure:
  - Hierarchical multiple linear regressions show that vulnerability explains key financial outcomes.
  - Reduced size of some coefficients when including psychological characteristics points to mediation.
- Mediation of financial vulnerability on financial outcomes:
  - Money management skills, financial self-efficacy, and consideration of future consequences significantly mediate consumer vulnerability, with mediation occurring for all financial outcomes.

Detailed Results: Zero-Order Correlations

	1	2	3	4	5	6	7	8	9	10	11	12
1. Financial Vulnerability	--											
2. Money Management Skills	-.15**	--										
3. Financial Self-Efficacy	-.35***	.39***	--									
4. Consideration of Future Consequences	-.20***	.26***	.36***	--								
5. Future Time Preference	-.08†	.04	.01	.02	--							
6. Propensity to Plan	.02	.43***	.05	.07	.13**	--						
7. SavingsLN	-.21***	.28***	.38***	.12*	.06	.07	--					
8. InvestmentsLN	-.28***	.20***	.42***	.15**	.13**	.09*	.55***	--				
9. Have Emergency Saving	-.25***	.43***	.58***	.17***	.05	.12**	.52***	.53***	--			
10. Pay Off Credit Card Balances Each Month	-.21***	.42***	.44***	.14**	.04	.12*	.35***	.39***	.53***	--		
11. Save Money from Each Paycheck	-.13**	.27***	.32***	.04	.08†	.14**	.48***	.33***	.40***	.28***	--	
12. Receive Welfare	.19***	-.19***	-.06	-.12*	.01	-.01	-.16**	-.11*	-.16***	-.05	-.05	--

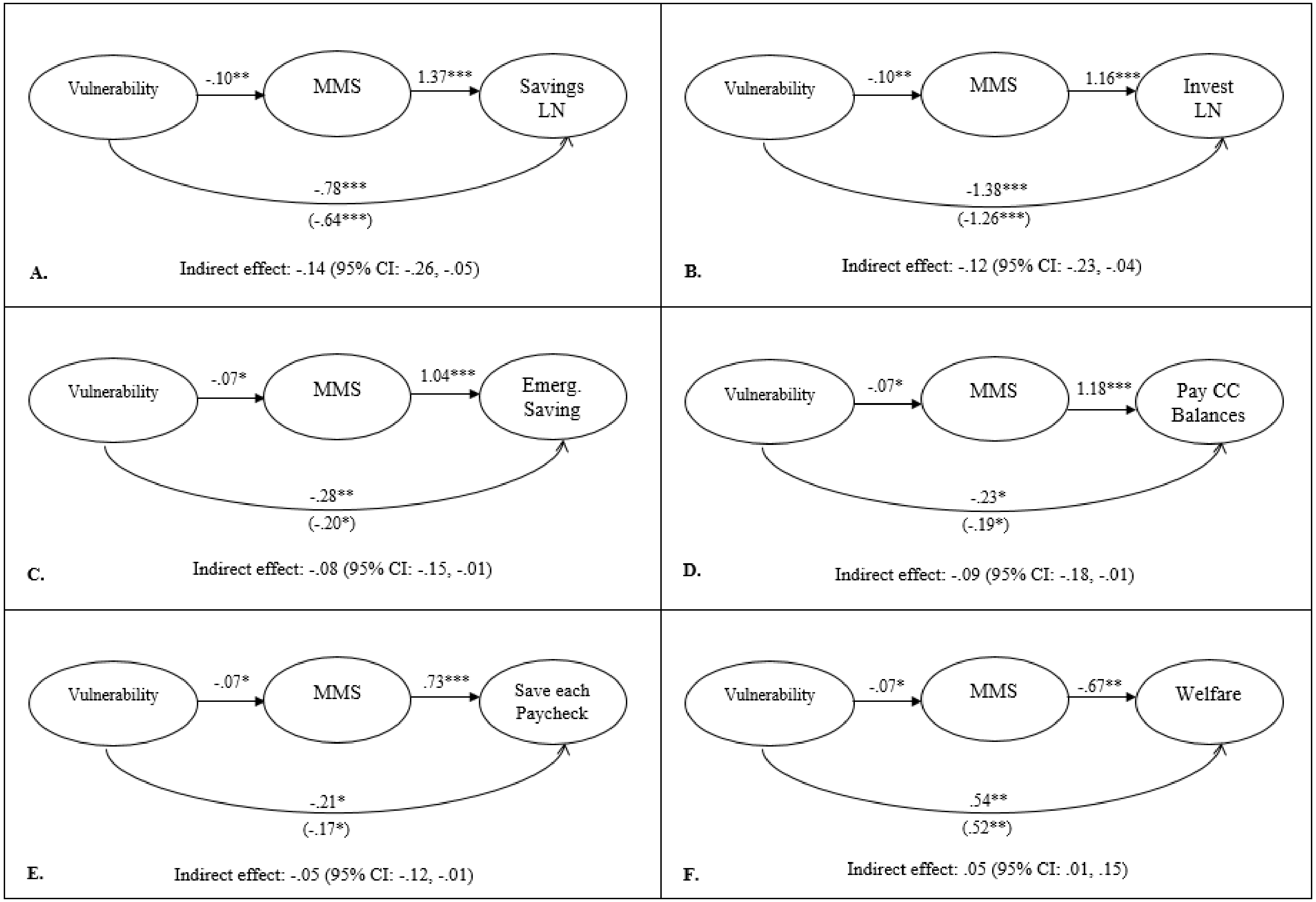
Detailed Results: Predictive Validity

	Savings level LN			Investments level LN			Emergency Saving		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	β	β	β	β	β	β	β	β	β
Financial Vulnerability	-.21***	-.12**	-.05	-28***	-.14**	-.07	-.25***	-.15**	-.02
Age		-.01	-.05		.13**	.11**		.07	-.01
Gender		-.14**	-.08†		-.12**	-.07†		-.16***	-.06
Ethnicity		.02	.04		-.01	.02		-.01	.03
Education		.26***	.22***		.36***	.32***		.21***	.13**
Money Management			.18***			.02			.26***
Financial Self-Efficacy			.25***			.27***			.45***
Future Consequences			-.05			-.04			-.09*
Time Preference			.03			.08*			.02
Propensity to Plan			-.03			.06			-.01
R^2	.05	.13	.23	.08	.25	.32	.06	.14	.41
Model fit	22.82***	14.71***	13.92***	41.60***	32.22***	22.17***	31.04***	15.70***	33.12***
ΔR^2		.09	.10		.17	.08		.08	.27
ΔModel Fit		12.30***	11.50***		27.57***	9.31***		11.20***	45.31***

Detailed Results: Predictive Validity

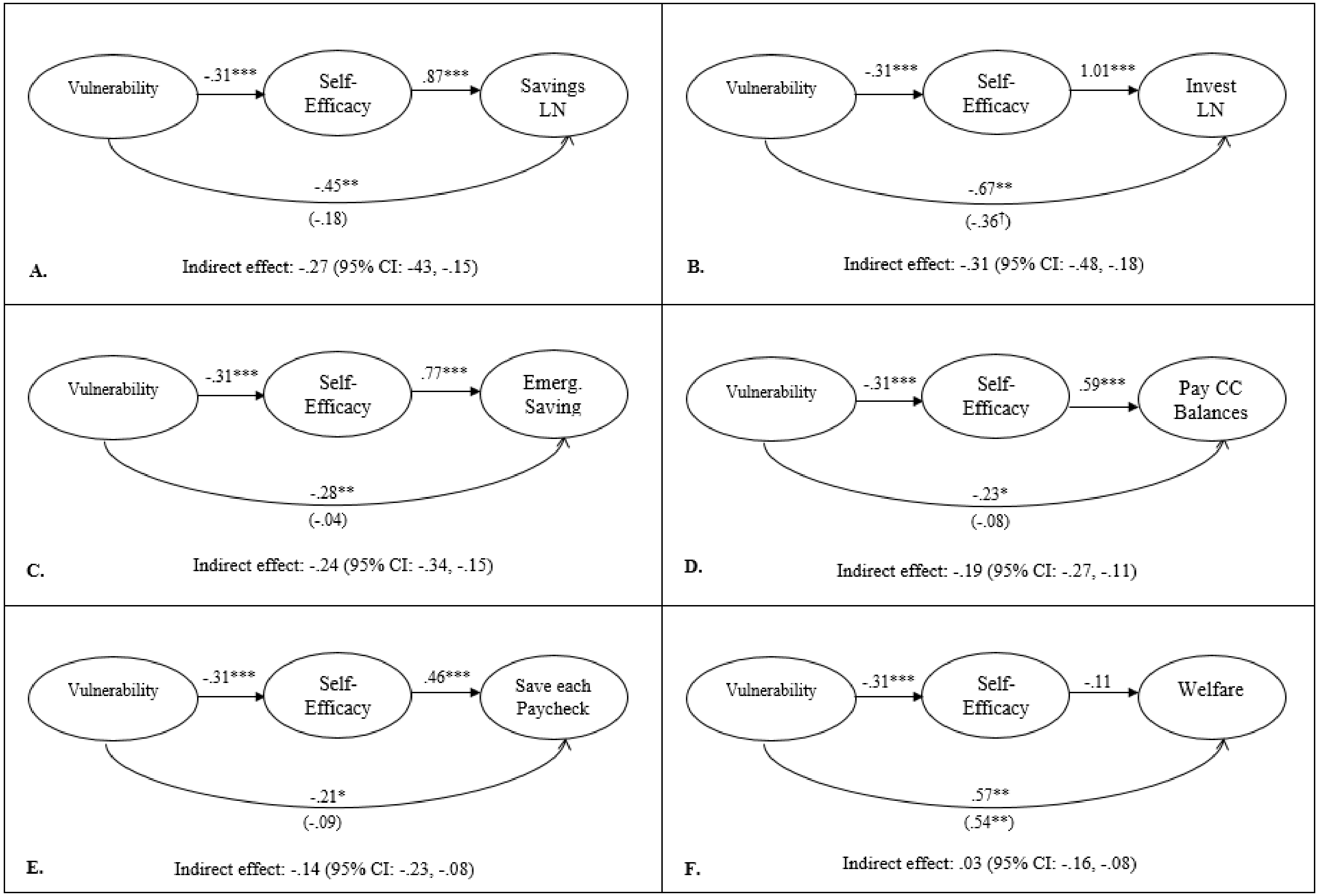
	Pay off CC Balances Each Month			Save from Each Paycheck			Receiving Welfare		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Financial Vulnerability	.71***	.79**	.93	.81**	.81*	.93	1.94***	1.72**	1.79**
Age		1.01	1.00		.97***	.96***		.98	.99
Gender		1.39	.95		1.62*	1.30		1.38	1.21
Ethnicity		1.10	.99		1.01	.85		.95	.81
Education		.36***	.35***		.39***	.42***		4.14*	4.50*
Money Management			3.06***			1.74***			.39**
Financial Self-Efficacy			1.65***			1.53***			1.52*
Future Consequences			.81†			.80†			.69
Time Preference			1.02			1.07			1.06
Propensity to Plan			.88			1.03			1.38
R^2	.04	.11	.30	.02	.11	.22	.03	.05	.08
Model fit	4.00	9.06	8.63	1.25	9.99	5.57	3.76	7.92	3.41
ΔR^2		.07	.19		.09	.11		.02	.03
ΔModel Fit		--	--		--	--		--	--

Detailed Results: Mediation MMS



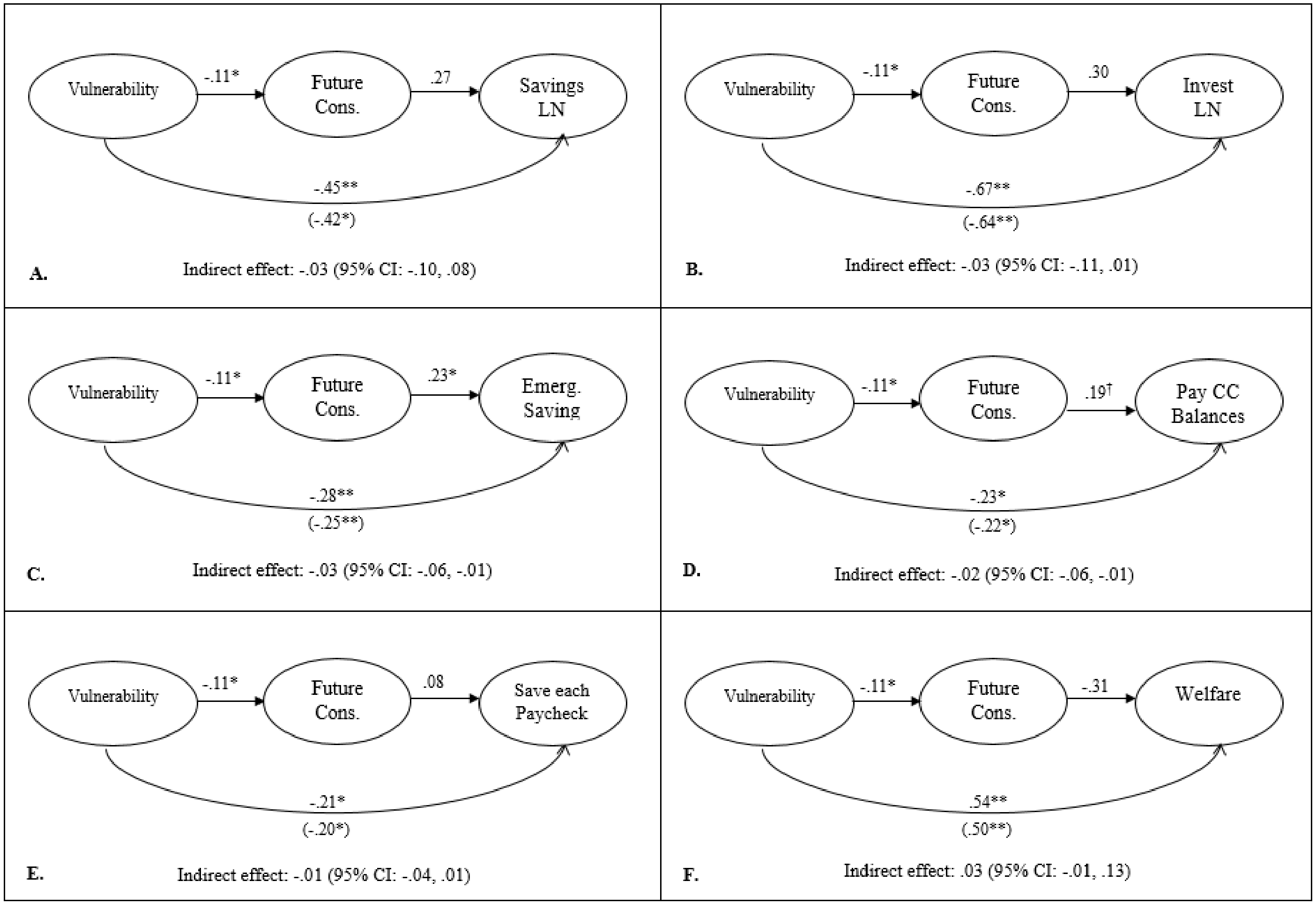
Direct effect presented in parentheses.

Detailed Results: Mediation Self-Efficacy



Direct effect presented in parentheses.

Detailed Results: Mediation CFC



Direct effect presented in parentheses.

Discussion and Conclusion

- Consumer financial decision-making is a consequential area of decision-making, in which current choices have important consequences for future financial health, and overall subjective and physical well-being (Botti & Iyengar, 2006):
  - Average consumer already struggles with basic concepts in financial literacy, added difficulty of being vulnerable places particular strain/risk on consumers to achieve positive financial outcomes.
  - Consumer protection based on traditional economic analysis focused on more-choice, better-information, and incentive-policy instruments to improve financial behavior (Lynch & Wood, 2006).
  - Behavior of vulnerable consumers is constrained by their circumstances, making traditional policy interventions less effective (Bertrand et al., 2006). Vulnerable consumers also are likely to experience increased stress as they attempt to cope with their difficult financial circumstances.
- Our results provide insights into measurable psychological characteristics that vary meaningfully in accordance with consumers' level of financial vulnerability, helping policy makers/practitioners identify areas to assist "at-risk" consumers:
  - We illuminate personal savings orientation and financial self-efficacy as versatile, non-skills based, constructs that can account for the association of vulnerability across several financial outcomes, and money management skills as a key pragmatic factor with similar widespread utility.

Discussion and Conclusion

- Both the CFPB (2013), and the U.K. Money Advice Service (2015) have called for increased emphasis on how consumers' mindsets impacts their financial behavior:
  - Focus on developing and nurturing a positive personal savings orientation and instilling a sense of personal agency regarding one's financial matters as supplement to regular financial advice process?
  - Vulnerable consumers facing difficult financial situations may be less responsive to information and/or practical advice if they score low on financial self-efficacy, as the challenge of implementing such advice may be perceived as too aversive for these consumers → develop confidence in their skills.
  - Fostering financial self-efficacy seems particularly relevant, as individuals with higher self-efficacy typically respond more adaptively to adverse circumstances (Park & Folkman, 1997), and also display greater financial optimism and a greater focus on long-term financial behaviors (Engelberg, 2007).
  - Develop personal savings orientation through teaching consumers habits that encourage consistent saving and ways to create and maintain a saving-oriented lifestyle; develop financial self-efficacy by role modeling to build confidence, in addition to providing education focused on financial capability.


role model

Examples Word Origin

noun

1. a person whose behavior, example, or success is or can be emulated by others, especially by younger people.

Thank you. Any Questions?

Samples

	Study 1	Study 2
Participants	N = 360	N = 515
Removed	N = 39	N = 35
Source	MTurk	Qualtrics Panel
Characteristics		
Males	164 (51.1%)	236 (49.2%)
Race	61 non-white Ps (19%)	74 non-white Ps (15%)
Age	M=33 years, SD=9.87	M=52 years, SD=14.81
Education	130 to Uni level (43%)	240 to Uni level (50%)