Do Experimental Games Impact Real-Life Insurance Enrollment for the Poor?

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Introduction
Overview

Based on experimental insurance games played in 2010 in the rural Philippines

Do experimental games impact participants' real life financial decision-making?

Conducted follow-up survey in 2013 to:

- understand whether the games had any impact on insurance enrollment
- examine channels through which impact might occur

Main results

- those who participated in the 2010 game had significantly higher enrollment in PhilHealth
- games as 'nudges'

Introduction
Motivation

Health shocks have significant negative effects on the poor

Social health insurance schemes implemented in many low and middle-income countries

Insurance enrollment remains very low

Barriers from the demand side and the supply side

Demand side: limited understanding of insurance, lack of financial resources, lack of trust

Supply side: poor quality of health care services, limited knowledge of health care providers

What are some policies and interventions to increase enrollment in insurance schemes?

Introduction
Contribution

- Gaurav et al. (2011): financial literacy training with insurance games in India + choice of insurance post-training → **5.3 percentage point increase** (8.7 percent in control group)

- Norton et al. (2012): experimental insurance games in Ethiopia → **approx. 5 percentage point increase** (15.75 percent in control group)

- Cai and Song (2015): insurance game in China → **9.6 percentage point increase** (20 percent in control group)

Contribution

- Completely independent of the game i.e., insurance not offered as part of the game → more accurately reflects demand + reduces experimenter demand effect

- Long-term effect

Introduction
Research questions

• Does participating in insurance games have an impact on real life insurance enrollment?

Channels: do insurance games have an impact on

- insurance knowledge?

- insurance attitudes?

- trust in insurance?

- risk preferences?

Introduction
Insurance games: Impact and Mechanisms

Insurance games → insurance knowledge and attitudes → insurance enrollment

•**Impact on insurance knowledge:** positive impact (Tower and McGuiness, 2011); no impact (Olapade and Frölich, 2012; Cai and Song, 2013)

•**Impact on insurance attitudes:** positive impact (Carpena et al., 2011; Olapade and Frölich, 2012)

•**Impact on trust:** positive impact (Patt et al., 2009)

•**Impact on risk preferences**: no impact (Cai and Song, 2013)

Setting
Health Sector Context

PhilHealth, or the Philippines Health Insurance, established in 1995:

1) Overseas Worker Program   2) Employed Program   3)Individually Paying Program

4) Lifetime Program   5) Sponsored Program

Enrollment criteria for Sponsored Program

• Person belonging to the lowest 25% of the Philippine population

• Enrollment by the households is voluntary

• Very high leakage, particularly in Western Visayas

Setting
Research Design

Insurance game in 2010

• Invited: 8*24=192 household heads

• Of those invited, 174 played the game (90 percent)

• Invited brought along 2 friends each = 174*2 = 348

• Total = 513 (without exclusion 522/ those >70 yrs excluded)

• Invited and peers are balanced

Follow-up survey in 2013

• 458 reached for follow-up survey (89.3 percent)

• Attrition – unlikely to be because of the game

• Control group: 575 participants

• Control group is from the same pool of the population that was eligible to participate in the game in 2010

Descriptive Statistics
Household Characteristics

Table 1: Sample Characteristics (mean and standard deviation)

	Sample mean (1)	Control group (2)	Treatment group (3)	Equality of means p-value (4)
Household size	4.17 (2.14)	4.09 (2.12)	4.27 (2.16)	0.18
Household income (annual) (in Pesos)	96230.01 (146087.1)	92286.74 (150798.7)	101180.7 (139953.9)	0.33
Household has savings	0.61	0.61	0.61	0.98
Household owes money	0.72	0.70	0.75	0.08
Skip meals in the past 3 months	0.28	0.27	0.29	0.56
Household owns house	0.88	0.88	0.87	0.43
Access to safe drinking water	0.69	0.69	0.70	0.88
Access to improved sanitation	0.78	0.77	0.79	0.28
Types of shocks experienced in the past 3 years	1.36 (1.07)	1.30 (1.08)	1.42 (1.07)	0.07
Observations	*1033*	*575*	*458*	

Descriptive Statistics
Individual Characteristics

Table 1: Sample Characteristics

	Sample mean (1)	Control group (2)	Treatment group (3)	Equality of means p-value (4)
Female	0.66	0.66	0.70	0.16
Married	0.80	0.79	0.81	0.33
Household head	0.46	0.48	0.44	0.18
Financially responsible	0.96	0.96	0.97	0.45
Age	44.13 (11.68)	42.06 (10.99)	46.72 (12.01)	0.00***
Education (years completed)	11.16 (3.60)	11.24 (3.67)	11.06 (3.5)	0.44
Math score (out of 8)	6.04 (1.81)	5.96 (1.83)	6.15 (1.78)	0.09
No. of barangay officials in contact with	5.24	4.59	5.89	0.10
Observations	*1033*	*575*	*458*	

Empirical Strategy
Linear Probability Model

$$Y_i = \alpha + \beta Game_i + e_i$$

Where

- Y_i = indicator for whether individual enrolled in insurance or not

- $Game_i$ = indicator for whether individual played insurance game in 2010 or not

- e_i = error term

Empirical Results
Impact on PhilHealth Enrollment

Table 2: Linear Regression: Impact of Game on PhilHealth Enrollment

	(1)	(2)	(3)
Insurance game	0.066***	0.058**	0.054**
	(0.031)	(0.032)	(0.032)
Constant	0.454***	0.197	-0.004
	(0.021)	(0.119)	(0.132)
Individual controls		Yes	Yes
Household controls			Yes
Observations	*1033*	*1033*	*1033*

Empirical results
PhilHealth Status

Table 3: PhilHealth Enrollment Change Over Time for the Treated

	Treatment 2010	Treatment 2013	Equality of means p-value
	(1)	(2)	(3)
PhilHealth enrollment	0.41	0.52	0.00***
	(0.49)	(0.50)	
Observations	*458*	*458*	

Empirical Results
Impact on PhilHealth's Sponsored Program Enrollment

Table 4: Linear Regression: Impact of Game on Sponsored Program Enrollment

	(1)	(2)	(3)
Insurance game	0.085***	0.075**	0.071**
	(0.031)	(0.032)	(0.031)
Constant	0.351***	0.319***	0.136
	(0.020)	(0.117)	(0.129)
Individual controls		Yes	Yes
Household controls			Yes
Observations	*1033*	*1033*	*1033*

Channels
Impact of Insurance Game on Insurance Knowledge

Table 5: Impact of Insurance Game on Insurance Knowledge

| | Knowledge 1 (0/1) | | Knowledge 2 (0/1) | | Knowledge 3 (0/1) | |
	(1)	(2)	(3)	(4)	(5)	(6)
Insurance game	-0.025	-0.012	-0.026	-0.033	0.000	-0.001
	(0.023)	(0.023)	(0.022)	(0.022)	(0.013)	(0.013)
Constant	0.165***	0.443***	0.157	0.202*	0.043***	0.016
	(0.015)	(0.112)	(0.015)	(0.107)	(0.009)	(0.070)
Individual and household controls		Yes		Yes		Yes
Observations	*1033*	*1033*	*1033*	*1033*	*1033*	*1033*

Channels
Impact of Insurance Game on Insurance Attitude

Table 6: Impact of Insurance Game on Insurance Attitude

	Perceived protection (out of 21)	
	(1)	(2)
Insurance game	0.299	0.373
	(0.262)	(0.265)
Constant	16.221***	16.144***
	(0.174)	(0.381)
Individual and household controls		Yes
Observations	*1033*	*1033*

Channels
Impact of Insurance Game on Trust

Table 7: Impact of Insurance Game on Trust

	Trust in insurance providers (out of 21)	
	(1)	(2)
Insurance game	0.303	0.418
	(0.278)	(0.281)
Constant	15.082***	15.366***
	(0.189)	(1.124)
Individual and household controls		Yes
Observations	*1033*	*1033*

Channels
Impact of Insurance Game on Risk Attitudes

Table 8: Impact of Insurance Game on Risk Attitudes

	Risk 1 (out of 6)		Risk 2 (out of 21)	
	(1)	(2)	(3)	(4)
Insurance game	0.282**	0.288*	0.549**	0.213
	(0.116)	(0.116)	(0.252)	(0.259)
Constant	3.456***	4.336***	16.603***	14.925***
	(0.076)	(0.502)	(0.174)	(1.003)
Individual and household controls		Yes		Yes
Observations	*1033*	*1033*	*1033*	*1033*

Empirical Results
Heterogeneity of Treatment Effect

Table 9: Heterogeneous Response to Treatment by Socio-Economic Characteristics

	(1)	(2)	(3)	(4)	(5)
Insurance game	0.045	-0.014	0.108**	0.152***	0.109***
	(0.054)	(0.068)	(0.039)	(0.044)	(0.039)
Female	-0.091**				
	(0.043)				
Game*female	0.063				
	(0.065)				
Married		0.030			
		(0.048)			
Game*married		0.121			
		(0.074)			
Education (<10 years)			0.081*		
			(0.042)		
Game*education (<10 years)			-0.064		
			(0.063)		
Income (<69000 Pesos)				0.106***	
				(0.041)	
Game* income (<69000 Pesos)				-0.126**	
				(0.061)	
Age (<40 years)					-0.078*
					(0.040)
Game*age (<40 years)					-0.025
					(0.062)
Constant	0.411***	0.311***	0.328***	0.0321***	0.295***
	(0.035)	(0.070)	(0.044)	(0.025)	(0.029)
Observations	*1033*	*1033*	*1033*	*1033*	*1033*

Channels
Alternative explanation

Nudging

- Models considering hyperbolic discounting (people put more weight on the present than on the future) might explain non-enrollment in social health insurance (Currie, 2006)

- Insurance games might act as "nudges" that is, behavioral policy interventions that help people help themselves (Thaler and Sunstein, 2008) to overcome procrastination (Baicker et al., 2012)

Conclusion

Impact of economic experiments

Insurance games have a positive impact on real-life enrollment

Channels through which games impact enrollment are not yet clear

Careful of unintended consequences

Thank you

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Additional resources
Binswanger lottery

Figure A1: Binswanger lottery for eliciting risk preferences