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March 2016

# **CAN SMOKING HARM YOUR LONG TERM SAVING DECISIONS?**



# Smoking and Long Term Savings

- Our project relates and contributes to the literature of time preference, life expectancy, smoking, and long term savings decisions.
- We investigate the possibility of different time preferences of smokers in the context of long term savings.
- Our investigation relies on unique proprietary data from an insurance corporation in Israel.
- We suggest that smokers experience self-illusion regarding their own life expectancy.

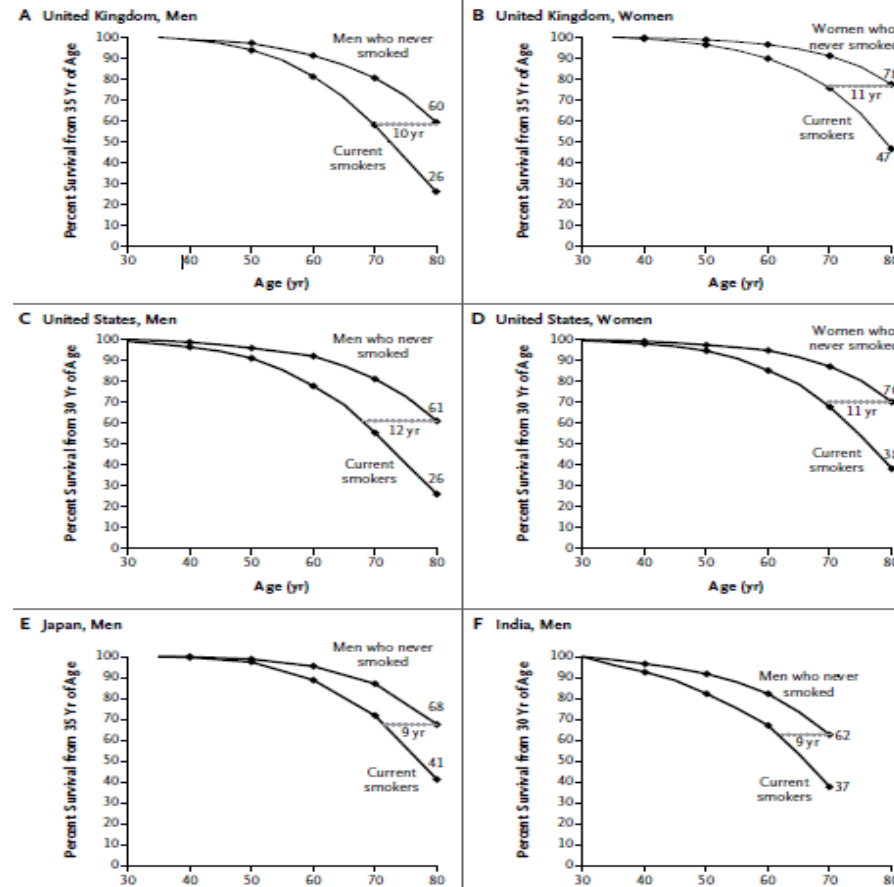


# Why is it Interesting?

- Smoking is considered to be the most significant preventable risk to human health, (Wang (2014)).
- Smoking is responsible for 20% of total mortality in the US since the 1990s, (Mokdad, Marks, Stroup and Gerberding (2004)).
- One should ask:
  - Why do people smoke?
  - Do smokers have different characteristics?
  - What is the relation between smoking and financial decisions? – long term savings decisions
- **We exploit a special feature of pension insurance policies in Israel as an interesting test case for smokers' financial decisions.**

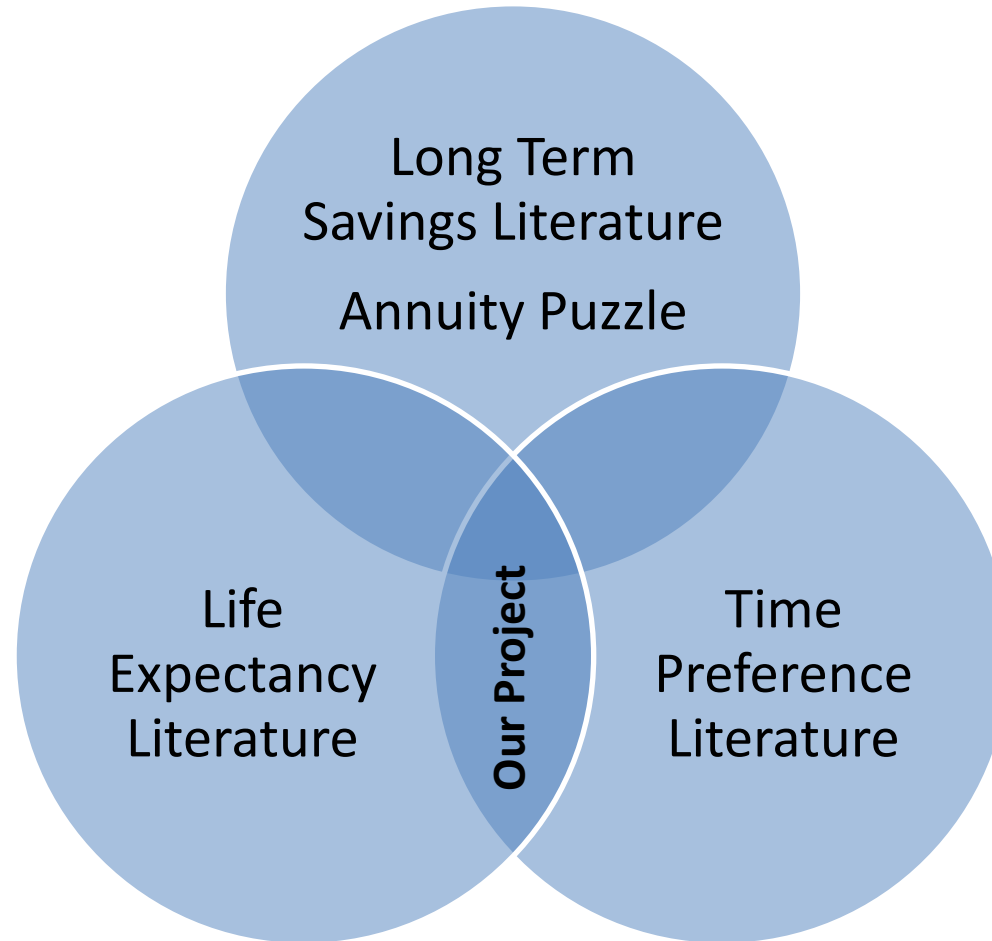


# Smokers Life Expectancy





# Academic Literature





# Theory of Smoking and Time preferences

- One explanation for smoking is that smoking behavior could be explained by differences in time preference (e.g. Becker and Murphy (1988), Lipkus, Barefoot, Williams and Siegler (1994), Daugherty and Brase (2010)). Specifically by, **present preferences** reflected in higher subjective discount rates.
- Smoking as a proxy for present preferences (Munasinghe and Sicherman (2006), Huston and Finke (2003) and Scharff and Viscusi, (2011)).
- Ongoing academic debate regarding the exact relationship between smoking and time preference (e.g Fuchs (1982), Adams and Nettle (2009) and Harrison, Lau, and Rutström (2010)).

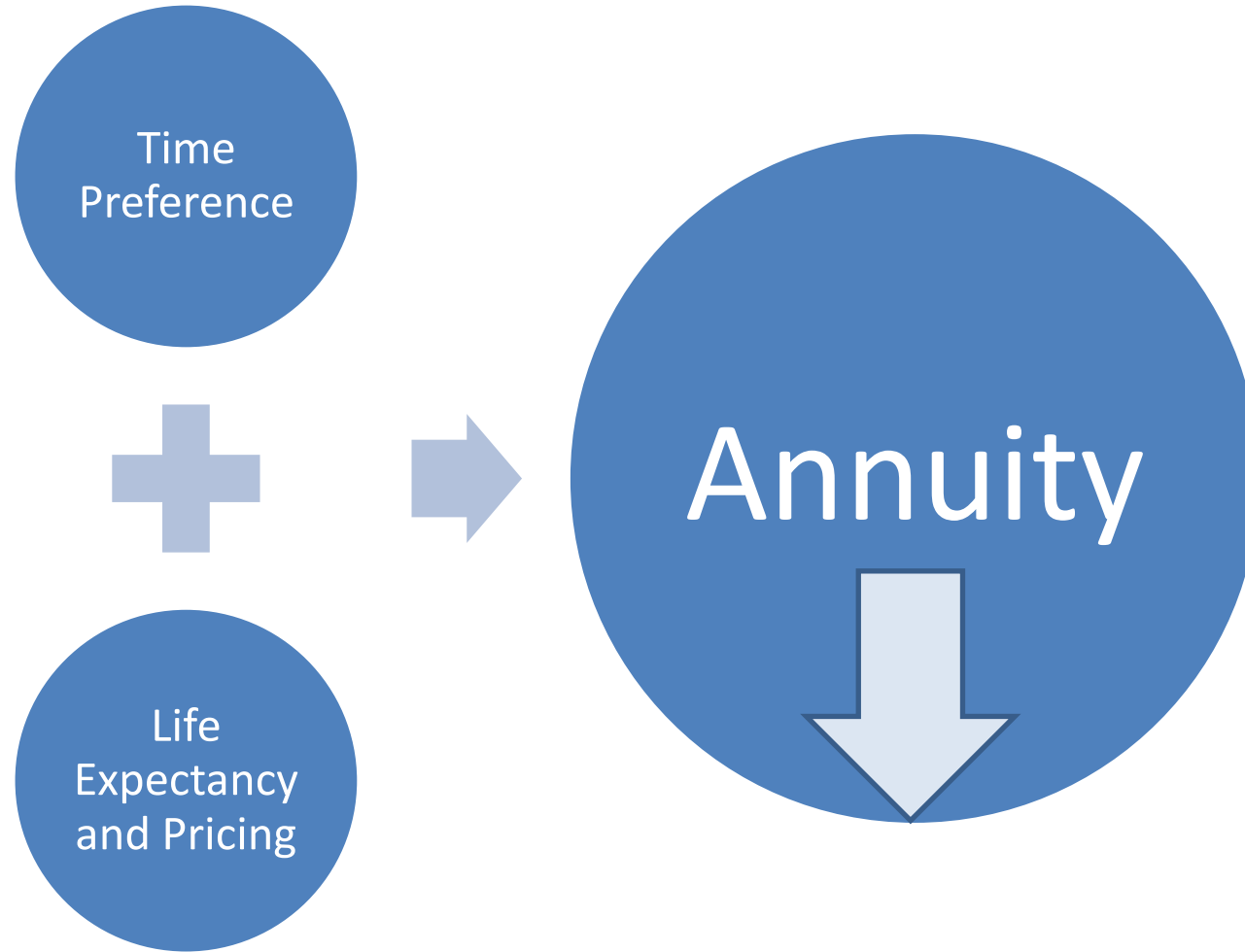


# The Annuity Puzzle

- Concerns that are related to time preference and individual choices are also related to long term saving decisions.
- One of the long standing puzzles with regard to long term saving choices is the “Annuity Puzzle”: annuities have substantial value and under a set of assumptions, retirees should generally use annuities to increase their consumption in retirement. However, empirical work finds little evidence of the purchase of annuities (Benartzi, Previtro, and Thaler (2011)).



# Theory of Smoking and Annuities







# Data

- Our investigation relies on unique proprietary data from an insurance corporation in Israel.
- The data covers the decision of 18,860 retirees between the years 2009-2013.
- The data includes 1,556 retirees with accumulations above 500K NIS.



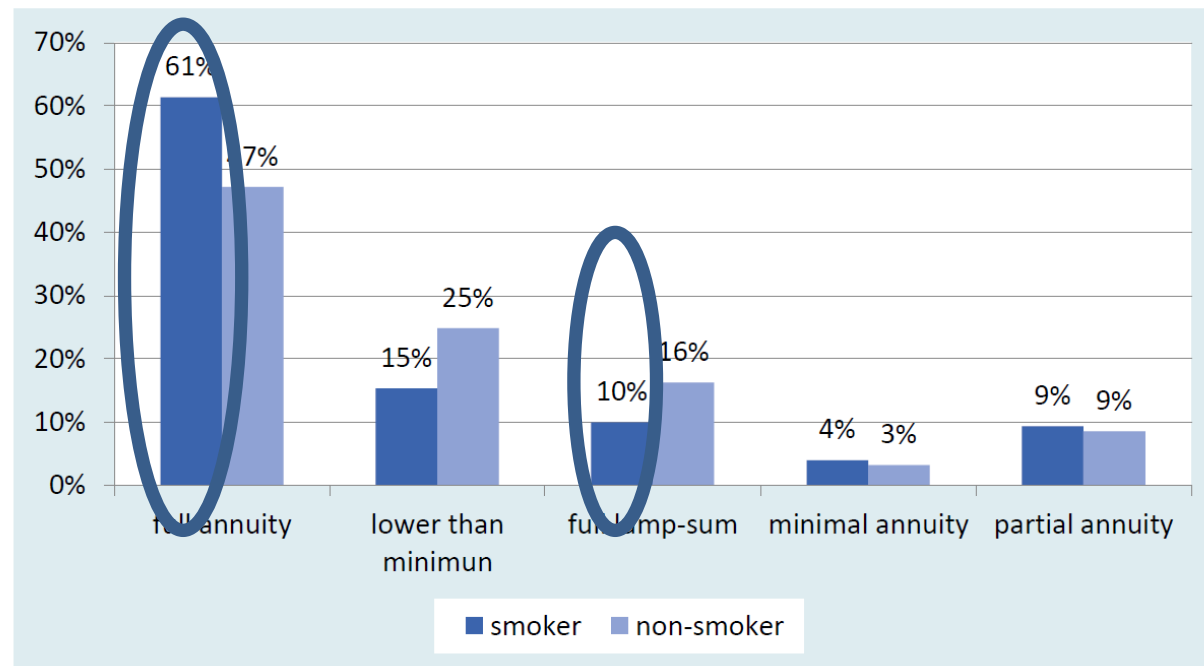
# Descriptive Statistics

VARIABLES	(1) N	(2) Mean / %
Retirement age	1,556	67.2
Male	1,151	73.97%
<b>Marital status</b>		
Divorced	150	9.64%
Widower	75	4.82%
Married	1,175	75.51%
<b>Smoking activity</b>		
Smoker	150	9.64%



# Smokers Prefer Annuities

- 61% of smokers chose full annuities, where only 47% of non-smokers chose this option.





# Smoking and Medical Condition

- $$\begin{aligned}
 (3) y_{ann} &= \alpha + \beta_1 male + \beta_2 retirement\_age \\
 &+ \beta_3 year\_dummies + \beta_4 total\_amount + \beta_5 divorced \\
 &+ \beta_6 widower + \beta_7 married + \beta_8 single \\
 &+ \beta_9 purchase\_age + \beta_{10} no\_of\_policies \\
 &+ \beta_{11} percent\_post\_2008 + \beta_{12} smoker \\
 &+ \beta_{13} mortality\_increase \\
 &+ \beta_{14} professional\_increase + \epsilon_i
 \end{aligned}$$

Personal characteristics

Policy characteristics

Smoking

Insurance increases

## Medical condition – Probit and logit

(dependent variable: choosing any part of annuity (rather than the full lump-sum choice))



VARIABLES	Medical status regression with year FE (including smoking)				Smoking status regression with year FE			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Probit coeff	Marginal effects at mean	logit coeff	Marginal effects at mean	Probit coeff	Marginal effects at mean	logit coeff	Marginal effects at mean
Gender	-0.179 (0.136)	-0.0297 (0.124)	-0.321 (0.262)	-0.0227 (0.337)	-0.203 (0.135)	-0.0340 (0.141)	-0.351 (0.261)	-0.0251 (0.373)
retirement_age	-0.00181 (0.0179)	-0.000301 (0.00323)	-0.00235 (0.0324)	-0.000166 (0.00336)	0.00253 (0.0177)	0.000424 (0.00343)	0.00590 (0.0319)	0.000421 (0.00665)
total_amount	7.68e-08 (7.21e-08)	1.28e-08 (5.38e-08)	1.11e-07 (1.23e-07)	7.86e-09 (1.17e-07)	7.28e-08 (7.41e-08)	1.22e-08 (5.14e-08)	1.02e-07 (1.26e-07)	7.27e-09 (1.08e-07)
Divorced	-3.956 (120.5)	-0.658 (17.35)	-13.88 (680.5)	-0.979 (33.47)	-3.975 (120.5)	-0.667 (17.48)	-13.89 (681.9)	-0.992 (33.97)
Widower	-3.969 (120.5)	-0.661 (17.34)	-13.95 (680.5)	-0.984 (33.40)	-3.977 (120.5)	-0.667 (17.48)	-13.96 (681.9)	-0.997 (33.90)
Married	-3.917 (120.5)	-0.652 (17.38)	-13.84 (680.5)	-0.977 (33.51)	-3.941 (120.5)	-0.661 (17.51)	-13.89 (681.9)	-0.992 (33.97)
Un-known marital status	-5.494 (120.5)	-0.914 (16.30)	-16.54 (680.5)	-1.167 (30.68)	-5.515 (120.5)	-0.925 (16.43)	-16.58 (681.9)	-1.184 (31.12)
purchase_age	-0.0776*** (0.0128)	-0.0129 (0.0530)	-0.140*** (0.0237)	-0.00985 (0.146)	-0.0792*** (0.0127)	-0.0133 (0.0543)	-0.143*** (0.0235)	-0.0102 (0.152)
no_of_policies	0.00754 (0.0140)	0.00126 (0.00566)	0.0295 (0.0293)	0.00208 (0.0310)	0.00761 (0.0140)	0.00128 (0.00572)	0.0285 (0.0291)	0.00204 (0.0303)
percent_post_2008	2.515*** (0.469)	0.418 (1.719)	4.514*** (0.873)	0.318 (4.729)	2.395*** (0.466)	0.402 (1.643)	4.312*** (0.867)	0.308 (4.570)
GDP								
Rf								
year2009	0.716*** (0.199)	0.119 (0.490)	1.378*** (0.381)	0.0972 (1.444)	0.724*** (0.199)	0.121 (0.497)	1.391*** (0.380)	0.0993 (1.475)
year2010	0.131 (0.160)	0.0219 (0.0936)	0.247 (0.290)	0.0174 (0.259)	0.131 (0.159)	0.0220 (0.0936)	0.248 (0.290)	0.0177 (0.264)
year2011	-0.00360 (0.143)	-0.000599 (0.0239)	0.0440 (0.261)	0.00311 (0.0497)	-0.0164 (0.142)	-0.00275 (0.0264)	0.0244 (0.261)	0.00174 (0.0318)
year2012	0.0975 (0.144)	0.0162 (0.0707)	0.202 (0.267)	0.0142 (0.212)	0.0996 (0.143)	0.0167 (0.0723)	0.196 (0.265)	0.0140 (0.208)
smoker	0.173 (0.172)	0.0288 (0.122)	0.306 (0.329)	0.0216 (0.321)	0.152 (0.169)	0.0254 (0.108)	0.296 (0.329)	0.0211 (0.315)
mortality_increase	-0.835** (0.338)	-0.139 (0.573)	-1.450** (0.577)	-0.102 (1.520)				
professional_increase	-0.254 (0.248)	-0.0422 (0.178)	-0.517 (0.434)	-0.0364 (0.542)				
Constant	9.780 (120.5)		24.19 (680.5)		8.517 (120.5)		21.88 (681.9)	
Observations	1,359	1,359	1,359	1,359	1,359	1,359	1,359	1,359
Pseudo R <sup>2</sup>	0.2569	0.2569	0.2563	0.2563	0.2512	0.2512	0.2506	0.2506





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# Optimism About the Consequences of Smoking Activity on Health and Life Expectancy – a Survey

- To investigate life expectancy perception by individuals in Israel, during March 2015, we obtained the results of an online survey of 1000 Israeli residents who were 50-70 years old.
- Our survey consisted of questions related to life expectancy estimations, demographic questions, long term savings decision choices and self-health assessment.



# Survey Design – Life Expectancy Perception

- *In your opinion, what is the current life expectancy in Israel (each respondent for their own gender)?*
- *Do you expect your own life expectancy to be lower, identical or higher than the average life expectancy you have mentioned above?*





# Survey Data

- 963 respondents.
- Average age – 58.
- 40.1% male.
- 73.4% married.
- 17.4% smoking.



# Main Results

- 57% of smokers believe that they will live as average.
- 22% of smokers believe that they will live more than average.
- Median and mean of smokers responses are to live as average.
- The results hold for different robustness tests.



# Conclusions

- In contrast to theory, in our sample ,we do not find evidence that smokers prefer the present, as they do not choose the lump-sum option when retiring.
- Our conjecture to our findings is that smokers do not perceive themselves as having a shorter horizon, meaning that smokers experience self-illusions regarding their life expectancy.
- Smokers might be over optimistic regarding their subjective life expectancy. This seem to affect their long term savings choices.



# Q&A