

THE ENTREPRENEURIAL PROPENSITY OF WOMEN

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Is there a gender issue in entrepreneurship?

- ▶ A scientific approach
- ▶ Women are much less likely to be involved in starting a business than men worldwide
- ▶ Female entrepreneurship is increasing but women are still significantly under represented
- ▶ Gender differences exists and are statistically significant

WHY?

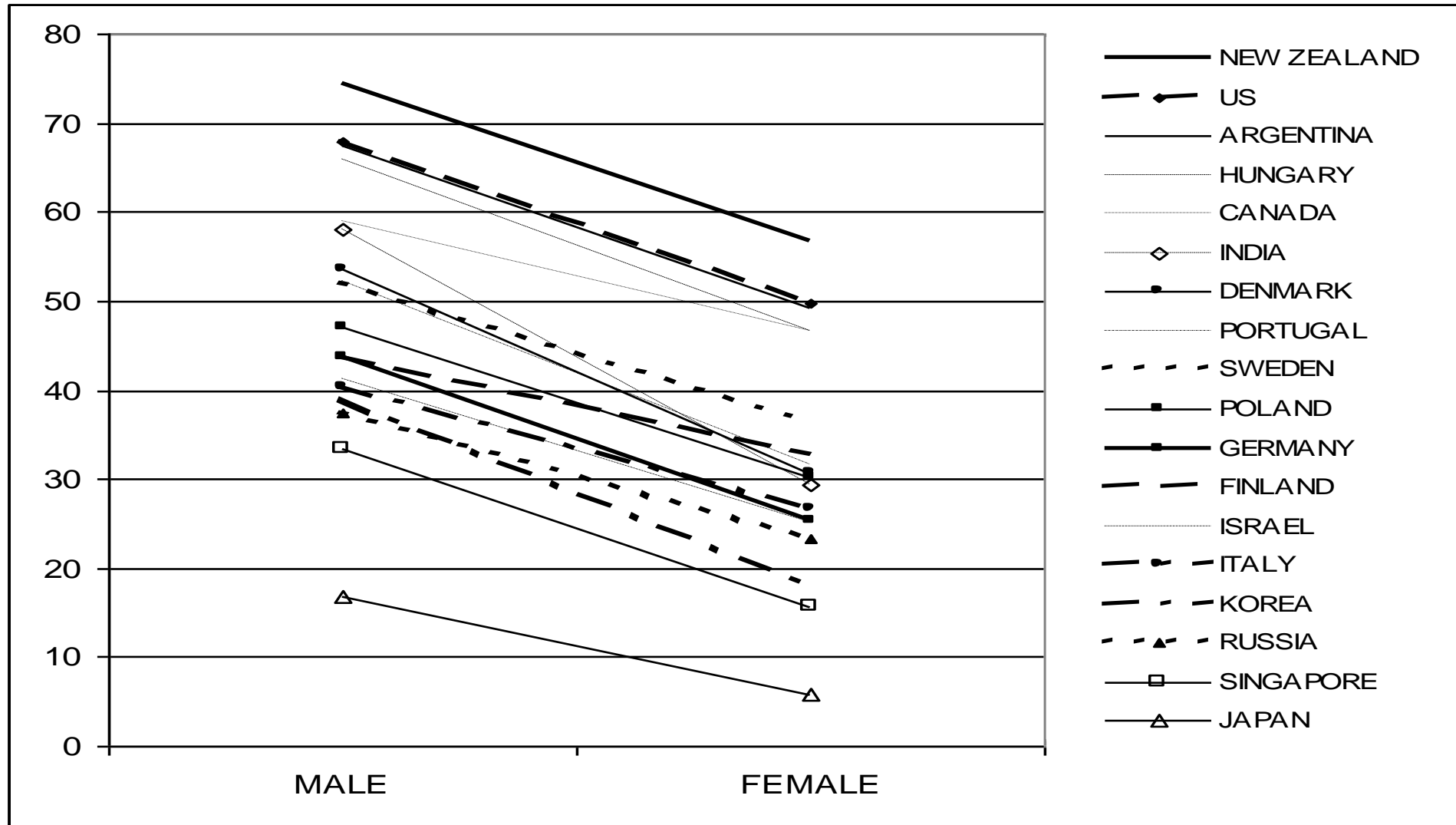
Different Views of the World

- ▶ There is a difference between actual levels and propensity
- ▶ Propensity depends (among other things) on PERCEPTIONS

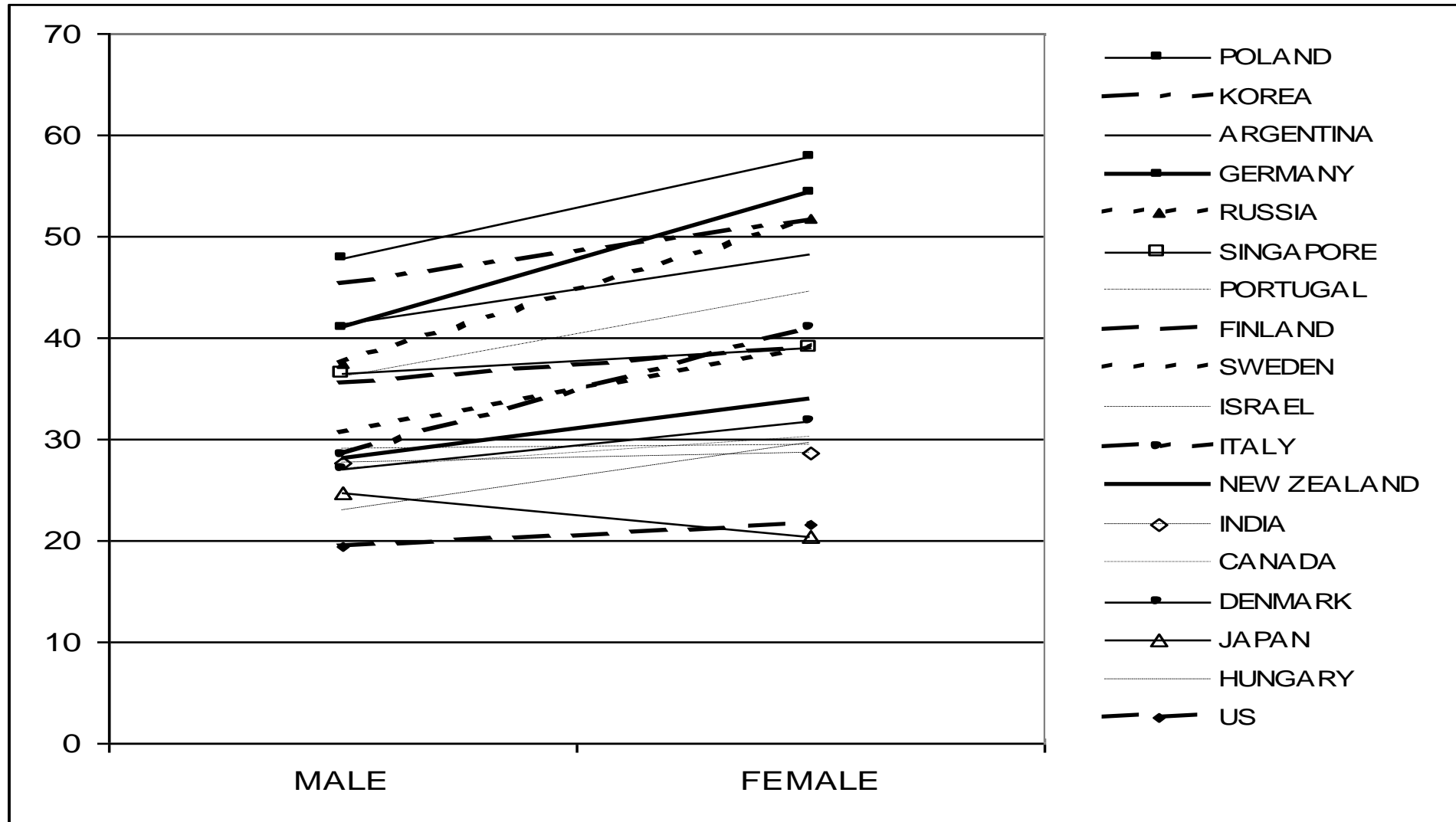
Men and women have different perceptions (thus, attitudes) toward:

- ▶ Competition (Gneezy et al. 2003)
- ▶ Altruism and fairness (Andreoni and Vesterlund 2001)
- ▶ Self-confidence and optimism (Bengtsson et al. 2005)
- ▶ Time preferences (Frederick 2005)

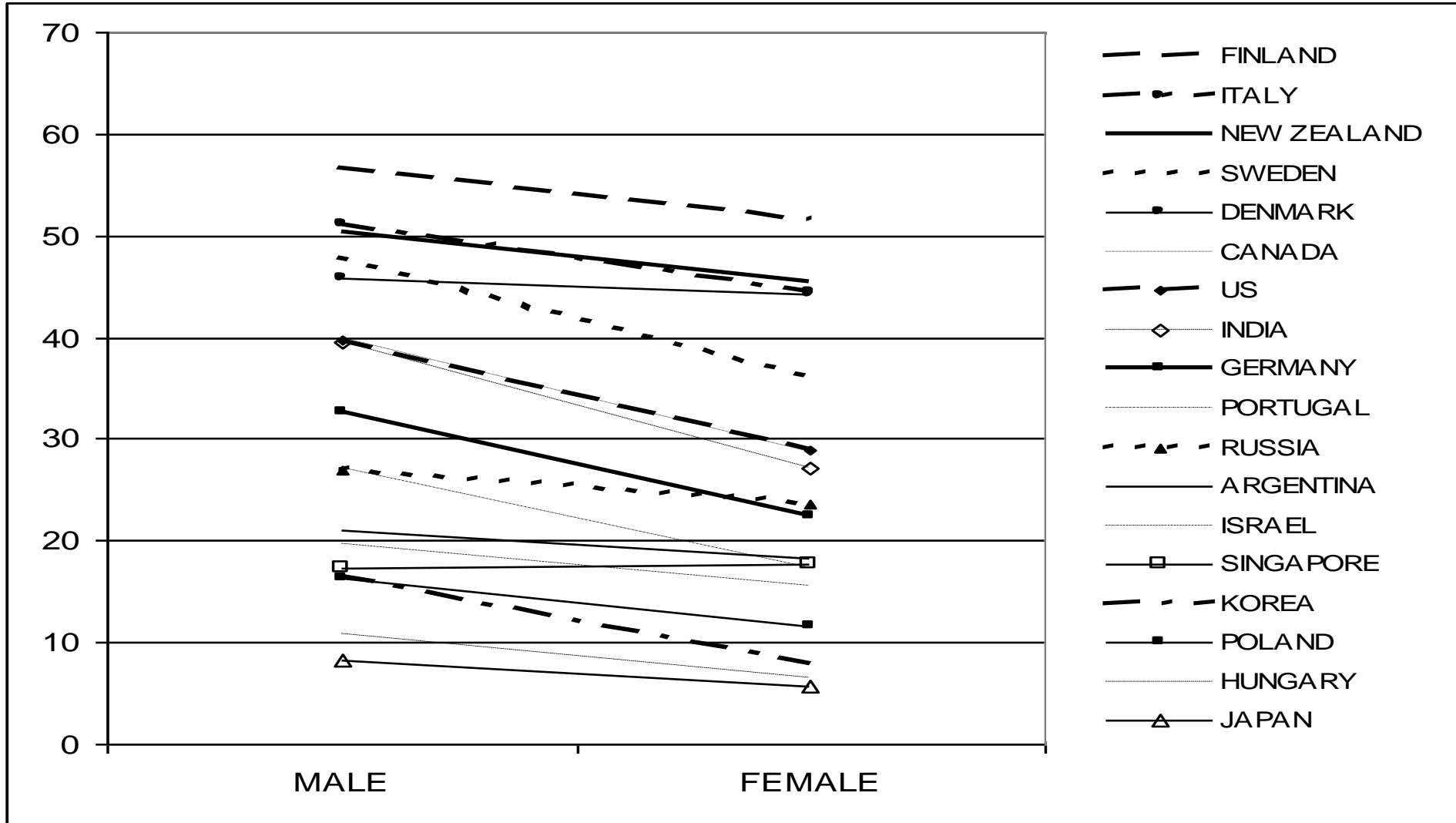
Sufficient skill perceptions



Fear of failure



Perception of business opportunities



So What?

- ▶ Exploratory analysis suggests that, although men and women react to the same variables and in the same qualitative ways, the intensities of their reactions may be statistically significantly different
- ▶ Intensity differential may explain, at least in part, the observed discrepancy between the rates of new firms' creation across genders
- ▶ Because of possible hidden relationships between variables, contingency tables cannot determine unequivocally the relationship between the dependent and the independent variables
- ▶ In other words, when building contingency tables, not all conditions are kept equal

How do we go about it?

(Just one approach - Somewhat similar to propensity score matching)

We analyze the choices of men and women put in identical economic environments and socio-economic circumstances

- ▶ We use representative samples of population for 34 countries collected in 2009 (un-weighted individual level data)

Countries included are Argentina, Australia, Belgium, Brazil, Canada, Croatia, Denmark, Ecuador, Finland, France, Germany, Greece, Jordan, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Singapore, Slovenia, Spain, South Africa, Sweden, Uganda, United Kingdom, and United States.

We use only observations for which values for all categorical variables are available. That is, we use a sub-sample of about 60,000 individuals

- ▶ We use an equalization process and a special form of bootstrapping

Bootstrapping (Efron 1979, 1982)

- ▶ Bootstrap is a non-parametric technique able to produce estimates of bias, variance and other measures of error by means of re-sampling of the available population data
- ▶ A re-sampling plan is any method that evaluates a statistics using samples drawn from the probability distribution of the original data
- ▶ We use 2,000 iterations per group of variables and estimate confidence interval at 95% for propensities to start a business (either equalized or not equalized) by using the percentile method

<i>Socio-Economic Variables</i>	
Women are systematically less involved than men Minniti, Arenius and Langowitz (2005); Fairlie (1999, 2004)	Gender
The relationship between <i>age</i> and starting a business follows an inverted U Blanchflower (2004); Levesque & Minniti (2006); Reynolds et al. (2003)	Age
The relationship between education and new firm formation is uncertain Blanchflower (2004); Lazear (2002); Murchy et al. (1991)	Education
Entrepreneurial decisions are shown to be positively related to individual's incomes Evans & Jovanovic (1989); Khilstrom & Laffont (1979)	Household income
The relationship between education and work status is uncertain Blanchflower (2004)	Work status
<i>Perceptual Characteristics</i>	
Role models enhance information and social cues Begley and Boyd (1987); Minniti (2004, 2005)	Knowing entrepreneurs
Opportunity recognition represents the most distinctive of entrepreneurial behavior Kirzner (1973), 1979)	Opportunity perception
Starting a new firm is an intentional act that involves repeated attempts to exercise control Baron (2000); Gartner (1985); Harger (1998)	Self-confidence
Since individuals are risk averse, the perceived possibility of failure is important Schubert et al. (1999); Jianakoplos & Bernasek (1998); Johnson & Powell (1994)	Fear of failure
<i>Economic Context</i>	
Significant differences exist across countries and country effects may be quite important for entrepreneurial decisions Acs & Audretsch (1993); Chell & Baines 2000); Thurik et al. (2002)	Country effects

Factors defining the categories in the bootstrap procedure and their corresponding multiplicities

Socio-Economic Factors	Multiplicity
<i>COUNTRY ECONOMY</i>	5
<i>GEMWORK</i>	6
<i>HHINC</i>	3
<i>EDUC</i>	5
<i>AGE</i>	6
Total socio-economic factors multiplicity	2700
Perceptual Factors	Multiplicity
<i>KNOWENT</i>	2
<i>FEARFAIL</i>	2
<i>OPPORT</i>	2
<i>SUSKILL</i>	2
Total perceptual factors multiplicity	16
Total multiplicity	43200

Combinations of variables and records included in the equalization study.

	No. of combinations	Total no. of combinations	% included	No. of records included	Total no. of records	% included
<i>Socio-economic variables</i>	1064	2700	39.4%	57074	59304	96.2%
<i>Perceptual variables</i>	16	16	100.0%	59304	59304	100.0%
<i>All variables</i>	4500	43200	10.4%	48578	59304	81.9%

Interpretation of results

- ▶ The bootstrapping procedure allows us to calculate odd ratios between propensities for men and women and compare actual and equalized results
- ▶ If confidence intervals of actual and equalized results overlap, the equalized variables do not contribute to explaining the difference in the propensity to start businesses across genders
(There must be significant differences to begin with)
- ▶ If confidence intervals do NOT overlap, the equalized variables have explanatory power

EQUALIZED BOOTSTRAPPING RESULTS

	%p-low	%p-high	
<i>Socio-Demographic Variables</i>			
Bootstrap Simulation	1.677	1.873	<i>Overlap - No effect</i>
Equalized Bootstrap Simulation	1.637	1.775	
<i>Perceptual Variables</i>			
Bootstrap Simulation	1.682	1.854	<i>No Overlap - Strong effect</i>
Equalized Bootstrap Simulation	1.246	1.359	
<i>All Variables</i>			
Bootstrap simulation	1.572	1.754	<i>No Overlap - Strong effect</i>
Equalized Bootstrap Simulation	1.259	1.358	

To sum up:

- ▶ PERCEPTIONS >> SEEM TO BE IMPORTANT (EVOLUTIONARY?)

BUT NOT THE ENTIRE STORY:

- ▶ UNEXPLAINED VARIANCE (ABOUT 40%) >> DIFFERENT ROLE IN HOUSEHOLD UNIT

FAMILY STRUCTURE AND DYNAMICS ARE CHANGING: THE ECONOMIC LIVES OF WOMEN AND MEN ARE BECOMING INCREASINGLY MORE ALIKE

AS WOMEN'S PARTICIPATION IN LABOR FORCE INCREASES WE WOULD EXPECT FEMALE ENTREPRENEURSHIP TO CHANGE AS WELL AND TO SEE BETTER MATCHING BETWEEN WOMEN AND THEIR EMPLOYMENT DECISIONS

Of course, ONE SIZE DOES NOT FIT ALL:

- ▶ Family trajectories for individuals at top and at bottom of income/education distribution diverge
- ▶ Assortative marriage contributes to divergence

THIS IS AN EMPIRICAL QUESTION --ANY TAKERS?

▶ THANK YOU!

Presentation based on:

- ▶ Koellinger, P., M. Minniti, and C. Schade. 2013. "Gender Differences in Entrepreneurial Propensity." *Oxford Bulletin of Economics and Statistics* 75(2): 213-234.
- ▶ Minniti, M., and C. Nardone. 2007. "Being in Someone Else's Shoes: Gender and Nascent Entrepreneurship." *Small Business Economics Journal* 28(2-3): 223-239