

# Trust and Fertility Dynamics

Arnstein Aassve, Università Bocconi

Francesco C. Billari, University of Oxford

Léa Pessin, Universitat Pompeu Fabra

**Bocconi**



# Background

---

- Fertility rates across OECD countries differ and have followed rather different tracks
  - Nordic
  - Anglo-Saxon
  - Mediterranean
  - East-European

# Background

---

- Several explanations on offer
  - SDT (Van de Kaa & Lesthague)
  - Gender perspective (MacDonald)
  - Welfare provision and policy – based on welfare regime typologies (Esping-Andersen)

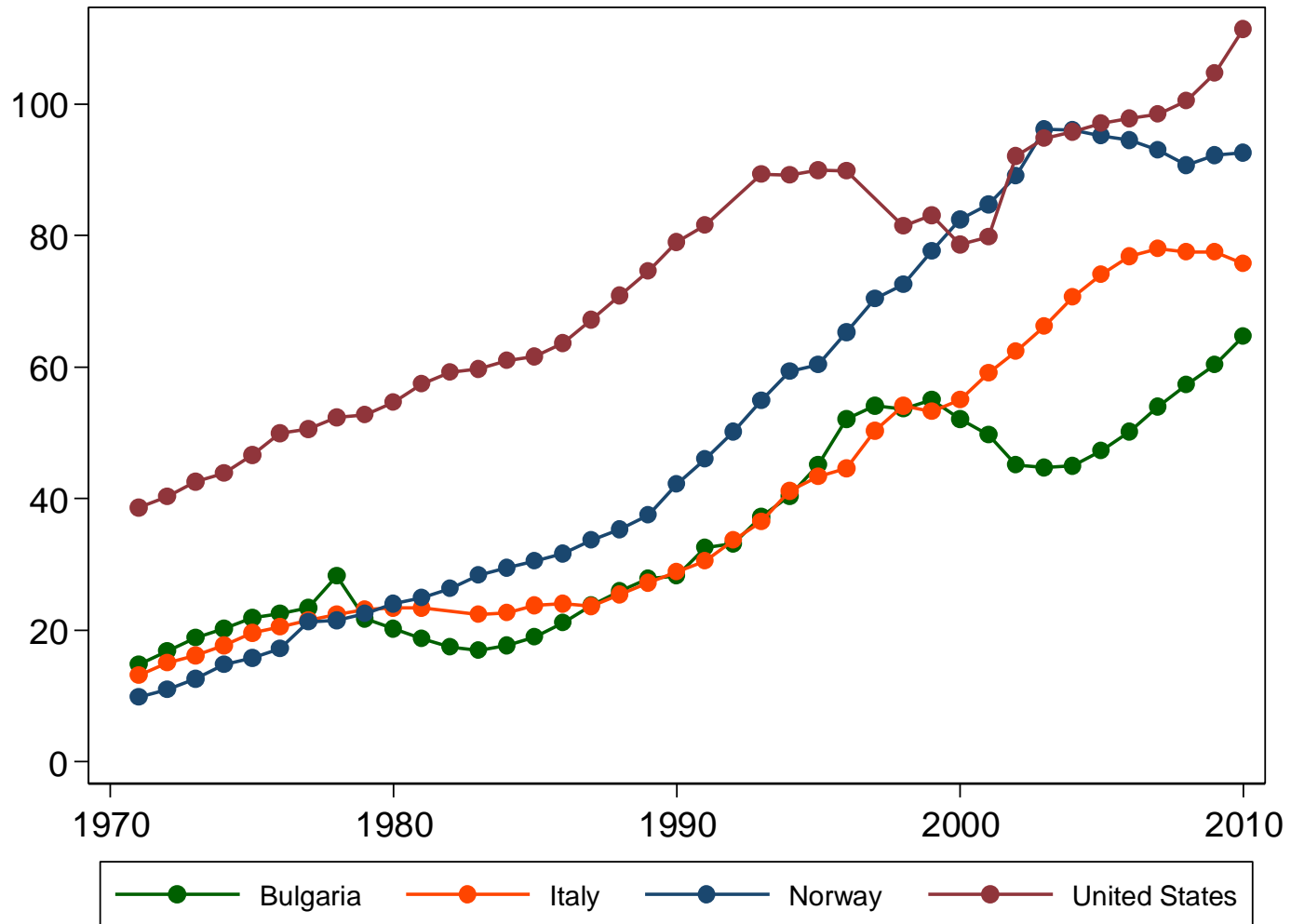
# Background

---

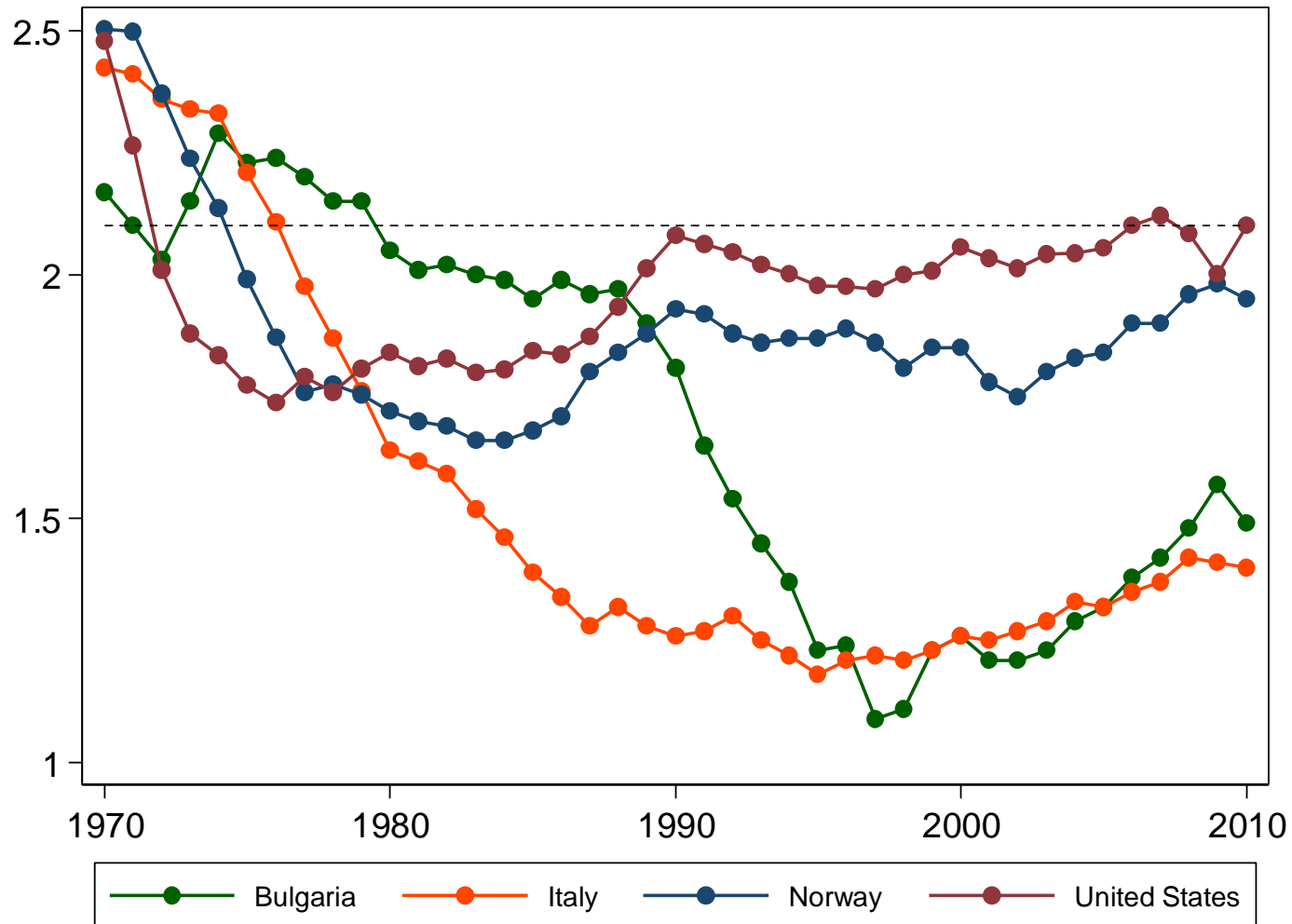
## ■ Empirically

- Desired fertility constant over time and across countries
- Gender perspective still needs further empirical testing.
- TFR high in Anglo-Saxon and Scandinavian countries

# Education trends in four countries



# Fertility trends in four countries



# Background

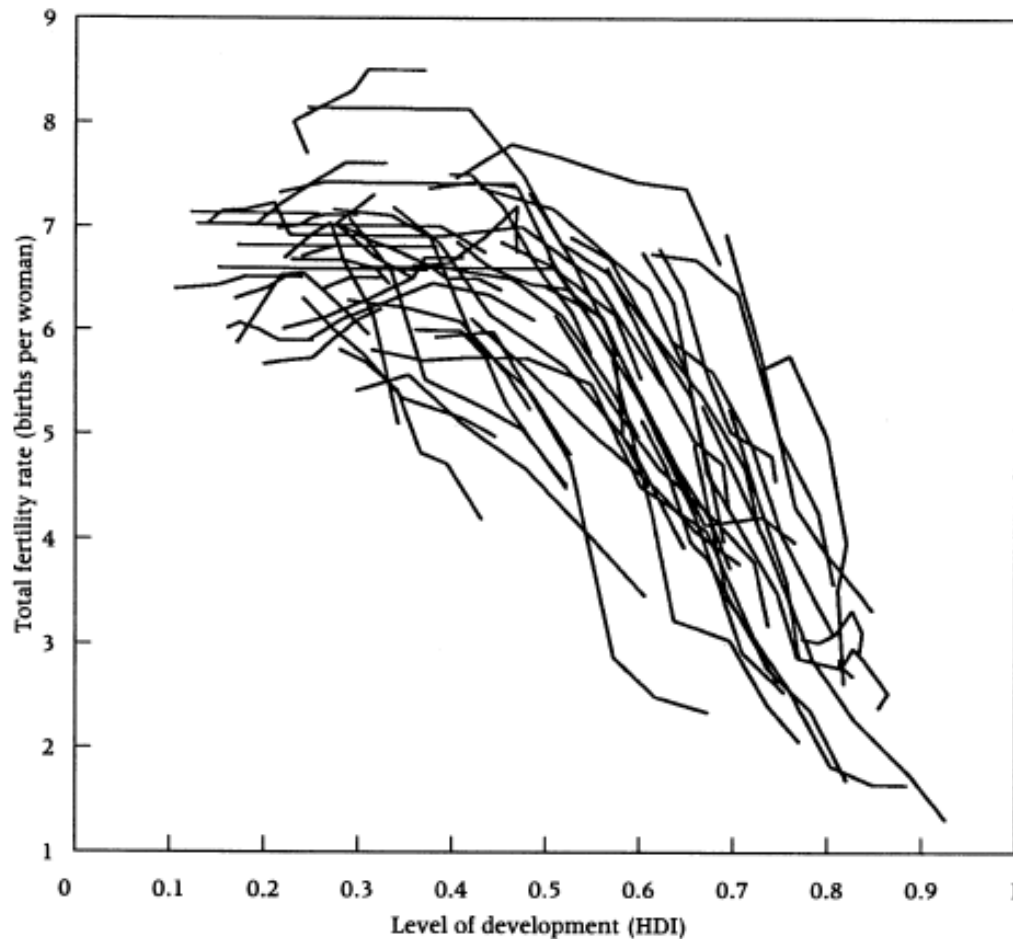
---

## ■ Empirically

- TFR and economic development might be following an U-shape – at very high levels of development – TFR appears to be picking up (Myrskylä et al 2009)

# The Bongaarts-Watkins curve

**FIGURE 2** Relationship between total fertility rate and development level (HDI) for 69 developing countries, 1960–65 to 1985–90





## LETTERS

# Advances in development reverse fertility declines

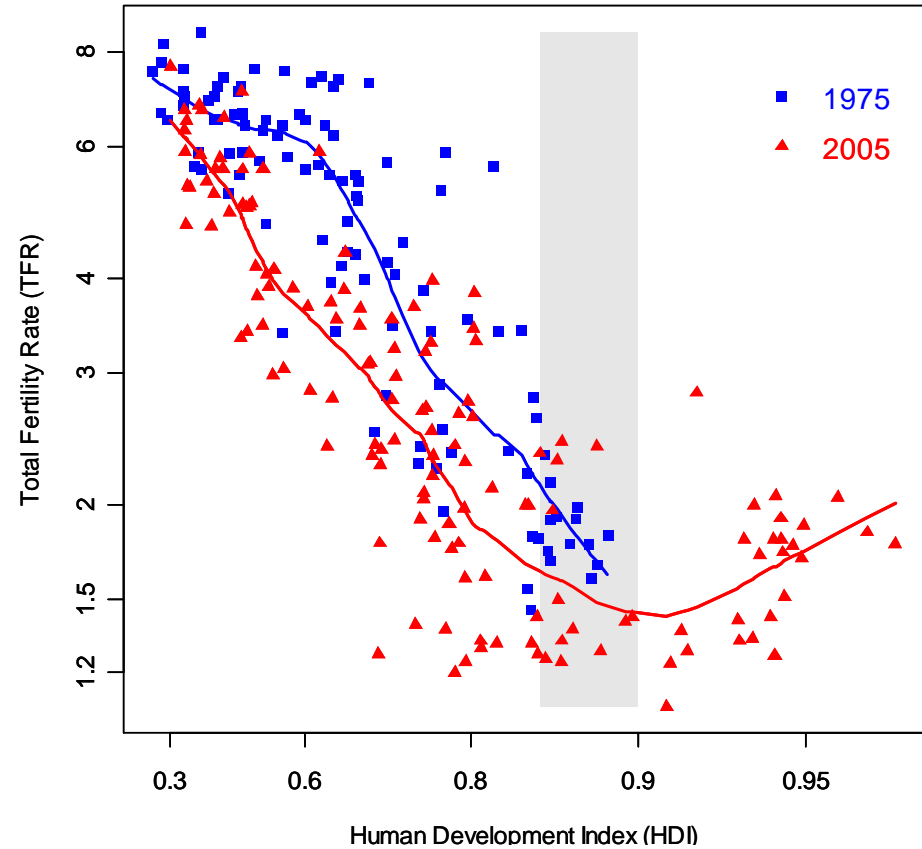
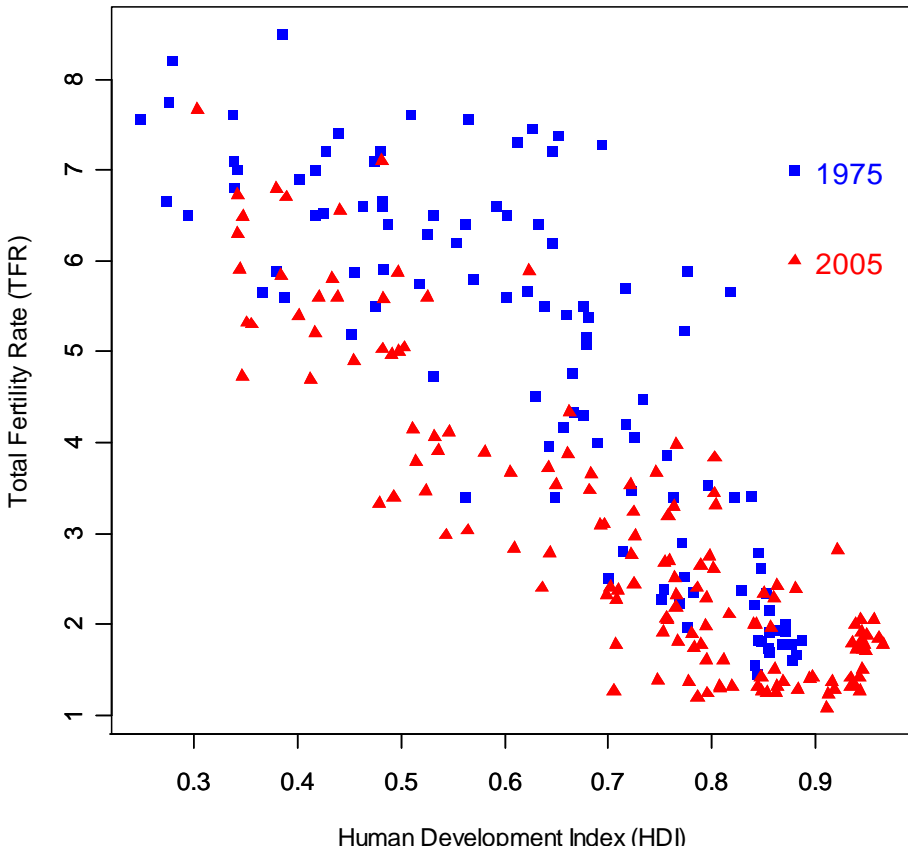
Mikko Myrskylä<sup>1</sup>, Hans-Peter Kohler<sup>1</sup> & Francesco C. Billari<sup>2</sup>

During the twentieth century, the global population has gone through unprecedented increases in economic and social development that coincided with substantial declines in human fertility and population growth rates<sup>1,2</sup>. The negative association of fertility with economic and social development has therefore become one of the most solidly established and generally accepted empirical regularities in the social sciences<sup>1–3</sup>. As a result of this close connection between development and fertility decline, more than half of the global population now lives in regions with below-replacement fertility (less than 2.1 children per woman)<sup>4</sup>. In many highly developed countries, the trend towards low fertility has also

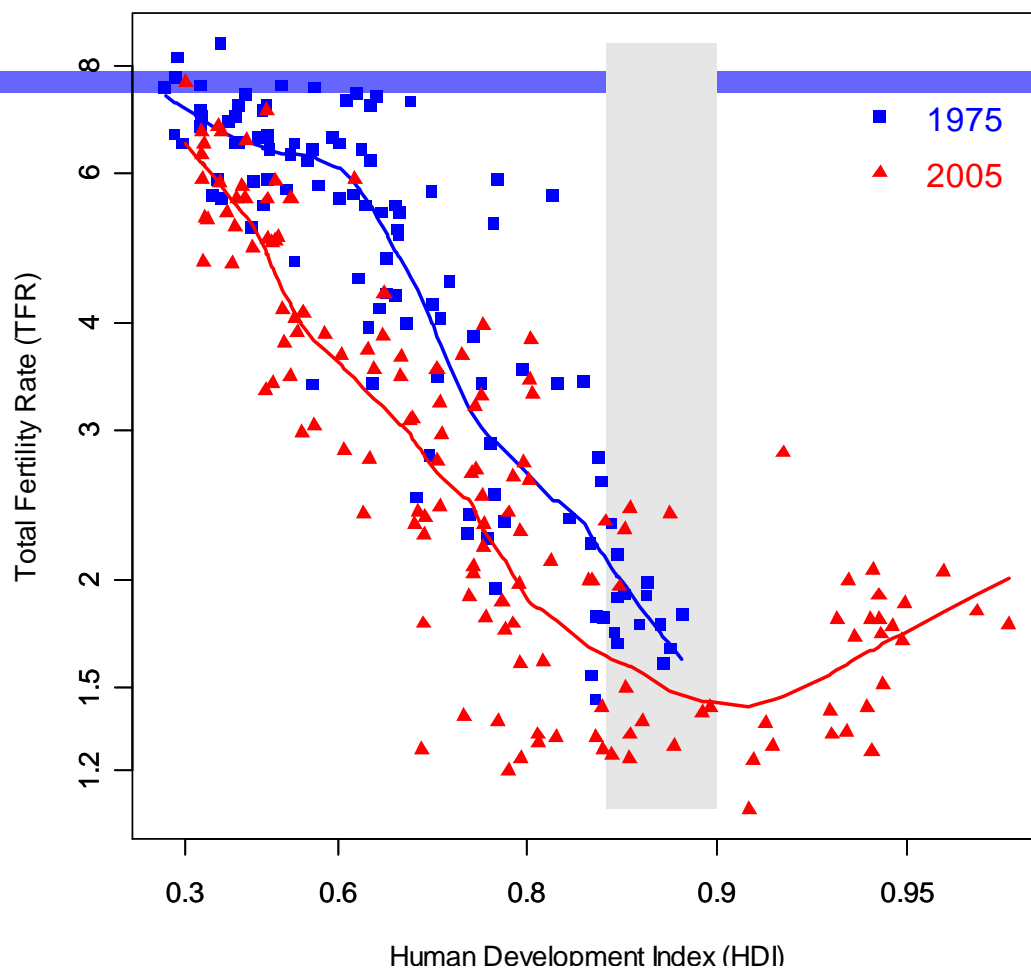
Information). The TFR is shown for years 1975 and 2005 relative to the lowest TFR that was observed while a country's HDI was within the window of 0.85–0.9. The reference year is the first year in which this lowest TFR is observed. A line is then used to connect the HDI–TFR



# Human Development Index and Fertility: 1975 & 2005



# Reversal in the HDI – TFR relationship



## 2005 correlations for countries with HDI $\geq$ .9:

TFR – HDI rank correlation:  $+0.55$  ( $p < 0.01$ )

Transformed(TFR) – transformed(HDI) correlation:  $+0.42$  ( $p < 0.05$ )

	HDI	TFR
Australia	0.966	1.77
Norway	0.961	1.84
Iceland	0.956	2.05
Ireland	0.950	1.88
Luxembourg	0.949	1.70
Sweden	0.947	1.77
Canada	0.946	1.51
Netherlands	0.945	1.73
Finland	0.945	1.80
France	0.945	1.92
United States	0.944	2.05
Japan	0.943	1.26
Denmark	0.943	1.80
Switzerland	0.942	1.42
Belgium	0.940	1.72
New Zealand	0.938	2.00
Spain	0.938	1.33
United Kingdom	0.936	1.80
Italy	0.934	1.32
Austria	0.934	1.41
Israel	0.922	2.82
Greece	0.918	1.28
Germany	0.916	1.36
Slovenia	0.913	1.23
S. Korea	0.911	1.08

# Reversal in the HDI – TFR relationship

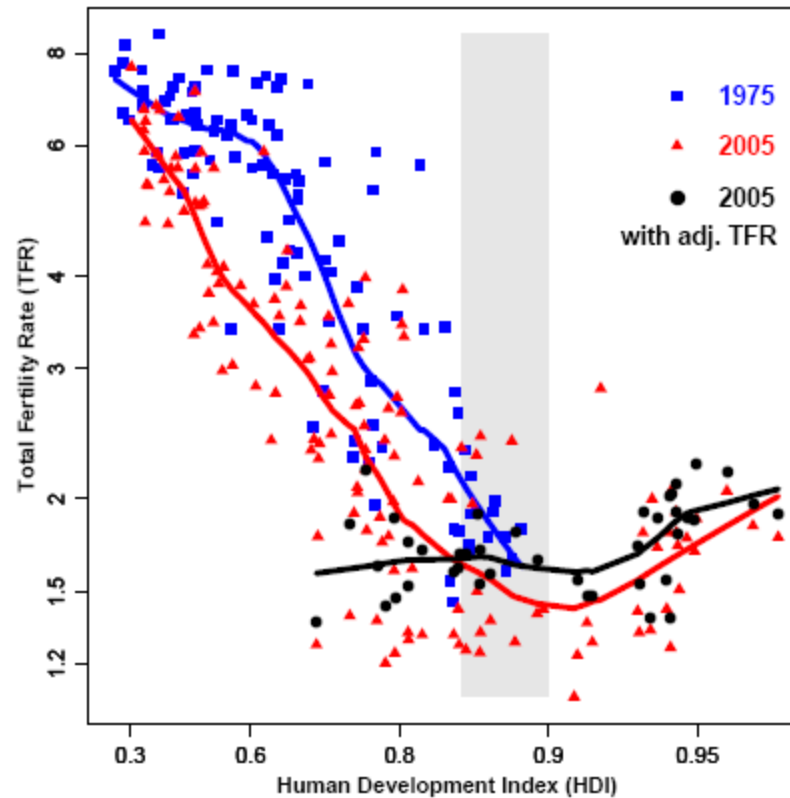
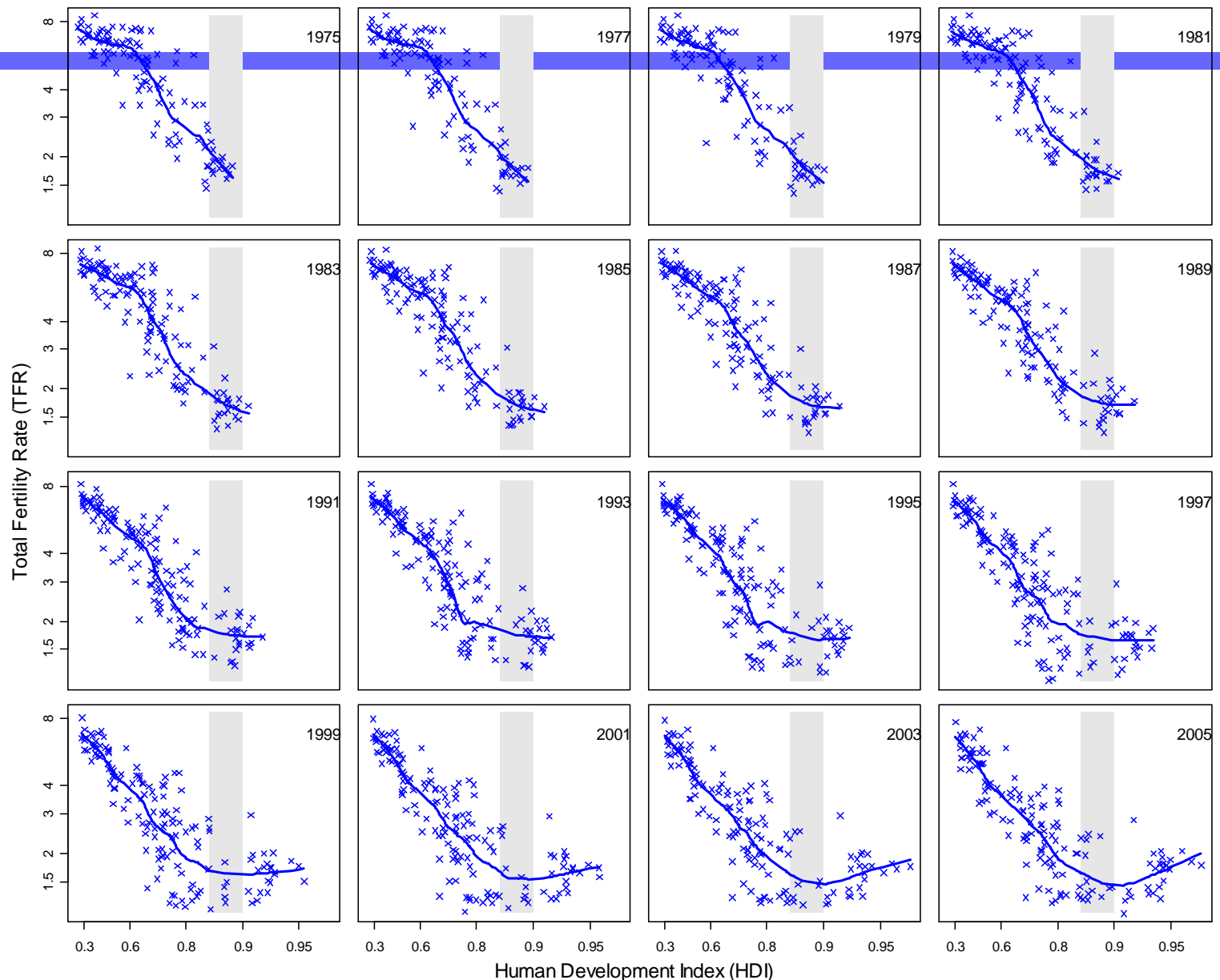


Figure S.2: Cross-sectional relationship between the total fertility rate (TFR), with and without adjustment for tempo effects, and the human development index (HDI) in 1975 and 2005

# Emergence of the positive TFR – HDI association

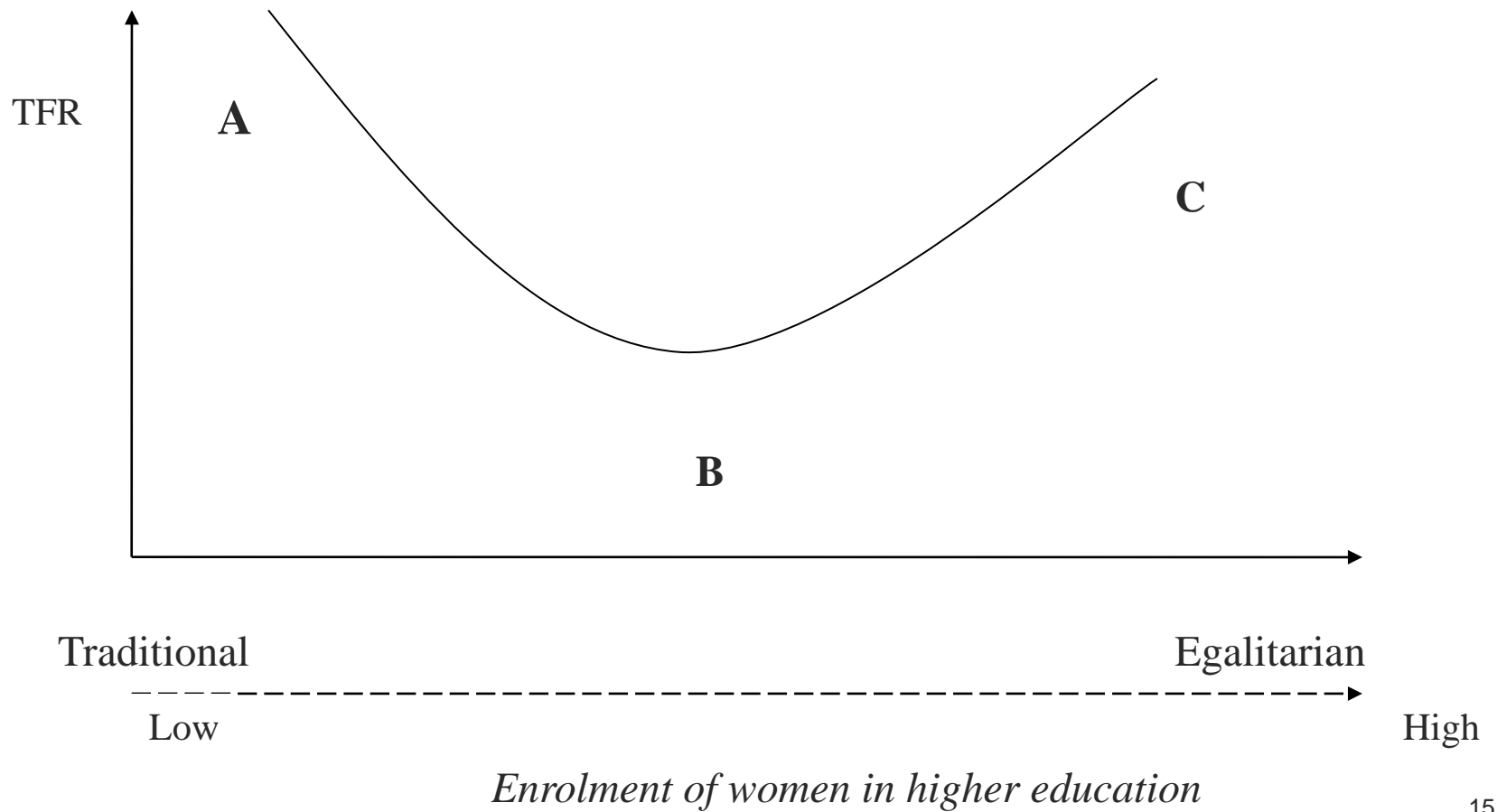


# Trust and fertility – why should it matter? The idea

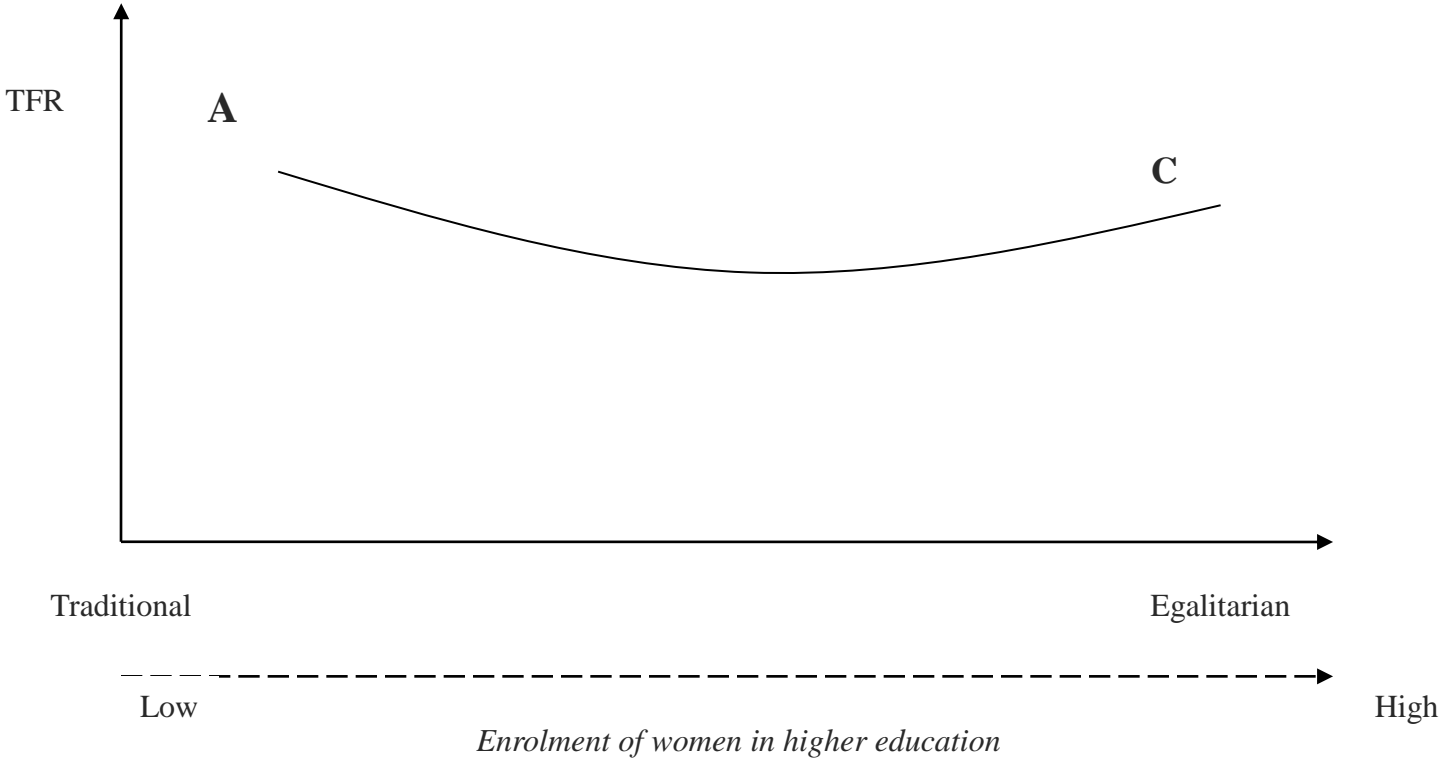
---

- High trust matters for the extent in which individuals are willing to outsource traditional family activities to other people
  - Child care
  - Care for the elderly
- Trust as a persistent societal cultural trait
- Interaction of trust and educational expansion

# Possible fertility scheme #1

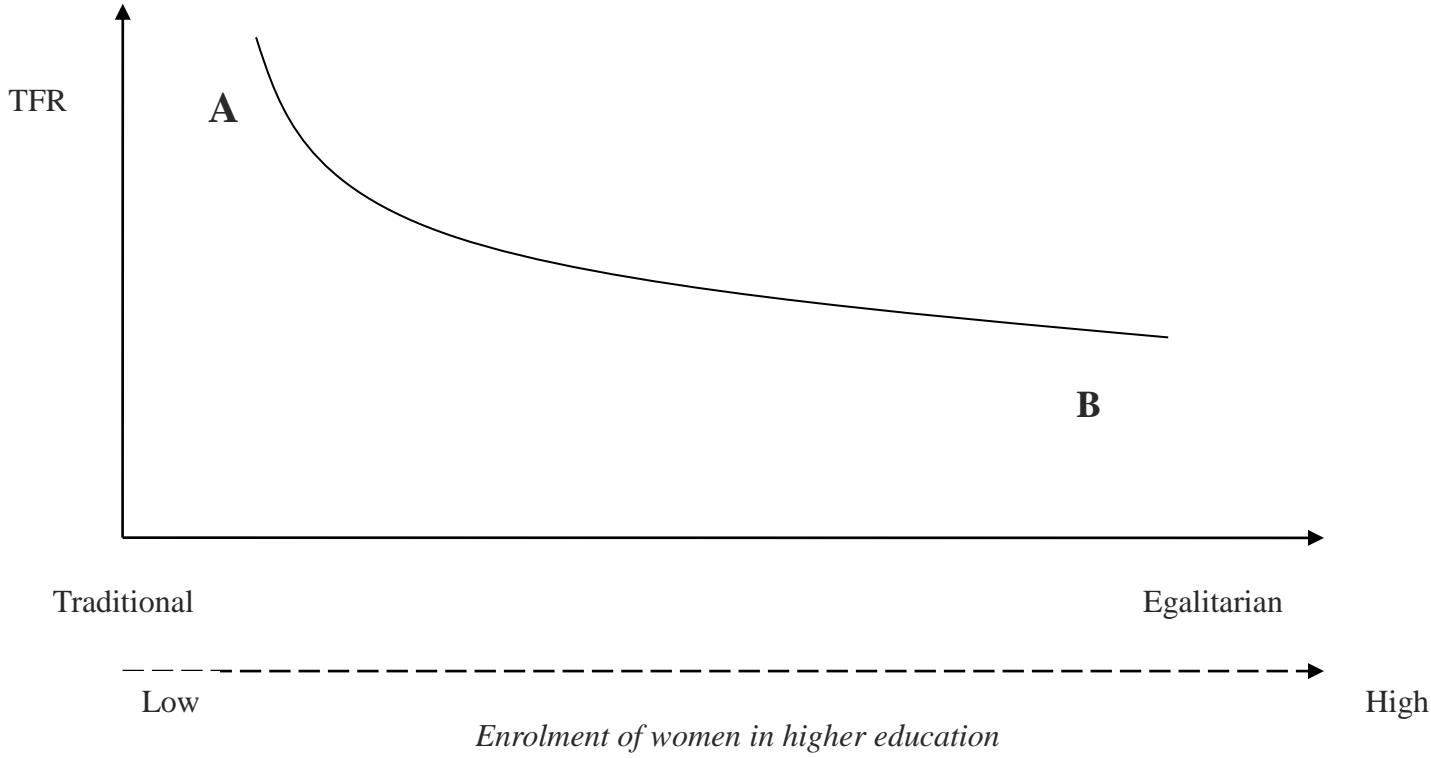


# Possible fertility scheme #2

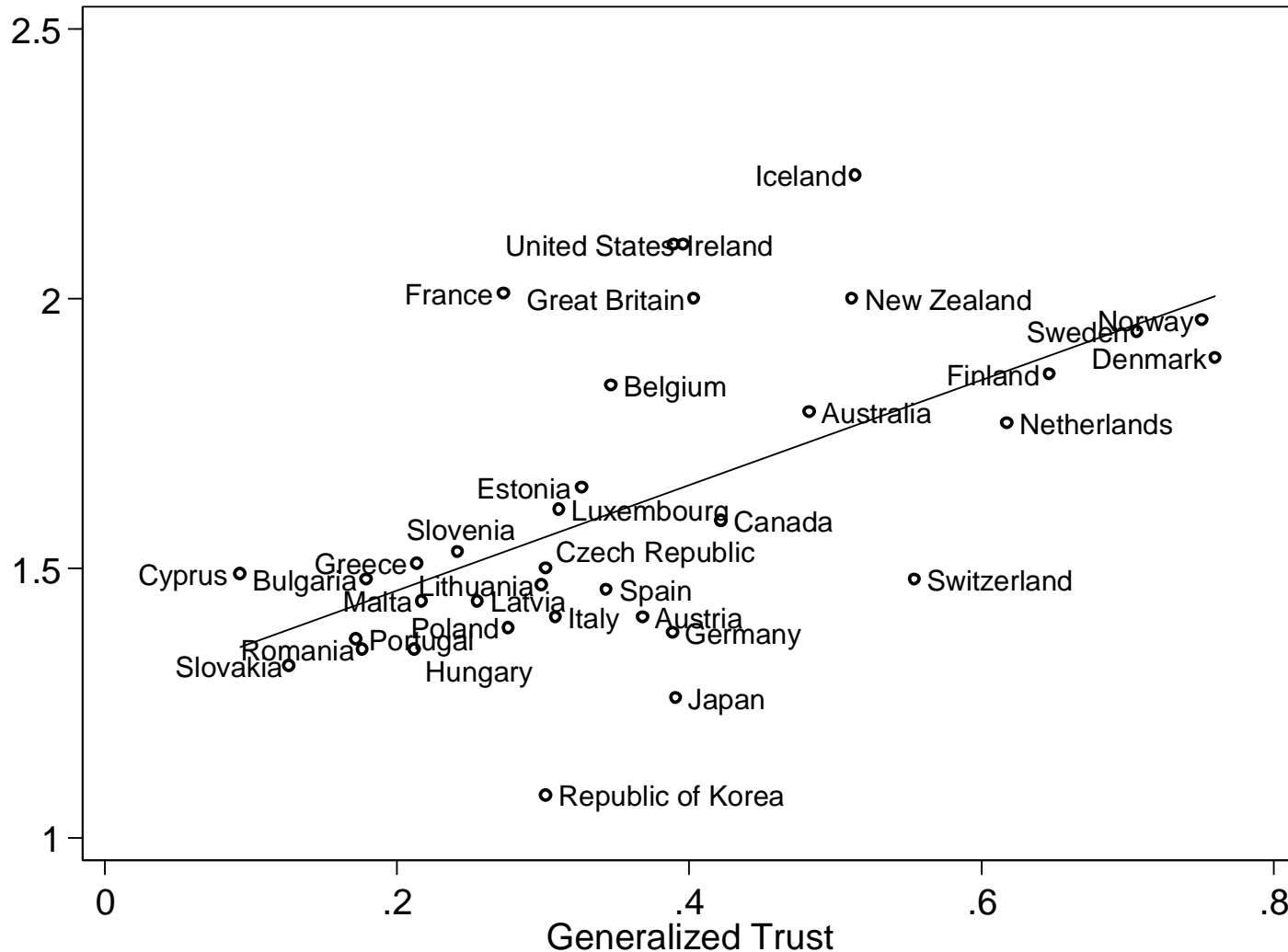




# Possible fertility scheme #3



# Generalized trust and fertility



# Data and Methodology

---

- Sample: OECD + EU 27 - Total of 36 countries
- Years: From 1981 to 2010, every five years (approx.)
- World Values Survey and European Values Survey
- World Bank Indicators
- Two-fold empirical analysis:
  - Descriptive at the country level
  - Multilevel models

# The typical trust question in surveys

---

- Generalized trust

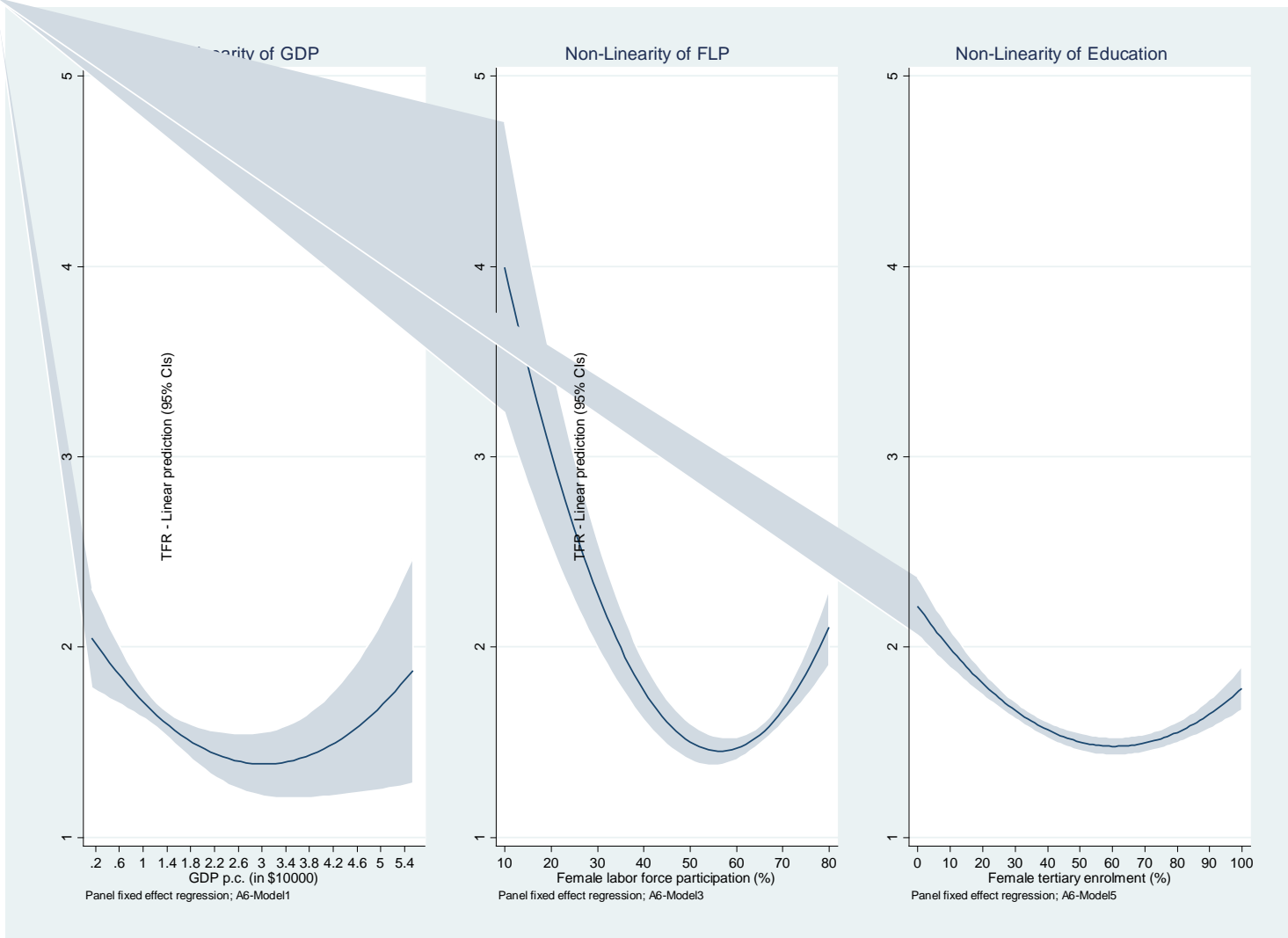
- “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? ”

# Descriptive statistics

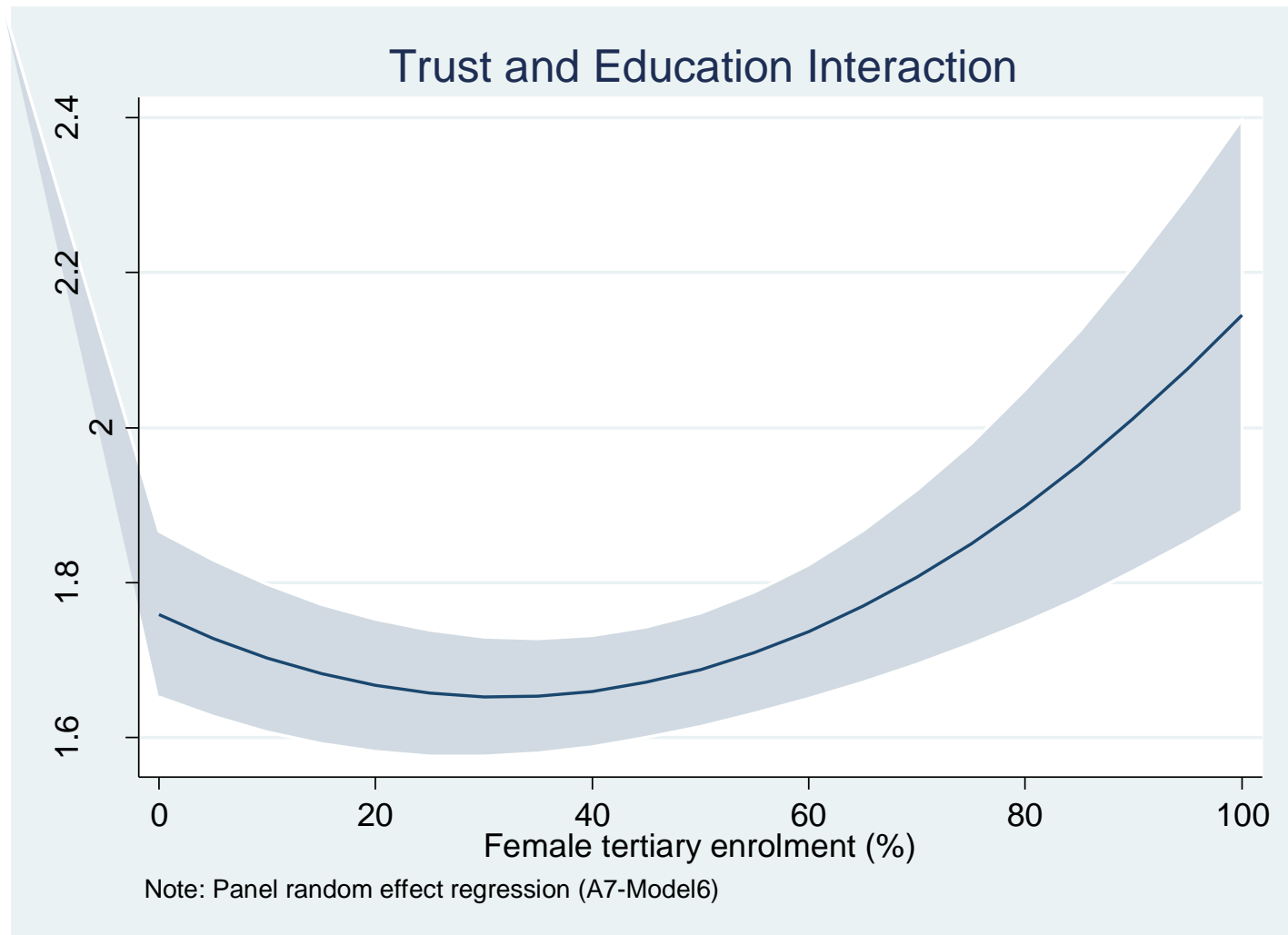
---

- Dependent variable: TFR
- Key independent variables:
  - Country-level average trust
  - GDP per ca.
  - Female enrolment in tertiary education
  - Female labour force participation

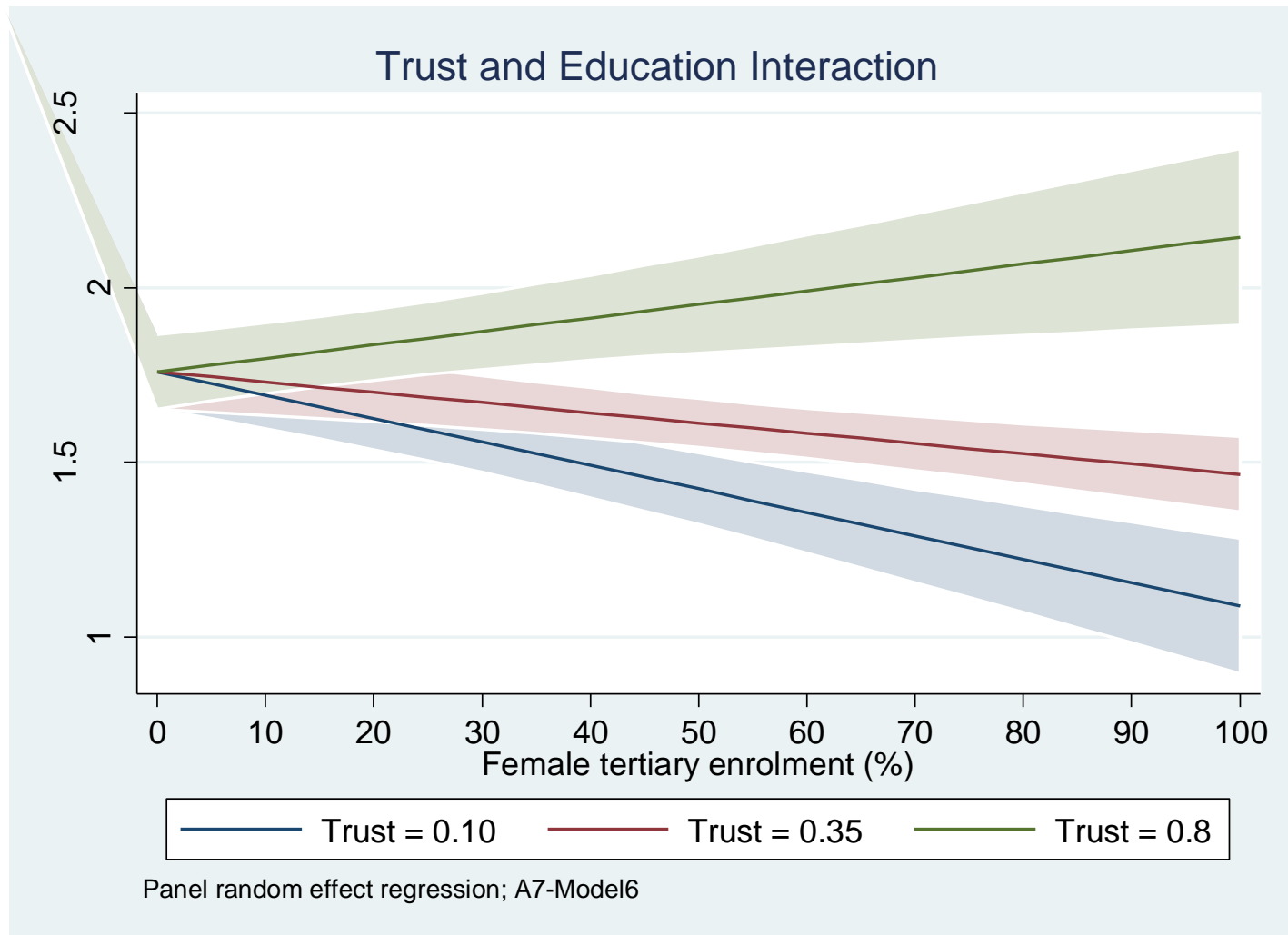
# Descriptive statistics: U-shape



# Prediction of TFR by expansion of education for different levels of generalized trust



# Prediction of TFR by expansion of education for different levels of generalized trust





# Multilevel analysis

---

- Sample: men and women above age 40
- Dependent variable: Total number of children
- Key independent variables:
  - Trust
  - Education
  - Education x trust
- Multilevel Poisson model
  - Three levels: individual, region and country

# Multilevel results

---

Dependent variable: Number of children	(1)
Generalized trust	1.028 (0.007)***
Regional g. trust	1.009 (0.092)
National g. trust	0.996 (0.082)
Education	0.977 (0.001)***
Regional female education	0.940 (0.013)***
National female education	0.983 (0.007)*
Regional FLP	0.999 (0.001)
National FLP	0.999 (0.001)
Income scale	0.991 (0.002)***
Regional income scale	0.966 (0.013)*
National income scale	0.999 (0.005)
Observations	57945

---

# Multilevel results

Dependent variable: Number of children	(2)	(3)	(4)
Generalized trust	0.960 (0.036)	0.976 (0.039)	0.992 (0.028)
Regional g. trust	1.007 (0.092)	1.008 (0.092)	1.008 (0.092)
National g. trust	0.996 (0.082)	0.997 (0.082)	0.996 (0.082)
Education	0.977 (0.001)***	0.977 (0.001)***	0.977 (0.001)***
Regional female education	0.940 (0.013)***	0.940 (0.013)***	0.940 (0.013)***
National female education	0.983 (0.007)*	0.983 (0.007)*	0.983 (0.007)*
Regional FLP	0.999 (0.001)	0.999 (0.001)	0.999 (0.001)
National FLP	0.999 (0.001)	0.999 (0.001)	0.999 (0.001)
Income scale	0.991 (0.002)***	0.991 (0.002)***	0.991 (0.002)***
Regional income scale	0.966 (0.013)*	0.966 (0.013)*	0.966 (0.013)*
National income scale	0.999 (0.005)	0.999 (0.005)	0.999 (0.005)
G.trust x National f.education	1.010 (0.005)+		
G.trust x National FLP		1.001 (0.001)	
G.trust x National income scale			1.007 (0.005)
Observations	57945	57945	57945

# Conclusions

---

- Our interpretation is that as women gain higher education (through expansion of education), they want to combine family life and work
- This requires outsourcing of traditional family activities (caring for children and the elderly) to other individuals and institutions – trust facilitates this process.
- In other words, over time, trust is a catalyser that facilitates the process of outsourcing, through expansion of care infra-structure
- Might explain why in low fertility countries we find high enrolment rate of women in higher education but low female labour force participation