

FERTILITY, ECONOMIC INCENTIVES AND INDIVIDUAL HETEROGENEITY: REGISTER DATA BASED EVIDENCE FROM FRANCE AND GERMANY

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STATE OF THE LITERATURE

Evidence on **negative relationship between education/wage and fertility** (e.g. Heckman and Walker, 1990, Jones and Tertilt, 2008, McCrary and Royer, 2011, Cýgan-Rehm and Maeder, 2013, Fort et al., 2016)

COMMON DRAWBACKS:

- » one period only or cross sectional data
- » household survey data
- » lacks individual level information on fertility and employment (wages) over life-cycle
 - suffer problems from confounding factors, simultaneity, unobserved individual heterogeneity

DATA

France: Déclarations Annuelles des Données Sociales – Echantillon Démographique Permanent (DADS-EDP)
Information from civil registers and census on socio-demographics (including dates of birth of children) and from mandatory business declarations (dates of employment, wages, hours worked)

Germany: Biographical Data of Selected Social Security Agencies in Germany (BASiD)
Information from pension insurance on socio-demographics (including dates of birth of children) and the Federal Employment Agency and Institute for Employment Research (dates of employment, wages, full-/part-time)

Construction of comparable samples:
Annual panel datasets (1994 – 2007) of women between 18 to 45
Large cross-sectional and longitudinal data dimensions (F: 102,574 females, G: 175,353)

MAIN

We analyse and compare the economic **determinants of individual fertility behaviour** in France and in Germany. We highlight the importance of controlling for **correlated unobserved individual heterogeneity** and of using the appropriate data.

CONTRIBUTION 1 – CHOICE OF METHODOLOGY AND DATA

WHAT WE DO:

- » Estimate **Poisson panel count model with correlated random effects**
 - » allows for near arbitrary correlations between covariates and individual-specific effect
 - » dependent variable: number of children
- » Use **large administrative dataset** with precise employment and fertility information over **entire life cycle**
- » Mimic analyses in the literature by manipulating the data sample, the set of covariates and the model
- » **Decomposition**

$$\text{Marginal effect} = \text{Effect due to observed characteristics, holding "preferences" constant} + \text{Effect due to "preferences", holding observed characteristics constant}$$

WHAT WE FIND:

ESTIMATED MARGINAL EFFECTS OF WAGE – FRANCE

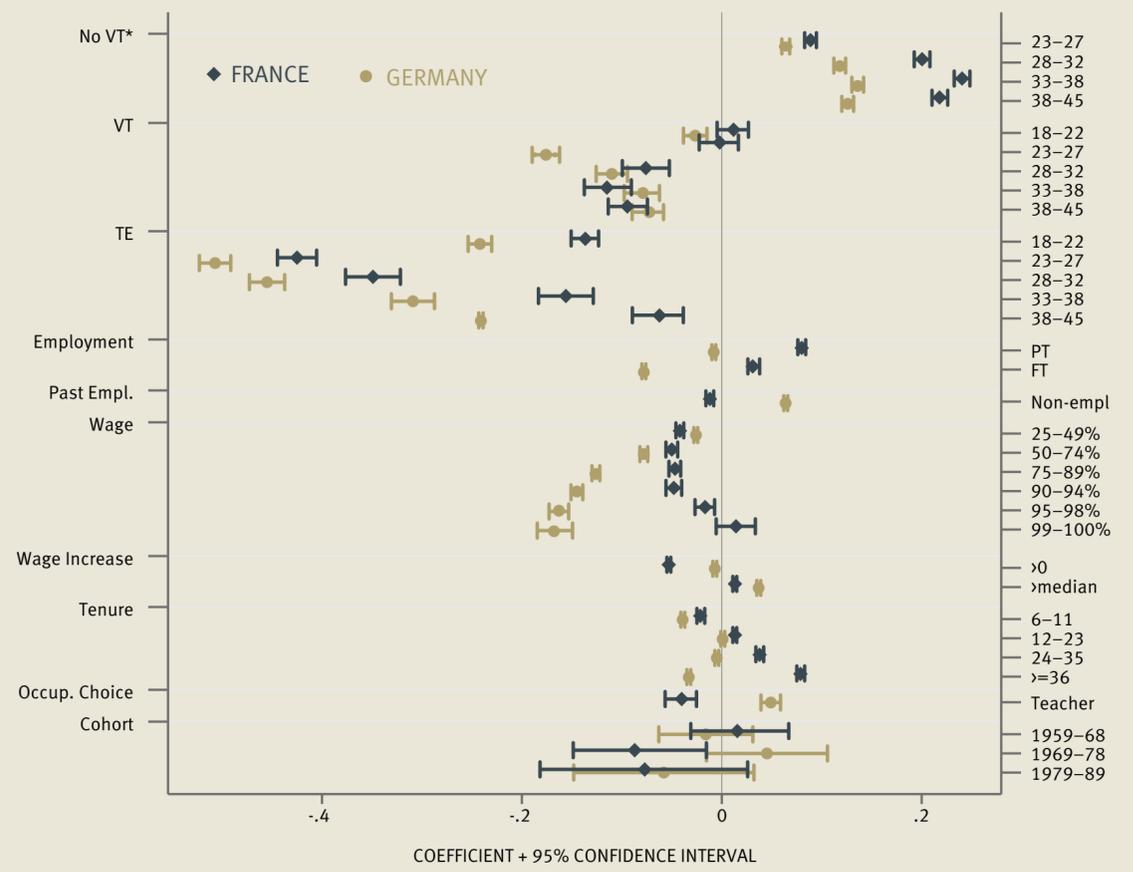
	POOLED MODEL	CORRELATED RANDOM EFFECTS MODEL	FIRST DECOMP. TERM	SECOND DECOMP. TERM
25 – 49 pct.	-0,028	-0,048	-0,043	-0,005
50 – 74 pct.	-0,079	-0,069	-0,051	-0,018
75 – 89 pct.	-0,12	-0,075	-0,048	-0,027
90 – 94 pct.	-0,172	-0,088	-0,049	-0,039
95 – 89 pct.	-0,178	-0,06	-0,018	-0,043
99 – 100 pct.	-0,147	-0,025	0,013	-0,038

Reference category: No wage or in first wage quartile

- » Evidence for **unobserved individual heterogeneity correlated with employment related regressors** (education, wage...) and for employment history to be relevant!
- » **Not using appropriate data and the appropriate methodology yields inconsistent results!**
- » Earnings effect smaller than descriptive evidence suggests

CONTRIBUTION 2 – DETERMINANTS OF FERTILITY IN FRANCE AND GERMANY

Average Marginal Effects of the Poisson CRE Model



Notes: *Dependent variable:* number of children. VT=Vocational Training, TE=Tertiary Education, PT=Part-time, FT=Full-time. *Reference Categories:* No VT: aged 18-22; VT and TE: having No VT and being of the same age, *Employment:* not employed, *Past Employment:* Employed, *Wage:* 0 or in the 1st to 24th wage percentile, *Wage Increase:* 0 or negative, *Tenure:* 0-5 months, *Occupational Choice:* not teacher, *Cohort:* 1949-58. *Marginal effects of no VT are divided by 5 for better visibility.

- » Female's **career highly important**, just as education
- » **Negative effect of education and career less important in France** than in Germany, likely due to better availability of childcare in France

IMPORTANT POLICY IMPLICATION

Lower fertility rates in Germany due to higher opportunity costs of having children which the government can have an impact on! (not due to underlying preferences)