

# Fertility and Health Consequences of starting the Career with a fixed-term Contract

Evidence from German Micro Data

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## Why do we care?

- Over last 3 decades dual labour markets emerged in Germany
  - Prevalence of fixed-term contracts increased rapidly
  - In 2012 45% of new contracts have only limited duration
  - Concentrated among young adults in their early careers
- Potential spill-over effects due to increased stress and economic uncertainty
  - Postponed or reduced fertility
  - Poorer health status or lower well-being
  - ...

⇒ Public debate makes causal link between high prevalence of fixed-term contracts and low fertility/mental problems

## What do we do?

### Research Question:

*What are the short- to medium-run consequences of starting the career with a fixed-term contract?*

- Our contribution to the existing research:
  - 1 Do fixed-term contracts at labour market entry affect the timing of first births and the number of children of female and male workers (tempo and quantum effects)?
  - 2 Discussion of the selection problem: correlation or causality?
  - 3 How does labour market entry with non-standard jobs affect youth health and mental health in the short- and medium-run?
  - 4 Do the effects of fixed-term employment differ by socio-economic background and education?

## Data and Sample

- German Socio-Economic Panel (GSOEP): nationally representative longitudinal data, waves 1995 to 2012
  - (native) men and women in reproductive ages (age 18-39)
  - who graduated or enter the labor market
  - and are observed for at least 5/10 years,
  - (and are childless at labor market entry)
- Outcome variables ▶ Variables
  - Probability of having had a first birth until year  $z$  after labour market entry
  - Number of children until year  $z$  after labour market entry ( $z = 1, \dots, 10$ )
  - Mental and physical health and life satisfaction
- Explanatory variables
  - Dummy for type of first contract (permanent or fixed-term)
  - Predetermined individual and background characteristics
  - First job characteristics
  - Pre-health and partnership status

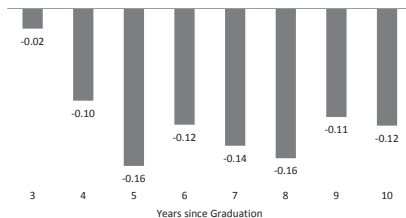
## Methodology

- Estimation equation:  $y_{it_0+z} = \beta ft_{it_0} + \gamma ue_{it_0} + \delta' X_{it_0} + \xi_{st_0} + \psi_{t_0} + \epsilon_i$ 
  - $y_{it_0+z}$  = Outcome of individual  $i$  in year  $t_0 + z$
  - $ft_{it_0}$  = Dummy for first job fixed-term contract
  - $ue_{it_0}$  = Dummy for unemployed after graduation
  - $X_{it_0}$  = Control variables at  $t_0$
  - $\xi_{st_0}$  = Federal state at  $t_0$
  - $\psi_{t_0}$  = Year of graduation
  - $\epsilon_i$  = Idiosyncratic error
- Use Probit, Poisson, and OLS regression techniques and heteroscedasticity robust standard errors

## Probability of having had a first birth 3 to 10 years after graduation (native women)

	(I)	(II)	(III)
after 3 years	-0.019 (0.050)	0.000 (0.044)	-0.021 (0.044)
after 5 years	-0.139** (0.060)	-0.159*** (0.052)	-0.164*** (0.052)
after 7 years	-0.120* (0.066)	-0.130** (0.062)	-0.143** (0.060)
after 10 years	-0.121* (0.066)	-0.116* (0.063)	-0.122** (0.061)
Job Characteristics	YES	YES	YES
Traits & Attitudes	NO	YES	YES
Partnership Status	NO	NO	YES

Average marginal effects of Probit regressions, robust standard errors in parentheses,  
 \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

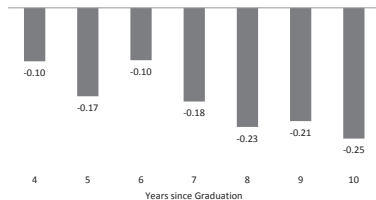


## Number of children 4 to 10 years after graduation (native women)

	(I)	(II)	(III)
after 4 years	-0.061 (0.081)	-0.073 (0.067)	-0.101 (0.069)
after 5 years	-0.115 (0.093)	-0.150* (0.077)	-0.167** (0.077)
after 7 years	-0.126 (0.106)	-0.155 (0.102)	-0.177* (0.094)
after 10 years	-0.222* (0.134)	-0.244* (0.132)	-0.247* (0.127)
Job Characteristics	YES	YES	YES
Traits & Attitudes	NO	YES	YES
Partnership Status	NO	NO	YES

Average marginal effects of Poisson regressions, robust standard errors in parentheses,

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

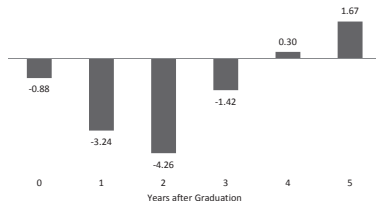


## Health and subjective well-being 0 to 5 years after graduation (only women)

Dependent Variable:	Mental Health	Physical Health	Life Satisfaction	Job Satisfaction
at labor market entry	-0.877 (1.257)	0.767 (0.810)	-0.326** (0.149)	-0.111 (0.281)
after 1 year	-3.242** (1.337)	1.143 (1.134)	-0.007 (0.153)	0.252 (0.251)
after 2 years	-4.261*** (1.370)	0.480 (1.260)	-0.117 (0.151)	-0.098 (0.242)
after 3 years	-1.421 (1.731)	0.215 (1.309)	-0.160 (0.169)	0.264 (0.268)
after 4 years	0.304 (1.675)	0.907 (1.119)	-0.112 (0.158)	0.178 (0.249)
after 5 years	1.673 (1.677)	0.561 (1.046)	-0.053 (0.161)	0.201 (0.232)

Marginal effects of OLS regressions, robust standard errors in parentheses,

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .





## Economic Uncertainty due to Path Dependence? (only women)

Dependent Variable:	Probability of holding a fixed-term contract 1 to 9 years after graduation	
	Fertility Sample	Health Sample
after 1 year	0.403*** (0.064)	0.344*** (0.069)
after 2 years	0.152*** (0.055)	0.126* (0.069)
after 3 years	0.137** (0.056)	0.023 (0.060)
after 4 years	0.155** (0.060)	0.079 (0.062)
after 5 years	0.041 (0.045)	0.113* (0.059)
after 6 years	0.024 (0.037)	
after 7 years	-0.012 (0.030)	
after 8 years	0.037 (0.037)	
after 9 years	0.019 (0.039)	

Marginal effects of OLS regressions, robust standard errors in parentheses,

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## Selection Problem

- Selection of particular types of employees into fixed-term jobs  
⇒ Biased estimates due to endogeneity
- Our approach:
  - Focus on type of first contract
  - Make use of labour demand driven increase in FTE
  - Large set of typically unobserved characteristics

## Conclusion

- Starting a career with a fixed-term contract delays first birth for women
- Some evidence that this translates into fewer number of children
- Men are affected to a much lower extent by fixed-term employment
- Heterogenous effects for different educational levels, natives react stronger than migrants
- (Mental) health outcomes are affected only in the short run
- No long-lasting negative health consequences of starting a career with a fixed-term contract

## Policy Implications

- Fixed-term contracts lead to dual labour market with negative consequences for the affected individuals
  - Worse labour market outcomes compared to peers in permanent contracts (e.g. Blanchard and Landier 2002)
  - Delayed or even reduced fertility in the short- to medium run
  - Lower well-being at least in the short run
- Only a small subpopulation has to carry the burden of this policy
- policy makers should possibly reconsider the costs and benefits of this labour market policy
- Labour market policies should strive for a more equal distribution of the costs associated employment protection across population subgroups to overcome the duality

Thank you for your  
comments

## Variables

- Dependent variables:
  - Dummies for having had first birth until year  $z$  after graduation
  - Number of children until year  $z$  after graduation
  - Health status of well-being in year  $z$  after graduation
  - $x = 3, 4, \dots, 10$  (fertility regressions) and  $x = 1, \dots, 5$  (health regressions)
- Predetermined control variables
  - Individual characteristics (age at graduation, education, migratory background)
  - Family background (no. of siblings, parental education,...)
  - Personality traits (risk aversion, BIG5)
  - Family and career attitudes (importance children, career, partnership, affording sth.)
- First job characteristics (economic sector and occupation at labor market entry)
- Partnership status at labor market entry [▶ back](#)

## Heterogeneity analysis: Results for men (native men)

Dependent Variable	First Birth		Number of Children	
	(I)	(II)	(III)	(IV)
after 5 years	0.037 (0.065)	0.014 (0.061)	0.072 (0.088)	-0.004 (0.08)
after 7 years	-0.060 (0.078)	-0.084 (0.07)	-0.023 (0.125)	-0.082 (0.114)
after 10 years	-0.079 (0.080)	-0.094 (0.071)	-0.112 (0.152)	-0.171 (0.141)
Personality traits & attitudes	YES	YES	YES	YES
Partnership status	NO	YES	NO	YES

**Note:** Average marginal effects of Probit or Poisson regressions, robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .  
All regressions contain controls for individual, family background, and job characteristics, state-of-first-job and year-of-graduation dummies.

## Heterogeneity analysis: Results by education (fertility outcomes)

Dependent Variable	First Birth		Number of Children	
	Secondary Education	Tertiary Education	Secondary Education	Tertiary Education
after 5 years	-0.213*** (0.073)	-0.115 (0.074)	-0.246** (0.105)	-0.134 (0.134)
after 7 years	-0.185*** (0.068)	-0.126* (0.071)	-0.311** (0.137)	-0.051 (0.175)
after 10 years	-0.137* (0.072)	-0.011 (0.087)	-0.293 (0.191)	-0.056 (0.172)

**Note:** Average marginal effects of Probit or Poisson regressions, robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . All regressions contain controls for individual, family background, and job characteristics, personality traits and attitudes, partnership status, state-of-first-job and year-of-graduation dummies.



## Heterogeneity analysis: Results by education (mental health index)

Dependent Variable	Women		Men	
	Secondary Education	Tertiary Education	Secondary Education	Tertiary Education
at labor market entry	-1.458 (1.662)	-1.659 (2.649)	3.679 (2.279)	2.625 (2.237)
after 1 year	-4.629** (1.937)	-1.609 (2.992)	4.143* (2.383)	-0.021 (3.478)
after 2 years	-5.421** (2.409)	-0.921 (2.118)	6.559** (2.445)	-0.439 (4.083)
after 3 years	-4.030 (2.945)	3.859 (2.402)	8.605*** (2.831)	-0.190 (3.804)
after 4 years	-5.071** (2.456)	4.754 (2.900)	7.930** (3.175)	4.448 (3.157)
after 5 years	-2.412 (2.623)	3.007 (2.656)	2.285 (3.182)	6.843** (2.773)

**Note:** Marginal effects of OLS regressions, robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

All regressions contain controls for individual, family background, and job characteristics, personality traits and attitudes, partnership status, pre-health status, state-of-first-job and year-of-graduation dummies.

## Sensitivity analysis: Results for full sample at different age-at-graduation cut-offs (all women)

Dependent Variable	First Birth			Number of Children		
	Full Sample	Age at Graduation <35	Age at Graduation <40	Full Sample	Age at Graduation <35	Age at Graduation <40
after 3 years	-0.007 (0.039)	-0.007 (0.042)	0.001 (0.043)			
after 4 years	-0.066 (0.044)	-0.092* (0.051)	-0.081 (0.052)	-0.050 (0.058)	-0.097*** (0.038)	-0.077 (0.059)
after 5 years	-0.129*** (0.048)	-0.149*** (0.052)	-0.138*** (0.053)	-0.119* (0.069)	-0.160*** (0.060)	-0.149* (0.090)
after 6 years	-0.118** (0.048)	-0.118** (0.053)	-0.097* (0.054)	-0.081 (0.082)	-0.069 (0.078)	-0.042 (0.080)
after 7 years	-0.137*** (0.052)	-0.129** (0.059)	-0.117** (0.059)	-0.147 (0.093)	-0.154 (0.096)	-0.131 (0.096)
after 8 years	-0.123** (0.053)	-0.146** (0.061)	-0.126** (0.061)	-0.138 (0.099)	-0.209** (0.099)	-0.176* (0.100)
after 9 years	-0.086 (0.054)	-0.088 (0.061)	-0.072 (0.062)	-0.117 (0.108)	-0.160 (0.113)	-0.131 (0.113)
after 10 years	-0.102* (0.052)	-0.094 (0.060)	-0.075 (0.061)	-0.167 (0.115)	-0.190 (0.124)	-0.156 (0.124)

**Note:** Average marginal effects of Probit or Poisson regressions, robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

All regressions contain controls for individual, family background, and job characteristics, personality traits and attitudes, partnership status, state-of-first-job and year-of-graduation dummies.

## Sensitivity analysis: Results for 5-year balanced sample (native women)

Dependent Variable	First Birth		Number of Children	
	Traits & Attitudes	Partnership Status	Traits & Attitudes	Partnership Status
after 3 years	-0.068** (0.033)	-0.078** (0.032)		
after 4 years	-0.087** (0.037)	-0.094*** (0.036)	-0.090* (0.048)	-0.100** (0.048)
after 5 years	-0.148*** (0.040)	-0.152*** (0.039)	-0.162*** (0.058)	-0.172*** (0.057)
Personality traits & attitudes	YES	YES	YES	YES
Partnership status	NO	YES	NO	YES

**Note:** Average marginal effects of Probit or Poisson regressions, robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . All regressions contain controls for individual, family background, and job characteristics, partnership status, state-of-first-job and year-of-graduation dummies.

## Sensitivity analysis: Results controlling for wages (native women)

Dependent Variable	First Birth		Number of Children	
	Traits & Attitudes	Partnership Status	Traits & Attitudes	Partnership Status
after 3 years	0.004 (0.045)	-0.015 (0.044)		
after 4 years	-0.105** (0.052)	-0.118** (0.052)	-0.091 (0.071)	-0.126 (0.000)
after 5 years	-0.176*** (0.054)	-0.182*** (0.053)	-0.167** (0.079)	-0.192** (0.078)
after 6 years	-0.134** (0.056)	-0.140** (0.056)	-0.085 (0.000)	-0.114 (0.081)
after 7 years	-0.144** (0.064)	-0.158** (0.062)	-0.155 (0.106)	-0.188* (0.097)
after 8 years	-0.163** (0.067)	-0.171*** (0.064)	-0.224** (0.111)	-0.236** (0.104)
after 9 years	-0.124* (0.067)	-0.134** (0.065)	-0.214* (0.126)	-0.236* (0.121)
after 10 years	-0.137** (0.066)	-0.146** (0.064)	-0.269* (0.138)	-0.281** (0.133)
Personality traits & attitudes	YES	YES	YES	YES
Partnership status	NO	YES	NO	YES

**Note:** Average marginal effects of Probit or Poisson regressions, robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

All regressions contain controls for individual, family background, and job characteristics, partnership status, state-of-first-job and year-of-graduation dummies.

## Sensitivity analysis: How much selection is going on? (native women)

Dependent Variable	Probability of starting a career on a fixed-term contract
Age at graduation	0.021* (0.012)
Years of education	0.009 (0.013)
Born in East Germany	0.045 (0.093)
High education mother	-0.096 (0.089)
Employment mother	-0.151 (0.123)
Age at birth mother	0.004 (0.006)
Number of siblings	0.060 (0.078)
Openness	0.013 (0.025)
Agreeableness	-0.072*** (0.027)
Conscientiousness	0.001 (0.032)
Extraversion	-0.017 (0.024)
Neuroticism	0.013 (0.035)
Risk aversion	-0.220* (0.130)
Importance of having children	0.086 (0.065)
Importance of partnership	0.096 (0.177)
Importance of career	-0.026 (0.091)
Importance of affording something	0.021 (0.084)
In Partnership after graduation	0.030 (0.060)

**Note:** Average marginal effects of Probit regressions, robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All regressions contain a full set of control variables.