Gender Norms and the Motherhood Employment Gap

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Stalling labor market gender convergence & motherhood

- Since the 1990s, gender convergence in the labor market has stalled and even reversed in many OECD countries (Goldin 2014; Blau and Kahn 2006).
- Recent studies underscore the relevance of motherhood for the persistence of gender inequality in labor market outcomes:

⇒ **The earnings loss mothers experience compared to non-mothers or fathers is one of the leading explanations for the gender earnings gap:** Angelov, Johansson and Lindhal (2016) for Sweden; Kuziemko et al. (2018) for US and UK; Kleven et al. (2019), for Sweden, Denmark, the US, the UK, Austria and Germany; and De Quinto, Hospido and Sanz (2020) for Spain.

⇒ **The reduction in maternal labor employment is largely responsible for most of the motherhood earnings penalty:** Fernández-Kranz, Lacuesta and Rodríguez-Planas (2013) in Spain; Angelov, Johansson and Lindhal (2016) in Sweden; and Kleven et al. (2019) in Scandinavian and Germanic countries, the UK and the US.

Gender norms, FLFP & motherhood

- This paper proposes an **explanation of the motherhood employment gap based on gender norms.**

- **With industrialization, women's role in society got relegated to being a wife and a mother**, and working mostly inside the household (Goldin 1995).

- Working outside the home was socially stigmatized as gender norms set up "acceptable behavioral boundaries for men and women, congruent with the gender division of labor and male power" (Seguino 2007).

- **As societies evolved and gender norms are relaxed**, women were gradually allowed to engage in traditionally male activities including formal education and paid employment in the labor market.

- **While many have studied the role of gender norms on female labor force participation or fertility** (Antecol 2000; Fortin 2005; Fernández 2007; Fernández and Fogli 2009; Blau et al. 2013; Bertrand, Kamenica and Pan 2015; Olivetti, Patacchini and Zenou 2020; Rodríguez-Planas, Sanz-de-Galdeano and Terskaya 2018; Rodríguez-Planas and Tanaka 2020), **few have analyzed whether gender norms mostly affect women's decision to work through motherhood.**

What role do gender norms play on women's decision to work while having a small first child?

- We exploit geographic (169 NUTS2 regions over 23 countries), cohort (2 cohorts) and time (2004-2016) variation to identify the effect of non-traditional gender norms on the employment status of mothers, aged 20-40 y.o. having a 0-5 y.o. first child.

- We measure **N**on **T**raditional **N**orms (**NTN**) as the avg extent of disagreement (on a scale 1 to 5) with the statement: *"men should have more right to a job than women when jobs are scarce"*

- We measure the average norm in the cohort of the mothers of 20-40 y.o. female respondents in our data (we call them **"grandmothers"**. See more below).

- We present a motherhood gap estimator, using childless women as a comparison group, and discuss conditions for identification.

- We exploit **past exposure of grandmothers to pill and abortion liberalizations**, as a source of exogenous variation in gender norms.

- We perform falsification test with men, and many other robustness/extensions.

European Social Survey

- Large scale individual survey for 36 European countries, nine years covering the period 2002-2018.
- Detailed information on personal, family characteristics, labor market outcomes and history, individual preferences and beliefs.
- Information on region of residence (generally NUTS 2 level), merged with aggregate variables from Eurostat (e.g. fertility rate, total population, the unemployment rate, the share of the population with tertiary education).

Sample Restrictions

- Consider waves with gender views' information (2004, 2008, 2010, 2016).
- Focus on women, aged 20-40 y.o., born in their country of residence, whose mother was present at the age of 14 (men for sensitivity/extensions).
- We stabilize the sample, by including only observations without missing individual or regional information, dropping regions with less than 10 obs.

Final sample: 13,250 females (14678 men) aged 20-40 in 23 countries (or 78 per NUTS2 region, on average) during the period 2004-2016.

Construction of NTN_{crt}^a

We assume that each ESS female (male) respondent aged $20 - 40$, is born from a woman, belonging to cohort a at time t, who gave birth at the age of 28 y.o. Thus:

$$NTN_{crt}^a = \frac{\sum_{i=1}^{M_{crt}^a} Attitudes_{crt}^a}{M_{crt}^a} \qquad (1)$$

where:

- $Attitudes_{crt}^a$ reflects the extent of disagreement on the priority of male employment when jobs are scarce of women in cohort a, region r in country c, and survey wave t;

- M_{crt}^a is the total number of women in cohort a, region r in country c, and survey wave t (we call them "grandmothers").

- The superscript a denotes **two cohorts**, namely **grandmothers aged 48 to 57** (who gave birth to respondents aged 20-29 y.o.), and **58 to 68 y.o.** (mothers of 30-40 y.o. respondents).

- NTN_{crt}^a varies across 1,352 (=169*4*2) region-by-year-by-cohort cells:

  - **NTN ⇑ = disagreement ⇑ = norm becomes less traditional.**

NTN^a_{crt}, sample average 2004-2016 by cohort
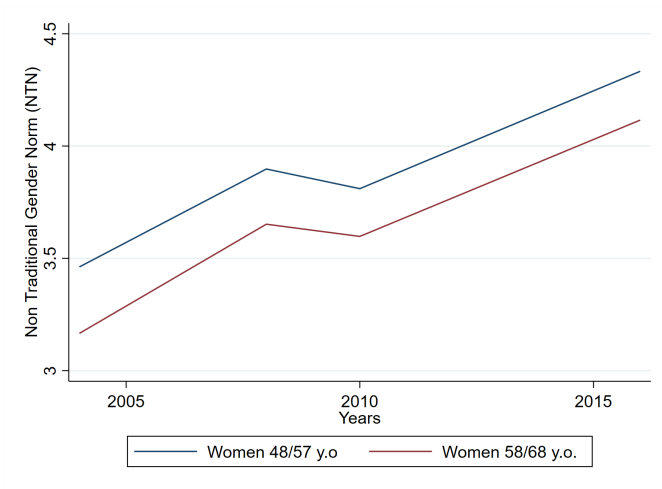
Notes: Non traditional norm is measured as the average extent of disagreement (1-5 scale) to the statement 'when jobs are scarce, men should have more right to a job than women' within the ESS region. The norm of women 20-30 y.o is computed as the average response of grandmothers aged 48-58 y.o. The norm of women 30-40 y.o is computed as the average response of grandmothers aged 58-68 y.o. The lines plot average norms by ESS round.

NTN_{crt}^a, Cross-Regional Variation by Cohort
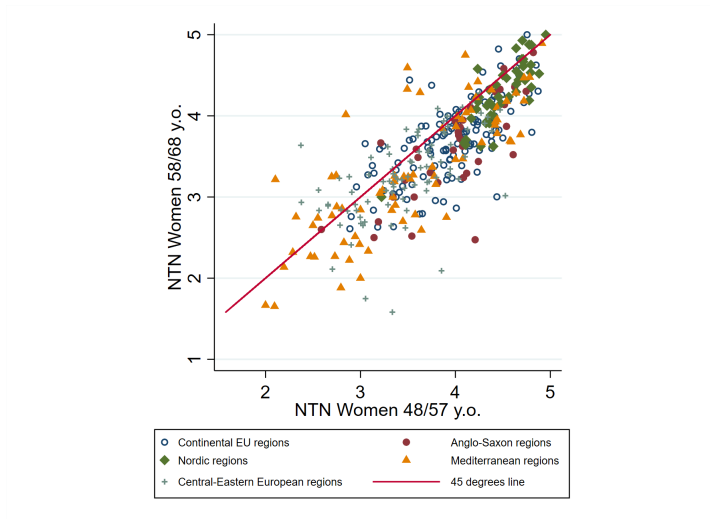
Notes: total variation (regional and overtime) within the sample. Authors' calculations on data from the ESS

Motherhood gap model

Sample: women aged 20-40 (men same age for falsification test):

$$Y_{icrt}^{a-28} = \alpha_0 + \alpha_1 NTN_{crt}^a + \alpha_2 Child_{icrt}^{a-28} + \alpha_3 (NTN_{crt}^a * Child_{icrt}^{a-28})$$
$$+ X_{icrt}^{a-28\prime}\gamma + Z_{crt}'\delta + \varphi_r + \phi_{ct} + \epsilon_{irct}^{a-28}$$

- Y_{irct}^{a-28} equals **1** if woman i from birth cohort a-28 (i.e. 20-29, or 30-40), living in NUTS2 region r of country c, is working in survey year t, **0** otherwise.

- NTN_{crt}^a is the non-traditional gender norms, measured in cohort a, region r of country c, and survey year t.

- $Child_{icrt}^{a-28}$ equals **1** if woman i, living in NUTS2 region r, has a small child, (0-5y.o.) in survey year t, **0** if she is childless.

- $X_{icrt}^{a-28\prime}$ is a set of individual and family characteristics (age, education, unemployment history, marital status, family income), and parental background (employment status of mother and father when the respondent was 14 years old).

- Z_{rt} is a set of contemporaneous regional/year covariates (unemployment rate, fertility rate, total population, population share with tertiary education).

- γ_r, ϕ_{ct} are region and country-by-year fixed effects.

$\boldsymbol{\alpha_3}$ captures the association between non-traditional norms and mothers' employment gap relative to childless women (conditional on the included covariates).

Identification and assumptions

- Identification comes mainly from variation across grandmothers' birth-cohorts over time in the non-traditional norm indicator within the same NUTS2 cell.

- The variation of the gender norms variable within NUTS2 can be considered as quasi-random if:
  1. being in one cohort or another is beyond one's control. Clearly one does not choose the year (cohort) one is born into;
  2. the difference in unobserved heterogeneity across cohorts within NUTS2 cell is not driven by unobserved factors that may also influence a women's decision to work in a wage and salary job.

- Our conjecture is that after removing NUTS2, and country-by-year fixed effects, these two conditions are met.

- We perform a reassuring balancing test: controlling for birth-cohort, region and country-by-year fixed effects seems sufficient to isolate variation in gender norms that is not systematically related to women's socio-demographic composition, and NUTS2 characteristics. ▸▸ results

However, social norms are endogeneous

- While focusing on the grandmothers' cohort already mitigates potential endogeneity concerns (see e.g. Fortin 2005), grandmothers' norms (NTN) may also be endogenous:
  - reverse causality going from mothers' employment or motherhood decision to the preferences of the grandmothers' cohort;
  - omitted region-level or individual factors that may be associated with both the gender norms of the grandmothers' cohort and the employment of their daughters' cohort, for reasons unrelated to gender norms.

- We use data on *Reproductive Health Liberalizations Around the World* (Finlay et al., 2012). We argue that exposure of grandmothers to the liberalizations of abortion and contraceptive pill during their 20s (i.e. back to 1956-1988) made their preferences (thus the gender norm) less traditional (Goldin and Katz, 2002). ⟩⟩ here

- Auxiliary regression evidences a strong positive correlation between liberalizations' exposure and NTN (with high explanatory power). From this model, we predict plausibly exogenous $\widehat{NTN}^{a}_{crt}$. ⟩⟩ model ⟩ results

Main results: NTN and the motherhood employment gap

	[1]	[2]	[3]	[4]	[5]
			dep. variable: employment of women (20-40 Y.O.)		
NTN	0.028*				
	(0.016)				
NTN × Child	**0.055****				
	(0.024)				
Child	−0.424***	−0.422***	−0.422***	−0.564***	−0.560***
	(0.092)	(0.108)	(0.108)	(0.118)	(0.121)
$\widehat{NTN}$		0.129	0.129	0.195**	0.150*
		(0.087)	(0.087)	(0.087)	(0.085)
$\widehat{NTN}$ × Child		**0.062****	**0.062****	**0.108*****	**0.109*****
		(0.030)	(0.030)	(0.033)	(0.034)
Observations	13250	13250	13250	8167	7269
$\widehat{NTN}$ (from pill & abortion)	No	Yes	No	Yes	Yes
$\widehat{NTN}$ (from abortion only)	No	No	Yes	No	No
Drop if born before abortion legal	No	No	No	Yes	Yes
Drop countries without reforms	No	No	No	No	Yes

Notes: In all specifications the dependent variable is a dummy equal to one if the respondent is employed, 0 otherwise. All regressions include individual controls (age, age squared, dummy for tertiary education completed, two dummies for never/no longer married, one dummy for ever unemployed in the last five years, one dummy for part of low income family, two dummies for father/mother working), regional controls (total population, fertility rate, unemployment rate and share of tertiary educated population). They also include country-by-year fixed effects and regional fixed effects. Standard errors clustered at the regional level in parentheses. Significance levels: ∗ : 10% ∗∗ : 5% ∗ ∗ ∗: 1%.

Sensitivity analysis

- Falsification analysis shows no association between those same attitudes and the likelihood to work of men 20-40 y.o. results

- Same results (positive association for women, no association for men), as we account for the endogeneity of the motherhood/fertility decision, by retrieving a predicted probability of having a first child $\widehat{Child}$. results

- Extensive battery of robustness checks to the main specification (e.g. including own norm, peer effects, religious intensity, probit; results) and to the IV implementation of the motherhood gap estimator (results).

Conclusions

- We find a robust and consistent positive association between non-traditional attitudes among the grandmothers' cohort and mothers' likelihood to work while having a small child (0 to 5 years old).

- In contrast, there is no association between those same attitudes and the likelihood to work of fathers of small children, childless men, and childless women. This suggest the relevance of gender norms on maternal employment.

- We find that an increase in the predicted average disagreement on the priority of male employment when jobs are scarce of women in the grandmothers' cohort by one standard deviation is associated with a reduction in the motherhood employment gap of 5.45 percentage points, the equivalent of a reduction of 47 percent in the average motherhood employment gap in our sample of 12 percentage points:

- If mothers from Andalusia (ES23) in Spain, with an average disagreement to traditional gender norms among grandmothers of 2.36 were characterized by the mean gender norms in Sweden (e.g. SE21, Småland med öarna), which is equal to 3.77, the statistical model suggests that the motherhood employment gap in Andalusia would decrease by 12 p.p., i.e. fully reverse the observed motherhood employment gap there (equal to 9 p.p. in 2004).

- These findings underscore that non-traditional gender norms mediate on the employment gender gap mainly via motherhood.

- To the extent that the motherhood employment gap is largely responsible of the motherhood wage gap, our results highlight the relevance of gender norms on the gender earnings gap in Europe.

Thank you for the attention

Are gender norms driving mothers' decision to work?
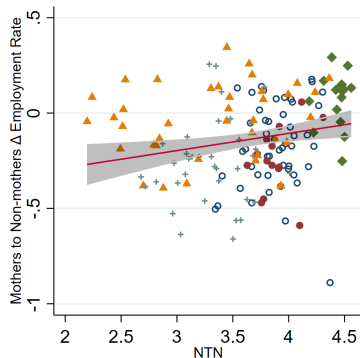
Coefficient = 0.0904(0.0344)

Notes: Non-traditional norm (NTN) represented in the X axis is measured as the average extent of disagreement (1-5 scale) to the statement *'when jobs are scarce, men should have more right to a job than women'* within the ESS region at the NUTS-2 level. The Y axis shows differences in average employment rates between mothers (first child 0-5 Y.O.) and non-mothers within each region.

Balancing test results

	1. Mothers	2. Non-Mothers	3. Fathers	4. Non-Fathers
Individual Controls				
Tertiary ed.	0.010	0.020	−0.015	−0.019
	(0.039)	(0.029)	(0.039)	(0.019)
Secondary ed.	−0.035	−0.002	0.032	0.023
	(0.039)	(0.024)	(0.038)	(0.026)
Age	0.099	0.110	0.157	−0.185*
	(0.210)	(0.152)	(0.246)	(0.107)
Age squared	6.984	8.331	11.302	−10.623
	(13.574)	(8.981)	(16.236)	(6.986)
Never married	0.055	0.038*	0.023	0.009
	(0.033)	(0.020)	(0.031)	(0.017)
No longer married	0.021	0.003	0.020	−0.002
	(0.017)	(0.012)	(0.023)	(0.010)
Ever unemployed in 5 yrs	0.028	−0.038**	−0.061**	0.002
	(0.022)	(0.018)	(0.029)	(0.018)
Household Income	0.045	−0.018	−0.062	0.007
	(0.056)	(0.054)	(0.082)	(0.034)
Parental Controls				
Father working	0.013	−0.011	−0.001	0.008
	(0.022)	(0.012)	(0.030)	(0.015)
Mother working	−0.067*	0.034	−0.040	0.016
	(0.036)	(0.026)	(0.041)	(0.023)
Regional Controls				
Population	0.012	0.018	0.014	0.017
	(0.015)	(0.016)	(0.018)	(0.016)
Fertility rate	0.001	0.001	−0.006	−0.000
	(0.004)	(0.004)	(0.005)	(0.004)
Share with tertiary ed.	0.252*	0.061	−0.126	0.085
	(0.149)	(0.126)	(0.157)	(0.122)
Unemployment rate	0.119	0.151	0.102	0.088
	(0.143)	(0.145)	(0.176)	(0.142)

Notes: The table shows the relationship between each individual, parental or regional control (dependent variable), and NTN (regressor), over the four samples. All specifications include a dummy for the age group between to 20 to 30 year old as well as country-by-year and regional dummies. Robust standard errors, clustered at the regional level in parentheses. Significance levels: *: 10% **: 5% ***: 1% back

Grandmothers' exposure to Pill and Abortion liberalizations
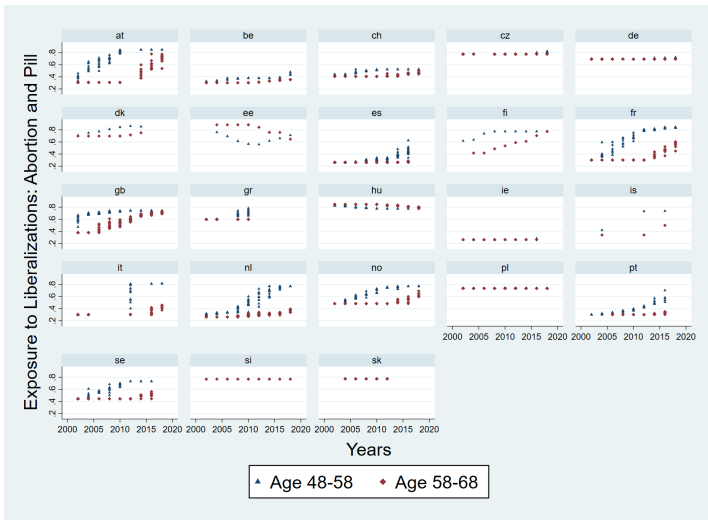
Notes: On the X axis the year of the ESS round 2002-2018. On The Y axis the degree of average degree of liberalization to which the cohort of grandmothers in the region is was exposed to at the age of 20 y.o. (max=1). **Each dot indicates the average exposure of grandmothers in the corresponding cohort in the region.** Authors' calculation on data from ESS and Finlay, Canning, and Po (2012).

NTN regression

We implement the following auxiliary regression on the cross-regional pseudo-panel analysis (169 regions, 2004-2016):

$$NTN_{crt}^{a} = \eta_0 + \eta_1 Exposure_{crt}^{20} + Z'_{crt}\mu + \varphi_r + \phi_{ct} + \epsilon_{rct}$$

- NTN_{crt}^{a} is the non-traditional gender norms, measured for cohort a, region r of country c, and survey year t.
- $Exposure_{crt}^{20}$ is the average exposure to the liberalization of pill and abortion of grandmothers belonging cohort a, region r, country c, in survey year t, when they were 20y.o.
- $X_{icrt}^{a-28'}$ is a set of individual characteristics.
- Z_{rt} is the usual set of regional/year covariates measured contemporaneously.
- γ_r, ϕ_{ct} are region and country-by-year fixed effects.

$\widehat{NTN_{crt}^{a}}$ is predicted by the exposure of grandmothers to pill/abortion liberalization at the age of 20 (i.e. 28-48 years before, depending on a). ▸ back

Auxiliary regression results

	(1) NTN	(2) NTN	(3) NTN
Exposure to Reproductive Health Laws (Abortion or Pill)	0.708*** (0.124)		
Exposure to Abortion Law		0.369*** (0.069)	0.273*** (0.084)
Regional Exposure to Contraceptive Pill Law			0.851* (0.449)
Observations	1190	1195	1190
Adj. R-squared	0.64	0.64	0.64

Notes: In all specifications the dependent variable is NTN. All regressions include controls for total population, fertility rate, unemployment rate and share of tertiary educated population. They also include country-by-year fixed effects and regional fixed effects. A Standard errors clustered at the province level in parentheses. Significance levels: $*: 10\%$ $**: 5\%$ $***: 1\%$. back

Falsification test on men 20-40 y.o.

	[1]	[2]	[3]	[4]	[5]
	dep. variable: employment of men (20-40 Y.O.)				
NTN	−0.010				
	(0.016)				
NTN × Child	0.010				
	(0.009)				
Child	−0.018	0.019	0.019	0.016	−0.002
	(0.039)	(0.027)	(0.027)	(0.034)	(0.033)
$\widehat{NTN}$		0.190**	0.190**	0.221**	0.255***
		(0.085)	(0.085)	(0.092)	(0.092)
$\widehat{NTN}xChild$		−0.000	−0.000	0.001	0.006
		(0.008)	(0.008)	(0.011)	(0.010)
Observations	14678	14678	14678	8864	7781
$\widehat{NTN}$ (Pill & Abortion)	No	Yes	No	Yes	Yes
$\widehat{NTN}$ (Abortion only)	No	No	Yes	No	No
Drop if born before abortion legal	No	No	No	Yes	Yes
Drop countries without reforms	No	No	No	No	Yes

Notes: In all specifications the dependent variable is a dummy equal to one if the respondent is employed, 0 otherwise. All regressions include individual controls (age, age squared, dummy for tertiary education completed, two dummies for never/no longer married, one dummy for ever unemployed in the last five years, one dummy for part of low income family, two dummies for father/mother working), regional controls (total population, fertility rate, unemployment rate and share of tertiary educated population). They also include country-by-year fixed effects and regional fixed effects. Standard errors clustered at the regional level in parentheses. Significance levels: ∗ : 10%   ∗∗ : 5%   ∗ ∗ ∗: 1%.   back

Endogenous motherhood

	[1]	[2]	[3]	[4]	[5]
Panel A: Employment of Women (20-40 Y.O.)					
NTN	0.007				
	(0.021)				
$NTN \times \widehat{Child}$	0.088**				
	(0.043)				
$\widehat{Child}$	−0.046	−0.312	−0.364	1.994	3.710**
	(0.449)	(0.476)	(0.486)	(1.707)	(1.819)
$\widehat{NTN}$		0.157*	0.127	0.214**	0.174**
		(0.083)	(0.087)	(0.082)	(0.081)
$\widehat{NTN} \times \widehat{Child}$		0.082**	0.089**	0.148***	0.138***
		(0.038)	(0.038)	(0.029)	(0.030)
Observations	13250	13250	13250	8167	7269
Panel B: Employment of Men (20-40 Y.O.					
NTN	−0.025				
	(0.022)				
$NTN \times \widehat{Child}$	0.048				
	(0.031)				
$\widehat{Child}$	−0.292	−0.265	−0.294	1.795*	1.113
	(0.391)	(0.396)	(0.394)	(0.990)	(0.977)
$\widehat{NTN}$		0.189**	0.172*	0.222**	0.254***
		(0.084)	(0.090)	(0.091)	(0.091)
$\widehat{NTN} \times \widehat{Child}$		0.004	0.007	−0.002	0.006
		(0.022)	(0.024)	(0.023)	(0.024)
Observations	14678	14678	14678	8864	7781
$\widehat{NTN}$ (Pill & Abortion)	No	Yes	No	Yes	Yes
$\widehat{NTN}$ (Abortion only)	No	No	Yes	No	No
Drop if born before abortion legal	No	No	No	Yes	Yes
Drop countries without reforms	No	No	No	No	Yes

Notes: In all specifications the dependent variable is a dummy equal to one if the respondent is employed, 0 otherwise. All regressions include the usual set of individual, regional controls, country-by-year and regional fixed effects. Standard errors clustered at the regional level in parentheses. Significance levels: $*$: 10% $**$: 5% $***$: 1%.

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2SLS estimator

	(1) 2SLS	(2) 2SLS	(3) 2SLS	(4) 2SLS
	Panel A: Women (20-40 Y.O.)			
NTN	−0.098*	0.235	0.231	0.223
	(0.054)	(0.254)	(0.273)	(0.242)
Child	−2.760***	−2.469***	−2.701*	−2.706*
	(0.679)	(0.686)	(1.481)	(1.485)
NTN × Child	0.649***	0.573***	0.632*	0.633*
	(0.173)	(0.174)	(0.377)	(0.378)
Observations	7269	7269	7269	7269
K-P F-stat	7.889	2.843	5.821	3.814
p-value Hansen J-test				0.893
	Panel A: M en (20-40 Y.O.)			
NTN	−0.016	0.952	0.906	0.913
	(0.020)	(1.108)	(0.952)	(0.928)
Child	−0.104	1.079	2.500	2.515
	(0.191)	(1.380)	(2.850)	(2.779)
NTN × Child	0.031	−0.274	−0.638	−0.642
	(0.050)	(0.356)	(0.733)	(0.715)
Observations	7781	7781	7781	7781
K-P F-stat	13.226	0.432	0.552	0.402
p-value Hansen J-test				0.968
Endog. Regressors	NTN × Child	NTN, NTN × Child	NTN, NTN × Child	NTN, NTN × Child
Instruments	$\widehat{NTN}xChild$	$\widehat{NTN}$, $\widehat{NTN}xChild$	$\widehat{NTN}$, $\widehat{NTN}xChild$	$\widehat{Child}$, $\widehat{NTN}$, $\widehat{NTN}x\widehat{Child}$

Notes: In all specifications the dependent variable is a dummy equal to one if the respondent is employed, 0 otherwise. All regressions include the usual set of individual, regional controls, country-by-year and regional fixed effects. Standard errors clustered at the regional level in parentheses. Significance levels: ∗ : 10% ∗∗ : 5% ∗ ∗ ∗: 1%. `back`
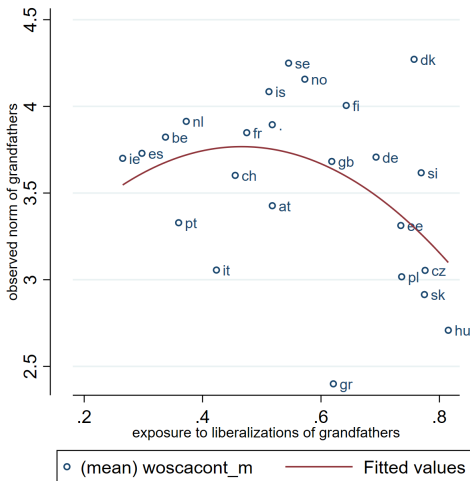
Model Specification

	Women 20-40	Men 20-40
Panel A: Controlling for Own Non-Traditional Belief		
$\overline{NTN}$ × Child	0.105***	−0.000
	(0.034)	(0.011)
Own NTN Belief	0.006	−0.007
	(0.007)	(0.007)
Panel B: Controlling for Cohort Non-Traditional Belief		
$\overline{NTN}$ × Child	0.101***	0.001
	(0.032)	(0.010)
Cohort NTN Belief	0.159***	−0.015
	(0.039)	(0.041)
Panel C: Controlling for Own Religious Intensity		
$\overline{NTN}$ × Child	0.108***	0.001
	(0.033)	(0.011)
Own Religious Intensity	−0.001	−0.022
	(0.018)	(0.019)
Panel D: Predetermined norm		
NTN × Child	0.062**	0.001
	(0.026)	(0.009)
Panel E: Alternative Outcome: Labour Participation		
$\overline{NTN}$ × Child	0.101***	−0.005
	(0.029)	(0.008)
Panel F: Alternative Outcome: Log Hours Worked		
$\overline{NTN}$ × Child	0.402***	0.003
	(0.122)	(0.042)
Panel G: Without Regional Controls		
$\overline{NTN}$ × Child	0.107***	0.000
	(0.033)	(0.010)
Panel H: Without Parental Controls		
$\overline{NTN}$ × Child	0.108***	0.000
	(0.033)	(0.011)
Panel I: Probit Model		
$\overline{NTN}$ × Child	0.321***	−0.019
	(0.099)	(0.088)

Notes: All regressions include the usual set of individual, regional controls, country-by-year and regional fixed effects. Standard errors clustered at the regional level in parentheses. Significance levels: ∗ : 10% ∗∗ : 5% ∗ ∗ ∗: 1%.

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Notes: On The Y axis the degree of average degree of liberalization to in the country between 1960 and 2018. Authors' calculation on data from Finlay, Canning, and Po (2012).

Grandfathers' preferences and exposure to pill and abortion liberalizations

Notes: On the Y axis the average gender norm in the country, measured among grandfathers. On The X axis the degree of average degree of liberalization to which cohorts of grandfathers in the country were exposed to at the age of 20 y.o. (max=1). Authors' calculation on data from ESS and Finlay, Canning, and Po (2012).