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D 3.2

Fertility, household models and labour market outcomes in EU countries

An analysis of the gender gap in parenthood penalty and the moderating role of family policies

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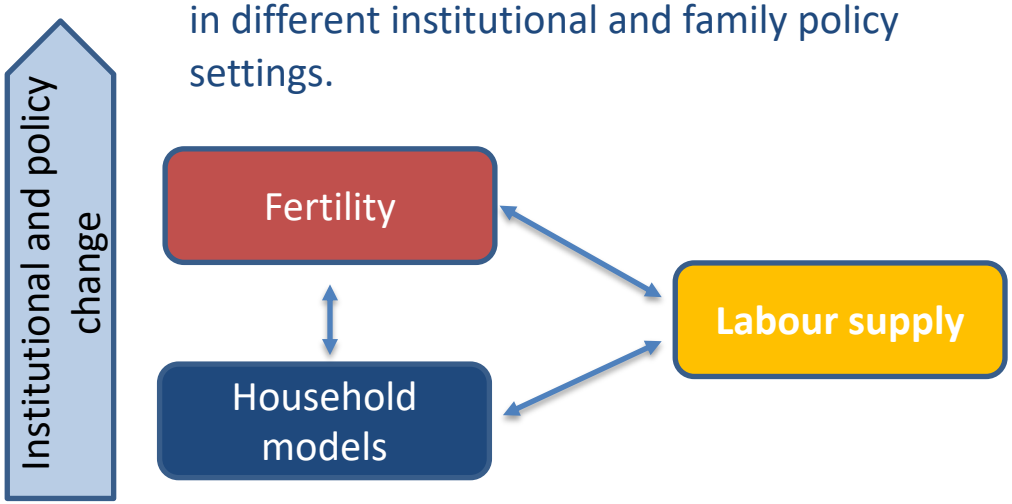
Overview – Task 3.2

Aim: Investigating the relationship between fertility and labour supply across genders and in different institutional and family policy settings.



Part II
Fertility and labour supply/labour market outcomes

- How the number of children shapes gender gaps on the labour market:
  - LF participation
  - employment
  - hours worked
  - types of job
  - earnings
- How institutional/policy settings affect these relationships

Part I
Time Allocation in Dual-Earning Couples and labour supply

- Which households face the most pronounced wife-husband asymmetries
- Heterogeneity of the asymmetries across Europe
- Asymmetries and institutional/policy settings

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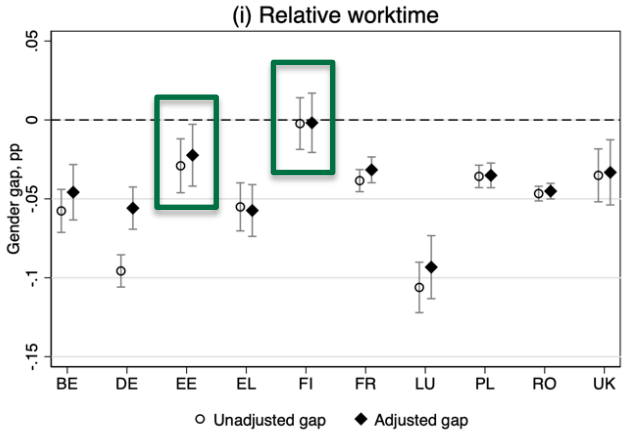
Part I
Time Allocation in Dual-Earning Couples and labour supply

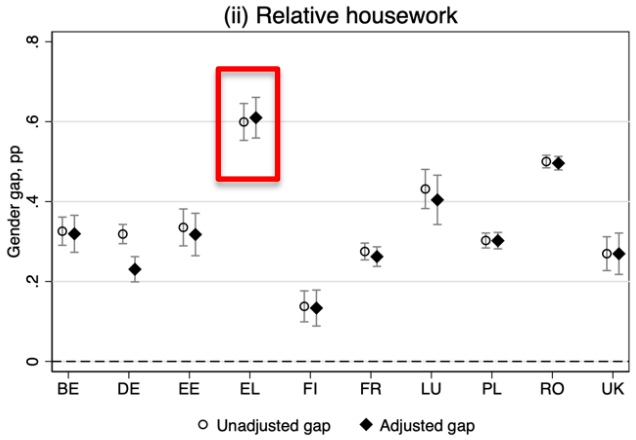
- Microdata **HETUS 2nd Wave**, 9 EU countries (Belgium, Germany, Estonia, Greece, Finland, France, Luxembourg, Poland, Romania) plus the UK
- Descriptive cross-country analysis of wife-husband gaps in time allocation
- Weighted maximum likelihood Tobit regression to estimate the adjusted gender gap in time allocation in:
  - (a) worktime
  - (b) housework
  - (c) childcare
- Descriptive association between intra-family time allocation and policies

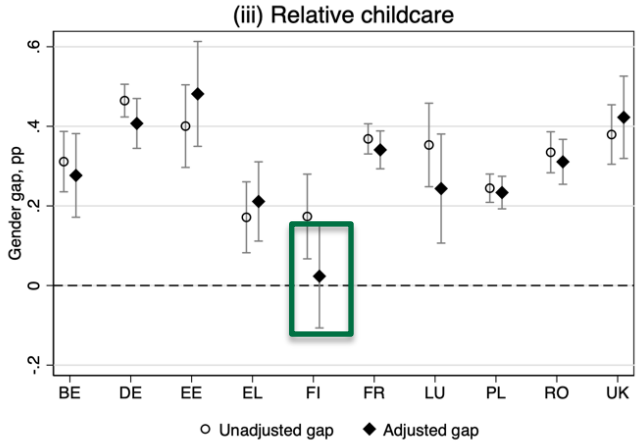
$$\rho_{ik} = \alpha_k W_i + \beta_k D_i' + \gamma_k H_i' + \delta_k FE_j' + \epsilon_{ik}$$

ρ_{ik} is the wife's or husband's relative time spent on activity k=1, 2, 3 (worktime, housework, childcare) by individual *i*
W_i is the wife identifier
D_i' is a vector of individual *i* characteristics (age group, foreign-born, education, industry of employment, full-time job)
H_i' is a vector of individual *i* household characteristics (size, number of children aged 0-6, and 7-17, net income band)
FE_j' is a set of fixed effects (year, month and day of a week when the time diary was filled)
ϵ_{ik} is a random error term.

Figure 1. Gender gaps in relative worktime, housework and childcare, by country







- Remarkable **gender asymmetries** exist in the three domains, irrespective of household characteristics: **wives do systematically more housework and childcare, and systematically less workhours**

Figure 2. Country-level correlation of wife's relative worktime and gender equality indicators

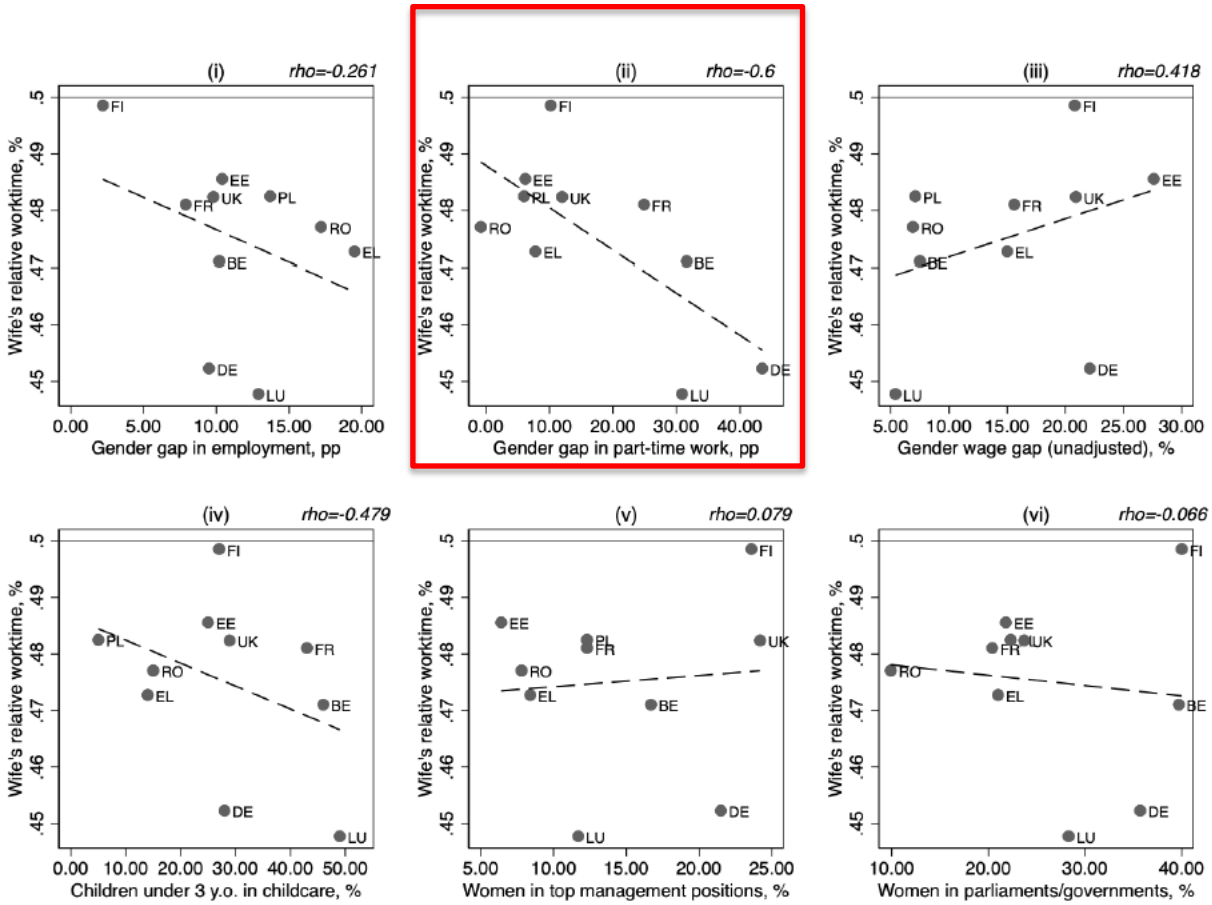


Figure 3. Country-level correlation of wife's relative time spent on housework, including childcare, and gender equality indicators

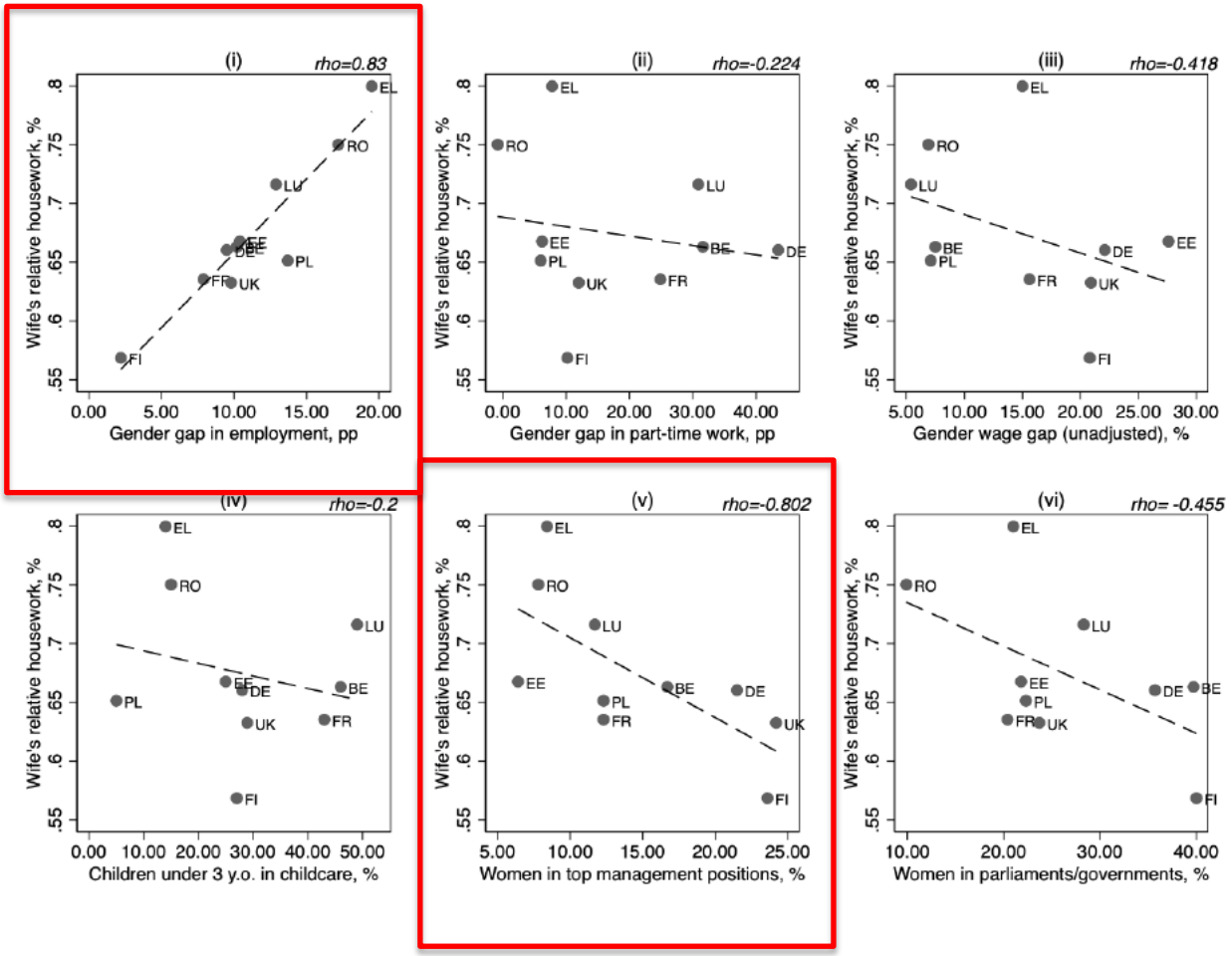
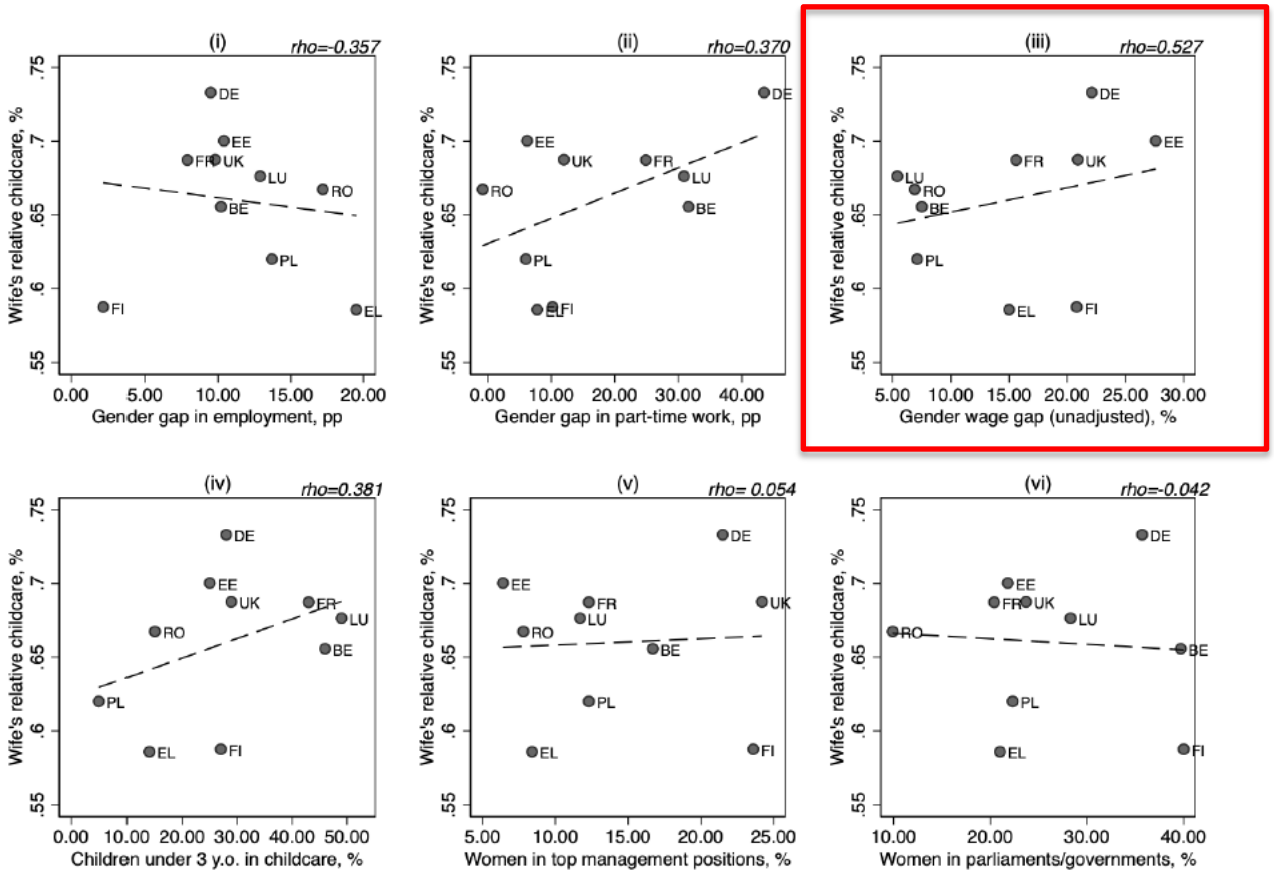


Figure 4. Country-level correlation of wife's relative time spent on childcare, and gender equality indicators



Part II
(a) Gender asymmetries in child penalty in labour market outcomes

- EU-SILC demographic group (age/gender/education/n of children) longitudinal dataset (90 groups), 23 EU countries (no Bulgaria, Romania, Malta and Croatia), 2006-2018
- OLS regressions to estimate the gender gap in child penalty (by subsamples of number of children) in various labour market outcomes

$$Y^z_{g,k,t} = \alpha_c(fem)_{g,k,t} + \beta_e(ed_e)_{g,k,t} + \delta_j\left(age_j\right)_{g,k,t} + \gamma_i\,(D'_i)_{g,k,t} + \kappa_h(H'_h)_{g,k,t} + \omega_m(M'_m)_{k,t} + \eta_k + \tau_t + \varepsilon_{g,k,t}$$

for c=1, no children (3.1)

for c=2, one child (3.2)

for c=3, two children or more (3.3)

$Y^z_{g,k,t}$ is the labour market outcome variable
$(fem)_{g,k,t}$ is the gender dummy
$(ed_e)_{g,k,t}$ and $\left(age_j\right)_{g,k,t}$ are education and age class dummies
D'_i is a vector of additional individual controls (average or share at group level)
H'_i is a vector of additional household controls (average or share at group level)
η_k and τ_t re country and year specific fixed effects

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Table 4. Baseline estimates: gender gap in labour force participation and parenthood

VARIABLES	(1) total	(2) male	(3) female	(4) no_child	(5) one_child	(6) two_child_more
female	-0.103***			-0.078***	-0.158***	-0.199***
	(0.003)			(0.003)	(0.006)	(0.007)
one_child	0.082***	0.051***	-0.030***			
	(0.008)	(0.008)	(0.011)			
two_child_more	0.113***	0.038**	-0.139***			
	(0.020)	(0.018)	(0.025)			

Table 5. Baseline estimates: gender gap in employment and parenthood

VARIABLES	(1) total	(2) male	(3) female	(4) no_child	(5) one_child	(6) two_child_more
female	-0.093***			-0.057***	-0.178***	-0.215***
	(0.003)			(0.003)	(0.006)	(0.007)
one_child	0.095***	0.081***	-0.068***			
	(0.008)	(0.009)	(0.010)			
two_child_more	0.124***	0.071***	-0.225***			
	(0.020)	(0.020)	(0.024)			

Table 6. Gender gap in other labour market outcomes and parenthood (EU 23 countries)

	(1) total	(2) no_child	(3) one_child	(4) two_child_more
(1): hours				
female	-6.195***	-5.537***	-10.171***	-11.094***
	(0.379)	(0.406)	(0.840)	(0.990)
(2) Full-time				
female	-0.100***	-0.087***	-0.185***	-0.244***
	(0.009)	(0.008)	(0.016)	(0.020)
(3) Permanent				
female	-0.000	-0.002	-0.018***	-0.021***
	(0.003)	(0.003)	(0.004)	(0.004)
(4) Self-employment				
female	-0.063***	-0.060***	-0.066***	-0.067***
	(0.003)	(0.003)	(0.004)	(0.004)
(5) Hourly wage				
female	-0.075***	-0.053**	-0.150***	-0.238***
	(0.018)	(0.021)	(0.046)	(0.051)
(6) Hourly earnings				
female	-0.098***	-0.078***	-0.141***	-0.198***
	(0.017)	(0.020)	(0.037)	(0.038)

Part II
(b) How institutional/policy settings affect the gender asymmetry in labour market child penalty

- EU-SILC demographic group (age/gender/education/n of children) longitudinal dataset merged with the reforms data constructed using three different data sources (next slide)
- OLS regressions to estimate how the magnitude of gender gap in child penalty is associated to institutional/policy settings (by subsamples of the number of children & cross terms) in various labour market outcomes

$$Y^{z}_{g,k,t} = \alpha_c (fem)_{g,k,t} + \theta^r (Ref^r)_{k,t} + \rho^r_c \left[(fem)_{g,k,t} \cdot (Ref^r)_{k,t} \right] +$$

$$+ \beta_e (ed_e)_{g,k,t} + \delta_j \left(age_j \right)_{g,k,t} + \gamma_i \, (D'_i)_{g,k,t} + \kappa_h (H'_h)_{g,k,t} + \omega_m (M'_m)_{k,t} + \eta_k + \tau_t + \varepsilon_{g,k,t}$$

for c=1, no children (4.1)

for c=2, one child (4.2)

for c=3, two children or more (4.3)

$(Ref^r)_{k,t}$ is the (set of) institutional/policy-related variable (s)

Part II
(b) How institutional/policy settings affect the gender asymmetry in labour market child penalty

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Table A7. Policy reforms variables: definition, source and number of countries

Binary variables	Description	Source	n. countries
child_care	Expanding access to childcare (0 before the reform, 1 after the reform)	Labref – Labour Market Reform Database	16
par_leave	Expanding parental leave (0 before the reform, 1 after the reform)	Labref – Labour Market Reform Database	16
work_family_bal	Facilitating work-life balance (0 before the reform, 1 after the reform)	Labref – Labour Market Reform Database	9
gen_bal_par	Favouring gender-balanced parenting (0 before the reform, 1 after the reform)	Labref – Labour Market Reform Database	15
child_support	Increasing child support measures (pr_10 + pr_12) (0 before the reform, 1 after the reform)	Labref – Labour Market Reform Database	20
Ordered/continuous variables			
length_maternity	Length of maternity leave (n of weeks)	International Network on Leave Policies & Research	22
length_paternity	Length of paternity leave (n of weeks)	International Network on Leave Policies & Research	22
paid_maternity	Paid maternity leave (0: doesn't exist; 1: unpaid; 2: paid (<66% income); 3: well paid (>66% income))	International Network on Leave Policies & Research	22
paid_paternity	Paid paternity leave (0: doesn't exist; 1: unpaid; 2: paid (<66% income); 3: well paid (>66% income))	International Network on Leave Policies & Research	22
ps_family_ben	Public spending on family benefits (% GDP)	Oecd Family Database	22
ps_early_ed_care	Public spending on early education and care (% GDP)	Oecd Family Database	22

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Part II
(b) How institutional/policy settings affect the gender asymmetry in labour market child penalty

Table 8. Reforms on the gender gap in labour force participation (0 before the reform, 1 after the reform)

	(1) total	(2) no_child	(3) one_child	(4) two_child_more
(1)				
female	-0.127***	-0.090***	-0.219***	-0.264***
	(0.006)	(0.005)	(0.009)	(0.010)
child_care	0.001	0.002	-0.013**	-0.015*
	(0.004)	(0.005)	(0.006)	(0.008)
female * Child_care	0.015***	0.007	0.038***	0.041***
	(0.006)	(0.006)	(0.009)	(0.012)
(2)				
female	-0.133***	-0.107***	-0.190***	-0.236***
	(0.005)	(0.004)	(0.010)	(0.012)
par_leave	-0.019***	-0.015***	-0.024***	-0.035***
	(0.004)	(0.004)	(0.007)	(0.009)
female * par_leave	0.024***	0.020***	0.029***	0.032**
	(0.005)	(0.004)	(0.011)	(0.015)
(3)				
female	-0.119***	-0.095***	-0.187***	-0.233***
	(0.005)	(0.004)	(0.009)	(0.010)
work_family_bal	-0.009*	-0.004	-0.035***	-0.034***
	(0.005)	(0.004)	(0.009)	(0.010)
female * work_family_bal	0.027***	0.019***	0.055***	0.067***
	(0.005)	(0.005)	(0.009)	(0.012)
(4)				
female	-0.125***	-0.100***	-0.183***	-0.229***
	(0.005)	(0.004)	(0.010)	(0.012)
gen_bal_par	-0.013***	-0.006	-0.030***	-0.039***
	(0.004)	(0.004)	(0.007)	(0.010)
female * gen_bal_par	0.028***	0.019***	0.042***	0.065***
	(0.006)	(0.005)	(0.012)	(0.017)
(5)				
female	-0.114***	-0.090***	-0.154***	-0.199***
	(0.005)	(0.004)	(0.008)	(0.012)
child_support	-0.010**	-0.010***	-0.002	-0.001
	(0.004)	(0.004)	(0.006)	(0.009)
female * child_support	0.025***	0.024***	0.014	0.013
	(0.005)	(0.005)	(0.009)	(0.014)

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Table 9. Reforms and gender gap in LF participation (continuous and ordered variables)

	(1) total	(2) no_child	(3) one_child	(4) two_child_more
(1)				
female	-0.055***	-0.040***	-0.086***	-0.100***
	(0.005)	(0.005)	(0.010)	(0.011)
length_maternity	0.002***	0.001***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
female * length_maternity	-0.003***	-0.002***	-0.004***	-0.006***
	(0.000)	(0.000)	(0.001)	(0.001)
(2)				
female	-0.114***	-0.082***	-0.183***	-0.227***
	(0.004)	(0.004)	(0.007)	(0.008)
length_paternity	-0.005***	-0.004***	-0.006***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
female * length_paternity	0.006***	0.003**	0.014***	0.017***
	(0.001)	(0.001)	(0.001)	(0.002)
(3)				
female	-0.084***	-0.071***	-0.105***	-0.110***
	(0.009)	(0.008)	(0.009)	(0.012)
paid_maternity	0.001	-0.002	0.013	0.025***
	(0.006)	(0.005)	(0.008)	(0.010)
female * paid_maternity	-0.006**	-0.002	-0.019***	-0.031***
	(0.003)	(0.003)	(0.004)	(0.005)
(4)				
female	-0.126***	-0.089***	-0.212***	-0.271***
	(0.006)	(0.006)	(0.009)	(0.010)
paid_paternity	0.000	0.002	-0.007***	-0.017***
	(0.002)	(0.002)	(0.003)	(0.003)
Female * paid_paternity	0.011***	0.006***	0.024***	0.034***
	(0.002)	(0.002)	(0.003)	(0.004)
(5)				
female	-0.146***	-0.128***	-0.196***	-0.245***
	(0.008)	(0.006)	(0.016)	(0.021)
ps_family_ben	-0.007**	-0.007**	-0.012**	-0.018***
	(0.003)	(0.003)	(0.006)	(0.006)
female * ps_family_ben	0.018***	0.021***	0.016***	0.020**
	(0.003)	(0.002)	(0.005)	(0.008)
(6)				
female	-0.144***	-0.113***	-0.215***	-0.298***
	(0.005)	(0.005)	(0.010)	(0.011)
ps_early_ed_care	-0.048***	-0.041***	-0.057***	-0.067***
	(0.010)	(0.010)	(0.012)	(0.016)
female* ps_early_ed_care	0.066***	0.054***	0.087***	0.146***
	(0.005)	(0.005)	(0.008)	(0.010)

Similar results for employment (instead of LF participation)

Table A14. Effects of reforms on the gender gap in hourly wage

	(1) total	(2) no_child	(3) one_child	(4) two_child_more
(1)				
female	-0.112***	-0.099***	-0.111*	-0.232**
	(0.026)	(0.032)	(0.058)	(0.095)
child_care	-0.000	0.009	-0.039	-0.002
	(0.034)	(0.042)	(0.041)	(0.044)
female * Child_care	0.009	0.025	-0.083**	0.014
	(0.028)	(0.036)	(0.041)	(0.047)
(2)				
female	-0.105***	-0.081**	-0.206***	-0.275***
	(0.026)	(0.032)	(0.058)	(0.072)
par_leave	0.022	0.006	0.125***	0.024
	(0.036)	(0.044)	(0.048)	(0.048)
female * par_leave	0.012	0.023	-0.034	0.003
	(0.031)	(0.040)	(0.043)	(0.050)
(3)				
female	-0.081**	-0.078*	-0.249***	-0.311***
	(0.035)	(0.042)	(0.080)	(0.108)
work_family_bal	-0.085*	-0.082	-0.011	-0.181***
	(0.049)	(0.057)	(0.056)	(0.060)
female * work_family_bal	0.043	0.046	0.016	0.123**
	(0.041)	(0.051)	(0.053)	(0.056)
(4)				
female	-0.120***	-0.112***	-0.220***	-0.294***
	(0.024)	(0.028)	(0.059)	(0.081)
gen_bal_par	-0.069**	-0.085**	0.006	-0.005
	(0.033)	(0.038)	(0.047)	(0.046)
female * gen_bal_par	0.032	0.046	0.016	-0.045
	(0.032)	(0.040)	(0.041)	(0.052)
(5)				
female	-0.103***	-0.094***	-0.187***	-0.242***
	(0.025)	(0.031)	(0.053)	(0.073)
child_support	-0.115***	-0.131***	-0.031	-0.089**
	(0.030)	(0.035)	(0.042)	(0.044)
female * child_support	0.030	0.043	0.005	-0.029
	(0.026)	(0.034)	(0.036)	(0.046)

None of the policy amendments appear correlated with wage rate

Concluding remarks

(a)

- Existence of **solid and systematic specialization patterns**, with wives spending less time on employment and more time on housework and childcare
- Gendered specialisation is correlated with various metrics of gender equality in the labour market and in society

(b)

- **Parenthood** implies a labour market **premium for fathers** and, conversely, a **penalty for mothers**
- The gender gap in parenthood penalty varies remarkably across EU countries, household types and labour market domains

(c)

- Various *family policies/institutional arrangements affect the gender asymmetry in parenthood penalties* in activity and employment (childcare facilities, gender-balanced parenting, work-family reconciliation policies, length and generosity of paternity leave)
- **Paternity leave seems to play a prominent** (and substantially exclusive) **role in reducing the gender gap in parenthood penalty** in many other labour market performances
- One notable **exception** is **the gender gap in labour remunerations**, for which none of the policies/institutions considered exhibit a capacity to play a role

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