

# Do Maternity Leave Benefits Improve Mothers Health at Old Age?

Evidence from 11 European countries during 1960-2010

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- During the second half of the XX century, remarkable increase in female labor force participation.
- Women with children were no exception:
  - in 1975 only 38% of European women with at least a child younger than 6 were working, 71% in 2011
- Starting in the early '60s (if not earlier), many European countries enacted comprehensive maternity leave policies

# Maternity leave policies effect

- Maternity leave policies affect labor market outcomes (Klerman & Leibowitz, 2000; Rossin et al, 2013):
  - Wage level and growth
  - career prospects
  - labour market attachment
  - employability
- Positive effects on newborns health (Ruhm, 2000; Rossin, 2011)
- Positive effects on mothers health immediately after childbirth (Chatterji & Markowitz 2012; Staehelin et al., 2007)

# Maternity leave and health

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More generous maternity leave benefits:

- ① Reduce immediate pressures and post-partum stress, which is a risk factor for depression (Rish et al, 2009, JAMA; Kendler et al, 1999 Am J Psychiatry)
- ② Increase Job security
  - ↓ work family conflict
    - ⇒ ↓ stress over the life cycle
  - ↓ human capital depletion and ↑ permanent income
    - ⇒ ↑ health at older ages due to higher SES.

- We need detailed information on women behavior and characteristics around maternity episodes, linked to health outcomes late in life: we use waves 1 to 3 of SHARE
- We need enough variation in maternity leave policies: Gauthier (2011) Comparative Family Policy Database

- From SHARE w1 w2 health outcomes late in life and time invariant covariates:
  - Depression (Eurod scale)
  - Grip strength (Maxgrip)
  - Self reported ADL, IADL, Mobility index
  - Education
- in SHARELIFE respondents are asked about important events during their own entire life.
  - Complete working history
  - Complete fertility history



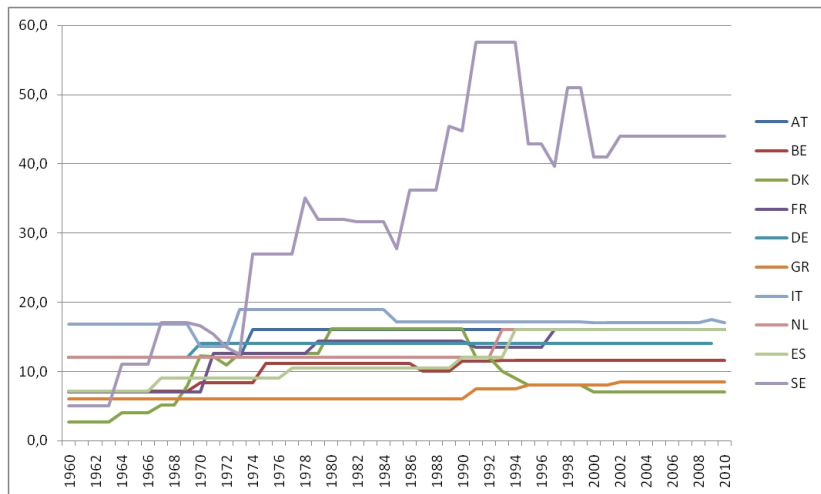
- SHARELIFE information retrieved (mostly) from the job-episodes panel (Brugiavini et al, 2013)
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- We build an **events dataset**: each woman enters as many times as maternity episodes she experienced
- We know exact year of maternity, country of residence, labour market status at childbirth, exact length of interruption
- We can build a number of working life history variables, e.g. exact tenure

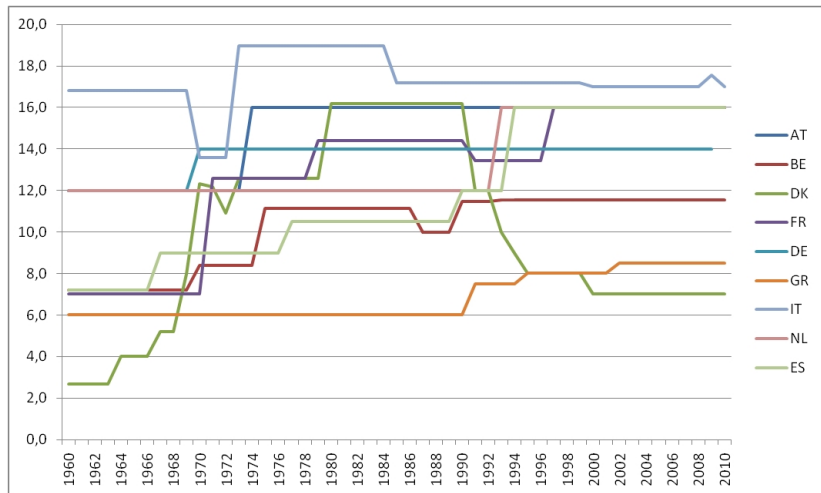
- Gauthier (2011): comprehensive “Family Policy Database” on
  - Maternity, parental, and childcare leave policies
  - Cash benefits
- The database covers the period 1960–2010 and all SHARE countries
- The distinction in the literature between maternity, parental, and childcare leave policies is often blurred and inconsistent
- **maternity leave**: leave granted (only) to mothers in connection with childbirth, and which usually includes a period of leave prior and after childbirth

- The database contains the following variables:
  - ML\_WKS: total number of weeks of maternity leave
  - ML\_BEF: number of weeks of maternity leave prior to childbirth
  - ML\_AFT: number of weeks of maternity leave after childbirth
  - ML\_PAY: cash benefits paid during maternity leave (as a percent of female wages in manufacturing)
- We use  $FWW = ML\_WKS \times ML\_PAY$ , the number of full wage weeks (Ruhm, 2011)

# Full wage weeks



# Full wage weeks no Sweden



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- We cannot use panel data techniques:  $health_{i,j}$  of woman  $i$  is the same for all  $j = 1, \dots, 4$  maternity episodes.

# Difference in Difference design

	<i>FWW</i> low	<i>FWW</i> high
<b>treated:</b> Women working at childbirth	A	B
<b>control</b> Women not working at childbirth	C	D

- Women not working at childbirth are not affected by maternity leave policies
- $DiD = (B - A) - (D - C)$  accounts for the effect of being exposed to a generous maternity leave policy, controlling for cohort and confounding effects (other welfare policies)

- **Self selection** into control and treatment: if FWW is low, future mothers could exit the labour already during pregnancy.
  - **Treatment** women working *continuously* since at least two years at childbirth
  - **Control** women out of labour force *continuously* since at least two years at childbirth

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- FWW varies by year and country. Does it have explanatory power over and above country and time?
  - Control for country-specific trends in child birth year
- Control for quadratic in age, education, total years worked

# Depression

	FWWhigh (1)	FWW12 (2)	cont (3)
dworkchild	.079 (.070)	.029 (.056)	.230** (.097)
fww	.267*** (.089)	.281*** (.095)	.022** (.011)
dworkchild*fww	<b>-.291***</b> (.098)	<b>-.199***</b> (.077)	<b>-.023***</b> (.007)
age	-.069 (.043)	-.064** (.029)	-.062** (.029)
age2	.0006* (.0003)	.0005** (.0002)	.0005** (.0002)
high-school	-.391*** (.074)	-.393*** (.045)	-.392*** (.045)
college	-.607*** (.082)	-.614*** (.052)	-.612*** (.052)
years-work	-.006** (.003)	-.006*** (.002)	-.006*** (.002)
e(N)	16992	16992	16992

# Grip strength

	FWWhigh (1)	FWW12 (2)	cont (3)
dworkchild	-.475** (.216)	-.397** (.177)	-1.001*** (.310)
fww	-.475* (.257)	-.579* (.300)	-.037 (.038)
dworkchild*fww	<b>.539*</b> (.296)	<b>-.404*</b> (.235)	<b>.064***</b> (.024)
age	.117 (.129)	.109 (.086)	.104 (.085)
age2	-.003*** (.001)	-.003*** (.0006)	-.003*** (.0006)
high-school	.521** (.221)	.525*** (.137)	.521*** (.137)
college	.880*** (.276)	.892*** (.171)	.886*** (.171)
years-work	.014* (.008)	.014*** (.005)	.015*** (.005)
e(N)	16481	16481	16481

- Only first maternity episode. Results are by and large unaffected
- By country. Results are in line, but sample sizes and variation in FWW are too small to be reliable
- Different definition of the treatment, e.g. an increase in FWW the year of childbirth. Again, sample size reduces dramatically
- Other health output: ADL, IADL, mobility, dummy diagnosed breast cancer. No effect.

- Evidence that maternity leave policies have long term effects on depression
- Some evidence they affect also physical health
- Given the recent trend towards budget cuts to welfare programs, results highlight positive effects beyond the direct scope of the policy



# Depression: country specific trends

	FWWhigh (1)	FWW12 (2)	cont (3)
sweden	-4.861 (18.020)	.993 (14.309)	-3.518 (26.575)
tsweden	.005 (.009)	.002 (.007)	.004 (.013)
denmark	-36.117** (17.472)	-31.247** (14.257)	-34.123** (15.647)
tdenmark	.021** (.009)	.018** (.007)	.019** (.008)
italy	35.309* (20.978)	16.714 (15.296)	19.386 (15.299)
titaly	-.015 (.010)	-.006 (.008)	-.007 (.008)
germany	34.710* (21.057)	39.995** (16.662)	26.167* (15.192)
tgermany	-.015 (.011)	-.018** (.008)	-.011 (.008)
netherlands	.293 (18.077)	-.408 (13.285)	-2.301 (13.260)
tnetherlands	.002 (.009)	.003 (.007)	.003 (.007)
belgium	-34.330* (20.318)	-42.311*** (13.958)	-38.966*** (14.333)
tbelgium	.020* (.010)	.024*** (.007)	.022*** (.007)
france	36.587* (18.932)	41.176*** (15.183)	32.916** (14.881)
tfrance	-.016* (.009)	-.018** (.008)	-.014* (.007)
austria	.530 (30.901)	6.145 (22.512)	-6.744 (21.596)
taustria	.002 (.016)	-.0009 (.011)	.006 (.011)
spain	78.845*** (23.284)	65.556*** (17.112)	69.796*** (17.342)
tspain	-.037*** (.012)	-.030*** (.009)	-.033*** (.009)
greece	50.183*** (18.375)	47.365*** (14.293)	48.397*** (14.288)
tgreece	-.023** (.009)	-.022*** (.007)	-.022*** (.007)
e(N)	16992	16992	16992

# Depression: only first maternities

	FWWhigh	FWW12	cont
	(1)	(2)	(3)
dworkchild	.169* (.094)	.128 (.096)	.403** (.178)
fww	.552*** (.150)	.485*** (.176)	.042** (.021)
inter	-.494*** (.140)	-.383*** (.144)	-.037** (.014)
age	-.010 (.052)	-.0009 (.053)	.003 (.052)
age2	.0001 (.0004)	.00004 (.0004)	5.80e-06 (.0004)
high-school	-.257*** (.075)	-.259*** (.075)	-.260*** (.075)
college	-.450*** (.087)	-.458*** (.087)	-.455*** (.087)
years-work	-.006** (.003)	-.006** (.003)	-.006** (.003)
e(N)	6063	6063	6063

# Grip strength: only first maternities

	FWWhigh (1)	FWW12 (2)	cont (3)
dworkchild	-.666** (.290)	-.591** (.293)	-.854 (.550)
fww	-.439 (.435)	-.518 (.558)	.010 (.070)
inter	.712* (.411)	.507 (.429)	.039 (.045)
age	.035 (.162)	.033 (.161)	.029 (.161)
age2	-.002** (.001)	-.002** (.001)	-.002* (.001)
high-school	.334 (.234)	.341 (.234)	.341 (.234)
college	.716** (.280)	.723*** (.280)	.716** (.280)
years-work	.015* (.008)	.015* (.008)	.015* (.008)
e(N)	5897	5897	5897