Grandchildren and Grandparent's Labor Force Attachment

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Motivation

- The US labor force is aging.
- Age of first marriage, first child, and first grandchild are rising concurrently.
- Older workers now have higher labor force participation at the same time as they are more likely to have young grandchildren.

Motivation

Median age of the US Labor Force: 1994, 2004, 2014 and projected 2024

Group	1994	2004	2014	2024
Total	37.7	40.3	41.9	42.4
Men	37.7	40.1	41.8	42.0
Women	37.7	40.5	42.0	42.8
White	37.7	40.8	42.6	43.0
Black	36.0	38.6	39.6	40.0
Hispanic origin	33.7	35.0	37.3	38.9
White non-Hispanic	38.5	41.8	44.1	44.4

Source: Employment Projections program, U.S. Bureau of Labor Statistics.

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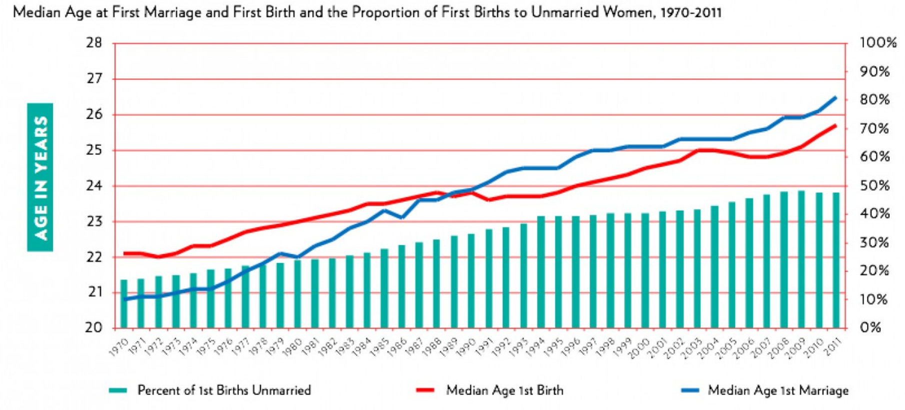

Median Age at First Marriage and First Birth and the Proportion of First Births to Unmarried Women, 1970-2011
AGE IN YEARS
28
27
26
25
24
23
22
21
20
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Percent of 1st Births Unmarried
Median Age 1st Birth
Median Age 1st Marriage

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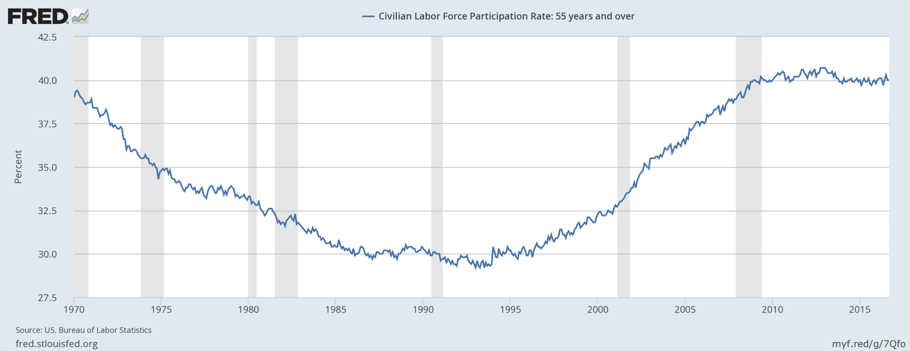

FRED
Civilian Labor Force Participation Rate: 55 years and over
42.5
40.0
37.5
35.0
32.5
30.0
27.5
Percent
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Source: US. Bureau of Labor Statistics
fred.stlouisfed.org
myf.red/g/7Qfo

Implications

- More new parents are caught (sandwiched) between caring for young children and caring for aging parents.
- Current and future grandmothers now have more extensive labor force histories, but child-care expectations might be unchanged.
- Shifting from two-generational to three-generational thinking is important in an aging society.

Research Questions

- How do grandparent change their labor supply in response to grandchildren?
  - Does time with grandchildren come out of labor hours?
  - Or do you work harder to earn more for the greater family unit?
- How do responses vary between grandfathers versus grandmothers?
- Is it a grandparenthood effect or is there a "total fertility" effect?

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- Grandparents help out most with newborns, and gave larger time transfers if the grandparents were married (Ho (2015)).

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...But Not Resolved Whether Own Labor Supply Changes

- Caring for grandchildren does not interfere with working, provided that the care was less than 12 hours a week (Whelan (2013)).
- In European survey data, grandparents are more likely to report a desire to retire early (Hochman and Lewin-Epstein (2013)).
- Women do decrease their labor supply upon becoming grandmothers (Rupert and Zanella (2017))
- However, grandmothers and grandfathers increase it when grandchildren move in (Wang and Marcotte (2007)).

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Contributions to the Literature

- First causal estimates using plausible variation (instrument for fertility from abortion legalization/pill access).
- Both grandmothers and grandfathers decrease labor force attachment as their families grow, depending on controls used.
- Grandmothers have an extensive and intensive margin response.
  - They become 10% more likely to retire in response to each grandchild.
  - They work 132 fewer hours a year if non-retired.
- Grandchildren do appear to trigger a retirement response for grandfathers.

Evidence on Time Transfers: By Grandchild Count

TABLE 1
Time Transfers (in Hours) By Number of Grandchildren

Number of Grandchildren ⇒	**0**	**1**	**2**	**3**	**Any Child**
Mother's Parents					
Married Grandparents	21.48	58.25	52.01	51.35	55.40
Grandfather Remarried	3.51	12.88	9.63	7.38	9.23
Grandmother Remarried	40.18	59.78	19.28	42.88	43.64
Single Grandfathers	25.02	19.42	5.18	2.14	13.79
Single Grandmothers	21.24	83.17	25.21	44.13	45.31
All Mother's Parents	**19.35**	**57.31**	**27.07**	**36.31**	**37.98**
Father's Parents					
Married Grandparents	21.32	16.79	51.33	68.22	47.24
Grandfather Remarried	3.04	7.21	2.39	2.12	4.21
Grandmother Remarried	27.64	173.41	11.48	35.03	64.59
Single Grandfathers	1.92	1.49	6.06	2.31	5.76
Single Grandmothers	16.04	36.22	10.15	2.22	14.20
All Father's Parents	**15.59**	**33.42**	**18.90**	**21.41**	**22.89**
All Grandparents	**34.95**	**90.72**	**45.97**	**57.72**	**60.86**

Source: 2013 PSID Family Rosters and Transfers

Data

- Main dataset are the Annual Family Files (1968-2013) and the Cross-Year Individual File from the (PSID).

- PSID is ideally suited for this study.
  1. Grandparents, adult children, and grandparents are easy to track in the PSID.
  2. PSID has lots of demographic and economic information that is consistently asked each year.
  3. PSID supplemental files (FIMS, Marriage and Childbirth History, etc.) make it easy to organize family units.

Sample

- Sample (grandparents) are adults aged 22-54 in 1968 who had at least one PSID child and were interviewed in 1968.
- 1,651 grandfathers and 2,175 grandmothers were included.
- Grandfather sample has 5,465 adult children, and grandmother sample has 7,970 adult children.

Empirical Approach: Grandparenthood Status

$$\begin{aligned} Outcome_{gst} = &\beta_0 + \beta_1 \mathbb{1}\{Grandparent_{gst}\} + \beta_2 GPDemVars_{gst} \\ &+ \beta_3 ACDemVars_{gst} + \lambda_t + \theta_{gs} + (\theta_{gs} * \lambda_t) + \iota_g + u_{gst}. \end{aligned}$$

- Unit of observation is at the grandparent level.
- $Outcome_{gst}$ is therefore a labor force outcome for grandparent g in year t in 1968 State s.
- Grandmothers and grandfathers are estimated separately.

Empirical Approach: Marginal Grandchild Response

$$
\begin{aligned}
&Outcome_{igst} = \beta_0 + \beta_1 ChildCount_{igst} + \beta_2 GPDemVars_{igst} \\
&+ \beta_3 ACDemVars_{igst} + \beta_4 ACSex * ACBirthOrder_{igst} \\
&+ \lambda_t + \theta_{gs} + (\theta_{gs} * \lambda_t) + \iota_g + u_{igst}
\end{aligned}
$$

- Unit of observation is at the adult child level.
- Controls include sex and birth order fixed effects for the adult children.
- $Outcome_{igst}$ is therefore a labor force outcome for grandparent g with adult child i in year t in 1968 State s.
- Grandmothers and grandfathers are estimated separately.

Notes on Estimation

- The unit of observation is at the adult child level because the fertility decision rests with them.
- Grandparent fixed effects (ι_g) control for time-invariant grandparent characteristics.
- Information on daughters-in-law is included with the adult sons.

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Panel Fixed Effects Results: Grandparenthood

TABLE 2
Panel Fixed Effects Estimation of Grandparents' Labor Response to Grandchildren

Grandchild Measure ⇓	**Grandfathers** Retired	**Grandfathers** Cond. Hrs Worked	**Grandfathers** In Labor Force	**Grandmothers** Retired	**Grandmothers** Cond. Hrs Worked	**Grandmothers** Non-Zero Hours
	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)
<u>Without interactions</u>						
$\mathbb{1}\{Grandparent\}$	0.082***	-49.567**	-0.019*	0.035***	-33.941	-0.023*
	(0.012)	(18.697)	(0.010)	(0.012)	(21.757)	(0.013)
Adj. R^2	0.69	0.44	0.64	0.69	0.58	0.46
F	149.72	11.74	237.96	90.23	61.25	139.98
<u>With interactions</u>						
$\mathbb{1}\{Grandparent\}$	0.081***	-46.992**	-0.021*	0.034***	-37.384*	-0.024*
	(0.012)	(18.128)	(0.011)	(0.012)	(21.851)	(0.013)
$*\mathbb{1}\{Early\ SS\ Elig\}$	0.022	-142.546*	-0.012	0.009	52.55	0.052
	(0.037)	(78.979)	(0.038)	(0.029)	(76.381)	(0.040)
$*\mathbb{1}\{Full\ SS\ Elig\}$	0.006	124.057	0.024	0.005	245.329*	-0.009
	(0.055)	(102.242)	(0.034)	(0.024)	(140.042)	(0.057)
Margin	0.083***	-47.88**	-0.018*	0.035**	-26.04	-0.023
	(0.014)	(18.77)	(0.010)	(0.014)	(22.08)	(0.016)
Adj. R^2	0.69	0.45	0.64	0.69	0.58	0.46
F	138.11	9.89	209.07	79.46	52.25	143.04
N	44,249	30,590	43,614	61,963	43,232	61,963

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Panel Fixed Effects Results: Marginal Grandchild

TABLE 3
Panel Fixed Effects Estimation of Grandparents' Labor Response to Grandchildren

Grandchild Measure ⇓	**Grandfathers** Retired	Cond. Hrs Worked	In Labor Force	**Grandmothers** Retired	Cond. Hrs Worked	Non-Zero Hours
	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)
Without interactions						
Child Count	0.035***	-7.388	-0.011***	0.019***	-32.130***	-0.018***
	(0.005)	(7.378)	(0.004)	(0.005)	(8.993)	(0.005)
Adj. R^2	0.71	0.49	0.64	0.72	0.61	0.49
F	109.039	19.08	116.444	73.132	64.805	94.355
With interactions						
Child Count	0.053***	-1.891	-0.023***	0.011*	-31.647***	-0.011**
	(0.006)	(6.363)	(0.005)	(0.005)	(8.632)	(0.005)
$*\mathbb{1}\{\textit{Early SS Elig}\}$	-0.017**	-49.354*	0.006	0.035***	-8.014	-0.013*
	(0.007)	(24.717)	(0.008)	(0.006)	(16.640)	(0.007)
$*\mathbb{1}\{\textit{Full SS Elig}\}$	-0.043***	-25.075	0.030**	0.011	1.502	-0.017**
	(0.012)	(23.598)	(0.011)	(0.007)	(18.520)	(0.007)
Margin	0.046***	-3.25	-0.018***	0.015***	-31.48***	-0.015***
	(0.005)	(6.51)	(0.004)	(0.005)	(8.68)	(0.005)
Adj. R^2	0.71	0.49	0.64	0.72	0.61	0.49
F	106.62	17.37	105.68	74.47	57.23	104.58
N	130,584	91,653	129,127	179,780	130,678	179,780

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Endogeneity of Grandchild Measures

It is possible that grandchildren are being timed in response to grandparent labor force characteristics.

For example:

- Grandchildren might be timed for when grandparents are best able to provide time transfers, so the panel fixed effects model *overstates* the labor market effect.
- Or, grandchildren are timed for when grandparents are best able to provide financial transfers, so the panel fixed effects model *understates* the labor market effect.

Instrumenting for Grandchild Count and Timing:
Access to Contraception and Abortion

- Abortion- and contraception-access laws changed nationwide largely between 1960 and 1976, with most changes thereafter aimed at minors' access.

- Both laws have been shown in previous studies to change total fertility and fertility timing.
  - Abortion: Gruber, Levine, and Staiger (1999); Ananat, Gruber, and Levine (2007); Levine et. al (1999); Joyce, Ran, and Zheng (2013); Guldi (2008)
  - Contraception: Goldin and Katz (2002); Bailey (2006); Bailey (2010); Guldi (2008)

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Abortion On-Demand Legalization Date, Women Over 17

TABLE 4
Abortion On-Demand Legalization Date for Women 18 and Over

Legalization Year ⇓	18-20	21 and Over
California	1969	1971
District of Columbia	1971	1974
Massachusetts	1973	1974
Missouri	1976	1976
New York	1970	1970
All Other States	1973	1973

Roe v Wade was decided on Jan 22, 1973, which legalized abortion for women 18 and over in most states. Missouri had a spousal consent requirement which was struck down on July 1, 1976 in *Planned Parenthood of Central Missouri v Danforth*. Massachusetts did not lower its age of legal majority to 18 until January 1974. California, DC, and New York legalized abortion on-demand prior to *Roe*.

Contraception Access Legalization Date, Women Under 21

TABLE 5
Oral Contraception Access Legalization Date for Women Under 21, 1968-Present

Legalization Year ⇓	**18-20**	**Under 18**
Before 1968	AR, IL, MS, OH, UT	MS, OH
1968	KY, WA	WA
1970	KS, PA	KS
1971	AL, CO, CT, DC, GA, MD, NC, OR, TN, VA	AL, CO, DC, MD, OR, TN, VA
1972	AZ, CA, LA, ME, MI, SC, SD, WV, WI	GA, KY, SC
1973	FL, IN, IA, MN, NJ, NY, TX	AR
1974	MA	
1975		LA, NY, UT
1976		CA, MN
1977	MO	AZ, MA, NC
1978		WI
After 1978		MI (1980), PA (1997), WV (1992)

Source: Author's coding from state statutes, Bailey (2006), Bailey et al. (2011), Myers (2012, 2014)

Distribution of Daughter/Daughter-in-Law Years of Birth

TABLE 6
In-Sample Daughter/Daughter-in-Law Year of Birth Distribution

	Grandfather Sample			Grandmother Sample		
Year of Birth ⇓	**Frequency**	**Percent**	**Cumulative Percent**	**Frequency**	**Percent**	**Cumulative Percent**
Before 1940	9	0.2	0.2	33	0.6	0.6
1940-1944	41	1.0	1.2	87	1.5	2.0
1945-1949	255	6.0	7.1	476	8.0	10.1
1950-1954	781	18.3	25.4	1,212	20.5	30.6
1955-1959	958	22.4	47.8	1,439	24.3	54.9
1960-1964	996	23.3	71.1	1,384	23.4	78.3
1965-1969	698	16.3	87.4	783	13.2	91.5
1970-1974	340	8.0	95.4	341	5.8	97.3
After 1974	198	4.6	100.0	162	2.7	100.0

Instrument for Grandchild Measures

$$GC_{igst} = \pi_0 + \pi_1 PillAccess_{ist} + \pi_2 AbortionAccess_{ist}$$
$$+ \pi_3 AbortionAccess\_LT250_{ist} + \pi_4 AbortionAccess\_GT250$$
$$+ \pi_5 PolicyLags_{ist} + \nu_{igst},$$

- $PillAccess_{ist}$ is adult child i's access to oral contraception in year t and 1968 State s.
- $AbortionAccess_{ist}$ is adult child i's access to oral contraception in year t and 1968 State s.
- $AbortionAccess\_LT250_{ist}$ and $AbortionAccess\_GT250_{ist}$ are dummies for whether adult child i's is within the indicated number of miles from an abortion legalization state.
- All policies are lagged 8 periods to reflect changes in fertility timing induced by both reproductive technologies.

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Identification

- The state-by-year variation in access to abortion creates a quasi-experimental framework that can be exploited in a DDD framework (year-by-state-by-woman's age).
- The identifying assumption is that there were no state/year changes coincident with the changes in access laws that also affected fertility.
- The state$\times$year effects will control for any other changes in state s and year t that could affect fertility outcomes.

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First-Stage Results

TABLE 7
First-Stage Estimates of Grandchild Measures from PSID

	$\mathbb{1}\{$**Grandparent**$\}$		**Child Count**	
Access Policy ⇓	Grandfathers (1)	Grandmothers (2)	Grandfathers (3)	Grandmothers (4)
	(b/se)	(b/se)	(b/se)	(b/se)
Pill Access				
No Lag	-0.048***	-0.033*	-0.151***	-0.134***
	(0.014)	(0.018)	(0.021)	(0.025)
Lag (t-1)	0.043***	0.044***	0.004	0.012
	(0.011)	(0.012)	(0.014)	(0.012)
Lag (t-8)	0.123***	0.128***	0.208***	0.234***
	(0.020)	(0.016)	(0.028)	(0.026)
Abortion Access				
No Lag	-0.056	-0.056	-0.107***	-0.118***
	(0.038)	(0.047)	(0.022)	(0.028)
Lag (t-1)	0.002	0.004	-0.023**	-0.035***
	(0.012)	(0.011)	(0.011)	(0.012)
Lag (t-8)	0.142***	0.138***	0.200***	0.193***
	(0.035)	(0.027)	(0.056)	(0.040)
Adj R^2	0.59	0.57	0.52	0.51
F-Statistic	2100.29	1465.84	2868.31	3657.70

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Second-Stage Results: Grandparenthood Status

TABLE 8
2nd-Stage IV Results of Grandparents' Labor Response to Grandchildren

Grandchild Measure ⇓	**Grandfathers** Retired	**Grandfathers** Cond. Hrs Worked	**Grandfathers** In Labor Force	**Grandmothers** Retired	**Grandmothers** Cond. Hrs Worked	**Grandmothers** Non-Zero Hours
	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)
Without interactions						
$\mathbb{1}\{Grandparent\}$	0.183***	-127.909	-0.032	0.078*	-105.172	-0.123*
	(0.059)	(169.099)	(0.051)	(0.043)	(129.804)	(0.067)
With interactions						
$\mathbb{1}\{Grandparent\}$	0.197***	-205.735	-0.061	0.103**	-118.803	-0.143**
	(0.057)	(169.571)	(0.050)	(0.045)	(123.605)	(0.066)
$*\mathbb{1}\{Early\ SS\ Elig\}$	0.128	34.012	-0.1	0.375**	479.479	-0.068
	(0.106)	(206.709)	(0.100)	(0.146)	(297.286)	(0.113)
$*\mathbb{1}\{Full\ SS\ Elig\}$	-0.062	585.26	-0.025	-0.158	292.783	0.256
	(0.159)	(528.511)	(0.118)	(0.232)	(503.898)	(0.271)
Margin	0.195***	-190.362	-0.061	0.100**	-92.197	-0.102**
	(0.057)	(168.598)	(0.057)	(0.051)	(119.537)	(0.070)
N	44,249	30,590	43,614	61,963	43,232	61,963

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Second-Stage Results: Marginal Grandchild

TABLE 9
2nd-Stage IV Results of Grandparents' Labor Response to Grandchildren

Grandchild Measure ⇓	**Grandfathers**			**Grandmothers**		
	Retired	Cond. Hrs Worked	In Labor Force	Retired	Cond. Hrs Worked	Non-Zero Hours
	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)
Without interactions						
Child Count	0.180***	-15.292	-0.096***	0.214***	-169.529**	-0.184***
	(0.029)	(94.152)	(0.026)	(0.027)	(67.214)	(0.027)
With interactions						
Child Count	0.265***	-28.856	-0.171***	0.232***	-129.551**	-0.205***
	(0.030)	(87.400)	(0.029)	(0.031)	(61.282)	(0.026)
$*\mathbb{1}\{\textit{Early SS Elig}\}$	-0.101***	81.964	0.073**	0.090***	-21.836	-0.040***
	(0.037)	(108.914)	(0.032)	(0.011)	(27.692)	(0.012)
$*\mathbb{1}\{\textit{Full SS Elig}\}$	-0.222***	34.433	0.079**	0.077***	-56.433*	-0.085***
	(0.023)	(200.378)	(0.030)	(0.014)	(30.201)	(0.014)
Margin	0.227***	-26.688	-0.156***	0.248***	-131.703**	-0.220***
	(0.028)	(86.571)	(0.026)	(0.031)	(60.867)	(0.024)
N	130,584	91,653	129,127	179,780	130,678	179,780

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Robustness Checks

1. Check on small standard errors.
   - Make it a full DDD by including State$\times$10-Year Age Group and Year$\times$10-Year Age Group interactions.
2. Will include age as a 4th order polynomial to ensure that grandparenthood patterns are not coincident with other processes.

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Robustness Check: Grandparenthood Status

TABLE 10
PSID 2nd-Stage IV Results with Age as a 4th Order Polynomial

Grandchild Measure ⇓	**Grandfathers** Retired	Cond. Hrs Worked	In Labor Force	**Grandmothers** Retired	Cond. Hrs Worked	Non-Zero Hours
	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)
Without interactions						
$\mathbb{1}\{Grandparent\}$	-0.02	187.7	0.05	-0.073	-163.78	-0.105
	(0.072)	(216.857)	(0.082)	(0.067)	(127.247)	(0.078)
With interactions						
$\mathbb{1}\{Grandparent\}$	0.001	107.486	0.029	-0.074	-210.945*	-0.092
	(0.070)	(231.141)	(0.075)	(0.066)	(119.919)	(0.077)
$\times\mathbb{1}\{Early\ SS\ Elig\}$	0.024	3.405	-0.052	0.335***	781.044**	0.101
	(0.120)	(197.772)	(0.119)	(0.123)	(291.437)	(0.102)
$\times\mathbb{1}\{Full\ SS\ Elig\}$	-0.005	5.68	0.012	0.124	430.876	0.286
	(0.192)	(359.882)	(0.184)	(0.148)	(428.006)	(0.182)
Margin	0.002	107.713	0.028	-0.029	-168.908*	-0.033
	(0.094)	(230.806)	(0.085)	(0.070)	(119.890)	(0.089)
N	43,444	29,782	42,913	61,411	42,679	61,411

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Robustness Check: Marginal Grandchild

TABLE 11
PSID 2nd-Stage IV Results with Age as a 4th Order Polynomial

	Grandfathers			Grandmothers		
Grandchild Measure ⇓	Retired	Cond. Hrs Worked	In Labor Force	Retired	Cond. Hrs Worked	Non-Zero Hours
	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)	(b/se)
Without interactions						
Child Count	0.041	-46.524	-0.002	0.132***	-30.271	-0.072*
	(0.033)	(86.363)	(0.035)	(0.028)	(65.622)	(0.041)
With interactions						
Child Count	0.075*	6.639	-0.051	0.125***	-3.593	-0.061
	(0.039)	(78.745)	(0.039)	(0.031)	(61.123)	(0.036)
$\times \mathbb{1}\{\textit{Early SS Elig}\}$	-0.034	-17.869	0.049	0.064***	15.976	-0.009
	(0.035)	(85.438)	(0.033)	(0.009)	(24.268)	(0.013)
$\times \mathbb{1}\{\textit{Full SS Elig}\}$	-0.142***	-243.934	0.059	0.038**	-30.532	-0.017
	(0.028)	(230.174)	(0.039)	(0.016)	(26.356)	(0.016)
Margin	0.052*	2.342	-0.039	0.134***	-4.1	-0.064
	(0.040)	(78.554)	(0.037)	(0.032)	(61.156)	(0.036)
N	124,892	86,115	123,741	175,985	127,046	175,985

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

What Does this Mean for LFP Trends Among Older Workers?

- Grandmothers have both an intensive and extensive margin response, commensurate with the idea that at least some portion of childcare is done at the expense of the grandmomther's labor supply.
- Grandfathers, on the other hand, seem to have exclusively an extensive margin response, and so may have been missed by other researchers.
- If grandparenthood pushes men out of the labor force, what role did the Baby Boom play in the 1970-1994 drop in older men's labor force participation? How is the current Baby Bust affecting labor force participation in this cohort?

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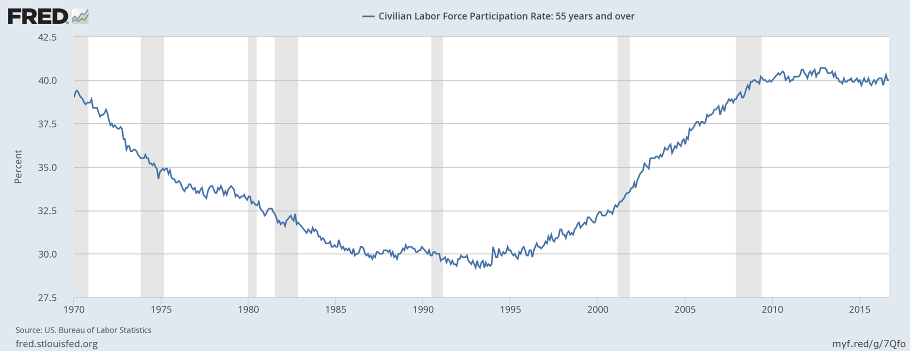
Simulating the LFP Rate Among Older Workers

- Labor force participation among those 55 and over has seen major shifts over the postwar period.
- Based on the results above, what role do national-level changes in grandparenthood play in these trends?
- Will extend the method of Blau and Goodstein (2010), who use a synthetic panel to simulate various alternative explanations for postwar LFP trends.

Simulating the LFP Rate Among Older Workers



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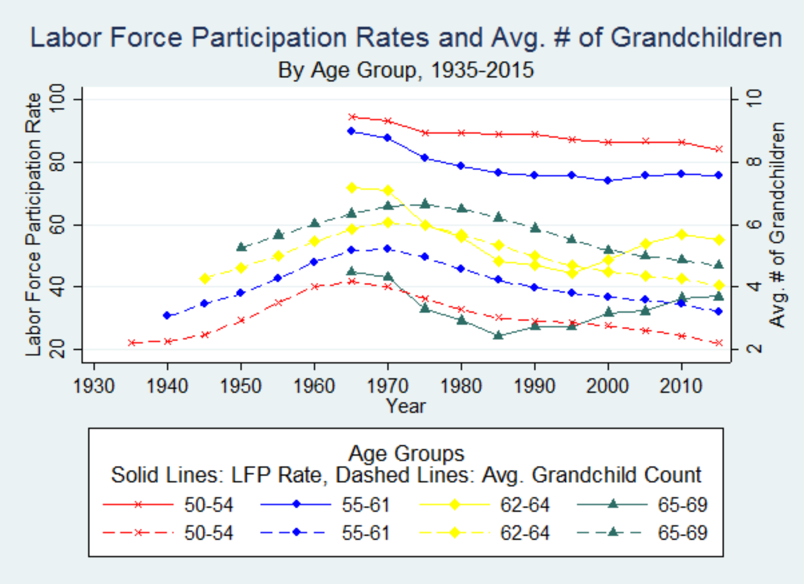

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Blau and Goodstein Extension

I extend their main estimation that approximates the employment decision rule by adding grandparent measures:

$$LFP_{eabt} = \delta_0 + \delta_1 GP\_Measure_{eabt} + \delta_2 SSB65_{eb} + \delta_3 (SSB62_{eb} - SSB65_{eb})$$
$$+ \delta_4 (SSB62_{eb} - SSB65_{eb}) + \delta_5 AME_{eb} + \delta_6 DisabilityBenefit_{eabt}$$
$$+ \delta_7 ln(PredictedWage_{eat}) + \delta_8 Demographics_{eabt} + \delta_9 EducationGroup_e$$
$$+ \delta_{10} Year_t + \delta_{11} BirthYear_b + \delta_{12} Age_a + u_{eabt},$$

Where $GP\_Measure_{eabt}$ is either:

1. Fraction Grandfather
2. Avg. Number of Grandchildren

I also interact the grandparent measures with the employment decision variables.

Employment Decision Regressions

TABLE 12
Panel Regression of Older Men's National Labor Force Participation Rates ($N = 4,121$)

	Time Trends (1)	4 YOB FE (2)	Time Trends (3)	4 YOB FE (4)
	(b/se)	(b/se)	(b/se)	(b/se)
	Fraction Grandparent Regressions		**Average Grandchild Count Regressions**	
<u>Without interactions</u>				
GP_Measure	-0.627***	-0.588***	-7.756***	-7.269***
	(0.064)	(0.200)	(0.793)	(2.468)
<u>With interactions</u>				
GP_Measure	-0.946***	-0.780***	-12.708***	-9.530***
	(0.125)	(0.217)	(1.465)	(2.633)
×SSB65	-0.036***	-0.038***	-0.339***	-0.360***
	(0.006)	(0.008)	(0.071)	(0.090)
×(SSB62-SSB65)	-0.003	-0.015	0.032	-0.052
	(0.008)	(0.013)	(0.094)	(0.145)
×(SSB70-SSB65)	0.012**	0.028***	0.062	0.269***
	(0.006)	(0.007)	(0.070)	(0.076)
×Avg. Earnings	-0.003***	-0.001	-0.038***	-0.007
	(0.001)	(0.001)	(0.007)	(0.008)
×Disability Benefit	0.024***	0.029***	0.240***	0.285***
	(0.003)	(0.003)	(0.028)	(0.029)
×Log Predicted Wage	0.456***	0.274***	5.095***	3.023***
	(0.029)	(0.032)	(0.359)	(0.391)
Adj. R^2	0.98	0.98	0.98	0.98
F	187.017	163.484	182.300	160.005

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Employment Decision Regressions

- Reassuringly, grandparenthood decreases LFP, just as in the PSID, micro-level regressions.
- Grandparenthood is a significant factor by any metric, including in the interactions. This reinforces the hypothesis that the grandchild channel for grandfathers acts by raising their reservation wages.
- The signs on the uninteracted employment decision variables, however, largely have the opposite of expected signs.
- The net margins (fortunately) are as predicted. They suggest that the grandparenthood effect measured here is very similar to the Table 8 results: a 10% increase in grandparenthood would decrease the LFP rate by about 2%.

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Employment Decision Regressions

TABLE 12
Marginal Effects for Interacted Variables

	% Grandparent		Grandchild Count	
	(1)	(2)	(3)	(4)
	(b/se)	(b/se)	(b/se)	(b/se)
GP_Measure	-0.187***	-0.129***	-4.087***	-2.525***
	(0.087)	(0.199)	(1.024)	(2.455)
SSB65	-0.140***	0.114***	-0.136***	0.080***
	(0.126)	(0.138)	(0.128)	(0.139)
(SSB62-SSB65)	-0.128	-0.134	-0.187	-0.169
	(0.177)	(0.197)	(0.175)	(0.200)
(SSB70-SSB65)	0.251	0.067***	0.291	0.096***
	(0.097)	(0.119)	(0.098)	(0.121)
Lifetime Avg. Monthly Earnings	0.100***	0.051**	0.074***	0.035*
	(0.012)	(0.012)	(0.011)	(0.012)
Monthly Disability Benefit	-0.213***	-0.292***	-0.176***	-0.250***
	(0.039)	(0.039)	(0.039)	(0.040)
Log Predicted Wage	-4.277***	-2.081***	-3.494***	-1.509***
	(0.811)	(0.788)	(0.807)	(0.786)
Birth Cohort Time Trends	Y	Y	Y	Y
4-Year Birth Cohort FE's	N	Y	N	Y

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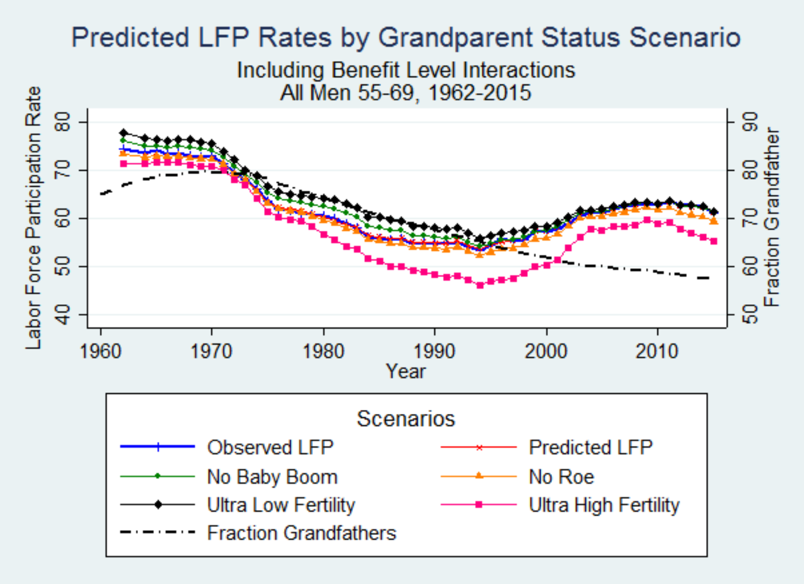
Counterfactuals

So how much would changes in fertility ultimately have reshaped the observed LFP rate? I explore 4 scenarios:

1. **No Baby Boom**: I assume that the post-WWII "boom" never happened, so that the birth rate was essentially unchanged from 1939 to 1965.
2. **No Roe**: I assume that abortion was never nationally legalized, and extend the birth rates observed in 1970-1972 outwards to the present.
3. **Ultra Low Fertility**: I assume that the birth rate for the last 100 years has been the same as the minimum one observed, which nationally was 2015's value of 12.4.
4. **Ultra High Fertility**: I assume that the birth rate for the last 100 years has been the same as the maximum one observed, which nationally was 1957's value of 24.9.

Fertility Simulations



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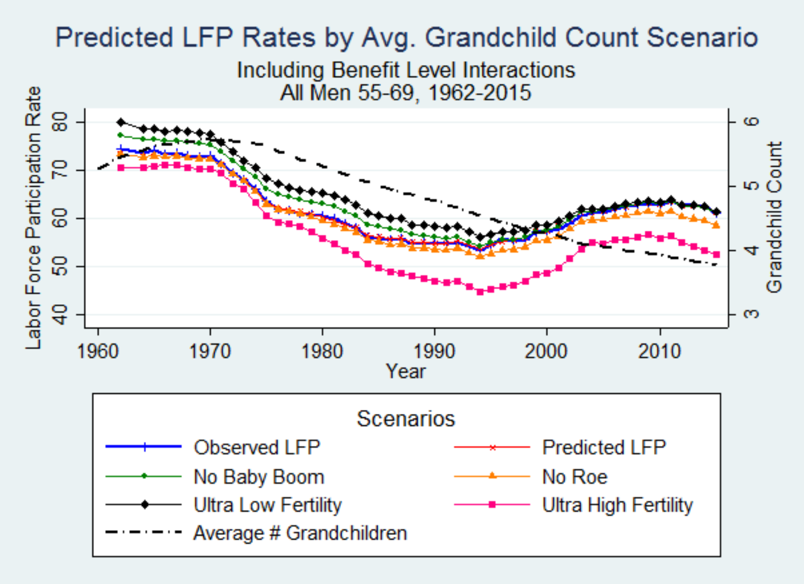

Conclusion

- Grandparents do reduce labor force participation in response to grandchildren.
  - Grandfathers are 18.3%-19.5% more likely to be retired than the grandchildless, and become 9.6%-15.6% less likely to be in the labor force and 18%-22.7% more likely to be retired with each additional grandchild.
  - Grandmothers are 7.8%-10% more likely to be retired and 10.2%-12.3% less likely to report non-zero working hours than the grandchildless.
  - Grandmothers work 131.7-169.5 fewer hours per year with each additional grandchild.
- OLS and descriptive approaches *underestimate* the impact of grandchildren on both grandmothers and grandfathers.
- Other studies have focused on grandmothers' help to new mothers, but there is evidence here that grandfathers play an important but understudied role in family time transfers.
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