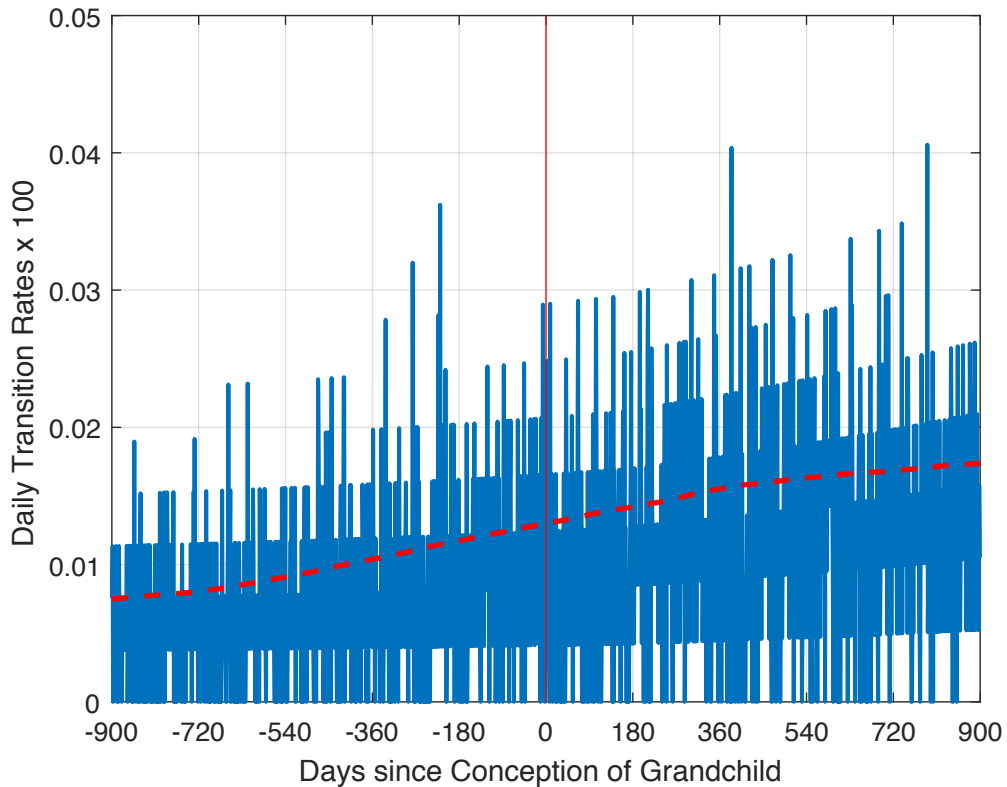


Web Appendix

This Web Appendix (not for publication) provides additional material discussed in “Grandmothers’ Labor Supply” by Wolfgang Frimmel, Martin Halla, Bernhard Schmidpeter, and Rudolf Winter-Ebmer, which is forthcoming in the *Journal of Human Resources*.

Figure A.1: Transition rates of grandmothers around conception date with raw data



Notes: This figure presents daily transition rates of grandmothers around the conception date of the first grandchild. The solid lines are (raw) daily transition rates. The dashed line are smoothed daily transition rates using the method of Muller and Wang (1994). The sample consists of all grandmothers with at least one child aged 15 in 1993-1998 and at least 2.5 years of labor market experience within 3 years before the reference date (15th birthday of the reference child).

Table A.1: ToE estimation of the first grandchild on grandmothers' labor market exit, using an alternative exit duration of 6 months

	Model (I)			
	Exit hazard θ_E		Treatment hazard θ_G	
Panel A: Treatment effects				
δ	0.09***	(0.01)		
Panel B: Unobserved heterogeneity				
ν_1	-5.49 ***	(0.06)	-4.09 ***	(0.05)
ν_2	0.74***	(0.07)	-4.63 ***	(0.27)
ν_3	-1.02 ***	(0.07)	-3.74 ***	(0.07)
Pr_{ν_1}	0.89***	(0.00)		
Pr_{ν_2}	0.04***	(0.00)		
Pr_{ν_3}	0.07***	(0.00)		
Panel C: Duration dependence				
$\lambda_{(0-6]}$	ref.			
$\lambda_{(6-8]}$	1.19***	(0.04)	1.01***	(0.02)
$\lambda_{(8-10]}$	1.93***	(0.04)	1.33***	(0.02)
$\lambda_{(10-12]}$	2.67***	(0.05)	1.73***	(0.02)
$\lambda_{(12-14]}$	3.54***	(0.05)	2.05***	(0.02)
$\lambda_{(14-16]}$	4.40***	(0.05)	2.27***	(0.02)
$\lambda_{(16-18]}$	5.12***	(0.05)	2.15***	(0.03)
$\lambda_{(18-20]}$	5.85***	(0.05)	1.71***	(0.06)
$\lambda_{(20-\infty)}$	6.45***	(0.07)	-0.30	(0.58)
Panel D: Covariate effects				
First grandchild by son	-0.04 ***	(0.01)	1.29***	(0.01)
Age < 40 Years	-3.03 ***	(0.03)	0.33***	(0.03)
40 \geq Age < 45 Years	-1.55 ***	(0.02)	0.12***	(0.03)
45 \geq Age	ref.			
Wage (in Euro)	0.00***	(0.00)	0.00***	(0.00)
Missing wage is imputed	-0.33 ***	(0.02)	-0.29 ***	(0.02)
Experience (in years)	0.10***	(0.00)	0.00	(0.00)
Has 1 Child	-0.53 ***	(0.03)	-1.13 ***	(0.03)
Has 2 Children	-0.47 ***	(0.03)	-0.70 ***	(0.03)
Has 3 Children	-0.26 ***	(0.03)	-0.36 ***	(0.03)
Has 4 Children or more	ref.			

Notes: The sample consists of (potential) grandmothers with at least one child aged 15 in 1993-1998 and 2.5 years of labor market experience with a total of 72,935 observations. The duration is measured until exit from the labor market for at least 6 month. Standard Errors are reported in parentheses. Standard errors for the probabilities are calculated using the delta method. In addition to the listed covariates, education, residential, and time dummies are included in the estimation. *, ** and *** indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level, respectively. Standard errors are reported in parentheses.

Table A.2: The effect of grandchildren on the duration to labor market exit with uncensored observations using OLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	Reduced forms				1st stage	2nd stages	
		Spec. 1	Spec. 2	Spec. 3	Spec. 4		Spec. 1	Spec. 2
<i>Treatment variable</i>								
Number of grandchildren	-0.048*** (0.014)						-0.398** (0.173)	
Twin birth (first grandchild)		-1.367*** (0.140)	-0.195** (0.099)	-0.218** (0.099)	-0.224** (0.096)	0.563*** (0.034)		
Two or more grandchildren								-0.683** (0.292)
First grandchild by son (vs. daughter)	0.072*** (0.027)				0.072*** (0.027)	-0.006 (0.010)	0.070*** (0.027)	0.067** (0.027)
<i>Grandmother characteristics</i>								
Had twins	-0.043 (0.105)			-0.164 (0.107)	-0.041 (0.105)	-0.031 (0.052)	-0.053 (0.107)	-0.055 (0.106)
Has 2 children	0.193*** (0.032)				0.155*** (0.030)	0.807*** (0.010)	0.476*** (0.142)	0.267*** (0.056)
Has 3 children	0.181*** (0.051)				0.106** (0.048)	1.565*** (0.021)	0.730*** (0.274)	0.275*** (0.086)
Has 4 children or more	-0.142* (0.085)				-0.264*** (0.080)	2.549*** (0.039)	0.752* (0.447)	-0.059 (0.119)
Educational attainment	Yes	No	No	No	Yes	Yes	Yes	Yes
Labor market characteristics	Yes	No	No	No	Yes	Yes	Yes	Yes
State of residence FE	Yes	No	No	No	Yes	Yes	Yes	Yes
Year and month of birth FE	Yes	No	No	No	Yes	Yes	Yes	Yes
<i>Mother characteristics</i>								
Mother's age	0.031*** (0.004)			0.021*** (0.004)	0.032*** (0.004)	-0.025*** (0.002)	0.023*** (0.006)	0.028*** (0.005)
Mother's income	0.012 (0.012)			0.029** (0.012)	0.010 (0.011)	0.044*** (0.005)	0.028** (0.014)	0.032** (0.015)
<i>Grandchild characteristics</i>								
Year of birth FE	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Month of birth FE	Yes	No	No	No	Yes	Yes	Yes	Yes
Mean of dependent variable	6.12	6.12	6.12	6.12	6.12	2.47	6.12	6.12
Mean of treatment	2.471	0.014	0.014	0.014	0.014	2.471		0.746
F-test of weak instrument							280.87	1725.09

Notes: The estimations summarized in this table are comparable to those presented in Table 7 in the paper, but exclude those women, who have *not* left the labor market before 2014 (censored observations). The number of observations is 54,263. The method of estimation is in columns (1) to (6) OLS, and in columns (7) and (8) 2SLS. Robust standard errors in parentheses. *, ** and *** indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level, respectively.

Table A.3: Treatment effect heterogeneity of the first and further grandchildren: child-care availability

	(1)	(2)	(3)
	First grandchild		Further grandchildren
	ToE Estimation		Tobit reduced form
	Grandmother	Daughter	Grandmother
Distance > 60 min, Formal-child care	-0.048* (0.029)	0.170*** (0.075)	-0.205 (0.298)
Distance > 60 min, No formal-child care	-0.033 (0.039)	0.147* (0.079)	-0.472 (0.330)
Distance ≤ 60 min, Formal-child care.	0.199*** (0.028)	0.217*** (0.058)	-0.278 (0.224)
Distance ≤ 60 min, No formal-child care	0.236*** (0.038)	0.392*** (0.074)	-0.633*** (0.293)

Notes: Columns (1) and (2) present estimates from the ToE approach outlined in Section 3. The estimated coefficients measure the effect of the arrival of a first grandchild on the exit probability of grandmothers (column (1)) and mothers (column(2)) by $[exp(\delta) - 1]$ percent. The estimates column (3) are based on Tobit reduced form estimates outlined in Section 4. *, ** and *** indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level, respectively. The availability of grandmothers and formal-child care are assessed at the time of the grandchildren's conception, or — if information at this point in time is not available — at the closest available time. In case of no grandchildren, the assessment year is the year when women reach the age of 50, which is the average age of women becoming a grandmother in our sample.