Does Expanding Cash-for-Care Crowd In Family Care?

Evidence from Germany's Care-Strengthening Acts in Cross-National Perspective

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1 Motivation

How public long-term care (LTC) benefits shape the mix of formal and informal care is a first-order question for aging societies. It is central to the current U.S. policy debate on expanding Medicaid home- and community-based services (HCBS) and on consumer-directed and "structured family caregiving" programs that pay family members to provide care. A key concern is substitution: do public benefits displace family care, or can benefit design *crowd in* family caregiving while containing growth in formal services? A large literature documents that informal care substitutes for some formal services at the individual level (Van Houtven and Norton, 2004; Bonsang, 2009; Bolin et al., 2008), and structural work suggests that the design of LTC benefits critically shapes family care supply (Barczyk and Kredler, 2018; Mommaerts, 2025), but quasi-experimental evidence from large national benefit expansions remains limited (Costa-Font et al., 2018). The German reforms we study have so far been examined descriptively (Geyer et al., 2023) or with respect to nursing home admission using administrative discontinuities (Diederich, 2023); to our knowledge, no study estimates their effect on informal care receipt and formal home care use, measured from the care recipient's side and benchmarked against other European countries.

Credible evidence is scarce because benefit generosity rarely changes sharply within a country. Germany's Care-Strengthening Acts of 2015–2017 provide precisely such a change, in the world's largest cash-for-care program.

2 Institutional background: Germany's cash-for-care reforms

Since 1995, Germany has covered long-term care through a mandatory social insurance scheme. Individuals whose care needs are certified in an independent medical assessment are entitled to benefits regardless of income or assets, and may choose between professional home care provided

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in kind and a cash benefit (*Pflegegeld*) worth roughly half the in-kind amount. The cash benefit is paid directly to the care recipient, its use is not monitored, and in practice it is typically passed on to the family members who provide care. A more generous cash benefit therefore raises the effective compensation for informal care relative to formal home care.[1]

The Care-Strengthening Acts (*Pflegestärkungsgesetze*, PSG I–II) expanded this system in two steps. PSG I (January 2015) raised benefit levels and introduced flexible allowances for respite and day/night care. PSG II (January 2017) went further: it replaced the previous three-level needs assessment, which was based almost entirely on physical limitations, with five broader "care grades" in which cognitive and psychosocial impairments carry equal weight. This extended entitlement to several hundred thousand people, disproportionately patients with dementia, who had previously received little or no support. Administrative data confirm the scale of the expansion: the number of long-term care insurance beneficiaries rose from 2.6 million in 2013 to 3.4 million in 2017 (Destatis, 2018).

3 Data

We use the Survey of Health, Ageing and Retirement in Europe (SHARE; Börsch-Supan et al., 2013), waves 1–9 (2004–2022), release 9.0.0: harmonized microdata on care receipt for 27 European countries and Israel, directly comparable to the U.S. Health and Retirement Study. Our estimation sample pools Germany and eight comparison countries observed in every regular wave (Austria, Belgium, Switzerland, Denmark, Spain, France, Italy, Sweden): roughly 15,000–23,000 respondents aged 65+ per wave. All statistics use SHARE's calibrated cross-sectional weights.[2]

We study two primary outcomes, measured for respondents aged 65 and over:

- **Formal home care**: whether the respondent received professional or paid help with personal care or domestic tasks in their own home during the last twelve months.
- **Informal care**: whether the respondent received personal care or practical help from family members, friends, or neighbours outside the household, or regular personal care from a household member other than a professional helper.[3]

Planned extensions draw on care hours, nursing home stays, out-of-pocket spending on long-term care, and caregiver labor supply from SHARE's Job Episodes Panel.[4]

[1] As of 2017, the monthly cash benefit ranged from 316 euros (care grade 2) to 901 euros (care grade 5), against in-kind entitlements of 689 to 1,995 euros. Benefits are not means-tested, and recipients may combine cash and in-kind benefits on a pro-rata basis.

[2] Wave 3 (SHARELIFE) collected retrospective life histories without the care modules and is excluded; wave 4 did not field the home care module; wave 8 fieldwork was interrupted by the COVID-19 pandemic in March 2020, and robustness checks exclude it.

[3] In early waves the social support questions were inclusive of the respondent and their partner; from wave 6 they are asked of each respondent individually. This change is common to all countries and absorbed by the wave fixed effects; the difference-in-differences compares countries within waves and is therefore unaffected. We will nevertheless probe sensitivity by partnership status.

[4] Exact SHARE item codes, question wording, and the harmonization of instruments across waves are documented in the data appendix at the end of this abstract.

Table 1: Descriptive statistics: Germany vs. control countries, population 65+

	2013 (wave 5, pre)		2017 (wave 7, post)	
	Germany	Controls	Germany	Controls
Age (years)	75.3	75.1	75.2	75.2
Female (%)	56.8	56.7	56.3	55.8
ADL limitations (count)	0.4	0.4	0.4	0.4
IADL limitations (count)	0.6	0.7	0.8	0.8
Fair/poor self-perceived health (%)	50.8	39.9	51.7	40.5
Informal care (%)	28.5	25.8	39.1	32.3
Formal home care (%)	17.2	17.6	13.7	13.6
Observations	2,519	20,260	2,240	18,870

Notes: SHARE waves 5 and 7, respondents aged 65 and over, calibrated cross-sectional weights. Control-country statistics average the eight country-level weighted means with equal country weights. ADL: limitations in basic activities of daily living (bathing, dressing, eating); IADL: limitations in instrumental activities of daily living (shopping, preparing meals, managing medication). This table uses waves 5 and 7 only; the event-study regressions in Table 2 pool all waves in which each outcome is measured, hence their larger samples.

SHARE's strengths for this question match the call's emphasis on measurement of informal care: identical instruments across countries and time, care measured from the *recipient* side (avoiding caregiver self-report bias), and linkage to cognition modules including the wave 9 HCAP assessment harmonized with HRS-HCAP.

Table 1 compares Germany with the pooled control group immediately before (2013) and after (2017) the reforms. Demographic composition and functional limitations are closely balanced across groups and move in parallel over time. German respondents report fair or poor self-perceived health more often than those in control countries at both dates; this is a stable level difference, absorbed by the country fixed effects. The care outcomes in the bottom rows preview the identification: informal care rises by 10.6 percentage points in Germany against 6.5 in the control group, while formal home care declines almost identically in both.

4 Empirical design

We use a difference-in-differences / event-study design comparing Germany to the eight-country control group, with wave 5 (2013) as the last clean pre-period; wave 6 (fieldwork 2015) is partially treated by PSG I and wave 7 (2017) is fully post-PSG II. For individual i in country c and wave t, we estimate the linear probability model

$$y_{ict} \;=\; \alpha_c \;+\; \lambda_t \;+\; \sum_{\tau \neq 2013} \beta_\tau \, \mathrm{DE}_c \times \mathbf{1}[t = \tau] \;+\; X_{ict}'\gamma \;+\; \varepsilon_{ict}, \tag{1}$$

where y_{ict} indicates receipt of informal care or of formal home care, α_c and λ_t are country and wave fixed effects, DE_c marks Germany, and X_{ict} contains age, age squared, gender, counts of limitations in basic and instrumental activities of daily living (ADL and IADL), and an indicator

for fair or poor self-perceived health. The coefficients β_τ trace how care use in Germany evolves relative to the control group around the reforms, with 2013 as the base period. Regressions are weighted by SHARE's calibrated cross-sectional weights, with standard errors clustered at the country level. Because the design features a single treated country among nine clusters, conventional cluster-robust inference is not sufficient, and the wild cluster bootstrap (Cameron et al., 2008) is known to be uninformative with a single treated cluster (MacKinnon and Webb, 2018); in our data it returns p-values near 0.5 by construction. Our inference therefore rests on permutation-based approaches designed for settings with few policy changes: placebo reassignment of treatment across countries (Conley and Taber, 2011) and synthetic control inference (Abadie et al., 2010). A within-Germany triple difference sharpens identification: PSG II expanded eligibility most for the cognitively impaired, so effects should be concentrated among respondents with low cognition scores, a prediction we test with SHARE's word-recall measures and the HCAP subsample.

Pre-trends: in raw weighted means, informal care receipt was flat in Germany between waves 4 (2011) and 5 (2013) (28.6% $\rightarrow$ 28.5%) while declining in control countries (27.7% $\rightarrow$ 25.8%). The covariate-adjusted wave-4 placebo coefficient is accordingly negative and non-trivial (-6.2pp; Table 2): several control countries reach a local trough in 2013 (Figure 2), so part of the post-2015 divergence could in principle reflect their rebound rather than the German reforms. We address this directly: we will bound its implications with the honest-DiD approach of Rambachan and Roth (2023), and we place the identification weight on the within-Germany triple difference (result 4 below), whose within-country pre-reform coefficients are statistically indistinguishable from zero. The home-care instrument changed between waves 2 and 5; formal-care comparisons therefore rely on waves 5–9 only.

Threats to identification. Three further concerns shape our robustness agenda. First, survey responses may partly reflect reporting rather than behaviour: enrolment in a cash-for-care program may lead households to label routine family help as "care." The size of our estimates relative to the directly affected population suggests that salience and take-up spillovers play a role; we will therefore benchmark survey-based changes against administrative beneficiary counts and examine outcomes least susceptible to relabelling, such as care hours, caregivers' labor supply, and nursing home entry. Second, other German policies changed in the same window: the national minimum wage and a caregiver-leave reform both took effect in January 2015. The triple difference by cognitive impairment, which exploits variation in reform exposure *within* Germany, nets out shocks common to all German elderly. Third, several control countries reformed their own long-term care systems inside the treatment window: Denmark made reablement mandatory before granting home help from January 2015, France raised the ceilings of its home-care allowance and strengthened caregiver support from 2016, and Austria tightened the hours thresholds of its care allowance in 2015. Informal care rose most in exactly these three countries (Figure 1; country-level means in Appendix Table A.2), and Figure 2 shows that their increases are concentrated in the 2015–2017 window, consistent with their own reforms rather than with long-standing trends, while none of the five remaining control countries shows a comparable jump. To the extent their reforms raised informal care in the control group, they bias the difference-in-differences toward zero, so our baseline estimates are conservative: exclud-

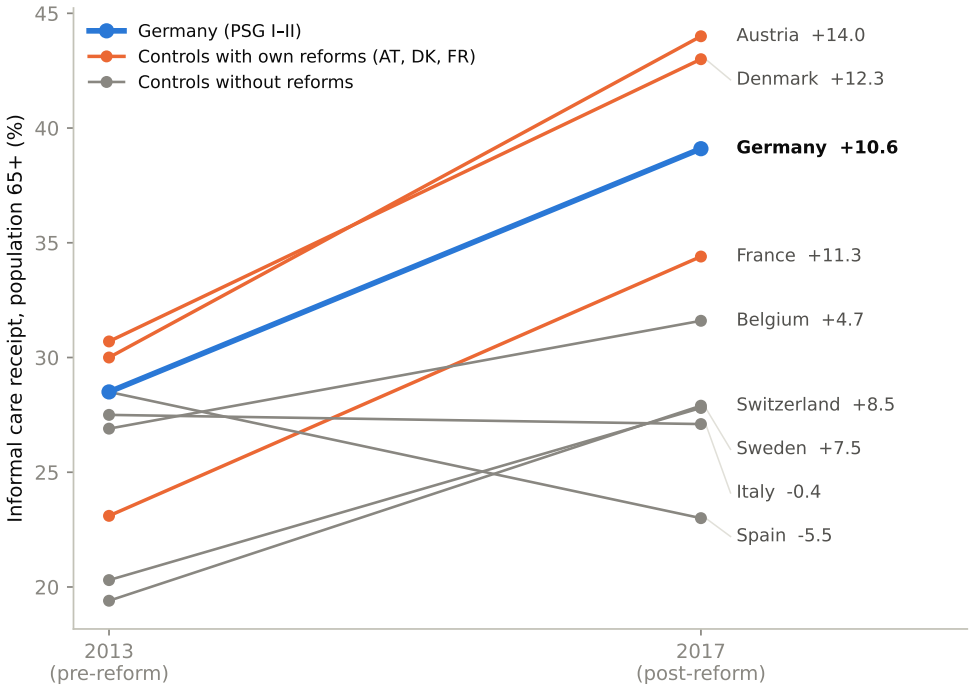


Figure 1: Informal care receipt in 2013 and 2017, by country (weighted SHARE means, population 65+; changes in percentage points). Orange marks the three control countries that reformed their own long-term care systems inside the treatment window; gray marks the remaining controls. Because the contaminated controls' reforms pushed informal care up, they bias the difference-in-differences toward zero.

ing the three countries raises the raw difference-in-differences for informal care from 4.1 to 7.6 percentage points, and the covariate-adjusted 2017 effect from +3.6 to +6.4pp (Table 2). We will report all results for both control sets and, more importantly, for the within-Germany triple difference, which does not rely on cross-country comparisons at all.

5 Preliminary results

1. **Informal care rose markedly and differentially in Germany after the reforms.** In raw weighted means, informal care receipt rose from 28.5% (2013) to 39.1% (2017) in Germany against 25.8% to 32.3% in control countries (Table 1). In the individual-level event-study specification with demographic and health controls (Table 2), the Germany×2017 effect is **+3.6pp** against the full control set and **+6.4pp** against the clean control set (a 13–23% increase over the German baseline mean). Relative to the clean controls the effect persists at +3 to +4pp through 2022, while the reforming control countries converge toward Germany after 2017, consistent with their own contemporaneous reforms. The German increase begins exactly in 2015, the year PSG I took effect (Figure 3).

2. **Formal home care did not fall.** Formal home care use declined similarly in Germany (17.2% → 13.7%) and in control countries (17.6% → 13.6%); the adjusted event-study

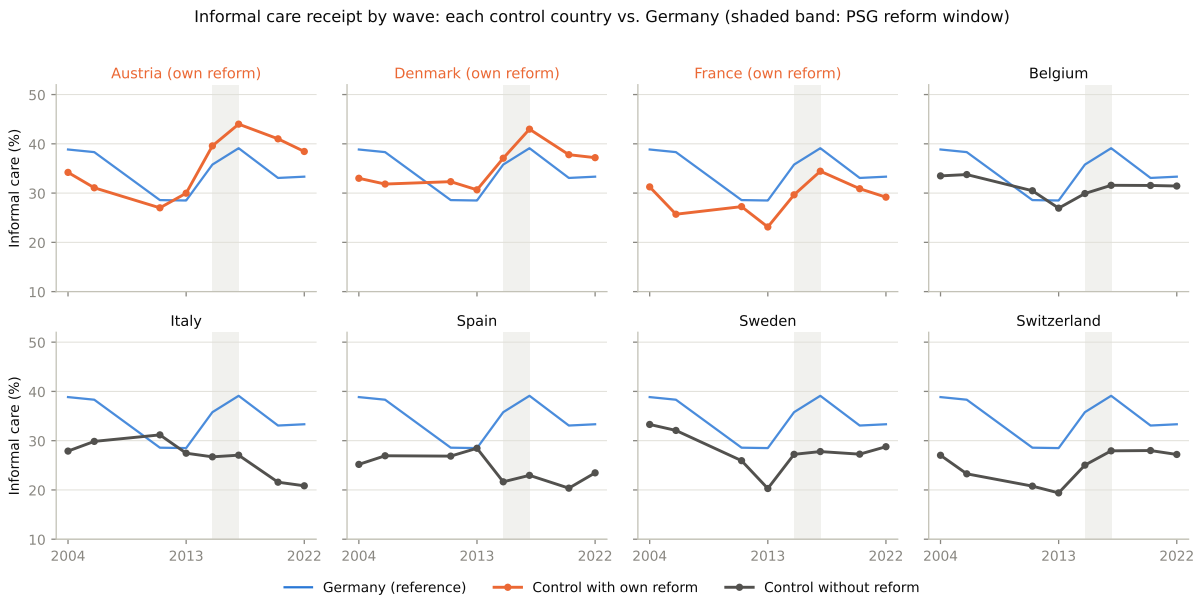


Figure 2: Informal care receipt by wave: each control country vs. Germany (weighted SHARE means, population 65+; no informal care module in wave 3). The blue line repeats Germany in every panel; the shaded band marks the PSG reform window (2015–2017). Orange panels are the three control countries with contemporaneous long-term care reforms; their increases are concentrated in the reform window, while the five clean controls show no comparable jump.

coefficients through 2017 lie between −1.9 and +1.3pp (Table 2); the larger relative declines against the clean controls in 2020–2022 coincide with the pandemic waves. The cash expansion appears to have crowded *in* family care without measurably displacing, or being displaced by, professional home care, consistent with complementary margins rather than one-for-one substitution.

3. **Cross-national context.** Across 18 SHARE countries in 2015, formal home care coverage ranges from 3.5% (Czech Republic) to 27.2% (Belgium) and correlates negatively with informal care receipt at the country level ($r = -0.27$), the raw substitution gradient that motivates within-country identification.

4. **Effects are concentrated among the cognitively impaired, as the design of PSG II predicts.** In a preliminary triple difference interacting the Germany×wave effects with an indicator for low cognition (bottom quartile of the German 2013 word-recall distribution), the reform-period rise in informal care is 4–6 percentage points larger for low-cognition respondents than for their high-cognition compatriots, relative to the same contrast in control countries (+4.0pp in 2015 and +3.9pp in 2017, country-clustered $p \leq 0.03$); the differential is slightly negative before the reforms and reverses sharply in 2015 (Figure 4). Formal home care also rises differentially for this group (+3.2pp in 2017), consistent with PSG II drawing previously excluded cognitively impaired individuals into both cash and in-kind benefits. Because this comparison is made within Germany, it is immune to shocks common to all German elderly and to control-country reforms.

Table 2: Event-study estimates: Germany × wave effects on care receipt, population 65+

	Informal care		Formal home care	
	All controls	Clean controls	All controls	Clean controls
Germany × 2011 (w4, placebo)	−6.21 (1.95)	−7.66 (1.30)	—	—
Germany × 2015 (w6)	+1.62 (0.49)	+2.29 (0.70)	−0.40 (0.46)	−1.93 (0.34)
Germany × 2017 (w7)	+3.62 (1.62)	+6.44 (0.25)	+1.28 (0.12)	−0.89 (0.09)
Germany × 2019/20 (w8)	+0.18 (1.57)	+2.96 (0.96)	−0.98 (0.94)	−4.26 (0.39)
Germany × 2021/22 (w9)	+1.64 (1.39)	+3.96 (1.18)	−1.28 (0.34)	−3.72 (0.36)
Observations	97,261	67,506	97,460	68,948

Notes: Linear probability models in percentage points; base period wave 5 (2013). All models include country and wave fixed effects; age, age squared, gender, ADL and IADL limitation counts, and fair/poor self-perceived health; SHARE calibrated cross-sectional weights. Standard errors (in parentheses) clustered by country; given the single treated country, we treat them as descriptive and rely on permutation-based inference (see Section 4). "Clean controls" excludes Austria, Denmark, and France, whose own long-term care reforms fall inside the treatment window. The formal home care module was not fielded in wave 4.

6 Planned analyses

(i) formal randomization inference: placebo reassignment of treatment across countries and synthetic control p-values; (ii) intensity margins using care hours (waves 7–9) and out-of-pocket spending; (iii) refinement of the triple difference using pre-reform cognition for panel members, the HCAP clinical assessment, and income and household structure; (iv) spillovers to caregivers' labor supply among adults 50–64 using the Job Episodes Panel (Geyer and Korfhage, 2015); (v) nursing home entry as a longer-run outcome; (vi) robustness: synthetic control for Germany with permutation inference, excluding control countries with contemporaneous long-term care reforms, and excluding the COVID-affected wave 8.

7 Contribution and relevance to the conference

Existing work documents that informal care substitutes for some formal services in cross-sectional data, and structural models predict that benefit design shapes family care supply. What is missing is causal evidence from a large national benefit expansion on the margin that matters most for policy: who actually provides care at home. This paper fills that gap. We provide, to our knowledge, the first quasi-experimental estimates of how the 2015–2017 German expansions changed the mix of family and professional home care, in the largest cash-for-care program on record, which has so far been studied only descriptively or through its effect on nursing home admission. The measurement approach is part of the contribution: care receipt is reported by recipients rather than caregivers, with instruments identical across countries and two decades, and linkable both to the wave 9 HCAP cognitive assessment (harmonized with its U.S. counterpart in the Health and Retirement Study) and to complete labor market histories in the Job Episodes Panel. The paper speaks directly to the call's themes of "innovative models for supporting informal caregivers," "cross-national differences in approaches to long-term care,"

and the dementia population targeted by PSG II. For U.S. policy, the results inform the design of consumer-directed Medicaid HCBS and proposals to compensate family caregivers: cash benefits paid to care recipients can mobilize substantial additional family care without contracting the formal home care sector.

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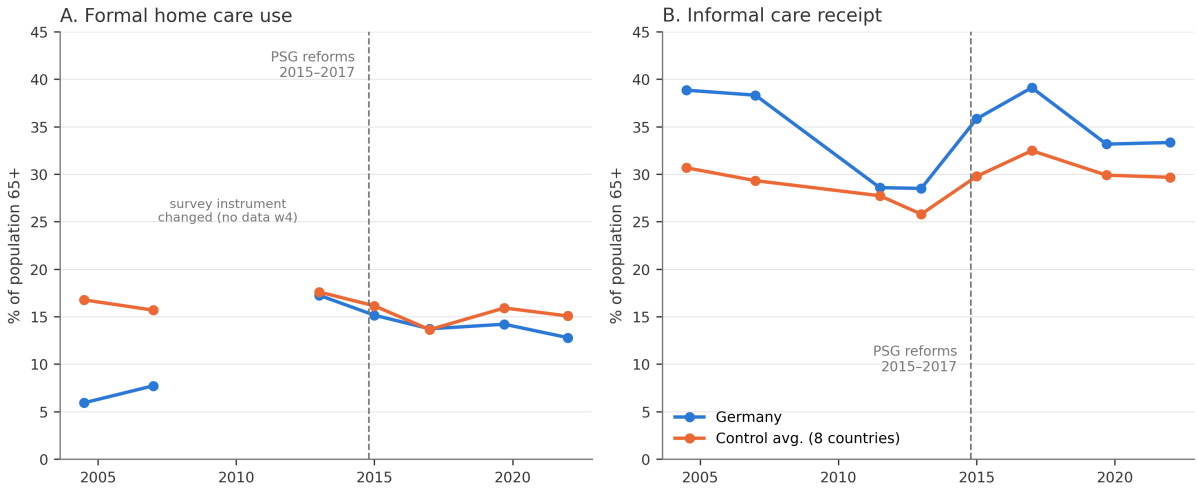


Figure 3: Long-term care use among the population 65+, Germany vs. eight control countries, SHARE waves 1–9 (weighted). The dashed line marks the PSG reform window (2015–2017). The formal home care series is broken between waves 2 and 5 because the survey instrument changed (no home-care module in wave 4).

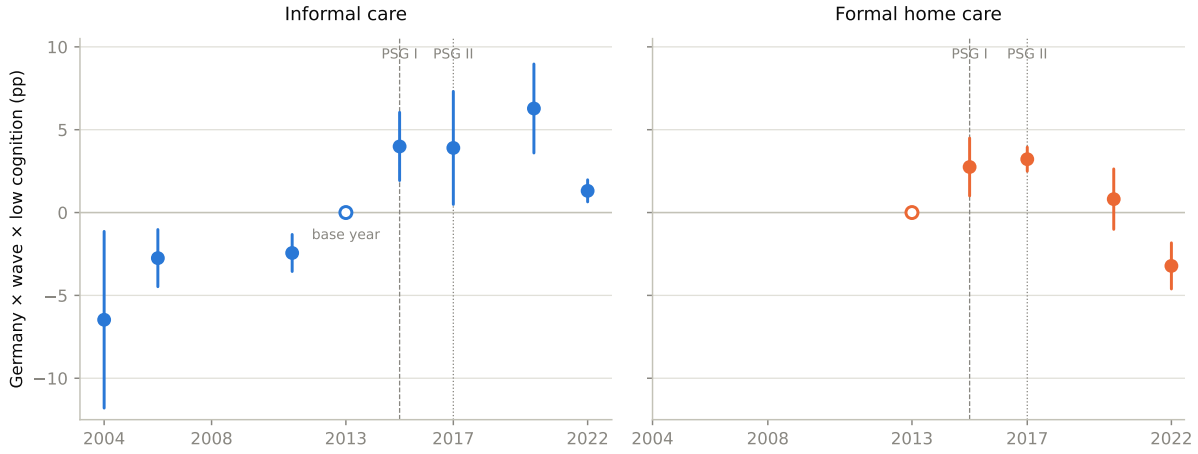


Figure 4: Triple-difference event-study estimates: the differential change in care receipt among low-cognition Germans (bottom quartile of the German 2013 word-recall distribution), relative to high-cognition Germans and to the same contrast in the eight control countries. Whiskers are 95% confidence intervals with standard errors clustered by country; the open marker is the 2013 base year. Vertical lines mark the entry into force of PSG I (2015) and PSG II (2017). The informal-care differential is flat to mildly negative before the reforms and turns sharply positive from 2015.

Data Appendix

This appendix documents the construction of the outcome variables from SHARE release 9.0.0 and the harmonization of survey instruments across waves. All outcomes are defined for respondents aged 65 and over; all statistics use SHARE's calibrated cross-sectional weights.

A.1 Outcome definitions and SHARE item codes

Table A.1: Outcome variables

Variable	SHARE item(s)	Waves	Definition
Formal home care	`hc127` (`hc032` in waves 1–2)	1–2, 5–9	Equals 1 if the respondent received professional or paid help in their own home during the last twelve months: nursing or personal care, or help with domestic tasks.
Informal care from outside the household	`sp002`	1–2, 4–9	Equals 1 if any family member from outside the household, friend, or neighbour gave the respondent personal care or practical household help in the last twelve months.
Informal care within the household	`sp020`, `sp021`	1–2, 4–9	Equals 1 if a person living in the same household helped the respondent regularly with personal care during the last twelve months. Helpers identified as professional or paid (via `sp021`) are excluded.
Informal care (main outcome)	—	1–2, 4–9	Union of the two informal care indicators above.

Planned extensions use hours of informal care received (available in waves 1–2 and 7–9), nursing home stays, out-of-pocket long-term care spending, and caregivers' labor supply reconstructed from SHARE's Job Episodes Panel.

A.2 Care receipt by country, before and after the reforms

Table A.2 reports the weighted country-level means underlying the pooled control-group statistics in Table 1. The cross-country heterogeneity is substantial: informal care also rose in Austria, Denmark, and France, while it was flat in Italy and declined in Spain. This dispersion is why the robustness agenda includes alternative control sets, permutation-based inference, and a synthetic control for Germany. The full wave-by-wave series for each control country, with Germany overlaid as a reference, is Figure 2 in the main text.

Table A.2: Care receipt among the population 65+, by country (%)

	Informal care		Formal home care		Observations	
	2013	2017	2013	2017	2013	2017
Germany	28.5	39.1	17.2	13.7	2,519	2,240
Austria	30.0	44.0	18.9	14.0	2,371	2,229
Belgium	26.9	31.6	28.9	25.3	2,671	2,752
Denmark	30.7	43.0	18.3	12.0	1,941	1,712
France	23.1	34.4	23.0	16.3	2,389	2,043
Italy	27.5	27.1	11.1	9.4	2,616	2,857
Spain	28.5	23.0	14.3	11.9	3,797	3,219
Sweden	20.3	27.8	12.6	9.1	2,873	2,491
Switzerland	19.4	27.9	13.7	10.9	1,602	1,567

Notes: SHARE waves 5 (2013) and 7 (2017), respondents aged 65 and over, calibrated cross-sectional weights. Variable definitions as in Table A.1.

A.3 Instrument changes across waves

- In early waves the social support exchange questions were inclusive of the respondent and their partner; from wave 6 the SP module asks all questions of each respondent individually (SHARE Wave 6 methodology volume). This change is common to all countries and is absorbed by the wave fixed effects; the difference-in-differences compares countries within waves and is therefore unaffected. The paper will nevertheless probe sensitivity by partnership status.
- Wave 3 (SHARELIFE) collected retrospective life histories and did not field the standard health care and social support modules; it is excluded throughout.
- The home care module was redesigned between waves 2 and 5: the wave 1–2 items (`hc032` and related) were replaced by `hc127`, which alters the question structure and response categories. Formal home care levels are therefore not comparable across the redesign, and all formal-care estimates rely on waves 5–9 only.
- Wave 4 did not field the home care module; the informal care items were fielded, so the wave-4 placebo estimate is available for informal care only.
- Wave 8 fieldwork was interrupted by the COVID-19 pandemic in March 2020; robustness checks exclude this wave.

A.4 Estimation sample

The estimation sample pools Germany and the eight comparison countries observed in every regular SHARE wave: Austria, Belgium, Switzerland, Denmark, Spain, France, Italy, and Sweden. This yields roughly 15,000–23,000 respondents aged 65 and over per wave, and approximately 97,000 person-wave observations per outcome in the event-study specifications of Table 2.