The Dynamics of Long-Term Care Service Use in Germany

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Summary

Population aging and changing family patterns have made elder care an important issue. In 1994, German lawmakers enacted a major reform in the country's long-term care policy, the Dependency Insurance Act (DIA). How, and in what way, will the relative use of formal and informal long-term care services change in response? We address this question using longitudinal data from the German Socio-Economic Panel (GSOEP) to examine the mix of care providers used by older Germans prior to enactment. We find that formal care is more likely to be used by those in the poorest health, the single, or the childless. The presence of daughters increases both the use of family and formal care sources. Future work with more recent waves of the GSOEP is needed to see if family care provision is sustained in an environment of universal public long-term care insurance.

1. Introduction

Many countries, especially in Europe and North America, are far along in the process of population aging. This trend is accompanied by, and partly caused by, changing family patterns including increasing childlessness and smaller average family size. The trend has made elder care an important issue, in view of the traditional place of the family as a source of care and support for the "frail" elderly population.

In 1994, German lawmakers enacted a major reform in the country's long-term care policy. The 1994 Dependency Insurance Act (DIA) legislation made long-term care insurance mandatory and established social insurance to provide for persons in need of long-term care. It replaced a system in which care for frail elders had been a local responsibility, and even then a matter primarily of individual and familial rather than of public concern (Schneider 1999). About 90 percent of the German population is covered by the new social insurance program, with private insurance covering the remainder. The DIA represents a major change in Federal policy with respect to long-term care benefits. Its enactment raises the question of whether, and how, the relative use of formal and informal long-term care services will change in response to the new policy context. In this paper we begin to address this question using longitudinal data from the German Socio-Economic Panel (GSOEP) study.

2. Background

Family structure is closely related to use of formal and informal care services among the elderly. Previous studies have found that the existence of and proximity to kin lower rates of entry into nursing homes and raise rates of live discharge from nursing homes (Freedman 1996; Garber and MaCurdy 1990). Other studies have addressed the demand for community-based care, both formal and informal, among the older population as it relates to family structure and other factors. Sloan, Hoerger, and Picone (1992), using data from the 1989 NLTCS, found that the demand for formal care drops by about 4 hours/week per child, among children who live within 30 minutes of respondents. Cutler and Sheiner (1994) conducted a similar analysis using the 1984 NLTCS data, and found that the number of children significantly reduces demand for paid help among the impaired elderly. In contrast, Aykan (1999) found no association between childlessness and use of home health services using United States data from 1993-95, although he found that childlessness was associated with a greater risk of entry into nursing homes. Jenkins (1997), using United States data from 1989, found that having living children led to increased odds of using informal (including family) care as well as increased odds of using a combination of informal and formal care. Our own past work on nursing home entry in Germany (Himes et al. 2000) failed to find any evidence of association between the presence and number of children and risk of nursing home entry, but that could be attributed in part to various data shortcomings. Finally, Wolf, Grundy, and Laditka (2000), who analyzed British data, found that childlessness was associated with increased usage of some formal home-based long-term care services but not of others.

As in other countries, family members are a major source of assistance and care for older Germans (Heinemann-Knoch 1994; Schneekloth et al. 1996). In one study the majority of such assistance was with household tasks (cited in Gibson 1984). However, in contrast to the pattern revealed by recent data from the United States, in Germany "… financial support by children to older relatives in rural regions and working class families is common …" (Gibson 1984: 163–4). The latter finding suggests that German elders in need of personal assistance may be comparatively more likely to use formal services the larger their family (holding constant their own sources of income), if financial support from children underwrites formal service con-

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sumption. But Kohli (1999) and Juerges (1999) both find that only a small percentage of middle-aged and older Germans receive financial support from their adult children.

It is trivially true that frail elders with few or no living relatives are precluded from receiving care from family members, and consequently that we should expect to see greater receipt of family care from those with potential family caregivers. However, it is not necessarily true that persons receiving family care will be less likely to receive care from other sources, whether "informal" (e.g., from neighbors and friends) or "formal" (e.g., paid assistance). In this paper we take a first look at patterns of community-based long-term care services among frail elders in Germany, using data from the 1985-1990 waves of the GSOEP. We examine three categories of community-based services: formal care, family care, and care from other "informal" sources. Our use of pre-DIA data provides a baseline for later work that will investigate whether patterns of long-term care service use have changed in response to the changed policy environment.

3. Data and Methods

The analysis for this paper is based on individuals identified as in need of care and assistance through a series of questions asked in the 1985 to 1990 waves of the GSOEP. The first of these questions, part of the household survey, asks, "Is there anyone in your household who is receiving care because of old age or health reasons?" and allows the household to name up to two such individuals. Our analysis is based on these individual level records. For most of the analyses, we pool waves of the GSOEP and examine the care needs of an individual in each wave. Since our focus is on care of the elderly, rather than children or young adults, we limit our analysis to those individuals who are 50 or older in the 1985 wave (3,842 individuals). Of those over age 50 in 1985, 7 percent (281) are reported as being in need of care and attention at some point between 1985 and 1990. When the observations are pooled, we have 21,821 one-year intervals and of those, 550 (2.5 percent) are intervals in which care is needed.

The extent of assistance needed is defined in a follow-up question, "In what way does this person need constant care?" with three options: the person is bedridden; the person is not bedridden, but is in need of help with daily domestic tasks in the household; or the person only needs help for errands or shopping outside the household. The source of care is determined by a third question, "Who looks after this person?" Household respondents could identify up to five different sources of care: a district nurse/social worker; friends or acquaintances; neighbors; relatives outside of the household; and relatives in the household. In our analyses we define formal care as that provided by the district nurse, informal care as that provided by friends or neighbors, and family care as that provided by relatives in or outside the household.

We first examine descriptive characteristics of those needing care, the extent of care needed, and the source of care. We then conduct logistic regression analyses in order to establish the partial association of each of the factors (age, marital status, presence of children, and need) examined in the descriptive analysis with each of three outcomes: use of formal services, use of informal care, and care by family members. The regression framework also produces statistical tests of the strength of association between the various explanatory factors and each dependent variable. Furthermore, in the multivariate context it is possible to investigate correlates of the propensity to combine two or more of these types of long-term care services.

In the conventional binary logistic regression setting, the log-odds of a binary dependent variable (such as *FORMAL*) are expressed as follows:

$$\ln (\text{pr}[FORMAL = 1]/\text{pr}[FORMAL = 0]) = BX,$$

where X represents a set of explanatory variables and B their corresponding regression coefficients. We expand this framework to the case in which three binary variables, *FORMAL*, *INFORMAL,* and *FAMILY*, are jointly determined. With three dependent variables, there are eight combinations that can be observed in the data (000, 100, … , 111). To each combination there corresponds a probability, and the log-odds of pairs of these probabilities can be written analogously to the above expression. For example (abbreviating the variable names for the sake of brevity), we can write

$$\ln (\text{pr}[FOR = 1, INF = 1, FAM = 1]/\text{pr}[FOR = 0, INF = 0, FAM = 0])$$
$$= B_1X + B_2X + B_3X + B_{12}X + B_{13}X + B_{23}X + B_{123}X$$

(see, for example, Nerlove and Press 1973). In this expression, B_1, B_2, and B_3 represent main effects, while B_{12}, B_{13}, and B_{23} represent two-way interactions, and B_{123} is a three-way interaction. There are six other analogous expressions for a total of seven distinct log-odds terms. If all the two-way and three-way interaction terms are found to be statistically no different from zero, then the three dependent variables can be said to be independent (conditional on the independent variables). The interaction model is estimated using the multinomial logistic approach, with an eight-category dependent variable.

4. Results

Those needing care are older, more likely to be female and to not have children than those who do not need care. The need for care increases with age, especially after age

154
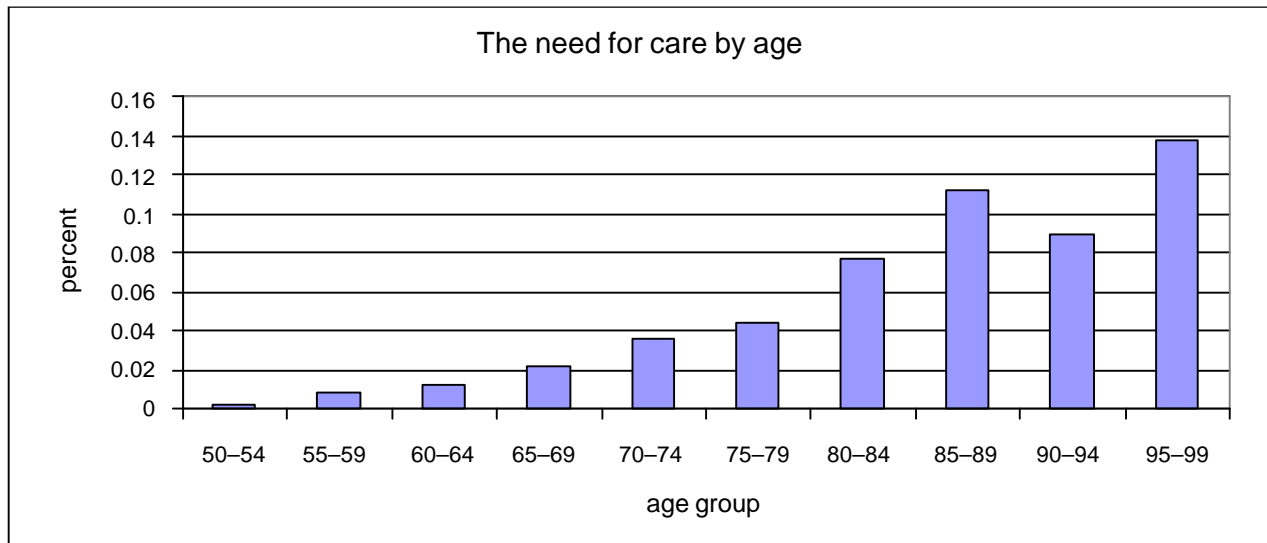
Figure 1

80 (Figure 1). The severity of care needs also varies by age. By far the most common type of need was the need for assistance in activities in the home. As with the overall need for care, the mixture of these care needs changes with age, although not in a simple way. Individuals in their 70s are more likely than others to need care because of being confined to bed. At older ages, however, those requiring this level of care declines somewhat as the more frail pass away (Figure 2).

Most individuals, over 80 percent, remain healthy from wave to wave (analyses not shown). Death rates are highest among those who report needing care in the previous year, and within that group those who are bedridden are most likely to die. However, over one-third of the individuals who report a need for help with tasks outside of the home report no need for care in the next wave. Similarly, about one-quarter of those reporting a need for help inside the household do not report a need for care in the next wave. Recovery is less common among those who are bedridden: only 7 percent of those who are bedridden need no care in the following wave while an additional 12 percent report needing a lower level of care.

Figure 2
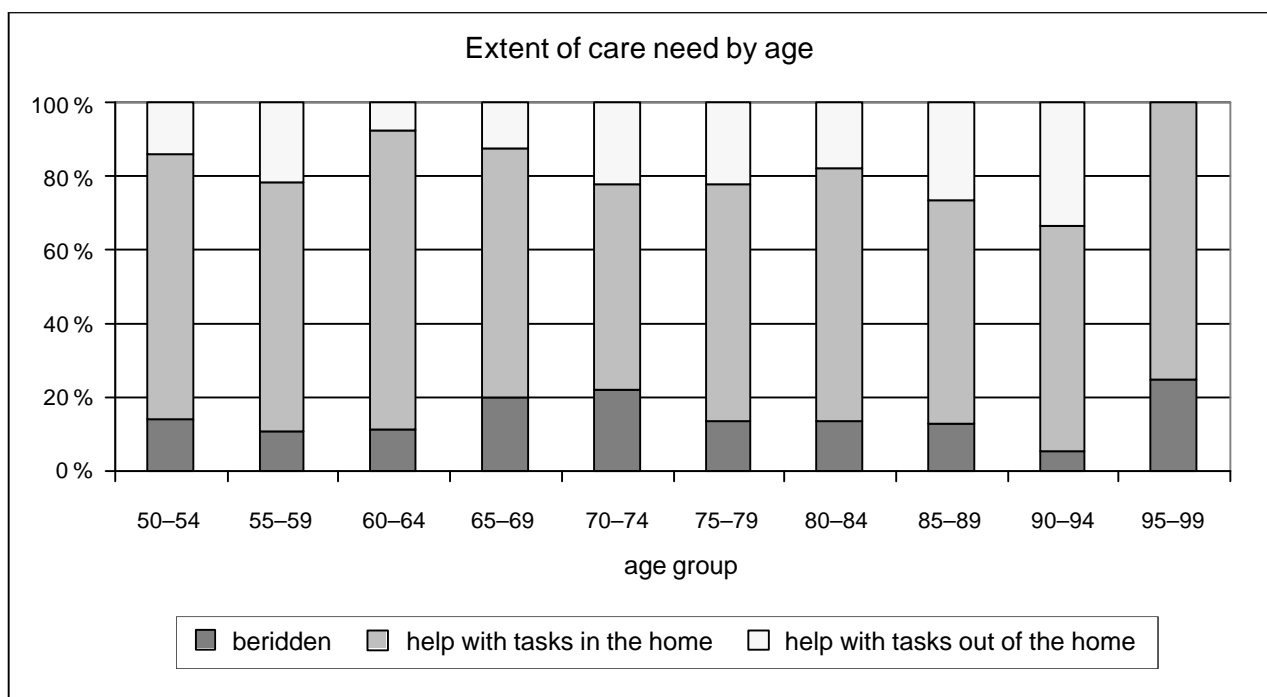
A variety of sources are utilized to provide this care, although family members provided the bulk of the assistance (Table 1, Panel 1). After family members, district nurses were the most common source of care, either alone or in combination with family members. In about 9 percent of care episodes nurses were the only ones mentioned as providing care, and in an additional 10 percent they were mentioned as providing care in conjunction with family members. Few people relied on neighbors or friends as the exclusive caregivers.

The provision of care varies by marital status and the presence of children. Those who are married are most likely to rely upon family members in the household, presumably spouses, to provide care (Table 1, Panel 2). Those who are divorced are most likely to rely upon formal sources of care and least likely to turn to family members. Women without a living child are much more likely to use a district nurse for care provision than women with children (Table 1, Panel 3). Similarly, those with children, particularly a daughter, rely more upon family members living both in and out of home.

The significance of these relationships can be examined through logistic regression models. The independent variables used in the logistic regressions include age, the number of living sons and daughters, two variables indicating the severity of care needs (NEED1 = 1 if bedridden, while NEED2 = 1 if help is needed for tasks in the home), and dummy variables indicating those currently married and widows. Because the variables for number of living children are available only for women, we use only women in the multivariate analysis.

Since the sample is rather small (n = 315) and relatively few women are observed to combine two or more sources of care, we have tested for only a few interaction effects in the logistic models (Table 2). Individual binary logit analyses of the three dependent variables (not shown) indicated the importance of the daughters and married variables in the *FORMAL* and *FAMILY* equations, so we have tested for two-way interaction effects for those two variables.

The principal factors found in our multivariate analysis to influence community-based long-term care service use are the severity of need and family situation. Women with the most severe care needs are much more likely to use formal services, and also more likely to be cared for by family members. Women in the intermediate category of care needs are also significantly more likely to use formal services. Having more living daughters raises the odds of using formal care, and of receiving family care (see main effect results) but lowers the odds of using these two types of care in combination (see two-way interaction). This is an interesting and unexpected result. A possible explanation is that daughters are very likely to provide family-care services themselves, as has been found in many past studies, but that they are also likely to be active intermediaries on their mothers' behalf, arranging for the provision of formal services. It may be that since combining paid employment and caregiving places heavy burdens on daughters, the daughters tend to specialize in one or the other of the two ways of ensuring that their mother receives needed care services, thus producing the interaction effect uncovered by our model. However, further research with more definitive findings would be necessary before reaching such a conclusion.

Being married, and therefore having a spouse potentially available to provide care services, is associated with less reliance on formal services and greater likelihood of receiving care from family members. Finally, widows are significantly more likely to receive care from friends and neighbors.

Table 1

Sources of care for those requiring assistance; individuals age 50 and older with a need for care

Source of Care	Overall	Marital Status				Presence of Children (women only)		
		Married	Single	Divorced	Widowed	No Children	At least 1 Child	At least 1 Daughter
Formal Care only	8.6	2.70	18.00	46.15	11.90	17.72	6.80	6.77
Informal Care[1] only	3.5	1.93	2.00	15.38	5.24	7.59	2.40	1.04
Family Care only	67.9	76.45	54.00	23.08	63.33	41.77	68.80	72.92
Formal and Informal	1.3	0.39	2.00	0	2.38	5.06	0.80	0.52
Formal and Family	9.8	10.04	10.00	7.69	9.05	8.86	12.00	10.94
Informal and Family	2.4	1.54	2.00	7.69	3.33	6.33	3.20	2.08
Formal, Informal, and Family	0.9	0.39	6.00	0	0.48	3.80	0.80	0.52
No special care	5.6	6.56	6.00	0	4.29	8.86	5.20	5.21

[1] Includes friends, acquaintances, or neighbors.

Source: Authors' calculations.

Table 2

Results of logistic regression for use of formal, informal, and family care; women age 50 and older with a need for care

| Variable | Main Effects | | | | | |
| | Formal | | Informal | | Family | |
	B	SE	B	SE	B	SE
Constant	−1.291	1.426	0.164	1.658	−1.742	1.375
Age	−0.001	0.017	−0.025	0.021	0.025	0.017
Sons	0.030	0.139	−0.227	0.210	0.125	0.154
Daughters	1.047	0.314 ***	−0.851	0.719	1.021	0.288 ***
Need 1	2.413	0.563 ***	−0.810	0.876	1.450	0.655 **
Need 2	1.303	0.464 ***	0.059	0.464	0.360	0.358
Married	−1.423	0.728 *	−0.179	0.995	1.290	0.575 **
Widowed	−1.883	0.406 ***	0.674	0.500	0.305	0.384
Income	0.025	0.018	0.021	0.023	−0.011	0.018
	Two-way Interactions					
	Formal and Informal		Formal and Family		Informal and Family	
Daughters	−0.203	0.849	−1.268	0.324 ***	−0.908	0.762
Married	0.386	0.923	−0.278	0.684	−0.280	0.937

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Source: Authors' calculations.

5. Discussion

Aging is often accompanied by declining health and an increasing need for assistance with everyday activities. Globally, the provision of that assistance has been the domain of families. Our results confirm the important role families play in the provision of care to frail older individuals in Germany. We find that family members provide the overwhelming majority of care, most often without the assistance of others. However, this does not necessarily represent a preference for informal care since when family care is not used, those needing care tend to turn to formal services rather than friends or neighbors.

The formal care system is particularly important for those with a higher level of need and for those without children. Interestingly, we find that having daughters leads to greater use of both family and formal services. Although we cannot identify the caregivers in our study, other work has shown that daughters are a significant source of care. Daughters may choose either to provide care themselves or to facilitate the use of formal services. This result bears further study to determine if the characteristics of the daughters providing care are different from those of daughters facilitating the use of formal care. Daughters who are employed or who live far from their parents might be more likely to arrange formal care services than daughters who are not working or living at a distance.

Our current analysis is limited in many ways. First, we have limited information on the specific care needs of the individuals and the questions used to elicit the need for care may underestimate the overall care needs of the sample. Another limitation, already mentioned, is our inability to characterize those providing care. We do not have information about their family or work status or their relationship to the care recipient.

There are a number of directions in which the work reported here can be extended. First, the models of service use can be improved in several ways. Since we are using pooled panel data, the analysis should be extended to account for the presence of multiple observations on each respondent; a potentially useful way to do so is through the use of methods for incorporating "unmeasured heterogeneity" into the models (see, e.g., Wolf, Grandy, and Laditka 2000). Furthermore, the equations for long-term care service use could be placed in a broader context reflecting the several hierarchical layers of selection that underlie the data. First, individuals in the cohort studied are selectively removed from the sample through two distinct paths, death and sample loss due to other means (including a move into an institutional setting). Both types of loss from the cohort over time are likely to be correlated with both the observed and the unobserved determinants of long-term care service use. Finally, among the subsample of individuals who do not select out due to death or other reasons, the variables for service use are observed only among respondents judged to need care. This subset is also almost certainly selective with respect to both observables and unobservables.

Finally, as noted in the introduction, our analysis uses data from the pre-DIA period (and pre-reunification). The GSOEP questions that provide our dependent variables were not asked in the 1991 through 1996 waves, but were repeated in 1997 and 1999. These more recent data elements provide at least a limited basis for comparing the patterns and correlates of long-term care service use before and after a major change in policy. Even in the post-DIA world, use of formal services among those nominally eligible for them may be less than expected due to inadequacies in the supply of formal services (Schneider 1999). Other work indicates that the mix of care resources used in the former East Germany, due to a greater role of formal services, might be quite different (Albers and Schölkopf 1999; Reichert and Naegele 1999). It may also be the case that, even when heavily subsidized publicly-funded services are available, family care providers may view their own services as superior to those available in the market. The extent to which family and informal care provision is sustained in an environment of universal public long-term care insurance thus remains to be seen.

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