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# Does independent needs assessment limit supply-side moral hazard in long-term care?

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## Abstract

The decision about the amount and type of care that a patient needs may be entrusted to health care providers or be delegated to an independent assessor. An independent assessment limits the scope for supply-side moral hazard and occurs frequently in long-term care (LTC). The characteristics of LTC, the potential lack of incentives for efficient use for consumers, providers and third-party payers, and the absence of other restrictions of supply and demand, suggest that there may be room for excessive LTC use in the Netherlands, so there might be a case for independent needs assessment.

Unique individual level data about LTC eligibility decisions and use show that consumers make use of the indicated type of care but that for virtually all subgroups in the population there is considerable non-take-up, meaning that the independent assessment does not limit the amount of care that patients use. This finding suggests that the independent needs assessment may only have a small effect on preventing supply-side moral hazard in LTC.

## Keywords

Long-term care, social insurance, moral hazard

## JEL Classification

H51 – I11 – I13 – I18 – L13 – L33

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## 1. Introduction

Traditionally, the needs of patients are assessed by their health care providers. These providers may be self-interested and have superior information about patients' needs, resulting in principal-agent problems with regard to the patient and the third-party payer (Arrow 1963). One potential problem is supply-side moral hazard (SSMH).<sup>1</sup> This problem may be solved by: i) aligning the incentives of the providers, recipients and third-party payers, or ii) delegating the assessment to an independent assessor. The second alternative is uncommon in health care, but frequently occurs in long-term care (LTC), e.g. in the Netherlands, Germany, Belgium, Switzerland, and Japan (Bakx et al. 2015; Goncalves and Weaver 2014; Tamiya et al. 2011; Willemé et al. 2012).<sup>2</sup>

This article discusses the factors influencing the decision to delegate the needs assessment to an independent assessor in health care. Subsequently, we apply this framework to analyze the role of the independent assessor in LTC in the Netherlands. We are the first to analyze in detail the role of an independent assessor in a health care setting and thus contribute to the understanding of how health care is rationed. To reveal if the restrictions imposed by the independent assessor are binding, we study the non-take-up of insurance benefits. Hence, this article also contributes to the literature on non-take-up and its determinants (see e.g. Arrighi et al. 2015; Guthmuller et al. 2014): this article is the first to analyze non-take-up of LTC benefits using population data at the individual level.

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<sup>1</sup> Moral hazard may be demand-side moral hazard or supply-side moral hazard, depending on whether the patient or the provider is the instigator of the treatment beyond the point where the marginal benefits equal the social marginal costs. Independent needs assessment mainly targets the latter type.

<sup>2</sup> While independent needs assessments are uncommon in health care, hybrid types exist: third-party payers may hire staff to assess the need for hospital admissions, general practitioners may function as gatekeepers and medical specialists may give second opinions. In each of these cases, however, the decision maker still may have a financial interest. Delegating decision making power to an independent assessor is more common in other circumstances, including auditing, law enforcement and the resolution of disputes.

## 2. Countering supply-side moral hazard in long-term care

An independent needs assessment has advantages and disadvantages. The disadvantages are that assessments, and auditing whether care is provided accordingly, are costly<sup>3</sup> and time consuming. The main advantage is that it reduces the bias in the assessment resulting from provider preferences in recommending a certain treatment. An upward bias means inefficiently high expenditures, and would cause unequal access to care if the bias of providers is larger for some groups of patients than for others.

Whether an independent assessment is more attractive than entrusting providers with the assessment depends on the type of care and the context in five ways. First, an independent assessment takes time, and is therefore only feasible when care is not urgent. Second, if the need for care cannot be defined precisely, there is more room for SSMH and hence the bias in the providers' decisions may be larger. Third, the benefits of an independent assessor are higher when both providers and patients benefit from higher-than-optimal use. This situation may for example occur when i) the provider is paid on a fee-for-service basis and ii) the marginal benefits of higher-than-optimal use for the patient are positive and iii) a third-party payer bears much of the costs. Fourth, the benefits of an independent assessor depend on supply restrictions (e.g. resulting from regulation) and demand restrictions (e.g. co-payments, stigma associated with use, or time and travel costs) that counteract SSMH. Fifth, the value of an independent assessment depends on its incentives to act in the interest of the third-party payer. When the assessor faces external pressure, e.g. because patients may challenge its decisions in court, it may be rational for the independent assessor to be more lenient than its principal desires (Prendergast 2003).

LTC enables the elderly and the disabled to cope with their limitations. Independent needs assessment is *feasible* for LTC, because it is often not urgent, and *desirable*, because of the

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<sup>3</sup> The costs of the needs assessment were 0.67% of public LTC spending in the Netherlands in 2008 (159 million euro – Beemsterboer and De Krosse 2010).

room for SSMH. This room exists because the need for LTC is caused by functional limitations resulting from health conditions, but the need also depends on perceptions and personal circumstances (e.g. the presence of a social support network) and hence often cannot be defined precisely. Moreover, in the case of LTC insurance, receiving LTC beyond the point where the total marginal costs and benefits are equal may generate benefits to the patient. The problems to define the need for LTC furthermore imply that it is difficult for the third-party payer to counter SSMH. Therefore, delegating needs assessment to an independent assessor may help to ensure that the appropriate amount of care is used.

### **3. Long-term care in the Netherlands**

Until 2015, virtually all LTC provided by a professional in the Netherlands was publicly financed through two major financing schemes: the public LTC insurance scheme (94% of public LTC expenditures in 2012)<sup>4</sup> and the Social Support Act (6%) (CBS 2015a)<sup>5</sup>. Someone who was eligible for public LTC insurance benefits could choose to receive these services in kind or to receive a cash benefit equaling approximately 75% of the cost of in-kind provision (Mot 2010).

To reduce the influence of suppliers on use, an independent assessment agency carries out the needs assessment for public LTC insurance benefits according to rules set by the Ministry of Health (RMO 2010).<sup>6</sup> Until 2015, eligibility depended on the health, health-related limitations, living conditions, social environment, psychic and social functioning of the

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<sup>4</sup> This figure includes co-payments, which were 8% on average in 2012 (CBS 2015).

<sup>5</sup> In 2015, public LTC financing was reformed. Currently, 64% of the public LTC expenditures are financed through public long-term care insurance, 10% through the public health insurance and 26% through the Social Support Act (Non et al. 2015).

<sup>6</sup> Until 2015, under some conditions, providers were allowed to do needs assessments; the independent assessor audited these providers and made the formal decision.

applicant and the other professional services and the informal care that the patient receives (Rijksoverheid 2011).<sup>7</sup>

Providers are either private for-profit (home care only) or not-for-profit (Mot 2010). They are paid on a fee-for-service basis: home care providers are paid for every hour of care provided; institutional care providers receive a per-diem rate. Therefore, providers have incentives for overprovision. Providers are contracted by regional single payers for care covered through public LTC insurance. A single payer is constrained by an annual regional budget (based on last year's budget)<sup>8</sup>, does not bear financial risk and does not compete for consumers, so it has little incentive to be efficient. These regional budgets may potentially limit SSMH. However, the recent absence of widespread complaints suggests that the budget restriction play a small role, if any, in keeping spending down.<sup>9</sup>

Patients face few barriers to LTC use. Co-payments are low – in particular for home care – and income-related and therefore unlikely to limit take-up and make consumer cost-conscious (Bakx et al. 2015a; OECD 2011). Moreover, while the regional single payers always spend close to the entire budget, only a few individuals are on waiting lists (CVZ 2013). The budget restriction could be circumvented by users by opting for a cash benefit, for which in practice no restrictions existed.<sup>10</sup> Finally, the stigma on using public LTC benefits is likely to be limited, as the LTC utilization rate (and LTC expenditures) is higher than in most other OECD countries (OECD 2015) and Dutch respondents are less likely to answer that it is mainly the obligation of children to take care of an ill or fragile parent (European Value Survey 2011).

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<sup>7</sup> Since 2015, CIZ determines eligibility for institutional care only and only uses information on the health and health-related limitations (Rijksoverheid 2014).

<sup>8</sup> Non-public data from the Dutch Health Care Authority show that from 2011 to 2013 all thirty-two single payers spent at least 98,3% of the regional budget per year.

<sup>9</sup> This statement is corroborated by the fact that budgeting historically played a larger role in restricting use, but a 1999 court ruling considered tight budgets a violation of the right to insurance benefits, after which the constraints were relaxed (Schut and Van den Berg 2010).

<sup>10</sup> The cash benefits were paid out of a separate national budget, which was regularly raised if applications exceeded the budget.

In sum, both the characteristics of LTC and the way LTC is organized and financed in the Netherlands – without binding restrictions on demand and supply – suggest that independent needs assessment may be a useful strategy in countering SSMH.

## **4. Empirical analysis**

### **4.1 Data and methods**

We analyze the role of the assessment agency in limiting SSMH in LTC in the Netherlands using a large administrative dataset from 13 four-week periods in 2012. This dataset contains three types of information at the individual level from a number of sources, which are linked by Statistics Netherlands. First, it contains the eligibility decision by the independent assessor (CIZ)<sup>11</sup>, which specifies the amount and the type of care that the individual is eligible for. We consider five types of care that were covered through public LTC insurance: institutional care and four types of home care – personal care, nursing, group assistance and individual assistance. Second, the data contains information from the Central Administration Office of the LTC insurance scheme (CAK) about the number of hours of home care and days of institutional care provided in-kind for the 18+ population. Third, the dataset contains background characteristics, including the age, gender, household composition, household income and health care expenditures<sup>12</sup>.

To analyze whether the restrictions imposed by the independent assessor help to limit LTC use, we divide the amount of used care by the amount that someone is eligible for. If this share is well below one, we conclude that the restrictions imposed by the independent assessor are not binding. Subsequently, we regress this share on the background characteristics to find out if the share is close to one for subgroups in the population using ordinary least squares regressions.

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<sup>11</sup> In 2009, about 84% of the applicants were eligible for LTC (CIZ 2010).

<sup>12</sup> Table A1 in the appendix contains a full description of the dataset.



## 4.2 Results

### *Home care*

The independent needs assessment effectively restricts which type of care is used. In 2012, 592,363 individuals were eligible for home care, who only use the types of home care they are eligible for. The needs assessment also restricts the amount of use, but only for a very small number of individuals. As shown in Table 1, 6.4 to 12.5 percent of the eligible

Table 1. Eligibility for home care and use of care in kind in 2012

	All observations <sup>a</sup>		Unique individuals			
	n	% care in kind	n	% care in kind	% cash benefits <sup>b</sup>	% no care
<i>Home care</i>						
Personal care	3407579	67.2	404508	79.3	14.3	6.4
Nursing	1059701	61.6	187823	81.4	10.0	8.6
Individual assistance	1831661	50.5	194533	58.7	32.2	9.1
Group assistance	1084556	54.6	106934	62.6	24.9	12.5

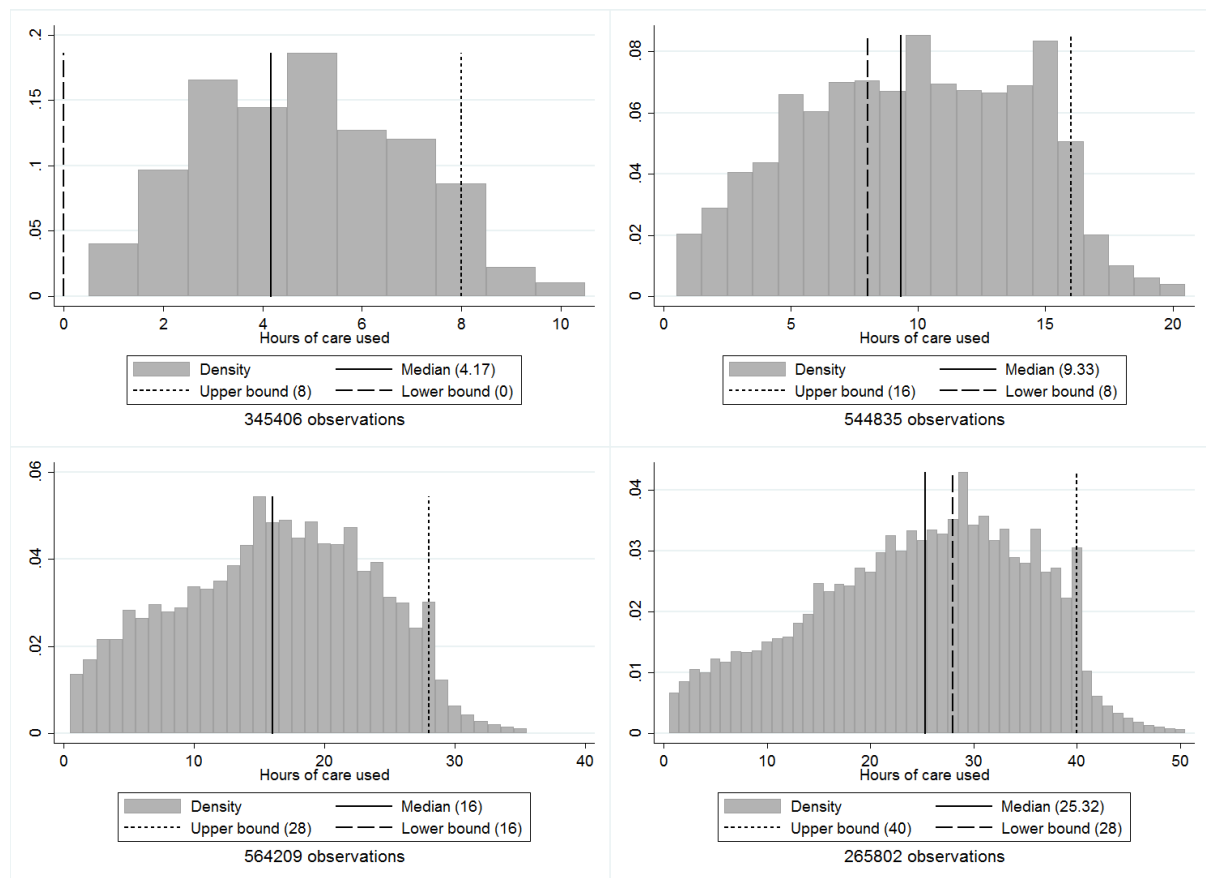
<sup>a</sup> Every observation is for a four-week period, hence there are 13 periods in 2012.

<sup>b</sup> Source: CBS 2015.

individuals does not use care at all. In addition to the patients using no care, there are many patients using less than the full amount of the care that they are eligible for. On average, individuals with a cash benefit spend 89% of their budget (CBS 2015); it ranges from 65% (nursing) to 71% (group assistance) among individuals who choose to receive home care in kind. For this large majority, the amount of care that they are eligible for is so large that the upper bound is not a binding restriction. Only very few individuals use care close to the full amount or beyond what they are eligible for (figure 1).

Within the group using at least some home care, the share that is used varies. It not only varies by the type of care, as described above, but also by the amount of care for which an individual is eligible. For example, while the median individual who is eligible for 0-2 hours

Figure 1: the use of care by individuals eligible for 0 to 8 hours of personal care (upper left), 8 - 16 hours (upper right), 16 - 28 (lower left) and 28 - 40 hours (right) per four-week period.



Note: The graphs depict only individuals who used some care that was provided in kind and who used less than 125% of the maximum number of hours. The median is calculated using all observations of individuals who used some care that was provided in kind. The results for individuals eligible for more than 40 hours of personal care per four-week period and for other types of home care are available upon request.

of personal care per week receives 1 hour (100% of the average of 0 and 2), the median individual eligible for 10-13 hours receives 8.75 hours of care (76%) (Table 2).

The regression analysis reveals that the share that is used also varies across subgroups of users (Table A2 in the appendix). For example, for personal care there is a 19 percentage point difference between the regions with the highest and the lowest average share that is used, i.e. an 11-minute difference per hour of care for which someone is eligible. Furthermore, the share increases with age, is lower for men and individuals with children, with a spouse, living in rural areas, who are not of foreign descent, and individuals with a

Table 2. Use of personal care conditional on eligibility in 2012

Eligibility (hours per week) <sup>b</sup>	n (% of total) <sup>a</sup>	% care in kind	Median number of hours used (%) <sup>c</sup>
0-2	622261 (18.3)	61.0	1.0 (104.2)
2-4	957594 (28.1)	64.3	2.3 (77.8)
4-7	934245 (27.4)	71.2	4.0 (72.7)
7-10	423490 (12.4)	74.7	6.3 (74.5)
10-13	179077 (5.3)	71.6	8.8 (76.1)
13-16	106154 (3.1)	64.8	11.3 (77.7)
16-20	57818 (1.7)	58.9	14.6 (81.3)
20-25	112454 (3.3)	70.0	16.6 (73.9)
> 25	14486 (0.4)	28.2	23.2 (84.4)

Note: results for other types of home care are available upon request.

<sup>a</sup> Every observation is for a four-week period, hence there are 13 periods in 2012.

<sup>b</sup> If the individual changed from one category to another during a four-week period, the individual is assigned to the highest category.

<sup>c</sup> Individuals who used at least some care provided in kind only. The percentage is calculated by dividing the median numbers of hours used by the average of the lower bound and the upper bound on the number of hours for which the individual is eligible.

somatic condition. These results indicate that there may be differences in the barriers that subgroups of the population experience or in how these subgroups are treated by independent assessors. In sum, most subgroups do not use all home care for which they are eligible, indicating that the restrictions on the number of hours imposed by the assessor often may not help to prevent SSMH.

### *Institutional care*

As shown in Table 3, a small fraction (13%) of the individuals who are eligible for institutional care sometimes continue to live at home and use home care. Substitution may be allowed because home care is much cheaper than institutional care. Remarkably, 10% of those eligible for institutional care uses no care in kind at all (Table 3).<sup>13</sup> The share that does.

<sup>13</sup> Approximately 3% of the individuals eligible for institutional care indicated a preference for cash benefits (SCP 2013). Some of these individuals may use the cash benefit to pay for care in a private nursing home. 0.7% choose to receive institutional care at home, which is registered as institutional care (CBS 2015).

Table 3. Use of care conditional on eligibility for institutional care in 2012

	All observations <sup>a</sup> (%)	Unique individuals (%)
Total	4285851 (100)	424452 (100)
No care in kind	423178 (10)	32590 (8)
Institutional care only	3221875 (75)	283895 (67)
Home care only	539303 (13)	48239 (11)
Institutional care and home care	101495 (2)	59728 (14)

<sup>a</sup> Every observation is for a four-week period, hence there are 13 periods in 2012.

not use institutional care is lower when looking at annual data (19%), indicating that the onset of institutional care use is often postponed rather than avoided. The share of individuals who are eligible for institutional care and live in a nursing home is considerably lower than 1 for virtually all subgroups (Table 3). The probability of using institutional care – conditional on being eligible – is on average higher for older individuals than for the young and lower for individuals who were born abroad or with a foreign-born parent. Furthermore, the probability is lower for individuals who have children, which might indicate a role for informal care in postponing a nursing home admission. Finally, there is a 12 percentage point difference in the probability of using institutional care between the regions with the highest and the lowest use.

## 5. Conclusion

Comprehensive LTC insurance may give rise to SSMH. One of the strategies to counter SSMH is an independent assessment to determine which types and which amount of care a patient needs. Independent needs assessment is uncommon for most types of health care but occurs frequently for LTC, for which it may be both feasible and desirable. The restrictions put into place by the independent assessor in the Netherlands limit the amount of home care used for only a small group of eligible individuals and have only a limited effect on the number of individuals using LTC, although there are only minor other restrictions on demand and supply.

Take-up of the insurance benefits varies across subgroups, but virtually all subgroups use only part of the LTC for which they are eligible. Variation in take-up is associated with characteristics of the patient, the household the patient lives in and the region of residence. While further research is needed to understand the causes and consequences of low take-up of benefits, three usual causes of low take-up – user fees, supply-side restrictions and stigma associated with use – are unlikely to play a large role in the Netherlands.

There are two methods to reduce SSMH in LTC, if present: applying tighter budget rules and stricter, more targeted or specific assessment rules. Although potentially effective, both options may have considerable drawbacks and hence may lead to worse outcomes.

The limited effect of needs assessment on the amount of home care used, even when other major barriers to LTC use are largely absent, also raises questions about the effectiveness of the independent assessment in other countries, where the demand and supply are often more severely restricted than in the Netherlands (OECD 2011). Future research is needed to address follow-up questions. First, is independent needs assessment in LTC in other countries more effective than in Netherlands, and, if so, why? Second, can independent needs assessment be made more effective, e.g. by changing the eligibility rules or the process? And if not, is an independent assessment nonetheless preferable to delegating the assessment to providers?

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## Appendix

Table A1: descriptive statistics

	Mean
Region 1	0.013 <sup>a</sup>
Region 2	0.039
Region 3	0.024
Region 4	0.060
Region 5	0.014
Region 6	0.036
Region 7	0.011
Region 8	0.044
Region 9	0.043
Region 10	0.042
Region 11	0.024
Region 12	0.027
Region 13	0.012
Region 14	0.013
Region 15	0.010
Region 16	0.031
Region 17	0.033
Region 18	0.032
Region 19	0.038
Region 20	0.044
Region 21	0.046
Region 22	0.067
Region 23	0.023
Region 24	0.041
Region 25	0.016
Region 26	0.025
Region 27	0.028
Region 28	0.020
Region 29	0.041
Region 30	0.047
Region 31	0.035
Region 32	0.022
Age 18-64	0.375
Age 65-69	0.053
Age 70-74	0.063
Age 75-79	0.096
Age 80-84	0.146
Age 85-89	0.151
Age 90-94	0.090
Age 95+	0.027
Man	0.393
Woman	0.607
Deceased before 1 January 2014	0.158
Survived until 1 January 2014	0.842
Time to death, in months	8.652 <sup>b</sup>
Not of foreign descent	0.839
Foreign descent: Western countries	0.018
Foreign descent: Turkey	0.012
Foreign descent: Morocco	0.020
Foreign descent: Suriname	0.007

Foreign descent: Netherlands Antilles and Aruba	0.087
Foreign descent: other countries	0.017
No Children	0.366
Children	0.634
Number of children	2.740 <sup>b</sup>
Household size	1.791 <sup>c</sup>
No spouse/spouse lives in another household	0.653
Spouse lives in the same household	0.347 <sup>c</sup>
Municipality: very strongly urbanized	0.185 <sup>a</sup>
Municipality: strongly urbanized	0.287
Municipality: moderately urbanized	0.204
Municipality: little urbanized	0.218
Municipality: rural	0.107
Income: bottom 5%	0.019 <sup>d</sup>
Income: second 5%	0.089
Income: third 5%	0.182
Income: fourth 5%	0.171
Income: fifth 5%	0.123
Income: sixth 5%	0.084
Income: seventh 5%	0.062
Income: eighth 5%	0.048
Income: ninth 5%	0.038
Income: tenth 5%	0.031
Income: eleventh 5%	0.026
Income: twelfth 5%	0.022
Income: thirteenth 5%	0.020
Income: fourteenth 5%	0.017
Income: fifteenth 5%	0.015
Income: sixteenth 5%	0.013
Income: seventeenth 5%	0.012
Income: eighteenth 5%	0.011
Income: nineteenth 5%	0.009
Income: top 5%	0.007
Somatic condition	0.620
Psychogeriatric condition	0.139
Psychiatric condition	0.213
Physical disability	0.099
Mental disability	0.167
Sensory disability	0.018
Health care expenditures in previous year	7979.90 <sup>e</sup>
Number of observations	9,791,781

<sup>a</sup> Number of observations: 9,693,571

<sup>b</sup> Conditional mean

<sup>c</sup> Number of observations: 5,265,006

<sup>d</sup> Number of observations: 5,025,368

<sup>e</sup> Number of observations: 9,519,911

Table A2. Regression results

	Share of personal care used <sup>a</sup>	Probability of use of institutional care <sup>a</sup>
Age 18-64	-0.051 (0.001)**	-0.053 (0.001)**
Age 65-69	-0.036 (0.001)**	0.035 (0.001)**
Age 70-74	-0.021 (0.001)**	0.013 (0.001)**
Age 75-79	-0.013 (0.001)**	-0.004 (0.001)**
Age 80-84	Reference category	Reference category
Age 85-89	0.007 (0.001)**	0.023 (0.001)**
Age 90-94	0.019 (0.001)**	0.055 (0.001)**
Age 95+	0.039 (0.001)**	0.093 (0.001)**
Man	-0.016 (0.000)**	-0.006 (0.000)**
Woman	Reference category	Reference category
Deceased before 1 January 2014	0.009 (0.001)**	0.115 (0.001)**
Survived until 1 January 2014	Reference category	Reference category
Time to death, in months	0.000 (0.000)	-0.003 (0.000)**
Not of foreign descent	Reference category	Reference category
Foreign descent: Western countries	0.090 (0.003)**	-0.192 (0.003)**
Foreign descent: Turkey	0.135 (0.003)**	-0.165 (0.003)**
Foreign descent: Morocco	0.028 (0.002)**	-0.029 (0.002)**
Foreign descent: Suriname	0.015 (0.004)**	-0.054 (0.002)**
Foreign descent: Netherlands Antilles and	0.001 (0.001)	-0.006 (0.001)**
Foreign descent: other countries	0.010 (0.003)**	-0.061 (0.002)**
No Children	Reference category	Reference category
Children	-0.008 (0.001)**	-0.061 (0.001)**
Number of children	0.001 (0.000)**	-0.002 (0.000)**
Household size	0.000 (0.000)	
No spouse/spouse lives in another	Reference category	
Spouse lives in the same household	-0.038 (0.000)**	
Municipality: very strongly urbanized	Reference category	Reference category
Municipality: strongly urbanized	-0.024 (0.001)**	-0.003 (0.001)**
Municipality: moderately urbanized	-0.029 (0.001)**	-0.015 (0.001)**
Municipality: little urbanized	-0.031 (0.001)**	-0.007 (0.001)**
Municipality: rural	-0.032 (0.001)**	-0.030 (0.001)**
Somatic condition	Reference category	Reference category
Psychogeriatric condition	0.042 (0.001)**	0.071 (0.001)**
Psychiatric condition	0.030 (0.001)**	-0.008 (0.001)**
Physical disability	0.051 (0.001)**	0.050 (0.001)**
Mental disability	0.036 (0.002)**	0.081 (0.001)**
Sensory disability	0.017 (0.002)**	0.042 (0.001)**
Health care expenditures in previous year	0.000 (0.000)**	0.000 (0.000)
Intercept	0.890 (0.002)**	0.793 (0.002)**
Regions <sup>b</sup>	Yes	Yes
Time <sup>b</sup>	Yes	Yes
Amount of care <sup>b</sup>	Yes	No
Income: 5% categories <sup>b</sup>	Yes	No
Number of observations	2050715	4098052

Note: results for other types of home care are available upon request.

<sup>a</sup> Individuals who used at least some care provided in kind only.

<sup>b</sup> Both regressions included 31 indicators for single-payer regions and 12 indicators for the second through the 13<sup>th</sup> four-week period. In addition, the regression for personal care contained 9 indicators to control for the number of hours the individual is eligible for and 19 indicators for the lowest 19 5% categories based on standardized household income.



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