A Macro Prediction of the Use of Care Provisions in the Netherlands (2005–2020)

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1. Introduction

Like many other European politicians the Dutch worry about the increasing costs of long term care provisions during the last decade. With the share of the elderly population (older than 65) in The Netherlands expected to increase from 13.5% to 15% during the next ten years, the number of persons with chronic functional or cognitive impairments will also increase. This effect is reinforced by the expected growth of the eldest among the elderly. As a result, a continuing growth in the demand for long term care provisions is expected, leading to an increase in the costs. To provide insight into the determinants of the expected growth in the use of care provisions the following research questions have been formulated:

1. which are the determinants of the use of care provisions?
2. what will the predictions of the demand for care provisions be for the next few years?

Long term care for the elderly in The Netherlands has traditionally been provided by residential homes. Residential care provides a supportive living environment to elderly persons combined with assistance and care if necessary. Nursing homes provide care aimed at rehabilitation on the one hand and reducing the effects of impairments on the other. Publicly paid home care is a centrally organized provision, part of the AWBZ[1] (which means it falls under a compulsory insurance for all individuals) that consists of household care, personal care and nursing care provided at home.

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1 AWBZ is the Dutch General Exceptional Medical Expenses Act (Algemene Wet Bijzondere Ziektekosten).

 Sondernummer 2006 55–60

2. The Conceptual Framework of the Model

In this paper we examine how health and personal characteristics affect decisions about whether to use care, and from whom care is obtained. We assume that the set of available alternatives are combinations of three underlying choice dimensions: the decision to use care or not, the decision to stay at home or not and the choice of provision. If the person decides to use care and stay at home, he can choose between non-public care at home and public home care. Non-public care can be either informal or privately paid. Public care can be household care, personal care or nursing care. If someone chooses for an institutional living, (s)he can choose between residential care and care in a nursing home. In such a choice setting, a nested multinomial logit model seems most appropriate. The underlying assumption is that residential care is more substitutable with care in a nursing home than with the (in)formal home care or no care alternative. A recursive decision making process is employed such that the expected utility of the preferred institution affects the decision about staying home or not. And likewise, the alternatives publicly paid care at home and non-public care at home are more substitutable with one another than with care in a rest or nursing home. Technically speaking, we specify a joint choice model with three underlying dimensions.

3. Data and Results

The data for this analysis are taken from a survey among persons living independently at home in The Netherlands and a survey among people living in institutions in The Netherlands. Of the individuals in the sample 79% chooses the no care option, 8% the private informal care option, 7% privately paid home care, 3% publicly paid household care, 1% publicly paid personal care, 1% publicly paid nursing care, 1% residential care and 0.5% live in a nursing home. Explanatory variables are demographic variables, health variables and a financial variable (income).

The parameter estimates of the nested logit model show that the use of care (versus no care) is mostly influenced by income, education, age, limitation in performing daily household tasks, mental limitations and living in more urban areas.

The 'choice' of receiving care at home or receiving care in an institution is influenced by a large number of variables. High income lowers the probability of receiving care in an institution, just as limitations with sitting and standing

and problems with the locomotor apparatus. Single individuals and men have a higher probability of receiving care in an institution, just as elder elderly, persons with limitations in performing daily household tasks and mental limitations.

If one receives care in an institution, the choice between residential care or a nursing home is influenced by age, gender, urbanisation, limitations, composition of the household and income. Severe limitations in performing common daily tasks, limitations with sitting and standing and metal limitations increase the probability of receiving care in nursing home. Women and elderly have a higher probability of receiving residential care than men and younger individuals with the same characteristics.

The most important factors determining the choice between public home care and private home care are the reason for need of care, age, income and limitations. All these factors increase the probability that people receive public home care, except for income where it is the opposite. Problems with the locomotor apparatus or the nervous system lower the probability of receiving public home care.

Within publicly paid home care, there are only a few characteristics that determine the kind of provision that is used. Having cancer increases the probability of receiving nursing care at home, having kidney, bile, liver or thyroid diseases increase the probability of receiving household care. Experiencing limitations in performing common daily tasks increases both the probability of receiving personal care as well as nursing care. The same goes if short illness, aftercare or a chronic disease is the reason for needing care.

Six characteristics affecting the choice between informal and privately paid care at home are important: education, household income, make-up of the household, gender, age and reason for need of care. A high level of education and a high income increase the probability of receiving private home care. The same goes for high age. Women, widow(er)s and other single persons also have a higher chance of receiving private home care than men and couples with the same characteristics. The probability of receiving private care is smaller if the reason for need of care is a short illness, aftercare or decreased ability to manage for oneself. It is surprising that neither diseases not limitations seem to have an effect.

4. The Macro-use of Care Provisions

In the previous section, the relation between use of care provisions and financial, demographic and health determinants are examined by means of logit analyses. This provides us with estimated probabilities of the use of each of the care provisions for each individual. The estimated probabilities depend upon the estimated

parameters and upon the value of the determinants. Using forecasts of the various determinants thus allows us to obtain a forecast of the probability of the use of the various alternatives. To that end, a population simulation model is constructed simulating the size and composition of the Dutch population for the next twenty years. This population simulation model provides information on the size and the composition (classified according to age, gender, income, education level and household composition) of the Dutch population.

Combining this population simulation model with the estimated relation between the use of care provisions and its determinants yields demand orientated forecasts of the use of care provisions. For each individual in the population simulation model, the probability of using some care provision is calculated.

Table 1 shows the predicted demand for the eight care provisions between 2005 and 2020. Also included is a column, indicating the total number of persons that use care.

Table 1. Use of Long-term Care 2005–2020 (Absolute Figures, in Thousands of Persons)

			Non-public care at home		Public home care			Institutional care	
Year	No care	Care	Informal	Privately paid	House-hold	Personal	Nursing	Residen-tial	Nursing homes
2005	8,399	1,954	661	739	225	61	101	112	55
2010	8,581	2,106	685	842	228	65	104	122	60
2015	8,708	2,285	706	953	232	70	108	130	65
2020	8,785	2,458	739	1,078	240	77	116	137	71

The group that does not use care in the future is expected to become relatively smaller than the group that does use care. Hence, people are expected to use more care in the future. Especially the use of privately paid care at home will see a very strong increase. People will rely less on publicly paid care, and are more likely to choose privately paid care at home. Surprisingly, this trend is not seen in the use of informal care. Asking for help from family or friends is not viewed as an alternative for public home care or privately paid care at home. It might also be that family and friends are too busy to provide care and that they stimulate people to ask for private care. The growth of the demand for privately paid care at home might be a result of an insufficient supply of public home care, a dissatisfaction with the quality of public home care or a combination of both.

In the publicly paid care at home, especially the use of personal care is expected to increase in the coming years. This confirms the trend that people will stay at home longer, needing relatively more care. Nursing care stays at approximately the same (relative) level, whereas household care becomes relatively less popular. If a person needs relatively 'light' home care, it is more likely (s)he will use privately paid care at home in stead of publicly paid household care. People who need nursing home care do not stay at home longer: the demand for this form of care does not become (relatively) higher. Staying at home is not a long term alternative for people who demand nursing care: they are better of in an institution.

The use of care in an institution (residential care and nursing homes) will also become relatively more important. This is in line with the fact that the number of people over 65 will grow in the coming years, and that the population of people over 65 becomes older (the so-called "double ageing effect").

5. Conclusions and Future Research

We have estimated a nested logit model for the use of eight care provisions in The Netherlands: no care, informal home care, privately paid care at home, publicly paid household care, publicly paid personal care, publicly paid nursing care, residential care and care in a nursing home.

The use of care is mostly influenced by income, age, make-up of the household, reason for need of care and limitations. Also, the different decisions to use care seem to be made sequential and not at the same time. The estimated micro-relations are combined with macro predictions of the determinants. Thus, macro predictions for the several provisions are constructed.

Our results illustrate that in the next decade, people will stay at home longer, relying more on privately paid care at home when they need relatively "light" home care. Informal care does not become relatively more important. People prefer to pay for care rather than ask friends or family. As their need for care increases, they will rely more on the "heavier" form of public personal home care and also on public care in an institution.

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