

ORIGINAL ARTICLE

## Planning future care services: Analyses of investments in Norwegian municipalities

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### Abstract

**Aims:** To analyse whether the Norwegian Central Government's goal of subsidizing 12,000 places in nursing homes or sheltered housing using an earmarked grant was reached and to determine towards which group of users the planned investments were targeted. **Methods:** Data from the investment plans at municipal level were provided by the Norwegian Housing Bank and linked to variables describing the municipalities' financial situation as well as variables describing the local needs for services provided by Statistics Norway. Using regression analyses we estimated the associations between municipal characteristics and planned investments in total and by type of care place. **Results:** The Norwegian Central Government reached its goal of giving subsidies to 12,000 new or rebuilt places in nursing homes and sheltered housing. A total of 54% of the subsidies (6878 places) were given to places in nursing homes. About 7500 places were available by the end of the planning period and the rest were under construction. About 50% of the places were planned for user groups aged <67 years and 23% of the places for users aged <25 years. One-third of the places were planned for users with intellectual disabilities. Investments in nursing homes were correlated with the share of the population older than 80 years and investments in sheltered houses were correlated with the share of users with intellectual disabilities. **Conclusions: Earmarked grants to municipalities can be adequate measures to affect local resource allocation and thereby stimulate investments in future care. With the current institutional setup the municipalities adapt investments to local needs.**

**Key Words:** Long-term care, primary care, earmarked grants, Norway

### Introduction

To tackle the predicted growth of the elderly population and other user groups, such as the intellectually disabled, the Norwegian Central Government initiated a care plan in 2009 with the aim of gradually expanding care services [1]. The Care Plan 2015 highlighted four priority areas to address future challenges in long-term care: (a) generating an additional 12,000 person-years in long-term care during the period 2008–2015; (b) subsidizing 12,000 places in institutions and sheltered housing during the period 2008–2015; (c) building additional specialized housing units for people with dementia and increasing the competencies and knowledge of users with dementia among municipal staff members; and

(d) upgrading the skills of general staff working in long-term care and securing stable staffing within long-term care units.

The provision of long-term care services in Norway is defined as a responsibility of the municipalities. However, the central state may affect the allocation of resources at the municipal level via different measures. To follow up the goals of Care Plan 2015, the central state introduced an earmarked grant to subsidize investments in places in nursing homes and sheltered housing and provided suggestions for the development of local care plans. Most of the effects of Care Plan 2015 have been evaluated [2–4]. The conclusions were that the goals

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of creating an additional 12,000 person-years in long-term care [4] and upgrading skills were achieved [5]. An additional important finding was that the number of young users in the municipalities appeared to have a stronger effect on long-term care expenditure than previously thought [6]. The effects of the earmarked grant have not been evaluated since the investment period ended.

Although there is a voluminous literature on the effects of earmarked grants [7–10], little is known about specific investment subsidies for care services. In particular, we do not know how earmarked grants affect local processes of adapting care services to different user groups when the user groups differ in size within the target area of the grant. From initial qualitative interviews in selected Norwegian municipalities, we obtained indications that places in municipal care facilities were intended for a much broader set of users than previously suggested, including patients with psychiatric problems and addictions [2]. Our objectives were to analyse: (a) whether the goal of subsidizing investments in 12,000 places in institutions and sheltered housing between 2008 and 2015 was reached; (b) which need factors at the local level triggered the application for the state subsidies; and (c) which user groups were targeted by the investments.

## Background

### *Responsibilities of the Norwegian health and care system*

In Norway, the municipalities are responsible for providing reasonable, high-quality primary health care, long-term care and social services to everyone in need [11]. The decentralized task structure is combined with the central regulation of revenues and service standards. The central state also has the responsibility of exercising supervision and control. Thus the municipalities have a more limited opportunity to prioritize and adapt services according to local preferences than suggested in the standard literature of fiscal federalism [10,12].

The municipal services in Norway started to take their current shape in the 1970s. The subsequent development of these services is often summarized as a number of processes that led to increased decentralization, integration and deinstitutionalization [1]. New legislation to regulate the roles and responsibilities of the state and municipalities passed an increasing number of tasks to the latter. The Municipal Health Services Act (1983), nursing home reforms (1989), reforms for people with intellectual disabilities (from 1991) and reforms within

psychiatry (from 1997) were important milestones during this development. For example, until the late 1980s, care for people with intellectual disabilities was mainly provided in state institutions. After the 1991 reform, responsibility for these people, many of whom have extensive care needs, was transferred to the municipalities, which were encouraged to facilitate the provision of housing and services outside institutions [13,14].

Segregated special care and institutional care have been dismantled in favour of enhanced integrated home care services and new living arrangements in communities. The political and ideological aim is that people should live in their own homes as long as possible instead of receiving care in institutions. Thus the focus has shifted from special care to common solutions that are adaptable to nearly all service recipients [15]. These changes have laid the foundations for comprehensive services at a local level for all inhabitants irrespective of age, diagnosis, economic situation, social status or other factors. In addition to these processes, a recent reform called the Coordination Reform requires that the municipalities become more capable of addressing health-promoting strategies, providing early intervention and halting the development of disease. More support is given to help users develop their own skills, with an increased focus on preventive and health-promoting measures, as well as on the expansion of low-threshold services [16]. These changes require new approaches to care work and the development of services to perform these new tasks.

Around half of the 428 municipalities (in 2016) have <5000 inhabitants, so some of the new tasks in long-term care are expected to be implemented via inter-municipal cooperation [1,17].

### *Growth of younger service recipients*

As a consequence of deinstitutionalization and the decentralization of tasks to the municipalities, there has been an increase in the proportion of younger recipients of care services in recent years [6]. In 1994, 18.8% of the users were aged <67 years. This had increased to 40.7% in 2014 [18]. On the other hand, the number of recipients of long-term stays in institutions, usually nursing homes, was stable at around 34,000 between 2009 and 2014 [18]. In the same period, there was an increase of 35% in the number of recipients of temporary stays in institutions, including stays related to examinations, treatment and rehabilitation. Around 24% of the temporary stays in institutions were by users aged <50 years [18].

The strong growth in services for younger recipients of home care includes services for people with

intellectual disabilities, physical disabilities and psychiatric problems [19]. Younger service recipients with psychiatric diagnoses combined with substance dependency, prematurely born children, and children with behavioural problems and disabilities are also described as new users [14,20]. The downsizing of beds in psychiatric institutions has continued and many municipalities are struggling to provide adequate services to those with the most serious psychiatric illnesses [21].

### *Care Plan 2015*

The investment scheme for places in nursing homes and sheltered housing in Care Plan 2015 was administered by the Norwegian Housing Bank and was intended to encourage municipalities to renew and increase the supply of care places for people who require services and care regardless of age, diagnosis and type of disability. The scheme subsidized investments (costs of construction) in care places. Running costs were not covered. From 2008, 20% of the expected investment costs for sheltered housing and 30% of the investment costs for nursing homes were compensated. This was increased from 2011, from when up to 40% of the costs were covered [22] and yet again from 2014, when up to 55% of the investment costs were covered [23]. Other changes included the acceptance of higher expected unit costs per place. Expected investment costs were set by central government and assumed to be about 13% higher in the high-pressure urban zones than in other areas [22,24].

Although nursing homes and sheltered housing are often similar in terms of architectural construction and interior arrangements, there is a formal distinction between them in terms of access to care. In nursing homes, residents live legally in an institution and they have the right to claim nursing care services as well as organized medical, physiotherapy, dental and other health-related services. User fees for long-term stays in nursing homes are calculated based on the resident's income and include expenses for the room, all meals, nursing care and healthcare. The municipality may require between 75 and 85% of the annual income of the residents in compensation. However, the fee cannot exceed the annual costs of the place. In a sheltered housing situation, on the other hand, residents live legally at home and are assigned home services according to their individual needs. Residents of sheltered housing pay rent and receive a housing allowance under the normal rules. They pay their own living costs and costs for medicines and healthcare, subject to the annual payment ceiling that applies to every citizen [11]. The municipalities have the right to require contributions for services delivered at home

according to the Municipal Health and Care Services Act. The total fees for each year are subject to another payment ceiling. Home nursing is free of charge. The municipalities are free to decide in how they wish to organize the services and staffing in sheltered housing. Houses are often grouped in the same area for residents with similar service needs. Depending of the degree of services required, staff are employed in the housing complex or by the home services to serve the needs of the residents.

## **Theory, data and methods**

### *Municipalities' investment decisions*

Municipalities' decisions to apply for funding for the construction of places in nursing homes or sheltered housing can be understood within a demand model framework adapted to the analyses of the public sector [10,25,26]. We assume that the municipalities take into account the needs of younger and older users, other user groups and the economic situation of the municipality when considering whether to apply for the earmarked grants.

The introduction of the earmarked grant implies that the block grant from the central government to the municipalities was reduced and substituted by the price subsidy to care places. Reduction of the block grant is expected to have a negative revenue effect for the municipalities because fewer services can be funded, whereas the introduction of the earmarked grant is expected to increase municipalities' revenues, such that their overall revenue situation is unchanged. However, the price of services shifts as care places become cheaper for the municipalities because of the investment subsidy, and other services, other things being equal, become more expensive. Depending on the relative prices, it can be argued that the municipalities may find it economically advantageous to use more resources on care places and fewer resources on other services.

Data regarding planned investments in the municipalities were provided by the Norwegian Housing Bank. The investment plans described the number of places that received grant guarantees, the type of places (nursing homes or sheltered housing) and the population groups that the investments targeted. For analytical purposes, we linked data about investment plans to municipal data describing revenues and need factors, which were obtained from Statistics Norway.

We built two regression models. Model 1, a logistic regression model, analyses the variation in participation between the municipalities. The dependent variable took the value of 1 if the municipality applied for and received earmarked grants from the central

state, and 0 otherwise. Model 2, an ordinary least-squares model, analyses the variation in the number of places – in sheltered housing, nursing homes or overall – for which the municipalities received grant guarantees during the period 2008–2014.

$$\begin{aligned} \text{Prob}(\text{Receiving grant guarantee}) = & \\ & a + b_1 \text{Revenues} + b_2 \text{Demographics} + \\ & b_3 \text{Other needs} + b_4 \text{Places2006} + b_4 \text{Users2006} + \\ & b_5 \text{Traveltime} + e \end{aligned}$$

$$\begin{aligned} \text{NumPlaces}_i = & a + b_1 \text{Revenues} + b_2 \text{PoP80plus} \\ & + b_3 \text{Other needs} + b_4 \text{Places2006} + \\ & b_4 \text{Users2006} + b_5 \text{Traveltime} + e, \end{aligned}$$

Revenues were the sum of tax income and unconditional grants, *PoP80plus* is the number of inhabitants aged 80 years or older and *Other needs* is a vector that includes the number of inhabitants with higher education, the number of persons with intellectual disabilities and the number of inhabitants in linear and square forms. In the initial analyses we also included other need variables such as the unemployment rate. These took insignificant effects with estimates close to zero and are not reported in the final versions of the models. We included two variables to describe the level of services before the investment plan was implemented: *Places2006* to describe the number of nursing home places in 2006 and *Users2006* to describe the number of people who received home care at the same time. *Travel time* describes the average travel time in minutes to the centres of the municipalities. All variables, except the probability of receiving the grant, were standardized per 1000 inhabitants. As a result of random variations in the time of application for the earmarked grant, we calculated all independent variables as an average over the period 2008–2014. All variables in the second equation were log-transformed in the regression analyses. The huge variations in municipal size supported weighted regression analyses where the effects of the municipalities were weighted according to their size. We used the number of inhabitants as weights.

We assumed that municipalities with higher revenues and higher needs had an increased probability of applying and receiving grant guarantees compared with those with lower revenues and lower needs. We further expected that municipalities with a high proportion of elderly inhabitants would apply for more places in nursing homes compared with municipalities with a lower proportion of elderly inhabitants, other things being equal, and that municipalities with

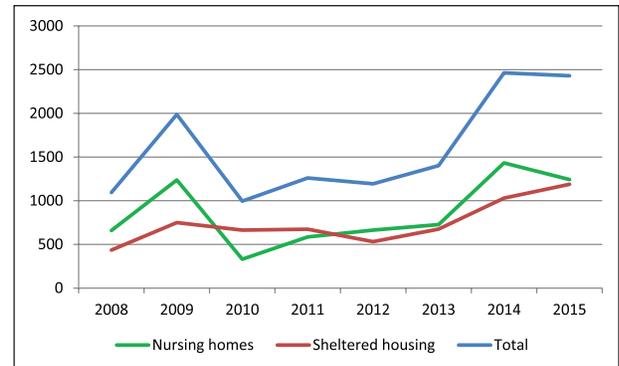


Figure 1. Numbers of places receiving guarantees during 2008–2015. Data from municipalities receiving state subsidies.

a higher proportion of users in the new user groups would apply for more subsidies to sheltered housing compared with those with a lower proportion of users in those groups. We similarly expected municipalities with higher revenues to apply for more places than those with lower revenues. We also assumed that those with high coverage rates, measured by places in nursing homes in 2006 and users of home care the same year, would apply for fewer places than those with lower coverage rates.

## Results

### *Descriptive statistics*

The number of places where guarantees were approved was close to 1000 in the first year of the care plan (2008) and doubled from 2008 to 2009. From the high total number of guarantees issued during 2009, there was a sharp decline to a lower level, which lasted from 2010 to 2013 (Figure 1). The increase in the number of guarantees issued from 2013 reflected the higher level of subsidies implemented gradually from 2011. Both the increase in guarantees from 2007 to 2009 and the increase from 2011 to 2013 indicate a two-year lag in the municipalities' responses to changes in the grant level that must be understood in light of municipal planning processes that included approval from municipal councils. In total, 12,825 investment guarantees were issued between 2008 and 2015, which was slightly above the target. Fifty-four per cent of the subsidies were given to places in nursing homes (6878 places) and the remaining to places in sheltered housing. Of the total number of subsidies, 11,296 were targeted towards new places and the remainder towards rebuilding or renovation. Creating a new place does not necessarily mean that the municipalities add a place to the existing stock because older places may no longer be used.

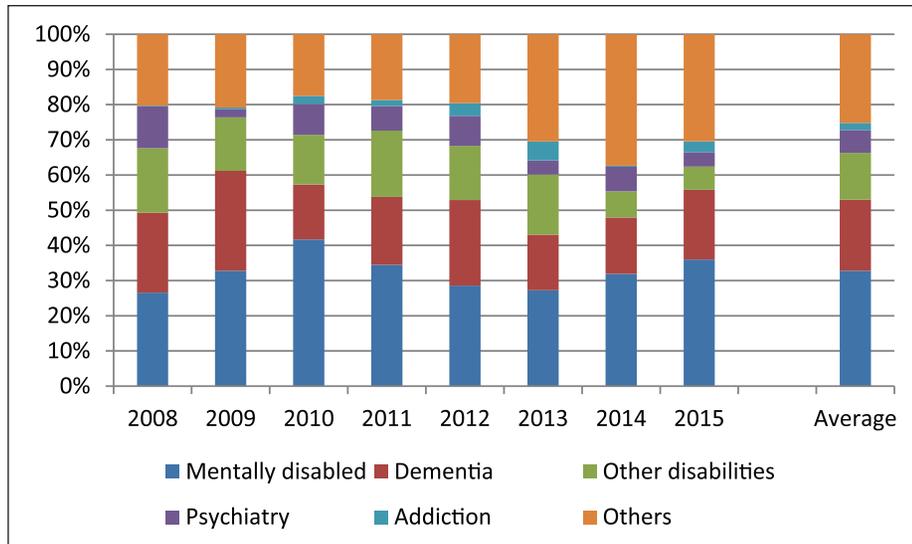


Figure 2. Proportions of places receiving guarantees for different user groups during 2008–2015. Data from municipalities receiving state subsidies.

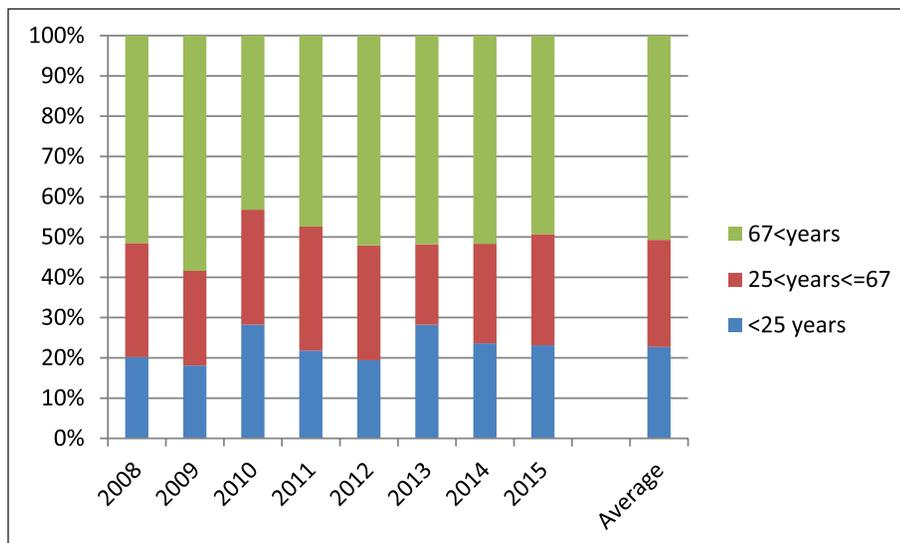


Figure 3. Proportions of places receiving guarantees for different age groups during 2008–2015. Data from municipalities receiving state subsidies.

Among the 12,825 places, about 7500 (58%) were completed by the end of the project period (31 December 2015), with the remaining places under construction (not shown).

The plans demonstrated a diverse set of user groups (Figure 2). The largest target groups consisted of those with intellectual disabilities (33%), followed by a group of users with unspecified diagnoses (25%), users with dementia (20%), users with psychiatric problems (7%) and users with addictions (2%). There was no systematic difference over the eight-year implementation period of Care Plan 2015.

About 50% of the places were intended for user groups aged <67 years (67 years is the retirement age in Norway) (Figure 3). The 50% of the places planned for the group aged <67 years was divided almost equally between those aged <25 years and those aged 25–66 years.

Altogether, 307 of the 424 (73%) municipalities received investment guarantees through the earmarked grant in the period 2008–2014 (Table I).

The descriptive statistics for the independent variables show that the number of inhabitants and the travel distances to the municipal centres varied significantly, with standard deviations around 70%

Table I. Descriptive statistics, all municipalities (unweighted).<sup>a</sup>

Variable	N	Mean	Standard deviation	Minimum	Maximum
<i>Dependent variable:</i>					
Probability of receiving grant guarantee	425	0.73	0.44	0.00	1.00
Places in sheltered housing receiving guarantees	425	1.79	2.38	0.00	13.47
Places in nursing homes receiving guarantees	425	1.51	3.07	0.00	21.24
All places receiving guarantees	425	3.29	4.23	0.00	31.75
<i>Independent variable:</i>					
Municipal revenues	425	53.58	10.16	41.70	123.80
Population aged ≥80 years	425	54.74	14.87	21.11	93.45
Higher education	424	164.59	43.54	85.01	363.97
Death rate	424	6.49	0.98	4.25	11.37
Intellectual disabilities	424	4.61	2.14	0.00	16.60
Travel time	425	8896.28	6759.47	0.00	75,203.66
Inhabitants	425	11.46	34.91	0.21	598.81
Inhabitants squared	425	1346.89	17770.33	0.04	358,567.65
Users of home nursing (2006)	425	14.93	7.97	2.38	66.33
Users in nursing homes (2006)	425	11.72	5.88	0.00	46.53

<sup>a</sup>All variables except probability of receiving grant guarantee are standardized by 1000 inhabitants.

Table II. Results obtained from the regression models of all municipalities.<sup>a</sup>

Regression type	Probability of receiving grant guarantee	Places in sheltered housing receiving guarantees	Places in nursing homes receiving guarantees	All places receiving guarantees
	Logistic (odds ratio)	OLS (elasticities)	OLS (elasticities)	OLS (elasticities)
Municipal revenues	1.07	1.17***	-0.05	0.97*
Population ≥80 years	0.88	0.08	0.38**	0.23
Intellectual disabilities	1.04**	0.21*	0.11	0.23*
Higher education	1.01	0.44***	0.35*	0.53***
Inhabitants	0.00	-2.66**	-3.05**	-4.24***
Inhabitants*	0.99	1.23**	1.45**	1.99***
Travel time (minutes)	1.00	-0.02	0.06	0.02
Places in nursing homes (2006)	1.00	0.12	-0.10	0.01
Users of home nursing (2006)	0.96	0.00	-0.15*	-0.07
Intercept	-	-6.12***	1.84	-5.41*
N	423	423	423	423
Percent concordant	77	-	-	-
AIC	432	987	1116	1139

\*/\*\*/\*\*\* = significant at 0.1/0.05/0.01 level.

<sup>a</sup>All variables except probability of receiving grant guarantee are standardized by 1000 inhabitants.

of the mean. The level of variation was lower for the other variables.

### Regression analyses

The probability of receiving subsidies for places in general is primarily explained by the number of people with intellectual disabilities. Municipal revenues, which have usually been shown to have a significant positive association with investments [27], had an insignificant association (Table II). This also holds for a categorized version of the variable (not shown).

However, turning to the analyses of the number of places, revenues had a positive association with

sheltered housing and with sheltered housing and nursing homes combined. For nursing homes, the association with municipal revenues was close to zero, possibly because municipalities with high revenues made major investments in nursing homes before the Care Plan period. However, the lag in the number of nursing homes places (places in 2006) had no significant effect.

Local needs were significantly associated with how the municipalities invested. Places in nursing homes had a significant association with the share of inhabitants aged 80 years or older and a non-significant association with the number of users with intellectual disabilities, whereas the number of places in

sheltered housing was mainly driven by the number of users with intellectual disabilities.

The proportion of the population with higher education was also positively associated with the number of places in sheltered housing and the total number of places, whereas its association with places in nursing homes was not significant. Places in nursing homes at the start of the investment period had no statistical effect, but a well-developed system of home nursing was negatively associated with investments in nursing homes. Investments were highest in the smallest and largest municipalities.

## Discussion

The study demonstrates that one of the main targets of the Care Plan 2015 was met, namely stimulating municipal investment in more than 12,000 places in nursing homes or sheltered housing during the period 2008–2014. Up to 50% of the care places (nursing homes and sheltered housing combined) were intended for users aged 67 years or younger. Municipalities with a high proportion of people aged 80 years or older invested more in nursing homes, whereas municipalities with a high proportion of people with intellectual disabilities preferred to invest in sheltered housing.

That the investment in sheltered housing is close to 50% of the total must be seen in light of the increase in younger service recipients and the lack of municipal services for the long-term care of this group. Sheltered housing is considered to be more flexible and it is especially suitable for younger users because of the greater freedom and dignity that it can provide compared with institutional care [28]. This consideration is also reflected in the aims set by the health authorities, who suggest that service recipients aged 50 years or younger should not be placed in nursing homes if this can be avoided. Ideally, young people should be able to live independently, even if they are highly dependent on help in their daily lives.

In some municipalities, the choice of investing in sheltered housing was presented as a matter of principle and a question of values [28]. Sheltered housing is viewed as more ideologically correct in cases where there is an emphasis on living an active life despite a loss of function. Sheltered housing is considered to be a home both legally and socially. A home is associated with security and relationships and serves as a symbol of status and material values and a place for different activities [29,30]. Institutional care in Norway has been criticized for its lack of sufficient assistance for elderly people, its lack of meaningful activities and its neglect of psychosocial care. In particular, the dual function of a nursing home as both a care facility and a home has been discussed [31,32].

The financial situation of the municipalities has formerly been shown to affect their level of investment and whether they invest in nursing homes or sheltered housing [33]. In these analyses, somewhat surprisingly, the financial situation of the municipalities, as measured by revenue level, showed no association with the probability of applying for earmarked grants. Nor did revenue level have a statistical effect on the number of nursing home places the municipalities invested in. The only statistical effect of revenues was on the investment level for sheltered housing, where the effect was as expected: higher revenues were correlated with higher planned investments. In many municipalities, sheltered housing was seen as an additional service between home care and nursing homes and it was assumed that costs could be saved or postponed until a stay in a nursing home was unavoidable [28]. Operating nursing homes with a 24-hour service and adequate staff has been regarded as more expensive than sheltered housing with services provided as home care. For example, Disch and Vetvik [34] investigated the priorities of 232 municipalities regarding the care of elderly people and found that 84% of the respondents said they would give higher priority to home care services in the future. They suggest that this development is a response to the financial situation in the municipalities. In addition, Sørvoll et al. [35] reported that municipalities plan to increase their focus on home care services combined with sheltered housing in future years and conclude that this choice is justified, citing a combination of ‘ideology, economy and preferences’.

However, there is a lack of research addressing the living arrangements in sheltered housing and whether these are as suitable for frail elderly people and people with dementia as they are for younger service recipients who seek to live a normal life. It can be questioned whether the facilities in nursing homes and sheltered housing should be viewed as equal and adequate. Nursing homes and sheltered housing may resemble each other, but their differences are significant. Nursing home residents live legally in an institution and they have a right to claim the care services of which they are in need, including organized medical, physiotherapy, dental and other relevant services. In contrast, residents in sheltered housing live legally at home and they are assigned home services according to their individual needs.

It is not known whether public health campaigns encouraging increased physical activity and a healthier lifestyle will lead to improvements in functionality among elderly people. Such improvements could help elderly people live in their own homes longer or in sheltered housing with fewer services. However, a

longer life does not necessarily equal a longer life with good health. Thus we need to question whether sheltered housing is suitable for frail elderly people in their last few years of life, which are typically characterized by multiple morbidities.

The main strength of our study is the exact information on the number of places that receive state subsidies. As usual, the counterfactual question – namely, whether the municipalities would have invested in 12,000 care places if the earmarked grants were not implemented – is not easy to answer. As always, the problem of omitted variables cannot be ruled out. We have, however, tested the effects of several other independent variables without reporting these in the tables, among others unemployment rates. We have not addressed macroeconomic efficiency – do earmarked grants lead to reduced efficiency because local preferences for resource allocation will be distorted?

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