

Planning future care services: Analyses of investments in Norwegian municipalities

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Abstract

Aims: To analyse whether the Norwegian governments goal of subsidizing 12,000 places in nursing homes or sheltered housing by the means of an earmarked grant was reached and towards which group of users the planned investments were targeted. *Methods:* Data on investment plans at municipal level was provided by the Norwegian Housing Bank and linked to variables describing the municipalities' financial situation as well as variables describing local demand for services provided by Statistics Norway. By regression analyses we estimated the effects of municipal characteristics on planned investments in total and by type of care places. *Results:* The government reached its goal of giving subsidies to 12,000 new or rebuilt places in nursing homes and sheltered housing. 54% of the subsidies (6878 places) were given to places in nursing homes. Approximately 7500 places were accomplished by the end of the planning period and the rest were under construction. About 50% of the places were planned for user groups < 67 years and 23% of the places for users below 25 years. One third of the places were planned for users with mental disabilities. Investments in nursing homes were correlated with the share of the population above 80 years and investments in sheltered houses were correlated with the share of mental development disabled. *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 and targets investments against different user groups.

Introduction

To tackle the predicted growth in the elderly population and other user groups like for example physically disabled, the Norwegian Central Government in 2009 initiated a care plan with the aim of gradually expanding the care services at the municipal level (1). Care Plan 2015 highlighted four priority areas to address future challenges in long-term care: a) creating an additional 12,000 man-years in long-term care during 2008–2015, b) subsidizing 12,000 places in institutions and sheltered housing during 2008–2015, c) building additional specialized housing units for individuals with dementia and increasing the competencies and knowledge of patients with dementia in the municipalities and d) upgrading 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 for subsidising places in institutions and sheltered housing with 24-hour services, as well as providing suggestions for the development of local care plans. Most of the effects of Care Plan 2015 have been evaluated previously (2-4). The conclusions were that the goals of creating an additional 12,000 man-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 known (6).

Based on initial qualitative interviews in the municipalities, we obtained indications that the municipal institutions and housing services have been planned for a much broader set of users than suggested earlier, including patients with psychiatric problems and addictions (2). Therefore we analyse a) whether the goal of subsidizing 12,000 places in institutions and sheltered housing during 2008–2015 was reached, b) what the main structural drivers behind

applying for the subsidy were, and c) towards which group of users were the planned investments targeted.

Background

Responsibilities of the Norwegian health and care system

In Norway, the municipalities are responsible for providing reasonable, high-quality health care, long-term care and social services to everyone in need (7). 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 limited opportunity to prioritize and adapt services according to local conditions and needs.

The current 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 de-institutionalization (8). 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 (1983/4), nursing home reform (1989) and reform for people with mental developmental disabilities (from 1991) were important milestones during this development. For example, until the late 1980s, the main form of care for people with mental developmental disabilities was in state institutions. After the reform, the responsibility for this group, 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 (9, 10).

The continued dismantling of segregated special care and institutional care has occurred in favour of enhanced integrated home care services and the enablement of new

living arrangements in the communities. The political and ideological aim is that people should live longer in their own homes instead of receiving care in institutions. Thus, the focus has shifted from special care to common solutions that are adaptable to all service recipients (11). 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 has required that the municipalities should become more capable of addressing health promoting strategies, providing early intervention and halting the development of disease. More support is given to help patients to master their own skills, with an increased focus on preventive and health-promoting measures, as well as the expansion of low-threshold services (12). This requires new approaches to care work and the development of services to perform these new tasks. Some of these services have been moved closer to where the users live, and new municipal services are being developed for patients prior to, instead of, or following admission to hospital. Around half of the 428 municipalities (2016) have less than 5000 inhabitants, so some of the new tasks in long-term care are expected to be implemented via intermunicipal cooperation (8).

Growth of younger service recipients

As a consequence of de-institutionalization 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). For example, the proportion of home care service recipients aged <67 years was 18.8% in 1994, but it increased to 40.7% in 2014 (13). In the elderly, the percentage of recipients aged 80–89 years has declined steadily since 2002, and it was 28.7% in 2014. Among the groups aged 67–79 years and ≥90 years, there was relatively little change from 2007 to 2014 (13).

The number of recipients of long-term stays in institutions, usually nursing homes, was stable at around 34,000 during the period of 2009–2014 (13). In the same period, there was a marked increase in the number of recipients of temporary stays in institutions, including those related to examinations, treatment and rehabilitation. The number of recipients of temporary stays in institutions increased by 35% between 2009 and 2014. The beds connected to temporary stays in institutions are used more broadly by younger recipients. Around 24% of the temporary stays in institutions are by patients aged <50 years (13).

The strong growth in services for younger recipients of home care includes people with mental developmental disabilities, physical disabilities and psychiatric problems (14). 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 (10, 15). The down-sizing of beds in psychiatric institutions has continued, and many municipalities are struggling to provide a good service at the local level to those with the most serious psychiatric illnesses (16).

Care Plan 2015

The investment scheme for nursing home places and places in sheltered housing that comprised part of the 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 or disability. Whether the municipalities was applying for funding for the construction of nursing homes or sheltered housing required a trade-off to be made at the municipal level, where the needs of younger and older users in various user groups were considered given the economic situation of the municipality. The financial subsidy or earmarked grant was implemented by the central

government from 2008 and covered approximately 30% of expected total costs of the places. The central government initiated an increase in the subsidy for places in nursing homes and sheltered housing from 2011, where up to 40% of the costs were covered (17), and another increase from 2014, where up to 55% of the investment costs were covered (18). The changes from 2014 also included the acceptance of higher unit costs per place. For the whole period, the state subsidy was paid out after formal commissioning tests were made.

Data and methods

Data regarding planned investments in the municipalities were provided by the Norwegian Housing Bank. The investment plans described number of places, 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 analysed two regression models. Model 1 analysed variation in participation between the municipalities by a logistic model. The dependent variable took the value of 1 if the municipality applied for and received earmarked grants from the central state, 0 otherwise. Model 2, an ordinary least square model, analysed variation in number of place, either in sheltered housing, nursing homes or overall, the municipalities received financial support for during the period 2008-2014.

$$\begin{aligned} \text{Prob}(\text{Participate}) = & a + b_1 \text{Revenues} + b_2 \text{Demographics} + b_3 \text{Other needs} & (1) \\ & + b_4 \text{Places2006} + b_4 \text{Users2006} + b_5 \text{Traveltime} + e \end{aligned}$$

$$\text{NumPlaces}_i = a + b_1 \text{Revenues} + b_2 \text{Share80pluss} + b_3 \text{Other needs} + b_4 \text{Places2006} + b_5 \text{Users2006} + b_6 \text{Traveltime} + e, \quad (2)$$

Revenues were the sum of tax income and unconditional grants, Share80pluss is the number of inhabitants aged ≥ 80 years and Other needs is a vector that includes the number of inhabitants with higher education, the number of mental development disabled and the number of inhabitants in linear and square forms. 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 within the municipalities. All of these variables were standardized per 1000 inhabitants. Due to random variation in the time for application for the earmarked grant, we calculated all variables as average over the period 2008–2014. All variables were log transformed in the regression analyses. The huge variations in municipal size supported weighted regression analyses where the effects of the many small municipalities were weighted according to their size. In the subsequent regression analyses, we used the number of inhabitants as weights.

We assumed that municipalities with a high share of elderly will apply for a higher number of places in nursing homes compared with municipalities with lower share of elderly, *ceteris paribus*, and that municipalities with a higher share of users in the new user groups will apply for more subsidies to sheltered housing compared with those with a lower share of users in these groups. Municipalities with higher revenues would 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 2007 and users of home care the same year would apply for fewer places than those with lower coverage rates.

Results

Descriptive statistics

From the high total number of guarantees issued during the second year of the plan period (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. The two years lag must be understood in light of municipal planning processes which include approval from municipal councils. In total, 12,825 investment guarantees were issued during 2008–2015, which was slightly above the target. 54% of the subsidies were given to places in nursing homes (6878 places), the remaining numbers in sheltered housing.

(Figure 1)

Among the 12,825 places, approximately 7500 (58 percent) were accomplished by the end of the project period (31 December 2015), with the remaining places under construction (not shown in exhibits).

The plans demonstrated a diverse set of user groups (Figure 2). The largest target groups comprised those with mentally disabilities (33 %), followed by an unspecified group (25 %), patients with dementia (20 %), patients with psychiatric problems (7%) and patients with addictions (2 %). There were no systematic differences throughout the 8-year period of Care Plan 2015.

(Figure 2)

About 50% of the places were planned for user groups aged <67 years, which 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 (23 %) and those aged 25–66 years (27 %).

(Figure 3)

Altogether 307 of the 424 municipalities (73 %) received investment guaranties through the earmarked grant in the period 2008-2014 (Table 1). 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 % of the mean. The level of variation was lower for the other variables.

(Table 1)

Regression analyses

The probability of receiving subsidies for places in nursing homes or sheltered housing which means that the municipalities first applies and then with a probability close to hundred, receives a subsidy is primarily explained by the number of mental development disabled. Municipal revenues which usually have shown to have significant positive effects on investments (19), takes insignificant effects here (Table 2). This also holds for a categorized version of the variable.

However, turning to the analyses of number of places revenues had a positive for sheltered housing and for the total comprising both sheltered housing and nursing homes. For nursing homes, the effects of municipal revenues were 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 effects.

(Table 2)

Local needs were significantly associated with how the municipalities invested. Places in nursing homes had a significant association with the number of inhabitants aged ≥ 80 years and non-significant associations with the number of mental development disabled, whereas the opposite was true for the associations with sheltered housing.

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 the associations with places in nursing homes were not significant. Places in nursing homes at the

start of the investment period had no statistical effects, but well-developed home nursing was negatively associated with investments in nursing homes.

Investments were highest in the smallest and largest municipalities.

Discussion

The study demonstrated that one of the main targets of the Care Plan 2015 was met as the central government managed by subsidies to stimulate the municipalities to invest in more than 12,000 places in nursing homes or sheltered housing during the period 2008-2014. Up to 50% of the places in nursing homes and sheltered housing were planned for the group aged <67 years. Municipalities with a high proportion of people aged >80 years invested more in nursing homes, whereas municipalities with a high proportion of mental development disabled people preferred to invest in sheltered housing.

That the investment in sheltered housing is close to 50% of the total must be seen in the 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 freedom and dignity that sheltered housing can provide compared with institutional care (20). This consideration is also reflected in the aims set by the health authorities, which suggest that service recipients aged <50 years should not be located in nursing homes for services if this can be avoided. Ideally, young people should be able to live independently even if they are highly dependent on help during 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 (20). As a concept, sheltered housing is viewed as more ideologically correct where there is an emphasis on leading an active life despite a loss

of function, by living individually in one's own home and having the option of integrating into society. Sheltered housing is considered to be a home both legally and socially. A home is associated with security, relationships and a place for different activities, and it serves as a symbol of status and material values (21, 22). Institutional care in Norway has been criticized because of its lack of sufficient assistance to the elderly, a lack of meaningful activities and the neglect of psychosocial care. In particular, the dual function of a nursing home as both a care facility and home has been discussed (23, 24).

The municipalities financial situation have formerly been shown to affect level of investment and whether municipalities invested in nursing homes or sheltered housing (25). In this analyses the financial situation of the municipalities as measured by revenue level, had no effect on the choice of applying for resources from the earmarked grant. Neither was there an effect of revenue level on number of nursing home places the municipalities invested in. The only effect of revenues was on the investment level for sheltered housing where the effect was as expected: higher revenues was correlated with higher investment. In many municipalities, sheltered houses were 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 is unavoidable (20). Operating nursing homes with a 24-hour service and adequate staff numbers have been regarded as far more expensive than sheltered housing with services provided as home care. For example, Disch and Vetvik investigated the priorities of 232 municipalities regarding elderly care and found that 84% of the respondents will give higher priority to home care services in the future (26). They suggested that this development is a response connected to the financial situation in the municipalities. In addition, Sørvoll et al. reported an increased focus on home care services combined with sheltered housing in the years to come, and concluded that this choice is justified in the municipalities by referring to a combination of "ideology, economy and preferences" (27).

However there is a lack of research addressing the living arrangements in sheltered housing and how these are suitable for frail elderly people with dementia as they are for younger service recipients who seek to live a normal life. Furthermore, it can be questioned whether the facilities in nursing homes and sheltered housing should be viewed as equal and adequate. Nursing and care homes may resemble each other, but their differences are significant. Thus, residents in a nursing home live legally in an institution, and they have rights to claim beds, as well as nursing and care services, organized medical services, physiotherapy services, dental services and other services (please refer to nursing home regulations). By 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 improvements in the functionality of the elderly population in the future will be achieved because of public health campaigns encouraging increased physical activity and a healthier lifestyle. This could help elderly people to live for longer in their own homes or in sheltered housing with few services. However, a longer life does not necessarily equal a longer life with good health. Thus, we need to question where sheltered housing might be a suitable care facility for frail elderly people in their last few years of life, which are typically characterized by multimorbidity. Another question is resource allocation in the future and whether the frail elderly population will have to compete for the same resources as younger service recipients in terms of places in sheltered housing.

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Figures and tables

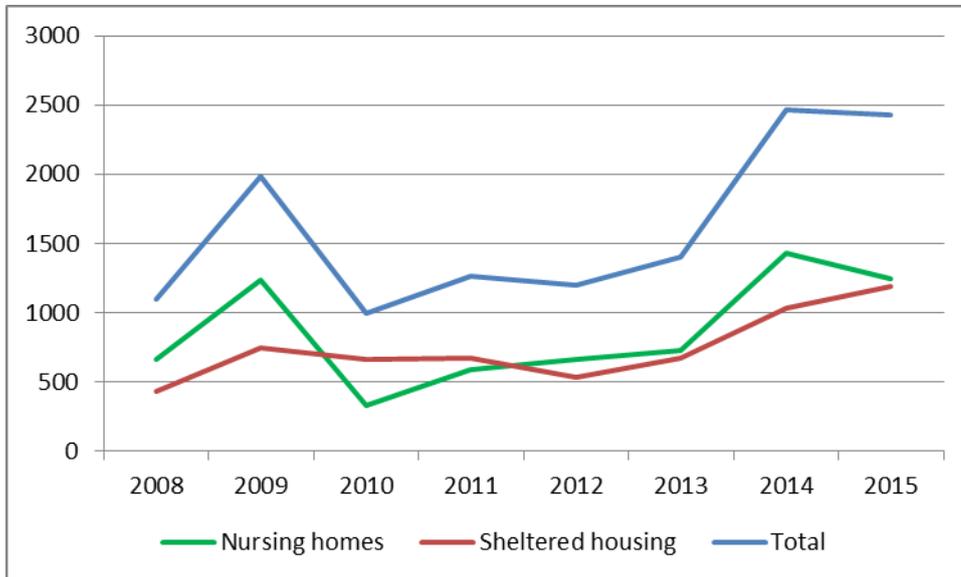


Figure 1. Numbers of places funded during 2008–2015. Data from municipalities that received state subsidies.

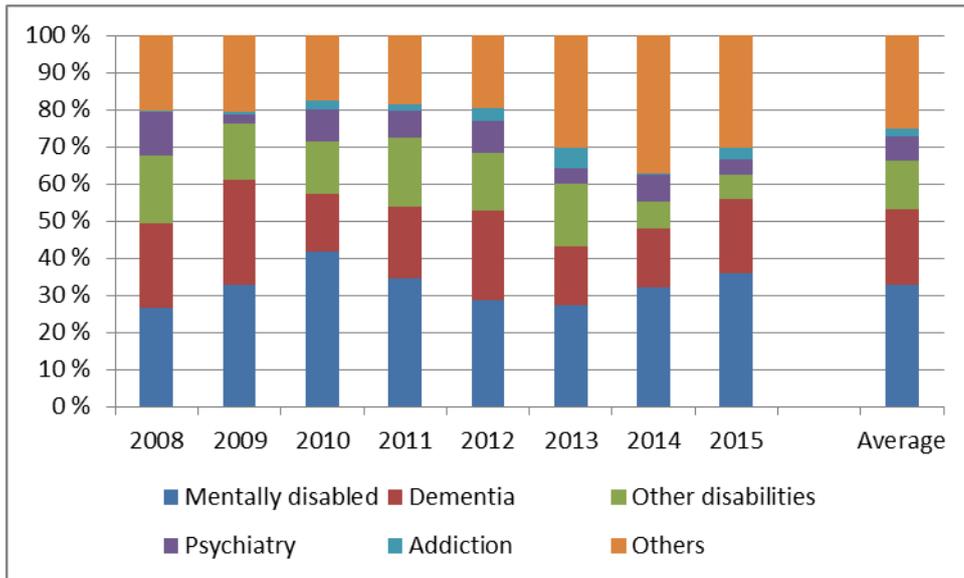


Figure 2. Proportions of places for different user groups during 2008–2015. Data from municipalities that received state subsidies.

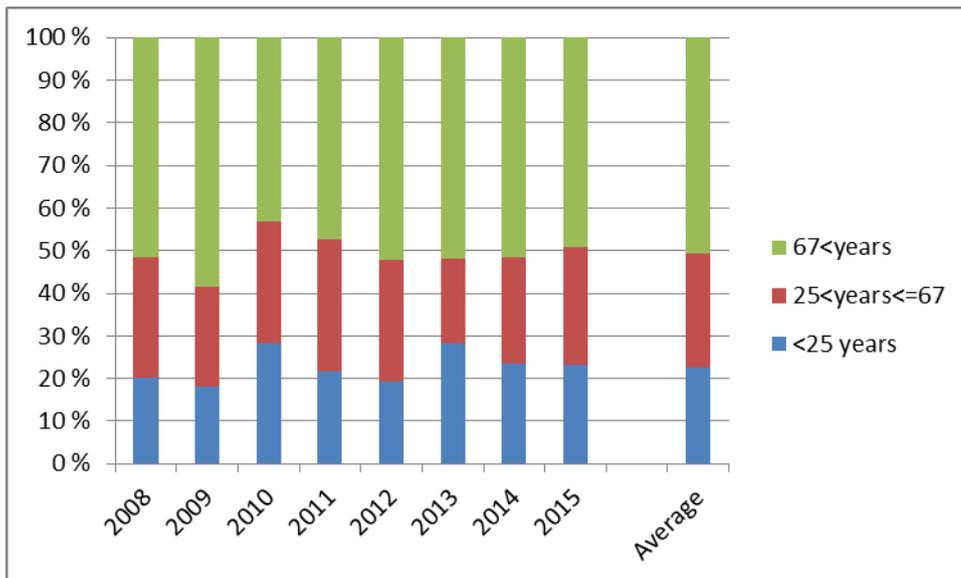


Figure 3. Proportions of places for different age groups during 2008–2015. Data from municipalities that received state subsidies.

Table 1. Descriptive statistics, all municipalities (unweighted).

| Variables | N | Mean | Std.dev. | Minimum | Maximum |
|---------------------------------|-----|---------|----------|---------|-----------|
| <i>Dependent:</i> | | | | | |
| Probability of applying | 425 | 0.73 | 0.44 | 0.00 | 1.00 |
| Places in sheltered housing | 425 | 1.79 | 2.38 | 0.00 | 13.47 |
| Places in nursing homes | 425 | 1.51 | 3.07 | 0.00 | 21.24 |
| All places | 425 | 3.29 | 4.23 | 0.00 | 31.75 |
| <i>Independent:</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 |
| Mental development disabled | 424 | 4.61 | 2.14 | 0.00 | 16.60 |
| Travel time | 425 | 8896.28 | 6759.47 | 0.00 | 75203.66 |
| Inhabitants | 425 | 11.46 | 34.91 | 0.21 | 598.81 |
| Inhabitants squared | 425 | 1346.89 | 17770.33 | 0.04 | 358567.65 |
| 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 |

Table 2. Results obtained from the regression models of all municipalities.

| | Probability of receiving grant | Places in sheltered housing | Places in nursing homes | All places |
|--------------------------------|--------------------------------|-----------------------------|-------------------------|--------------------|
| Regression type | 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 |
| Mental development disabled | 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*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