

Postprint Version	1.0
Journal website	http://www.springerlink.com
Pubmed link	http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15452743&query_hl=1
DOI	10.1007/s10198-004-0252-3

Jan J. Kerssens¹ · Peter P. Groenewegen^{1,2}

¹ Netherlands Institute for Health Services Research, Utrecht, The Netherlands

² Department of Human Geography and Department of Sociology, Utrecht University, Utrecht, The Netherlands

Consumer preferences in social health insurance

ABSTRACT

Allowing consumers greater choice of health plans is believed to be the key to high quality and low costs in social health insurance. This study investigates consumer preferences (361 persons, response rate 43%) for hypothetical health plans which differed in 12 characteristics (premium, deductibles, no-claim discount, extension of insurance and financial services, red tape involved, medical help-desk, choice of family physicians and hospitals, dental benefits, physical therapy benefits, benefits for prescription drugs and homeopathy). In 90% the health plan with the most attractive characteristics was preferred, indicating a predominantly rational kind of choice. The most decisive characteristics for preference were: complete dental benefits, followed by zero deductibles, and free choice of hospitals.

Allowing consumers greater choice of health plans is currently seen as the key to high quality and low costs [8]. During the past decade several European countries have allowed consumers choice in their social health insurance scheme as a part of introducing managed competition [1, 6, 14, 21, 32]. Its main objective is to stimulate social health insurance organizations to become more consumer oriented and more proactive in managing the provision of health care. Preconditions for managed competition are: an annual opportunity for subscribers to enroll in one of several competing health plans; an obligation for insurers to accept anyone (irrespective of health status) on the same terms; a standardized benefits package and an adequate system of risk adjusted payments to insurance organizations for part of their expenses. Insurance organizations could then engage in a value-for-money competition [11].

Recent reforms of the Dutch social health insurance system seem to be close to introducing managed competition in health care because they create the above conditions [20, 26, 31, 33, 36]. Freedom to choose a health insurance fund was introduced in 1992. At the same time the premium structure was changed from wholly income dependent to partly income dependent and partly flat rate. Health insurance funds became responsible for an increasing share (currently 50%) of their expenses, leading to varying flat rate premiums between funds [19]. The structure of the health insurance sector in The Netherlands as of 2003 is described in tabular form below:

- Health Insurance System
 - The Exceptional Medical Expenses Act covers expensive and long-term health care for all residents (40% of total expenditure).
 - More than 64% of the population are compulsory members of a social health insurance fund (37% of total expenditure). Nearly all members (95%) have supplementary health insurance (2% of total expenditure).
 - Some 31% of the population have taken out private insurance voluntarily, and the remaining 5% have medical insurance under a public law scheme (together 19% of total expenditure).

- Membership of health insurance funds
 - Obligatory for employees under the income ceiling of €31,750, and their families, some groups of social security dependents, old age pensioners (income ceiling €20,200), self-employed (income ceiling €20,250).
- Benefits of health insurance funds
 - Uniform benefits, including medical care, pharmaceutical prescriptions, hospital care, dental care for those aged under 18 years.
 - Supplementary, voluntary insurance possible (e.g., for dental care under age 18 years and parts of physiotherapy); supplementary benefits differ between funds.
- Premium
 - Income-dependent part is uniform, paid by employees and employers to the central fund, distributed with riskadjustment to individual funds.
 - Flat-rate part of premium determined by the individual funds. Difference between cheapest and most expensive is €150 per year.
 - Supplementary insurance premium determined by individual funds.
- Number
 - There are 24 different health insurance organizations.

A basic assumption in introducing health plan choice is that consumers can make informed choices about competing health plans. This requires knowledge of important health plan characteristics, including specific services covered by the plan as well as premium, copayment, and deductibles. A review of the literature produces the following characteristics: insurance premiums almost always have a statistically significant negative effect on the probability of enrolling in a health plan [2, 9, 10, 22, 23, 25, 30, 34]. However, consumers are most price sensitive when their new health plan is similar to their old health plan [4]. About two-thirds of the persons who change plans stay in the same plan type [7]. Feldman et al. [12] also point to the fact that changing prices leads to health plan switching within similar health plans. Various other studies have indicated that persons value not only price but also benefits and the availability and quality of physicians [13, 16, 24, 35]. Only a few studies have taken all these variables into account [5, 15]. Chakraborty et al. [5] report the coverage of hospital care to be the main determinant in health plan choice. Followed by choice of physicians, price, dental coverage, and choice of hospitals.

When Dutch consumers change from one health insurance fund to another, conditions are similar and benefits uniform. They therefore change to a very similar type of health plan. Because of these similarities we would expect the premium to exert an influence on the switching of insurers. The basic benefit package in Dutch social health insurance is uniform, but all funds offer several supplementary voluntarily insurance schemes that can vary. About 95% of the compulsorily insured buy supplementary insurance [37]. Because of the differences between healthcare insurers concerning supplementary benefits we also would expect the supplementary benefits and the supplementary premium to play a role in the considerations of switchers.

The research questions behind the present study are: (a) What are consumer's preferences with regard to different hypothetical health plans (scenarios) with different characteristics? (b) Which of the scenario characteristics are associated with these preferences? (c) What personal characteristics are associated with these preferences? In general we assume that health plans with favorable characteristics are more popular than health plans with less favorable characteristics. The selected characteristics are in four domains: monetary costs, convenience, freedom of choice, and benefits. Based on rational choice we formulated the following hypotheses:

1. Scenarios with low monetary costs (in terms of premium, deductibles and no-claim discount) are more popular than scenarios with higher monetary costs.
2. Scenarios with favorable convenience characteristics (amount of services, no red tape involved, presence of medical help-desk) are more popular than scenarios with less favorable convenience characteristics.
3. Scenarios with freedom of choice (family physicians, hospital) are more popular than scenarios with less freedom of choice.

4. Scenarios with full benefits (dental, physical therapy, prescription drugs, and homeopathy) are more popular than scenarios with fewer benefits.

The mutual relationship between the selected characteristics is explored, but earlier research concluded that when persons in The Netherlands change, they are more guided by the benefits of the supplementary insurance than by the fixed premium [17]. This leads to a further hypothesis:

5. Scenarios with full benefits (dental, physical therapy, prescription drugs, and homeopathy) are more popular than scenarios with low monetary costs, especially for older and less healthy persons.

TABLE 1 PRESENTS THE CHARACTERISTICS IN TERMS OF EXPECTED FAVORABLENESS (1 BEING MOST FAVORABLE, 3 LEAST FAVORABLE).

METHODS

There are several ways to investigate the reasons why persons value particular health plans in relation to health plan characteristics. Buchmueller and Feldstein [4] used a natural experiment for investigating how consumers respond to financial incentives for choosing health plans when the University of California changed their employee's choice of health plans. Premiums for fee-for-service plans increased on average by €0 per month, resulting in a 42% change of health plans. Premiums for plans of various health maintenance organizations increased by €19 per month, resulting in a 22% change for one such plan, and a 67% change for another, indicating that consumers were most sensitive to price when a close substitute for their original plan was available [4]. The advantage of this approach is that persons are studied in making real choices. The disadvantage is that only a small number of competing health plans are involved.

Another general approach is to present respondents, in person or over the telephone, with a list of potential criteria and to ask them to rate the importance of each feature in selecting among alternative health plans [29]. In most studies respondents tend to rate most characteristics as very important, which is an obvious drawback of this approach. Booske et al. [3] asked subjects to enter words or phrases into the computer that described health plan attributes important to them as a first step to determine consumer's preference structures.

A third method is to present a number of hypothetical plan choices (scenarios) and to use conjoint analysis to examine these choices and to infer consumer's preferences from them. For example, Hershey et al. [15] developed scenarios that differed in the levels of deductible amounts, coinsurance rates and limits, maximum out-of-pocket liability and price, followed by conjoint analysis to derive preference curves for each of the features. More recently Chakraborty et al. [5] used conjoint analysis to analyze responses of 562 Maryland state employees. Choice-based conjoint analyses are held to be acceptable to individuals on the basis that they present them with the type of decisions they face on a daily basis [27].

In this study we explore the use of a special form of conjoint analysis to investigate consumer preferences in the Dutch social health insurance system. This special form is known as "discrete choice experiments." Discrete choice experiments are based on the premises that (a) any good or service can be described by its characteristics (or attributes), and (b) the extent to which an individual values a good or service depends upon the nature and levels of these characteristics. The technique involves presenting individuals with choices of scenarios described in terms of characteristics and associated levels. For each choice they are asked to choose their preferred scenario [28].

CHARACTERISTICS AND LEVELS

On the basis of the health care marketing literature and specific circumstances of the Dutch social health insurance system we have included the characteristics of table 1. This table also displays the various level of the characteristics.

SCENARIOS

The total number of scenarios is equal to the number of combinations of the various characteristic levels, which amounts to $311 \times 2 = 2,662$. However, it is not necessary to cover all the combinations in order to perform the analyses. The number of scenarios can be reduced depending on the order of relevant interaction terms between characteristics. We used an alternative to the full factorial design, called an orthogonal array. This orthogonal array is a subset of all of the possible combinations that still allows estimation of the partworths for all main-and first-order interaction effects. Second-order interactions, in which the part-worth for a level of one factor depends on the levels of two other factors, are assumed to be negligible. In the orthogonal array each level of one factor occurs with each level of another factor with equal frequencies (three, in our case), assuring independence of the main effects [28]. An orthogonal array represents the most parsimonious way to estimate all main effects. Although it is true that estimation improves as the number of profiles increases, information is not really lost by omitting some combinations. This is because part-worths (utilities) for each factor level can be used to predict equations for those combinations that subjects did not evaluate. One restriction on the number of profiles is that it must sufficiently exceed the number of factors to allow for error degrees of freedom.

In this study a fractional factorial design was used, calculated by means of the SPSS subroutine Orthoplan. This procedure reduced the number of scenarios to 27 while still allowing preferences to be inferred for all combinations of levels and attributes. A pairwise comparison of 27 scenarios results in $27 \times 26 = 702$ combinations, which is of course far too many for anyone to handle. Therefore every individual made only four pair wise comparisons, while each scenario in a pair was chosen at random from the 27. More than four pair wise comparisons would probably make the choices too repetitive.

STATISTICAL MODEL

To analyze the attributes' utility in relation to the discrete choices a nonlinear additive model was used which assumes that the overall utility derived from any combination of attributes is given by the sum of the separate part-worths of the attributes [28]:

$$\begin{aligned}
 U_i = & \beta_0 + \beta_1 Fpm_10 + \beta_2 Fpm_15 \\
 & + \beta_3 Dpy_0 + \beta_4 Dpy_100 \\
 & + \beta_5 Nocl_10\% + \beta_6 Nocl_5\% \\
 & + \beta_7 Tif_if + \beta_8 Tif_i + \beta_9 Tff_0 \\
 & + \beta_{10} Tff_10 + \beta_{11} Minfo_y \\
 & + \beta_{12} Cfp_fc + \beta_{13} Cfp_50\% \\
 & + \beta_{14} Cho_fc + \beta_{15} Cho_50\% \\
 & + \beta_{16} Dbf_c + \beta_{17} Dbf_p + \beta_{18} Ptbfc_c \\
 & + \beta_{19} Ptbfc_18 + \beta_{20} Bfpd_c \\
 & + \beta_{21} Bfpd_pem + \beta_{22} Bfhp_c \\
 & + \beta_{23} Bfhp_50\% + \varepsilon
 \end{aligned}$$

where: U^i = the utility or preference score for a scenario with a given level of each attribute in terms of the probability; $\beta_0 \dots \beta_{23}$ = part-worths estimated from the regression analyses; Fp m_10, Fp m_15... Bfhp_50% are variables representing levels of characteristics. These are all dummy variables (coded 0/1). Three level characteristics are represented by two dummies (for instance, the fixed premium per month is represented by Fp m_10, €10 per month, and Fpm_15, €15 per month). The third level is the reference category (in this case €20). The term ε represents unobserved errors.

Logistic analysis was used to estimate the above equation, because the dependent variable is binary (1=preferred, 0=not preferred). We started with the full model and then deleted characteristics that did not have a statistically significant relationship to the discrete choices (backward elimination, $P \leq 0.05$). Because the information regarding one characteristic with three levels is contained in two dummy variables, both dummies are presented, when at least one of the dummies is statistically significant at $P \leq 0.05$. In analyzing the association of the scenarios characteristics with the personal characteristics,

interaction variables were tested in another series of logistic analyses with the discrete choice again as dependent variable.

SUBJECTS

A total number of 847 persons of one of the major Dutch health insurance funds were approached with a mailed questionnaire and 361 persons responded (response rate 42.6%). Nonrespondents were contacted three times: the first time with a written questionnaire, the second time with a letter, and the third time again with a questionnaire. In addition to eight scenarios, the questionnaire contained questions about the health insurance fund and about personal and family characteristics. Respondents are on average 2.2 years older than nonrespondents (data not in table). Gender did not differ significantly between both groups.

Table 2 shows the personal (or family) characteristics of respondents. The mean age is 40.6 years. The percentage of males and females is about equivalent. The health status of the vast majority is good (or very good or excellent). The modal form of education is medium level vocational training. Most persons have a partner and children. The modal net family income is €1,501–2,000 per month. The percentage of persons who ever went through a period of chronic illness (or with a chronic condition) is about 54%. For instance, 20.5% experienced a period of depression, 18.8% a period of anxiety, and 10% a persistent neck/shoulder disorder.

[TABLE 2]

RESULTS

A total of 2,888 scenarios were paired and presented to 361 persons. Every person had to evaluate four pairs, although not everyone did so; 11 respondents did not want to choose at all, 4 chose only once, 11 chose twice, 20 respondents chose between three pairs. The vast majority ($n=316$) evaluated four pairs. Twenty-four respondents (6.7%) rated the questionnaire as (very) difficult. On average, each scenario was compared 107 (2,888/27) times with another scenario. The number of comparisons ranged from 95 to 123 times. Scenario 2 is the optimal form of insurance, with the most valuable levels of all characteristics (lowest premium, no deductibles, highest no-claim discount, complete benefits, etc.). Compared to scenario 2, the preferences of other scenarios are nonrational. Scenario 2 is compared 112 times to another scenario. In 101 instances scenario 2 is preferred over other scenarios (101/112=0.902). Eleven times another scenario was preferred over scenario 2. Therefore nonrational choices are 9.8%. Scenario 21 and scenario 5 are the least popular choices. They combine the largest amount of deductibles with limited dental benefits (data not in table).

Which of the scenario characteristics are associated with these preferences? To investigate the relative importance of the various characteristics separately table 1 was constructed. For every characteristic a 2×3 crosstable is made, where the first dimension relates to preferred/ not preferred and the second dimension relates to the levels of each characteristic (the medical help-desk has a 2×2 crosstable because it has only two levels). The statistical significance of the associations is calculated by means of the χ^2 test.

Table 1 shows the preferences of scenarios according to the 12 characteristics and values of characteristics. Scenarios with a fixed premium of €10 are preferred in 52.1% of the choices over other (random) scenarios. Because other scenarios can also have fixed premiums of €10, the comparison is not strictly between €10 scenarios and €15 or €20 scenarios. Compared to €15 or €20 scenarios, €10 scenarios are preferred in 56.1% and 56.9% of the choices (data not in table). Scenarios with €15 or €20 fixed premiums are preferred in 45.2% and 43.0%, respectively, over other scenarios. Thus, more expensive scenarios are obviously less popular, although the difference between €15 and €20 scenarios is rather small.

In 56.1% of the choices scenarios without deductibles are preferred over other (random) scenarios. The €200 deductible scenarios are preferred in only 37.2% of the choices over other scenarios. Accordingly, scenarios with relatively high deductibles are less popular. Deductibles seem to be more important than fixed premiums because the difference between the most attractive value (no deductibles) and the least attractive value (€200) is 18.9% (56.1% minus 37.2%). With fixed

premiums this difference is smaller (9.1%). The percentage of no-claim discount seems to make no difference. Therefore scenarios with low monetary costs are more popular than more expensive scenarios regarding premium and deductibles, but not so regarding no-claim discount (hypothesis 1).

Two of the three characteristics that represent convenience do not matter. Only the amount of red tape involved shows a statistically significant relationship to the preferences. However, scenarios in which it takes 10 min to fill in a form are more popular than scenarios with benefits in kind (no time needed to fill in forms), which clearly contradicts hypothesis 2.

Scenarios with free choice of hospitals are more popular than scenarios with limited choice of hospitals. The differences for the free choice of family physicians are much smaller but in the same direction, confirming hypothesis 3.

Dental benefits seem the most decisive characteristic because the difference between the most attractive value and the least attractive value is greatest. Scenarios with complete dental benefits are preferred in 62.0% of the choices over other scenarios. Scenarios without dental benefits are preferred in only 30.2% of the choices. Decreasing dental benefits entail less popular scenarios. The same is the case for two other kinds of benefits (prescription drugs and homeopathy) but to a far lesser extent. Physical therapy benefits do not show a statistically significant relationship to the preferences, but for the other benefits hypothesis 4 is confirmed.

Logistic regression analysis was performed to investigate the relative importance of the various characteristics together, based on the above equation. The following three characteristics did not show a statistically significant relationship to the discrete choices: no-claim discount, extension of insurance and financial services, and the presence of a medical help-desk.

Table 3 displays logistic regressions coefficients, their associated standard errors, Wald statistics (of each characteristic and of each characteristic value) and their statistical significance. Because the information regarding one characteristic with three levels is contained in two dummy variables, both dummies are presented, when one of the dummies is statistically significant at $P \leq 0.05$. The rightmost column displays odds ratios (ORs). The fixed premium is associated with the preferences of scenarios. The €10 scenarios have an OR of 1.5 compared to €20 scenarios (€20 is the least attractive value of the fixed premium). The €15 scenarios do not differ significantly from €20 scenarios, and these scenarios are therefore approximately equally popular. This is clearly a nonlinear effect. The amount of red tape involved and the benefits for prescription drugs also have nonlinear effects. In fact, the estimates for these characteristics seem to be illogical because scenarios requiring 10 min to fill in forms are (slightly) preferred over scenarios without forms. The difference, however, is only small and not statistically significant. There is one negative estimate associated with copayment for expensive medication compared to copayment of €2 for every receipt. In this case the ordering of the levels is not a priori clear, while some persons might prefer a certain loss of €2 for each receipt to the uncertain loss of an unspecified amount of copayment for expensive medicines. The rest of the characteristics showed linear effects (as can be observed by the estimates B). The OR of scenarios without deductibles is about 2.4 compared to €200 scenarios. The OR of €100 scenarios is 1.5 compared to €200 scenarios. The highest OR (4.3) is found with complete dental benefits compared to scenarios without dental benefits. Obviously levels with large ORs are more important than levels with ORs near 1.

[TABLE 3]

The third research question is about the association of personal characteristics and the scenario characteristics, analyzed by means of logistic regression models with interaction terms of every personal characteristic and (one by one) every scenario characteristic (data not in table). Age and illness are not associated with any of the scenario characteristics, but health status is associated with fixed premiums and benefits for prescription drugs. Persons with relatively poor or fair (subjective) health do not differentiate between €15 and €20 scenarios while they prefer scenarios with copayment of expensive medication above scenarios with copayment for every receipt, compared to persons with relatively good health (but scenarios with complete benefits for prescription medication are still most popular). Thus, hypothesis 5 is partly confirmed.

Gender has an association only with deductibles. The €100 scenarios are a little more popular among women than men. No-deductible scenarios and €200 scenarios are equally popular for women and men. Less well-educated persons differentiate somewhat less between fixed premiums and prefer complete dental benefits more often than higher educated persons. Families with children more often prefer scenarios with complete benefits for prescription medication than families without children. Single-parent families prefer complete benefits for physical therapy more often than others. Low-income persons are relatively more opposed to scenarios with copayment for expensive medication. All in all eight associations between nine scenario characteristics and seven personal characteristics were statistically significant, out of a total of 63 (9×7) possible associations.

CONCLUSION AND DISCUSSION

This study examined preferences of persons with social health insurance for 27 different hypothetical insurance schemes (scenarios) that differed across 12 characteristics. Respondents made discrete choices regarding four random pairs of scenarios. Response data are modeled within benefit (or satisfaction) functions that provide information on whether the given characteristics are important; the relative importance of characteristics and the rate at which individuals are willing to trade between characteristics. This method is in accordance with real life situations in which persons must choose among different health insurance plans. For most respondents this task was not difficult. Only 11 persons (out of 361) did not want to make any choice at all. The set of characteristics appears to be rather large (and therefore complex). However, in choosing health plans this set is realistic because health plans are characterized by a large set of attributes. Thus the large set of attributes may contribute to the validity of choices. Furthermore, such a large set of attributes is not without exception in the health care literature [4].

Apart from the medical help-desk, every characteristic had three different values. For instance, the value of fixed premiums was €10, €15, or €20 per month. These were realistic amounts at the time of data collection (2002). The scenario with the most attractive values was preferred in 90% over other scenarios, indicating a predominantly rational kind of choice. The most decisive characteristic was dental benefits, followed by deductibles, choice of hospitals, benefits for homeopathy, fixed nominal premium, benefits for prescription medication, benefits for physical therapy, red tape involved, and choice of family physicians. Three characteristics did not show any association with the preferences: noclaim discount, the extension of insurance and financial services, and the availability of a medical help-desk. The general conclusion is that persons choices are guided mostly by benefits. Deductibles are not popular, and the fixed premium is not one of the most important characteristics. This result is in line with earlier research among a group of persons who had actually changed from one insurance company to another. If persons switch, they are more guided by the benefits of the supplementary insurance than by the fixed premium [17].

The last part of this study focused on the relationship between preferences and personal characteristics. These correlations were statistically nonsignificant or of only limited strength and did not give a very clear picture. Therefore we found only little evidence that different categories of persons have different kinds of preferences. This is not due to a lack of statistical power because there is sufficient power to detect an odds ratio of about 1.22 (or a change in preference, for instance, from 0.30 to 0.35). We started the logistic regression analyses in a random effects model (with the statistical package MLWin) to account for the fact the choices are hierarchically nested under respondents. We calculated the random error across respondents as well as across answers from the same respondent. However, we have found no effect of the random error across respondents.

Why are the benefits more important than the fixed premium? Most of the benefits in social health insurance are uniform and do not differentiate between insurance companies. In the past decade, however, some benefits have been deleted from the social health insurance scheme (for instance, dental benefits – except for preventive services – and some physical therapy). As a reaction to this, insurance companies increased their supplementary health insurance plans. Most insurance companies now have three or four different supplementary packages, including dental benefits, and physical therapy benefits. Differences in fixed premiums increased only gradually in the years before 2003. Thus in recent years the focus was more on differences in supplementary benefits than on differences

in the fixed premium (almost all of the social health insurance population has supplementary insurance plans).

Why is the free choice of hospitals more important than the free choice of family physicians? In The Netherlands family physicians practice in small primary care practices. Most family physicians work singly or in partnership. Persons choose a nearby family physician only a few times in their lifetime and do not change very often. Furthermore, a patient is registered with a primary care practice, but not with a hospital. On referral by a family physician most patients choose a hospital nearby, but often there is a choice of hospitals. Thus for every serious health problem patients can choose between hospitals or medical specialists. Because there are long waiting lists for certain health problems nowadays, people choose a more remote hospital with shorter waiting lists. Most insurance companies are willing to mediate to gain someone admission to a hospital with shorter waiting lists. Therefore the choice of hospital is more often important than the choice of family physician.

An alternative explanation is perhaps the difference in the phrasing of the least valuable answering categories. For the choice of family physicians this was “20% of physicians nearby,” leaving choice, albeit limited; for the choice of hospitals this was “one hospital nearby,” leaving no choice at all. These categories were deliberately different because “one physician nearby” is almost never a valid option in our country, and “20% of the hospitals nearby” is almost always less than one. However, these differences in phrasing can of course influence the results about the relative importance of these two characteristics.

In contrast to private health insurance, there are no deductibles in social health insurance. The Dutch government is currently making plans to change the health insurance system, and one of the changes is the introduction of deductibles. How does this relate to our results? A scenario without deductibles is of course more popular than one with deductibles, all other things being equal. But an insurance plan without deductibles most often has a higher premium. We have found an odds ratio of about 1.5 for a €100 yearly deductible scenario compared to a €200 scenario. This odds ratio is almost equal to that of the difference between a €10 monthly premium compared to that of a €20 scenario. A health plan with a €10 monthly premium and a €100 yearly deductible costs at most €220 per year. This is always less than a €20 premium health plan without deductibles, which amounts to €240 per year. Although the difference of €20 per year is only modest, as persons seem willing to accept deductibles for premium reduction. It is remarkable that persons do not prefer €15 premium scenarios to €20 premium scenarios. Apparently the fixed premium is not linearly associated with preferences, which makes it difficult to compare additional benefits with a willingness to pay additional premium. Therefore we cannot conclude on the basis of the ORs of the dental benefits that persons are willing to pay €15 or €20 per month for dental services (in 2002 the average premium for supplementary dental benefits was about €7 – ranging from €3 to €20, depending on the benefits package).

The respondents were drawn randomly from the list of one of the 24 Dutch health insurance funds, and the response rate was only 42.6%. To what extent can the results be generalized? In earlier research we found that the response rate among persons who had recently switched from our healthcare insurer to another was higher (63.4%) than among those who had not (47.2%) [17]. This seems to indicate that persons who are not actively involved in changing their healthcare insurer bother little about health insurance issues and are not eager to respond to a questionnaire about health insurance.

Our respondents are from only a single health insurance fund, but there is no reason to believe that the mix of their insured population differs from that of other insurance funds. On the contrary, Kerssens et al. [18] concluded that the Dutch population is rather homogeneous regarding their satisfaction with insurance funds and opinions about the premium. Furthermore the Dutch population does not perceive many differences between healthcare insurers.

This study has some limitations. Firstly, the selected characteristics are all in the rational domain of the process of choice. However, nonrational arguments are important as well. For example, the image of the health insurance company or the fact that persons are familiar with the healthcare insurer. Our earlier research found that the most frequently cited reason for choosing a health insurance company in early adulthood is a recommendation from friends and relatives [18]. Secondly, in The Netherlands there is a clear distinction between social and private health insurance. For instance, in private health insurance deductibles are nearly always part of the insurance plan. Because our respondents are not familiar with deductibles, their reaction to deductibles may be adverse. It would be interesting to

expand the method of discrete choice experiments into the private health insurance market to determine differences and similarities with the social health insurance system.

AIMS & SCOPES

The European Journal of Health Economics is a journal of Health Economics and associated disciplines. The growing demand for health economics and the introduction of new guidelines in various European countries were the motivation to generate a highly scientific and at the same time practice oriented journal considering the requirements of various health care systems in Europe.

The international scientific board of opinion leaders guarantees high-quality, peerreviewed publications as well as articles for pragmatic approaches in the field of health economics.

We intend to cover all aspects of health economics:

- Basics of health economic approachesand methods
- Pharmacoeconomics
- Health Care Systems
- Pricing and Reimbursement Systems
- Quality-of Life-Studies

The European Journal of Health Econmics, which is mainly devoted to original papers and review articles, also includes invited papers as well as editorials and guest editorials on current, controversial topics (see above). The internet-based discussion forum (<http://link.springer.de/service/link/service/journals/hepac/forum/>) provides the possibility for a rapid exchange of comments and information concerning previously published papers and topics of current interest.

The editors reserve the right to reject manuscripts that do not comply with the above-mentioned requirements. The authors will be held responsible for false statements or for failure to fulfill the above-mentioned requirements.

CORRESPONDING AUTHOR

Jan J. Kerssens

Netherlands Institute for Health Services Research NIVEL, P.O. Box 1568,
3500 BN Utrecht, The Netherlands e-mail: j.kerssens@nivel.nl

ACKNOWLEDGEMENT

This study was supported financially by the organization of VGZ-zorgverzekeraar (VGZ healthcare insurers).

TABLES

Table 1

Percentage of scenarios that is preferred over other scenarios according to characteristics and levels of characteristics				
	Label	Code	Level	% preferred over other scenarios
Fixed premium per month***	Fpm	1	€ 10 per person	52.1
		2	€ 15 per person	45.2
		3	€ 20 per person	43.0
Deductibles per year***	Dpy	1	None	56.1
		2	€ 100 per policy	46.9
		3	€ 200 per policy	37.2
No-claim discount (n.s.)	Nocl	1	10% discount	46.3
		2	5% discount	46.9
		3	None	47.1
Extension of services (n.s.)	Tif	1	Insurance and financial services	44.7
		2	All kind of insurances	49.2
		3	Health insurance only	46.3
Amount of red tape*	Tff	1	None	47.4
		2	10 min per form	49.3
		3	20 min per form	43.6
Medical help-desk (n.s.)	Minfo	1	Yes	46.5
		2	No	47.2
Choice of family physicians (n.s.)	Cfp	1	Free choice	48.3
		2	50% of physicians nearby	47.5
		3	20% of physicians nearby	44.5
Choice of hospitals***	Cho	1	All hospitals	53.6
		2	Half of hospitals nearby	48.0
		3	One hospital nearby	38.5
Dental benefits***	Dbf	1	Complete (incl. caps, etc.)	62.0
		2	Preventive services only	47.9
		3	None	30.2
Physical therapy benefits (n.s.)	Ptbf	1	Complete	48.8
		2	Maximum 18 sessions per year	46.7
		3	Maximum 9 sessions per year	44.7
Benefits for prescription drugs*	Bfpd	1	Complete	50.6
		2	Copayment for expensive medication	45.0
		3	Copayment € 2 per receipt	44.5
Benefits for homeopathy**	Bfhm	1	Complete	50.8
		2	Copayment 50%	47.1
		3	None	42.2

*** $P \leq 0.001$, ** $P \leq 0.01$, * $P \leq 0.05$ (χ^2 test)

Table 2

Subjects' personal characteristics	
Age (years)	40.6±9.6
Gender: M/F (%)	49.6/50.4
Health status (%)	
• Excellent, (very) good	84.6
• Fair, poor	15.4
Education (%)	
• Low vocational training	25.8
• Secondary education	14.9
• Secondary education (high)	10.6
• Medium vocational training	27.8
• High vocational training, university	20.9
Family situation (%)	
• Partners without children	14.9
• Partners with children	69.1
• Single parent family	14.0
• Other	2.0
Net family income (%)	
• ≤€ 1,000	11.8
• € 1,001–€ 1,500	23.3
• € 1,501–€ 2,000	24.5
• € 2,001–€ 2,500	17.6
• € 2,501–€ 3,000	13.3
• € 3,001–€ 3,500	4.5
• >€ 3,500	4.8
Illness	
• None (%)	45.7
• One or more (%)	54.3

Table 3

Results of logistic analysis of nine characteristics with the probability of preferring scenarios						
	β	S.E.	Wald	df	P	Odds ratio
Fixed premium per month						
• € 10	0.413	0.101	16.793	1	0.000	1.511
• € 15	0.075	0.097	0.603	1	0.437	1.078
Deductibles per year						
• None	0.867	0.099	76.188	1	0.000	2.379
• € 100	0.403	0.099	16.517	1	0.000	1.496
Amount of red tape						
• None	0.251	0.100	6.329	1	0.012	1.285
• 10 min	0.296	0.099	9.004	1	0.003	1.344
Choice of family physicians						
• All	0.214	0.100	4.636	1	0.031	1.239
• One-hHalf	0.124	0.098	1.612	1	0.204	1.132
Choice of hospitals						
• All	0.680	0.101	45.527	1	0.000	1.973
• One-half	0.430	0.097	19.491	1	0.000	1.538
Dental benefits						
• Complete	1.474	0.103	203.845	1	0.000	4.366
• Preventive services only	0.788	0.099	63.953	1	0.000	2.199
Physical therapy benefits						
• Complete	0.268	0.103	6.808	1	0.009	1.307
• Maximum of 18 sessions	0.165	0.098	2.818	1	0.093	1.179
Benefits for prescription drugs						
• Complete	0.334	0.098	11.588	1	0.001	1.397
• Copayment for expensive medication	-0.010	0.098	0.011	1	0.917	0.990
Benefits for homeopathy						
• Complete	0.454	0.101	2.235	1	0.000	1.574
• Copayment 50%	0.215	0.098	4.831	1	0.028	1.240
Constant	-2.613	0.192				

Reference category for each characteristic is in Table 2 (coded 3)

REFERENCES

1. Altenstetter C, Bjorkman JW (1997) Health policy reform, national variations and globalization. London: MacMillan
2. Barringer MW, Mitchell OS (1994) Workers' preferences among provided health insurance plans. *Ind Labor Relations Rev* 48:141-152
3. Booske BC, Sainfort F, Schoofs Hundt A (1999) Eliciting consumer preferences for health plans. *Health Serv Res* 34:839-854
4. Buchmueller TC, Feldstein PJ (1996) Consumer's sensitivity to health plan premiums: evidence from a natural experiment in California. *Health Aff (Millwood)* 15:143-151
5. Chakraborty G, Ettenson R, Gaeth G (1994) How consumers choose health insurance. *J Health Care Mark* 14:21-33
6. Colombo F (2001) Towards more choice in social protection? Individual choice of insurer in basic mandatory health insurance in Switzerland. *Labour market and social policy occasional papers no. 53*, Paris: OECD
7. Cunningham PJ, Kohn L (2000) Health plan switching: choice or circumstance? *Health Aff (Millwood)* 19:158-164
8. Cunningham PJ, Denk C, Sinclair M (2001) Do consumers know how their health plan works? *Health Aff (Millwood)* 20:159-166
9. Cutler DM, Reber SJ (1998) Paying for health insurance: the trade-off between competition and adverse selection. *Q J Econ* 113:433-466
10. Dowd B, Feldman R (1994) Premium elasticities of health plan choice. *Inquiry* 31:438-444
11. Enthoven AC (1993) The history and principles of managed competition. *Health Aff (Millwood)* 12 [Suppl]:24-48

12. Feldman R, Finch M, Dowd B, Cassou S (1989) The demand for employment based health insurance plans. *J Human Res* 24:115–142
13. Gibbs DA, Sangl JA, Burrus B (1996) Consumer perspectives on information needs for health plan choice. *Health Care Financ Rev* 18:55–73
14. Gress S, Groenewegen P, Kerssens J, Braun B, Wasem J (2002) Free choice of sickness funds in regulated competition: evidence from Germany and The Netherlands. *Health Policy* 60:235–254
15. Hershey JC, Kunreuther H, Schwartz JS, Williams SV (1984) Health insurance under competition: would people choose what is expected? *Inquiry* 21:349– 360
16. Hibbard JH, Jewett JJ (1997) Will quality report cards help consumers? *Health Aff (Millwood)* 16:218–228
17. Kerssens JJ, Groenewegen PP (2003) Consumer choice of social health insurance in managed competition. *Health Expect* 312–322
18. Kerssens JJ, Delnoij DMJ, Verweij JA, Schee E van der (2002) De keuze van ziekenfondsverzekerden voor een zorgverzekeraar (consumer preferences for particular social health insurers). *Tijdschr Soc Gezondheidszorg* 80:35–42
19. Lamers LM, Vliet RCJA van, Ven WPM van de (2003) Risk adjustment premium subsidies and risk sharing: key elements of the competitive sickness fund market in the Netherlands. *Health Policy* 65:49–62
20. Lieverdink H (2000) The marginal success of regulated competition policy in The Netherlands. *Soc Sci Med* 52:1183–1194
21. Light DW (2001) Comparative institutional response to economic policy managed competition and governmentality. *Soc Sci Med* 52:1151–1166
22. Long SH, Settle RF, Wrightson CW (1988) Employee premiums, availability of alternative plans, and HMO disenrollment. *Med Care* 26:927–938
23. McGuire TG (1981) Price and membership in a prepaid group medical practice. *Med Care* 19:172– 183
24. Robinson S, Brodie M (1997) Understanding the quality challenge for health consumers: the Kaiser/ AHCPR Survey. *J Qual Improv* 23:239–244
25. Royalty AB, Solomon N (1999) Health plan choice. Price elasticities in a managed competition setting. *J Human Res* 34:1–41
26. Rutten F, Buschbach J van (2001) How to define a basic package of health services for a tax funded or social insurance based health care system? *Eur J Health Econ* 2:45–46
27. Ryan M, Bate A, Eastmond CJ, Ludbrook A (2001) Use of discrete choice experiments to elicit preferences. *Qual Health Care* 10 [Suppl 1]:i55–i60
28. Ryan M, McIntosh E, Shackley P (1998) Using conjoint analyses to elicit the views of health service users: an application to the patient card. *Health Expect* 1:117–129
29. Scammon DL (1989) Self-funded health benefits plans: marketing implications for PPOs and employers. *J Health Care Mark* 9:5–14
30. Scanlon DP, Chernew M, Lave JR (1997) Consumer health plan choice: current knowledge and future directions. *Annu Rev Public Health* 507–28
31. Schut FT (1996) Health care systems in transition: The Netherlands. I. Health care reforms in The Netherlands: miracle or mirage? *J Pub Health Med* 18:278–284
32. Schut FT, Doorslaer EKA van (1999) Towards a reinforced agency role of health insurers in Belgium and the Netherlands. *Health Policy* 48:47–67
33. Schut FT, Hassink WHJ (2002) Managed competition and consumer price sensitivity in social health insurance. *J Health Econ* 21:1009–1029
34. Short PF, Taylor AK (1989) Premiums, benefits, and employee choice of health insurance options. *J Health Econ* 8:293–311
35. Smith HL, Rogers RD (1986) Factors influencing consumers' selection of health insurance carriers. *J Health Care Mark* 6:6–14
36. Ven WPPM van de (2001) Risk selection on the sickness fund market. *Eur J Health Econ* 2:91–95
37. ZFR/CTU (1999) Onderzoek effecten aanvullende verzekering (investigation of the effects of supplementary insurance). Amstelveen: ZFR/CTU