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# VOLUNTARY SUPPLEMENTARY HEALTH INSURANCE IN DENMARK

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## Abstract

*About 40% of the Danish adult population carry some kind of voluntary health insurance, far more than in the other Scandinavian countries. This somewhat paradoxical situation in a tax financed system with large free and equal access is analysed, both from the demand and the supply side. Based on a representative year 2000 survey the determinants of insurance coverage and the effects on utilization of holding VHI is analysed statistically. There are few statistically significant gradients distinguishing insured from non-insured. The theoretically expected effects of insurance are observed. On the supply side the widespread VHI, in particular those covering elective surgery, have not been sufficient to develop a sustainable and significant private for-profit hospital sector.*

## Introduction

Denmark is unusual by at one and the same time having a largely tax financed health care sector and by having an unusually high rate of private voluntary health insurance, VHI. Almost 40% of the population carry some kind of VHI. The following paragraphs briefly provide the setting for this unusual situation.

Health care in Denmark is tax financed. Proportional county taxes and progressive central government taxes cover about 80% of all health care expenditures. The remaining approximately 20% is co-payment, mainly in connection with adult dental care, drugs and physiotherapy. Co-payment as a share of total health expenditures has increased from about 15% in the early 80's to today's level.

Hospitals are publicly owned and operated. Health care at public hospitals is free. For hospital care co-payment is not allowed by law. The first

private for-profit hospital was established in 1989. Today there are several. The largest has about 50 beds. Private for-profit beds account for about three quarter of a percent of all hospital beds. None of them are acute hospitals or provide psychiatric treatment. All of them focus on elective surgery along with certain areas within non-acute internal medicine, e.g. health check ups.

As in most tax financed health care systems waiting time for surgery is a problem and has attracted much political attention. Considerable extra funding has been provided to alleviate the problem. It was a hot issue during the general election in the autumn of 2001. The current centre-right government introduced two measures: 1. extra funds that were only released on a DRG base after certain threshold production levels were reached to make sure that the additional funds also led to an increased number of operations, and 2. a 'waiting time guarantee'. After waiting for treatment for two months citizens have the right to go a private hospital or go abroad. The public coffers pay the Danish DRG rate for the surgery in question, i.e. treatment is still free to the patient, apart from travel costs.

General practice is privately owned and run, based on a comprehensive contract with the counties. Roughly 98% of all revenues in general practice come from this contract. Treatment by general practitioners is free at the point of consumption.

The co-payment scheme for prescription drugs mean that about 50% of all prescription drug expenditures are paid privately. The philosophy of the scheme is to reduce co-payment with increasing drug expenditures, i.e. the first app. £60 of prescription drugs expenditures are paid fully by the patients/consumers and above this expenditure level co-payment is gradually reduced and after about £ 2,100 it is 100% subsidized, (Pedersen, 2003.).

While child dental care is free until the age of 18, adult dental care is characterized by high co-payment. Roughly 80% of the total expenditure for all kinds of adult dental care are paid by the consumers. This share has increased from about 45% in the early 80's.

The objective of this article is to provide an overview of private voluntary health insurance in Denmark, the effects of the existence of such extensive coverage, and the determinants of demand along with a profile of the holders of VHI with a view to possible social gradients. A brief description of the situation in the other Scandinavian countries is also given.

### **Private health insurance in Denmark**

Voluntary supplementary health insurance (1), VHI, is not widespread in three of the four Scandinavian countries. The exception is Denmark, but VHI is beginning to gain a foothold in the other countries.

Today almost 34 % of all Danes, equal to 1.8 million (2) are members of 'denmark', a non-profit mutual health insurance that grew out of the sickness fund system (sick-benefit association/*krankenkassen*) that was abolished in 1973. Membership in 1973 was about 270,000. By 1990 the number had reached about 1 million and at the end of 2003 more than 1.8 million Danes had joined.

The principles behind membership and premium payment in 'denmark' resemble some of the thinking behind the sickness funds, i.e. considerable solidarity among members. To join 'denmark' a person must not suffer from chronic diseases, e.g. diabetes, asthma or hypertension, and should be below 60 years of age, i.e. conforming to standard health and age requirements for taking out health insurance. However, once having joined members can stay on for unchanged premium even if they acquire a chronic disease, and they retain membership as long as they pay their premiums, i.e. no 'dumping' of older members or when reaching pension age as in most of the commercial insurances. Members decide on which one of basically three groups they want to join. The premium in each group is the same for everybody. The groups differ by benefits provided, i.e. which services are reimbursed. The annual premium of the two most expensive groups is around 2,500 D.kr. (about £ 250). Having joined one of the groups, members are unconditionally free to change group at any time.

Until 1990 the insurance in essence was a 'co-payment insurance' (3) in the sense that the insurance covered part, but never all, of the co-payment for adult dental services, drugs, physiotherapy etc. In practice the reimbursement policy of 'denmark' is decided by the public co-payment

policy. If co-payment is introduced, most recently for hearing aids, 'denmark' almost immediately introduce (partial) reimbursement of the co-payment carried by members. There is no doubt that the growth in membership is parallel with and largely driven by the increased co-payment in Denmark.

When the first for-profit private hospital was established in 1989/90 'denmark' extended coverage to elective surgery for two of the membership groups, comprising about 450,000 of the total membership of 1.8 million in 2003. In addition a third group can join for a modest increase in the premium, about £ 40 a year. About 75,000 have chosen this option, meaning that more than 500,000 Danes (about 10 % of the population) for a fairly modest co-payment, about 15 % of the price of for instance a hip replacement, can choose elective surgery at private hospitals or clinics.

The pay-out to members of 'denmark' amounts to about 2 % (1.6 billion Dkr) of the total Danish health expenditures. However, as a percentage of expenditures for adult dental care and drugs, which is the more relevant comparison, it amounts to a much higher percentage. For dental care the pay-out is equal to about 50 % (600 millions Dkr (4)) of public expenditures for dental care, and about 14 % (about 600 million DKr) of public expenditures for prescription drugs. In other words for these two items 'denmark' provides substantial financing.

Turning to commercially based health insurance it should be noted that it has gained a stronger position in Denmark over the past 5 years, but is still small compared to 'denmark'. It is estimated that around 250-300,000 Danes now hold an insurance for (essentially only) elective surgery. However, in contrast to 'denmark' where the insurance premium is always paid by the individual, this type of insurance is usually paid for by the employer and stops when the insured leaves the work force or moves to a company not providing this kind of fringe benefit.

In total, and discounting double membership, about 2 million Danes, almost 40 % of the population, carry a voluntary supplementary health insurance, and about 20 % have an insurance that allows them to 'jump' waiting lists for elective surgery at public hospitals.

It should be noted that no health insurance – commercial or non-profit – is offered for acute care. Hence, the type of health insurance discussed here

only covers about 15 % of all hospital based treatment.

When the present centre-right government came into power, it was the declared intention to change the tax rules for commercial health insurance. In accordance with normal Danish tax policy for fringe benefits, premiums had been tax deductible for the companies, hence reducing company taxation, but the premium was taxable income for the insurance holders (the employees). The change meant that, provided all employees in a company are covered by health insurance, the premium is tax free for the insurance holder (the employee). This is an indirect tax subsidy worth about 80-100 million D.kr (£ 8 – 10 million). It is a clear example of political support for a move to more supplementary coverage (5). The idea is not to substitute tax financed healthcare, but to supplement and to provide more free choice.

### **The other Scandinavian countries**

Turning to the other Scandinavian countries it should be noted that there is no 'old' tradition like the non-profit mutual 'denmark'. Hence, all supplementary health insurance is offered by commercial companies.

Only within the past 2-4 years have supplementary health insurance grown in Norway and Sweden. Prior to the late 1990s, it was largely non-existent. Compared to Denmark the numbers therefore are small (6). It is estimated that about 120,000 Swedes in 2003 now carry supplementary health insurance, (anonym, 2003.), largely allowing them to jump the waiting list for elective surgery. As a percentage of the population it is a miniscule percentage, 1.3 %. In about 90 % of the cases – compared to almost 100 % in Denmark for commercial insurance– the employer pays the fees. It is usually justified, like in Denmark, by the idea that it will reduce long-term sickness absence because of the possibility to jump the waiting list.

In Norway it is estimated that about 30-40,000 have supplementary health insurance, (Methi, 2003; Olsen, 2003.), allowing them, as in Sweden, to jump the waiting list by obtaining treatment from a private provider paid by the insurance. As percentage of the population it is only 0.6%. However, the Norwegian government in 2003 introduced the same tax rules as in Denmark, hence providing a tax subsidy. The two references used here are 10 months apart, and allowing for uncertainty, it seems that this legislative change –

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along with other things – has increased demand, increasing the number of persons by 10,000 from October 2002 to July 2003.

In Finland the only data is from a 1996 national survey showed that 12 % of the population has some type of health insurance. Most of this, however, is insurance cover for child healthcare and often taken out by citizens of the larger cities where there are many private physicians, (Øvretveit, 2002.). In terms of coverage (percent in group covered) the numbers are: children aged <7: 34.8 %, children aged 7-17: 25.7 %, and adults: 6.7 %, (Mossialos and Thomson, 2002b.), table 5. Other data shows that health insurance is 2 % of total healthcare financing in 1997.

Thus, voluntary health insurance plays only a minor role in Scandinavia, even in Denmark, despite the large number of people covered. As long as publicly owned and managed hospitals are not allowed to take in private and paying patients (like the private wing concept in England) the importance of VHI lies in (potentially) providing a customer patient base for a private (hospital) sector. It also allows for citizens to partially opt out, at least as regards elective surgery, but still be a taxpayer and hence contribute to the public healthcare system. The term ‘the solidaric individualist’ is often used to describe persons who pay their taxes and take out voluntary health insurance.

### **Possible effects**

Two main effects can be distinguished: demand and supply effects. On the demand side VHI is equal to lower prices for the services covered by the insurance and a small income effect (i.e. the premium paid, at least for members of ‘denmark’). Hence, the prediction from standard economic theory is quite clear: consumption is higher for insured than non-insured, *ceteris paribus*, e.g. for the same income levels.

In an equity-concerned country like Denmark another, and maybe even more important question, is whether or not there are clear social gradients for the holding of insurance, and hence the consumption of health care services with co-payment. The common assumption is that it is the case, in particular as regards income level.

One might think that with about 750,000 holders (15% of the total population) of elective surgery insurance there should by now be a solid

business base for private hospitals and clinics offering such surgery. As will become clear in the section on provision, this is hardly the case. One reason being, that the prevalence/incidence of, for instance, cataract or hip and knee-joint replacement is heavily skewed towards the elderly, i.e. 60+ years old. However, at that age they leave the labour market – and most of the commercial insurances only cover working life, the paradox is that people do not have insurance when they most need it.

Critics of this development fear – in the long run – that a two tier health care system will emerge. A largely VHI financed private sector for more privileged social groups and a possibly underfunded public sector for the rest. In view of the extent of VHI this debate and fear seem to be overblown, and it is premature to cry wolf. In many respects this development is unlikely unless supplementary health insurance gradually turn into a substitute for tax financing. At present this is not a probable scenario. However, there is no doubt that catering to individual wishes and relying on their willingness to pay not only their taxes but also supplementary insurance will gradually create a more individualized and diverse healthcare sector.

### **Danish survey results for VHI**

In 2000/2001 a representative postal survey was carried out among non-institutionalized Danes more than 17 years old. The response rate was 67%, resulting in N=3331. The main objective of the survey was to collect material for estimating quality weights for EuroQol for use in the cost-utility analyses, (Pedersen, Wittrup-Jensen, Brooks, and Gudex, 2003.). However, data on health service utilization and health insurance coverage was also collected. Standard demographic information, e.g. age, sex, education, and vocation was of course included. The following is based on data from this survey.

### **Descriptive results**

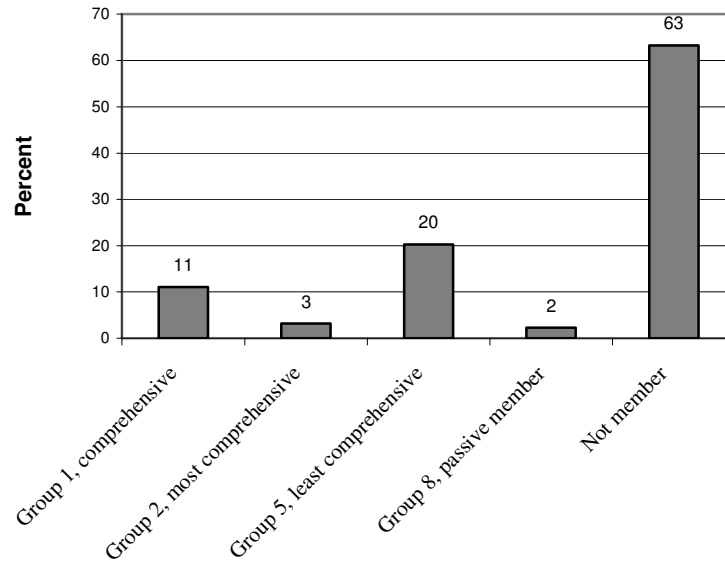
Figure 1 shows that 35% of the representative sample was members of ‘denmark’.

Most ‘denmark’ members have chosen group 5 membership, the group with the least generous benefit package, e.g. usually without coverage for elective surgery as is the case for group 1 and 2 and lower coverage of co-

payment for adult dental care and prescription drugs. However, the annual premium is also about 50% lower than for group 2, amounting to about £ 100 per year (Dkr. 1,016). Group 8 is a fairly new phenomenon, costing only about £ 36 per year. It is aimed at young people who join in good health not needing most of the benefits covered 'denmark' at the time of joining, but who want the right to move into one of the other groups if needed at a later age, waving the health status requirements usually needed to join as a new member of for instance group 1 or 5.



**Figure 1: Membership and membership groups of 'denmark', 2000/2001, N=3221**



**Table 1: Membership of 'denmark' and carrier of commercial VHI**

|                                   |             | Membership of 'denmark' |       |                |
|-----------------------------------|-------------|-------------------------|-------|----------------|
|                                   |             | No                      | Yes   | Total,<br>%, n |
| Commercial<br>health<br>insurance | No          | 85.1                    | 86.9  | 85.7           |
|                                   | Yes         | 15,0                    | 13.2  | 14.3           |
|                                   | Total,<br>n | 2,107                   | 1,148 | 3,255          |
|                                   | Total,<br>% | 64,7                    | 35.3  | 100            |

Table 1 shows the degree of joint membership of 'denmark' and commercial insurance. The membership of 'denmark' corresponds to available national figures. However, the number of respondents claiming to

carry a health insurance in a commercial company is undoubtedly too high, namely 15%. Based on national estimates 2000/2001 one would have expected about 6%. However, despite a fairly clear question respondents in some cases may have included accident and disability insurance in their answer. The table shows double coverage, i.e. both member of 'denmark' and carrier of commercial insurance. About one third of the commercially insured also are members of 'denmark'. This is not illogical because commercial insurance as a general rule is paid by the employer, probably regardless of membership of 'denmark', whereas 'denmark' is paid by each individual member.

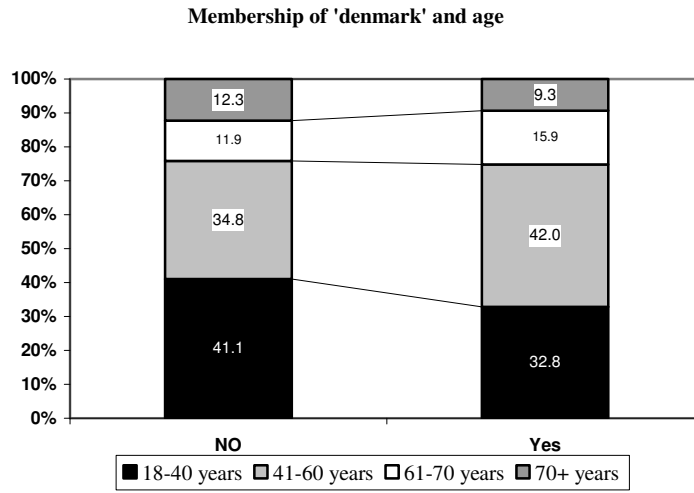
In figures 2 to 5 members and non-members of 'denmark' are systematically compared.

Figure 2 shows the age distribution. There is a fairly clear (and significant) pattern, namely that the young and the old age groups are under-represented as members of 'denmark' while the middle aged group is over-represented. Note however, that the difference between the insured and non-insured among the 70+ years is not very high. There is only a three percentage point difference between the insured and non-insured, undoubtedly due to the fact that once a member of 'denmark' one can remain so regardless of age and subsequent health status.

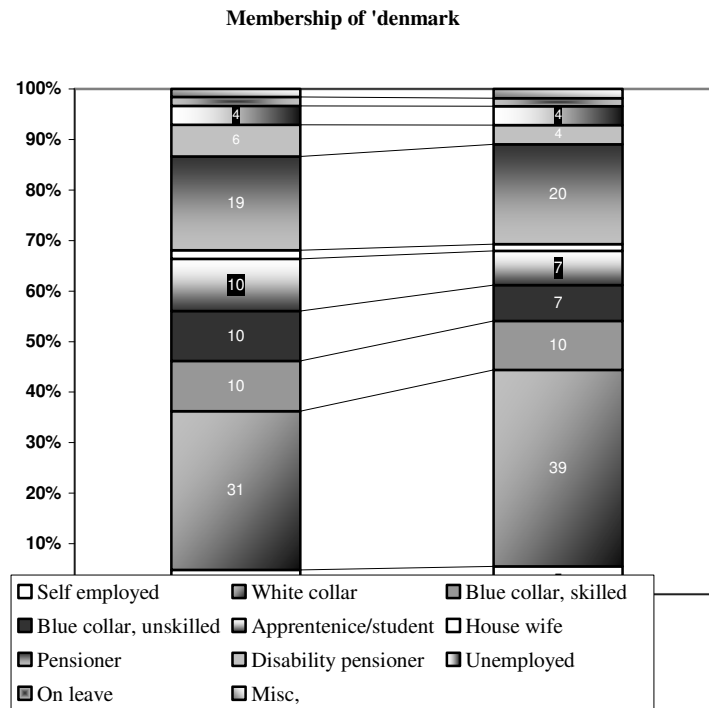
Figure 3 shows vocational position. It is clear that white collar employees have considerable higher probability to be members than the rest of the population, and non-skilled workers have a lower probability. Undoubtedly for age and health status reasons students and apprentices are less likely to be members.

It is usually assumed that there are differences in health status among insured and non-insured due to health requirements for joining. However, due to the nature of 'denmark' there are not very many health requirements for members of 'denmark', and many commercial insurers waive health requirements for employees of large companies, so-called community rating. Due to the nature of the survey used there are unusually good measurements of health status and on these general measures there are not significant differences, (t-test, unequal variance), figure 4.

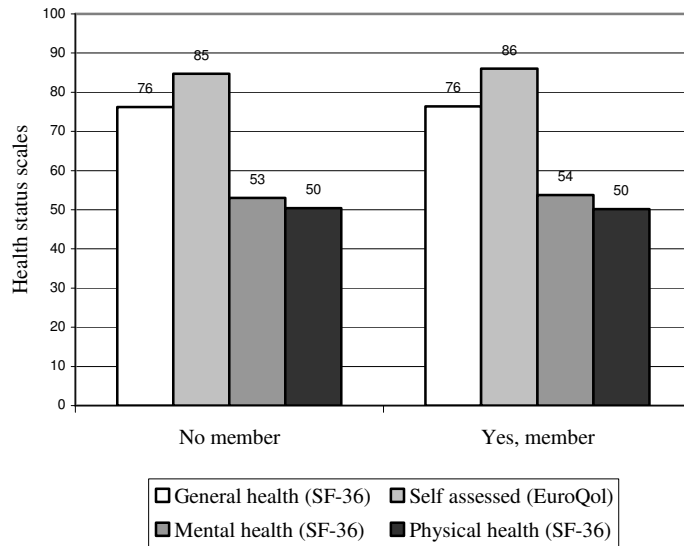
**Figure 2: Age distribution of members and non-members of 'denmark', N=3255**



**Figure 3: Vocational status of members and non-members of 'denmark', N=3255**



**Figure 4: Health status among members and non-members of ‘denmark’, adjusted for age and sex differences, N=from about 1,500 to 3,077, still representative sample**



Economic theory predicts that insured are likely to demand more health services, because the price (co-payment minus reimbursement from ‘denmark’) is lower than for non-insured. This is illustrated by figure 5 where utilization of services with co-payment (adult dental services, chiropractor and physiotherapy) clearly is different from no-co-payment services like consultation with GP, adjusted for age and sex composition of insured and non-insured. The differences are significant (t-test, unequal variance).

### **Regression results**

The above results are fairly simple bivariate results, some with adjustment for age and sex differences. Regressions analysis can control for more variables than is possible in the tables underlying figures 2-5.

There are two sets of results that are of interest. First, the determinants of membership of 'denmark', table 2. Secondly, to what extent service utilization among insured is different from non-insured persons controlling for relevant differences, e.g. age and sex, table 3.

**Table 2: Determinants of membership of 'denmark', logistic regression analysis.**

|                                    | Full sample          |                  |         | Occupationally active only |
|------------------------------------|----------------------|------------------|---------|----------------------------|
|                                    | Coefficient (logit). | Marginal effects | Mean    | Coefficient (logit)        |
| <b>Male (female=0)</b>             | -0,1721**            | -.0391095        | .442658 | -.2180255**                |
| <b>Age (18-40 =0)</b>              |                      |                  |         |                            |
| 41-60 years                        | 0.5519***            | .127713          | .372633 | .4735817***                |
| 61-70 years                        | 0.8524***            | .2056726         | .126831 | .9430353***                |
| > 70 years                         | 0.1218               | .0281602         | .100393 | -                          |
| <b># in household</b>              | 0.0758*              | .0172843         | 1.7222  | .0537111                   |
| <b># years school</b>              | 0.1480***            | .0337481         | 9.95748 | .0491547                   |
| <b>Occupation (white collar=0)</b> |                      |                  |         |                            |
| Self employed                      | -0.0048              | -.001102         | .047517 | -.0878193                  |
| Skilled                            | -0.0284              | -.0064652        | .100036 | -.0911241                  |
| Unskilled                          | -0.2933*             | -.0642777        | .091461 | -.410701***                |
| Student/apprentice                 | -0.4413***           | -.0945489        | .095748 | -.2077614                  |
| Housewife                          | -0.4500              | -.0949301        | .012862 | -                          |
| Pensioner                          | 0.1054               | .0242674         | .177206 | -                          |
| Disability pensioner               | -0.5556**            | -.1156469        | .050018 | -                          |
| Unemployed/welfare                 | -0.0026              | -.0006013        | .036084 | -                          |
| Leave                              | -0.2056              | -.045391         | .017506 | -                          |
| <b>(Continued below)</b>           |                      |                  |         |                            |

| (continued)             | Full sample          |                  |         | Occupationally active only |
|-------------------------|----------------------|------------------|---------|----------------------------|
|                         | Coefficient (logit). | Marginal effects | Mean    | Coefficient (logit)        |
| Not classified          | 0.0798               | .018398          | .016434 | -                          |
| Self-assessed health    | 0.0003               | .0000756         | 85.3265 | -.0004594                  |
| Physical health (SF-36) | -0.0005              | -.0001166        | 88.2831 | -.0019866                  |
| Mental health (SF-36)   | 0.0025               | .0005655         | 78.2158 | -.0019866                  |
| General health (SF-36)  | 0.0002               | .000055          | 76.3420 | .0019214                   |
| Constant/intercept      | -2.5712              |                  |         | -.8715649                  |

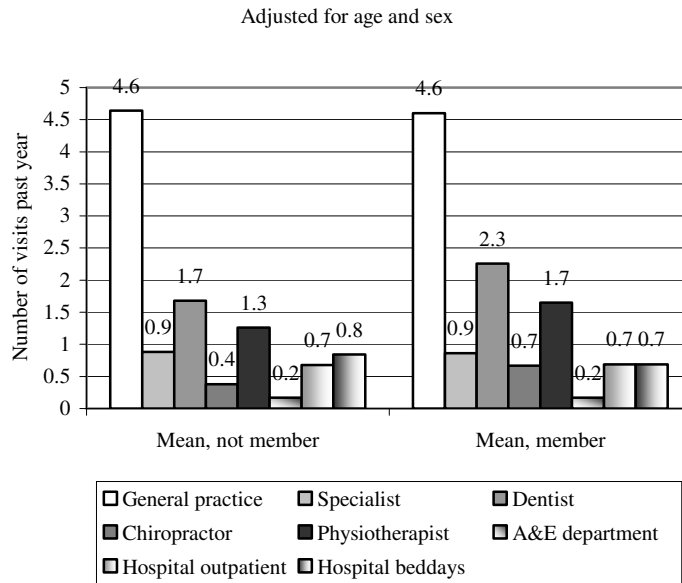
Significance levels: \*= 6-10%-level, \*\*= 1-5%-level, \*\*\*= < 1-percent level.

It is interesting that the previous result regarding health status holds up, i.e. no significant differences when controlling for more variables than previously. Similarly, the effects of occupational status are also basically unchanged. As regards disability pensioners it should be noted, that if you are a member when becoming a disability pensioner you retain membership. The lower probability of being members among disability pensioners may be due to the fact that many disability pensioners have been unskilled workers, and unskilled workers have a lower probability of being members of 'denmark' than many other groups.

The last column in table 2 shows – for the occupationally active – the results with an income variable (pre-tax, monthly income). It is not a significant variable.



**Figure 5: Utilization of health services among members and non-members of ‘denmark’**



It is common to model utilization as a two-stage process to capture two somewhat different decision processes. The first concerns whether to see a health professional or not. This decision is largely independent of possible provider influence. Phase one concerns dimensions like threshold for seeking assistance/treatment/advice, recall (reminder from dentist in the case of adult dental care) etc. This phase may be influenced by the provider via supplier demand (‘to be on the safe side, see me again ...’), which may be genuine professional advice or (partly) economically motivated if the provider is wholly or partly paid on a fee-for-service basis (which in Denmark is the case for non-hospital health care providers).

Due to a fairly high number of zeros, i.e. no contacts during the past year, the so-called zero inflated negative binomial model has been used (zinb in STATA), see Greene, (Greene, 2000), to produce the results in table 3. The full model for adult dental care and use of physiotherapy has been included to show the effects of co-payment and VHI along with a similar model for utilization of GPs where services are free to everybody at the point of service. In this case one would not expect an effect of insurance – at least based on economic theorizing.

**Table 3: Determinants of utilization for two co-payment primary health care services: adult dental care and physiotherapy**

|                                    | Adult dental visits |               |                  | Physiotherapy   |               |                  |
|------------------------------------|---------------------|---------------|------------------|-----------------|---------------|------------------|
|                                    | Visits, poisson     | Visits, logit | Marginal effects | Visits, poisson | Visits, logit | Marginal effects |
| Insurance (no=0)                   | .2357***            | -1.2217***    | .4752***         | .1771           | -.1815        | .2943**          |
| Male (female=0)                    | -.0794***           | -.1536        | -.1538**         | -.0803          | .4826***      | -.4119***        |
| <b>Age (18-40 =0)</b>              |                     |               |                  |                 |               |                  |
| 41-60 years                        | .1166***            | 6.3442        | .2304***         | .0803           | .1200         | -.0212           |
| 61-70 years                        | .0109               | 7.1175        | .0212            | .2250           | .2880         | -.0263           |
| > 70 years                         | -.0192              | 7.7240        | .0376            | .2454           | -.0241        | .2468            |
| # years school                     | -.0002              | -.7238**      | -.0005           | .0692*          | -.0103        | .0649            |
| <b>Occupation (white collar=0)</b> |                     |               |                  |                 |               |                  |
| Self employed                      | -.0526              | 12.578        | -.1095           | .7492**         | -.0747        | 1.0052           |
| Skilled                            | -.1426***           | -7.0677       | -.2621***        | .1025           | .5112*        | -.2585           |
| Unskilled                          | -.0620              | 12.9775       | -.1273           | -.0138          | -.1621        | .1120            |
| Student/apprentice                 | -.0137              | -3.3424       | -.0265           | -.2144          | .4707*        | -.415***         |
| Housewife                          | .2739               | 12.9339       | .5752            | .1317           | 1.0135        | -.4623           |
| Pensioner                          | .1397               | 1.407.289     | .2750            | -.1200          | .1208         | -.1754           |
| Disability pensioner               | .3635***            | 14.3407       | .7490            | .4967*          | .0357         | .48013           |
| Unemployed/welfare                 | -.0909              | -.61625       | -.1696*          | -.0790*         | -.0269        | -.0446           |
| Leave                              | -.1980              | -2.3343       | -.3505           | -.3989          | -.1002        | -.2229           |
| Not classified                     | .0345               | -8.4375       | .06827           | -1.5740         | .5775         | -.752***         |
| Continued Below                    |                     |               |                  |                 |               |                  |

| Continued                                |                     |                  |                     |                    |                  |                     |
|--|---------------------|------------------|---------------------|--------------------|------------------|---------------------|
|  | Adult dental visits |                  |                     | Physiotherapy      |                  |                     |
|  | Visits,<br>poisson  | Visits,<br>logit | Marginal<br>effects | Visits,<br>poisson | Visits,<br>logit | Marginal<br>effects |
| Self-assessed Health (0=worst, 100=best) | -.0023**            | -.01598*         | -.0046***           | -.0062*            | .0329**          | -.0293***           |
| Physical health (SF-36, 100=best))       | -.0006              | -.00690          | -.0013              | -.0037             | .0019            | -.00450             |
| Mental health (SF-36, 100=best)          | .0010               | .01213           | .0020               | .0015              | .0082            | -.0047              |
| General health (SF-36, 100=best)         | .0007               |                  | .0013               | -.0007             |                  | -.00063             |

The influence of insurance on the use of adult dental services is clear. If insured, the probability of use increases (or conversely, as seen in the table, the probability of use for non-insured is lower compared to the insured) and the volume of use is positively influenced by being insured. The same tendency is seen for physiotherapy, but only significant for the marginal effect of insurance. There is also a gender effect. For dental care males are not only less likely to see a dentist, but also make fewer visits. For physiotherapy the probability of use is less for men than for women, but when men use physiotherapy they use more than women. However, evaluated as marginal effect the overall tendency is that men use physiotherapy less than do women.

It is interesting to note the effect of self-assessed health. Intuitively one would expect both the probability and the volume of use to decrease with increased level of self-assessed health (despite the fact that dental health status probably does not influence self assessed health status very much), i.e. a negative sign of the coefficient. This is seen in the results. For instance, if self-assessed health increases the use of physiotherapy decreases.

### Effects on supply of private hospital services

With a fairly large potential customer base from VHI-insured it is reasonable to expect that private hospitals would bloom in Denmark.

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However, this has not been the case. Taken together private hospitals have lost money since the first was established in 1989/1990. The situation has improved, however, over the past two to three years. This is, however, largely due to the government's two months waiting time guarantee (7).

There are several reasons for the lack in take-off of private hospitals, all of them fairly obvious on hindsight. Hence it should dampen enthusiasm among supporters of more private health care, and dampen fears among opponents.

First of all, despite that about 750,000 persons carry insurance that in principle allows them to jump the queues for elective surgery at public hospitals, about 250,000 of them lose their insurance around the age of 60, when they leave the labour market. Most elective surgery concerns diseases that often appear after the age of 60, e.g. cataract, knee and hip replacement. Hence, there is fairly little business from this group. Of those remaining, about 500,000 of them are members of 'denmark', but only about 25% are in the 60+ age bracket, i.e. about 125,000, and given the incidence/prevalence of the diseases in question it is clear that this is not enough to generate sufficient business for very many private hospital beds.

Secondly, waiting time for most types of elective surgery has been coming down rapidly over the past few years. And, waiting time in Denmark is low compared to for instance England, see (Sicilian and Hurst, 2003.), and with the 2 months waiting time guarantee from July 2002 much has changed. This means that to many waiting time is acceptable, and for members of 'denmark', the most likely patients at private hospitals, often short enough to wait for treatment at public hospitals and avoid the around 15% co-payment at private hospitals associated with insurance coverage in 'denmark'.

The situation for 'co-payment insurance', i.e. all members of 'denmark', is probably different. There is no doubt that business for the privately practicing dentists, and to a certain extent also privately practicing physiotherapists, to a large extent depend on the added demand generated by the existence of VHI.

## Conclusions

Denmark is an interesting case of VHI. It is widespread, but is more a 'co-payment insurance' phenomena, in particular for non-hospital services, than coverage for catastrophic expenses, the usual rationale for taking out insurance. The coverage is high compared to the other Scandinavian countries.

It is not considered a substitute for tax financing but a supplement that is truly voluntary, even though that insurance paid by employers enjoys a tax advantage.

There is no doubt that an important part of the explanation for the existence of VHI is path-dependence, i.e. the roots in the now abolished sickness fund system. However, in the late nineties fairly long waiting times also contributed, but decreasingly so, due to waiting time guarantees has reduced the queues to more acceptable levels.

Most of the predicted effects of health insurance can be observed: higher level of utilization among insured than among non-insured. However, somewhat surprisingly there are no detectable health status differences. This may be due to the fact that 'denmark' – the all dominating insurer – has rather slight health requirements for membership.

VHI has not been enough, however, to sustain a private hospital sector providing largely elective surgery. The private hospital sector is very small that has struggled for financial survival.

## Notes

1. See Mossialos, (Mossialos and Thomson, 2002a.), for a clarification of terminology and a good overview for the EU.
2. However, children up till the age of 16 are automatically covered if their parents are members. Hence, the percentage in reality is considerable higher. Assuming that all children have been registered as covered with 'denmark' about two thirds of the population is covered by 'denmark'.
3. In a sense contradicting normal insurance thinking: not large, unexpected

expenditures, but predictable and rather small amounts.

4. For easy conversion: 1 £ = 10 Dkr.

5. Interestingly enough, the government did not re-introduce the tax deduction of premiums for privately paid health insurance. This was the situation prior to 1987 and thus was a tax subsidy for members of 'denmark' until this year.

6. Reliable numbers are hard to obtain because the commercial insurers hesitate to publish, in part for business reasons, in part to be able to let out hot air about the market, (Mossialos and Thomson, 2002b.; Øvretveit, 2002.)

7. The author has been a board member of the largest private hospital, and this observation in part follows from this involvement, but also from contacts with other private hospitals.

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