

EUR Research Information Portal

Switching rates in health insurance markets decrease with age: empirical evidence and policy implications from the Netherlands

Published in:

Health Economics, Policy and Law

Publication status and date:

Published: 15/07/2015

DOI (link to publisher):

[10.1017/S1744133115000328](https://doi.org/10.1017/S1744133115000328)

Document Version

Publisher's PDF, also known as Version of record

Document License/Available under:

Article 25fa Dutch Copyright Act

Citation for the published version (APA):

Duijmelinck, D. M. I. D., & van de Ven, W. (2015). Switching rates in health insurance markets decrease with age: empirical evidence and policy implications from the Netherlands. *Health Economics, Policy and Law*, 11, 141-159.
<https://doi.org/10.1017/S1744133115000328>

[Link to publication on the EUR Research Information Portal](#)

Terms and Conditions of Use

Except as permitted by the applicable copyright law, you may not reproduce or make this material available to any third party without the prior written permission from the copyright holder(s). Copyright law allows the following uses of this material without prior permission:

- you may download, save and print a copy of this material for your personal use only;
- you may share the EUR portal link to this material.

In case the material is published with an open access license (e.g. a Creative Commons (CC) license), other uses may be allowed. Please check the terms and conditions of the specific license.

Take-down policy

If you believe that this material infringes your copyright and/or any other intellectual property rights, you may request its removal by contacting us at the following email address: openaccess.library@eur.nl. Please provide us with all the relevant information, including the reasons why you believe any of your rights have been infringed. In case of a legitimate complaint, we will make the material inaccessible and/or remove it from the website.

Switching rates in health insurance markets decrease with age: empirical evidence and policy implications from the Netherlands

DANIËLLE M.I.D. DUIJMELINCK*

Institute of Health Policy and Management, Erasmus University Rotterdam, Rotterdam, the Netherlands

WYNAND P.M.M. VAN DE VEN

Institute of Health Policy and Management, Erasmus University Rotterdam, Rotterdam, the Netherlands

Abstract: All consumer groups with specific preferences must feel free to easily switch insurer in order to discipline insurers to be responsive to consumers' heterogeneous preferences. This paper provides insight into the switching behaviour of low-risks (i.e. young or healthy consumers) and high-risks (i.e. elderly or unhealthy consumers) in the Netherlands in the period 2009–2012. We analysed: (1) administrative data with objective health status information (i.e. medically diagnosed diseases and pharmaceutical use) and information on health care expenses of nearly the entire Dutch population ($n = 15.3$ million individuals) and (2) three-year sample data ($n = 1152$ individuals). Our findings indicate that switching rates strongly decrease with age. For example, in 2009, consumers aged 25–44 switched 10 times more than consumers aged 75 or older. Another finding is that switching rates decrease as the predicted health care expenses increase. Although healthy consumers switch twice as much as unhealthy consumers, this difference becomes much smaller after adjusting for age. We conclude that our findings can be explained by higher perceived switching costs by elderly consumers than by young consumers. Consequently, insurers have low incentives to act as quality-conscious purchasers of care for the elderly consumers. Therefore, strategies should be developed to increase the choice of insurer of elderly consumers.

Submitted 13 February 2015; revised 7 May 2015; accepted 22 June 2015;
first published online 15 July 2015

JEL Classification: G22, I11, I13, I18.

1. Introduction

In competitive health insurance markets health insurers have the major task of purchasing (or delivering) efficient and high-quality care on behalf of their consumers. They must also have the tools to do so, for example some freedom to

*Correspondence to: Daniëlle M.I.D. Duijmelinck, Institute of Health Policy and Management, Erasmus University Rotterdam, P.O. Box 1738, 3000 DR Rotterdam, the Netherlands. Email: duijmelinck@bmg.eur.nl

define enrollees' entitlements. In such multiple choice settings, consumers must have the freedom to choose on a regular basis the insurer that best satisfies their (health care) needs and preferences. The possibility of consumers switching to a competitor must continuously stimulate insurers to succeed in their roles of purchasers of care, that is enhancing cost containment, efficiency, and quality in health care.

In markets with homogeneous consumer preferences, all consumers will benefit from the critical choice of a minority, because a few critical consumers can be sufficient to spur insurers to be responsive to consumer preferences. However, in health care, consumer preferences are highly heterogeneous. For example, young and healthy consumers have other preferences than old and unhealthy consumers. Consequently, if specific groups of consumers do not feel free to easily switch insurer, insurers have low incentives to accommodate the specific preferences of these groups of individuals. This would be in particular problematic if these consumers are those with most health care needs (i.e. the elderly and unhealthy consumers), because insurers are then no longer spurred to act as quality-conscious purchasers of care for them.¹

In this paper we focus on the question to what extent switching rates differ between low-risks (i.e. young or healthy consumers) and high-risks (i.e. elderly or unhealthy consumers) in the Netherlands in the period 2009–2012. Although we focus on switching rates in the Dutch context, the policy implications of our findings can also be relevant for other countries in which insurers are purchasers or suppliers of care and have some freedom to define enrollees' entitlements (e.g. Israel, the HMO market in Switzerland, and the United States).

Previous studies in different Western countries have shown that young consumers are more inclined to switch insurer than elderly consumers (Atherly *et al.*, 2005; Shmueli *et al.*, 2007; De Jong *et al.*, 2008; Mosca and Schut-Welkzijn, 2008; Dormont *et al.*, 2009; Reitsma-van Rooijen *et al.*, 2011; Boonen *et al.*, 2015). Moreover, most of these previous studies concluded that healthy consumers do not switch more frequently than unhealthy consumers, after adjusting for the age differences between the two groups (Shmueli *et al.*, 2007; De Jong *et al.*, 2008; Dormont *et al.*, 2009; Hoffmann and Icks, 2011; Reitsma-van Rooijen *et al.*, 2011).

Our study is in different ways a valuable contribution to the current evidence regarding consumers' switching behaviour in the health insurance context. Previous studies mainly used consumers' self-reported health, (chronic) diseases, and prior health care utilization as health indicators (Mosca and Schut-Welkzijn, 2008; Dormont *et al.*, 2009; Hoffmann and Icks, 2011; Lako *et al.*, 2011; Boonen *et al.*, 2015). However, Hoffmann and Icks (2011) and Dormont *et al.* (2009) considered the use of these subjective health measures and the lack of information

1 In this paper we assume that the risk equalization model and the premium rate regulation provide insurers with incentives to provide good quality care to all enrollees, including the chronically ill (see e.g. Van de Ven, 2011).

regarding switchers' and non-switchers' health care expenses as serious limitations. In addition, most previous studies on consumers' switching behaviour used sample data instead of population data. Two major strengths of our study are therefore the use of: (1) information on objective health indicators (i.e. medically diagnosed diseases and pharmaceutical use) and health care expenses and (2) population data of about 15.3 million individuals to compare low-risks' and high-risks' switching behaviour in 2009.² Atherly *et al.* (2005) and Shmueli *et al.* (2007) used also population data instead of sample data in their studies on consumers' switching behaviour, but these studies lacked detailed information on consumers' health status. Therefore, our use of data with objective health information and information on health care expenses for nearly the entire population is a new approach for comparing high-risks' and low-risks' switching behaviour.

Another major strength of our study is the comparison of low-risks' and high-risks' three-year switching rate. Only a small number of consumers is willing to decide on their health insurance each switching period (Tamm *et al.*, 2007). Therefore, we also focus on low-risks' and high-risks' switching rates over multiple years by using sample data. Dormont *et al.* (2009) and Hoffmann and Icks (2011) have also focused on consumers' switching behaviour over multiple years. They asked consumers whether they switched insurer in the previous years. Because consumers may not remember whether they switched insurer several years ago, the use of a single question to evaluate consumers' switching behaviour over multiple years may result in response bias. We asked the same individuals ($n = 1152$) recently after the switching period in 2010, 2011, and 2012 whether they switched insurer in that period, and evaluated whether they have switched insurer (yes/no) in the period 2010–2012. This research method reduces the potential response bias.

The article is organized as follows. First, we describe the Dutch health insurance market. Second, we pay attention to the data and methods. Third, we present our main results. Fourth, we discuss potential interpretations of our results. Finally, we pay attention to some policy considerations and conclude.

2. The Dutch health insurance market

We focus on the switching behaviour of Dutch consumers. These consumers are allowed to switch insurer on 1 January each year.³ In the Netherlands, the

2 De Jong *et al.* (2008), Hendriks *et al.* (2010), and Reitsma-van Rooijen *et al.* (2011) compared the switching behaviour of a sample of 'non-institutionalised consumers with a medically diagnosed chronic illness or disability' with the switching behaviour of a sample of the 'general population'. It was unclear whether consumers belonging to the 'general population' suffered from a medically diagnosed chronic illness or disability (Hendriks *et al.*, 2010). Advantages of our study are: (1) the inclusion of information of both institutionalised consumers and non-institutionalised consumers and (2) the inclusion of objective health information of almost the entire Dutch population.

3 Consumers who turn 18 and consumers whom insurer increases the premium or changes the policy conditions have the right to switch immediately. We left this type of switching behaviour out of consideration.

introduction of the Health Insurance Act (*Zorgverzekeringswet*, 2006) was an important step towards a nationwide competitive health insurance market. All inhabitants are legally obliged to take out basic health insurance (BI) from a private health insurer.⁴ Insurers are free to offer several BI products, which may differ, for example, in the panel of contracted providers and the deductible level. Insurers must accept each applicant for BI and must charge the same price for the same BI product to each consumer, regardless of the consumer's risk (i.e. community-rated premiums). Each insurer is free to set its own community-rated premium⁵ and to specify consumers' precise entitlements (e.g. the contracted health care providers and pharmaceuticals) in the BI product.

Consumers can voluntarily take out supplementary insurance (SI) for benefits not covered by BI. Insurers are allowed to refuse applicants or charge risk-rated premiums for SI. About 90% of all consumers take out SI. More than 99% of them take out BI and SI from the same insurer (Vektis, 2012), because almost all insurers make it unattractive or impossible for consumers to take out separate SI (Roos and Schut, 2012).⁶ Due to this joint purchase of BI and SI, the decision to switch insurer for BI is also influenced by consumers' expectations regarding SI.

3. Data and methods

We used both administrative data and questionnaires among an internet panel to determine to what extent low-risks' and high-risks' switching behaviour differed in the Netherlands in the period 2009–2012.

3.1 Switching behaviour in 2009

We used individual-level information on risk characteristics, health care expenses, and subscriptions of 95% of the Dutch population ($n = 15.3$ million individuals) to determine which groups of consumers switched insurer on 1 January 2009.

Our analyses involved three steps. First, we determined the switching behaviour of different age groups. Second, we evaluated the switching behaviour of healthy and unhealthy consumers by using objective health status indicators. In this respect, pharmacy-based cost groups (PCGs), diagnoses-based cost groups (DCGs), and multiple-year high costs (MHC) are used as indicators (see Van Kleef *et al.*, 2013 for more details about these indicators). Consumers are classified into one or more PCGs if they received in 2008 at least 180 daily dosages of a specific pharmaceutical. If consumers had a specific (hospital) diagnosis in 2008, they are

⁴ Total number of insurers operating nationwide: 30 in 2009, 28 in 2010, 27 in 2011, and 26 in 2012 (NZa, 2009, 2010, 2011, 2012).

⁵ The community-rated BI premiums equal 50% of the total insurers' revenues for BI. The other 50% consists of income-related contributions that are allocated to the insurers via a risk equalization fund (Van Kleef *et al.*, 2013).

⁶ For example, insurers offer SI only in combination with BI or require premium surcharges if a consumer only applies for SI.

classified into a DCG. Consumers are classified into a MHC if their health care expenses were in 2006, 2007, and 2008 at least in the top 15% of total health care expenses.⁷ Because the health indicators PCG, DCG, and MHC overlap with each other, we distinguished ‘healthy consumers’ (i.e. not classified into a PCG, DCG, and MHC) and ‘non-healthy consumers’ (i.e. classified into a PCG, DCG, and/or MHC). Third, we determined consumers’ switching behaviour by their predicted health care expenses for 2009. These predicted expenses are based upon the risk equalization formula of 2012, which uses the following risk adjusters: age/gender, region, source of income, PCGs, DCGs, socioeconomic status, and MHC (see Van Kleef *et al.*, 2013).

3.2 *Switching behaviour in the period 2010–2012*

Because only a small number of consumers is willing to decide on their health insurance each switching period (Tamm *et al.*, 2007), we also investigated consumers’ switching behaviour over a three-year period (2010–2012). An online questionnaire was distributed in February 2010, February 2011, and February 2012 among members of the CentERpanel aged 18 or older. Members of this panel complete questionnaires at home every week. An invitation to fill in the questionnaire was sent to 2227 members in 2010, 2665 members in 2011, and 2419 members in 2012. In 2010, 2011, and 2012, respectively, 1963 respondents, 1852 respondents, and 1939 respondents fulfilled the complete questionnaire. We merged the samples of 2010, 2011, and 2012, and evaluated which respondents completed the questionnaire in all three years. We performed our analyses solely on the 1152 respondents, who completed the questionnaire in 2010, 2011, and 2012. This sample of respondents was older than the general Dutch population. For example, the percentage of respondents aged 20–39 was in our research 15 compared to 33 in the population. Because we focus on switching rates within different consumer groups, the non-representative character of the sample may not seriously threaten the external validity of our results. Respondents have revealed whether they switched insurer in 2010, 2011, and 2012. The switching rates in these three years were, respectively, 3.6, 4.5, and 3.8%. Although switchers may be more eager to respond to a consumer questionnaire about health insurance than non-switchers (Kerssens and Groenewegen, 2005), these switching rates are lower than the switching rates in the Dutch population (3.9% in 2010 (Vektis, 2010), 5.5% in 2011 (Vektis, 2011), and 6.0% in 2012 (Vektis, 2012)). Because the switching rates in the separate years were low, we were not able to perform reliable analyses by using the panel data approach. Therefore, we focused only on the switching rate over these three years; that is did consumers switch at least once in the three-year period 2010–2012 (yes/no)?

We obtained demographic information, health information, and insurance-related information about each respondent (Table 1). In contrast to the objective

7 For a detailed description of MHC see Van Kleef *et al.* (2013).

Table 1. Background characteristics consumer questionnaires 2010–2012

Available information	Operationalization data analyses	Sample ($n = 1152$)
Gender ($n = 1152$)	Male Female	56.1% 43.9%
Age in 2010, 2011, and 2012 ($n = 1152$)	Age in 2011	56.33 years (average)
Self-reported health in 2010, 2011, and 2012 ($n = 1142$)	Self-reported health in the period 2010–2012 At least in one year bad or moderate (i.e. bad or moderate)	22.5%
Bad Moderate Good Very good Excellent	All years good, very good, or excellent (i.e. good, very good, or excellent)	77.5%
Self-reported disease (e.g. asthma, cancer, rheumatism, diabetes, and cardiovascular disease) in 2010, 2011, and 2012 ($n = 1152$)	Self-reported disease in the period 2010–2012	
	None	32.2%
	At most one self-reported disease in 2010, 2011, and/or 2012 (i.e. at most one)	32.6%
	At most two self-reported diseases in 2010, 2011, and/or 2012 (i.e. at most two)	18.2%
	At least three self-reported diseases in 2010, 2011, and/or 2012 (i.e. at least three)	17.0%
Education in 2010, 2011, and 2012 ($n = 1143$)	Education in 2011	
	Low	32.4%
	Middle	29.6%
	High	38.0%
Supplementary insurance in 2010, 2011, and 2012 ($n = 1024$)	Supplementary insurance in the period 2010–2012 In all years (i.e. yes) At least in one year no supplementary insurance (i.e. no)	84.3% 15.7%

health measures used concerning consumers' switching behaviour in 2009 (see Section 3.1), we used self-reported health and self-reported disease(s) as health indicators for comparing the switching behaviour of healthy and unhealthy consumers in the period 2010–2012.

Different previous studies concluded that high-educated consumers were more inclined to switch than low-educated consumers (De Jong *et al.*, 2008; Mosca and Schut-Welkzijn, 2008; Lako *et al.*, 2011; Reitsma-van Rooijen *et al.*, 2011; Boonen *et al.*, 2015). In addition, Dormont *et al.* (2009) and Boonen *et al.* (2015) showed that having a SI is associated with a low switching propensity. Therefore, in the data analyses, we also focused on the switching behaviour of low-, middle-, and high-educated consumers, and on the switching rates of consumers with SI and of consumers without SI.

Our analyses involved two steps. First, we performed Pearson's χ^2 tests to determine whether the variables gender, age, self-reported health, self-reported disease(s), education, and holding a SI are correlated with switching insurer (yes/no) in the period 2010–2012. Second, we performed a binary logistic regression model with $y_i = 1$ if a consumer switched insurer at least once in the three-year period 2010–2012 and $y_i = 0$ if a consumer stayed with his or her current insurer in that period. The switching model is derived from an underlying latent variable: $y_i^* = X_i'\beta + \varepsilon_i$, where $y_i = 1$ if $y_i^* > 0$ and $y_i = 0$ otherwise. $X_i'\beta$ is a vector of the explanatory variables (i.e. gender, age, self-reported health, self-reported disease(s), education, and holding a SI). In this respect, the latent variable represents the net benefit of switching health insurer. We present the odds ratios to illustrate differences in the switching behaviour of different consumer groups. Odds ratios range between 0 and positive infinity. An odds ratio greater (smaller) than one indicates that a characteristic increases (decreases) the odds of switching compared to the reference group, *ceteris paribus*.

4. Results

4.1 Switching rates in 2009

Our results indicate that 2.81% of all consumers switched insurer on 1 January 2009.⁸ Bivariate analyses (Table 2) show that females switched slightly more frequently than males. Switching rates differ by a factor of 10 between young and elderly consumers: the annual switching rate was 3.81% at age 25–44 and decreased to 0.37% at age 75 or older. About 5% of the consumers aged 18–24 switched insurer. The switching rates of children under the age of 18 follow the same pattern as the switching rates of their parents who are most likely aged 25–40 (Figure 1). The percentage of males switching to another insurer is highest at age 18 and 19, while the percentage of females switching to another

⁸ Vektis (2009) found that 3.5% of the Dutch population switched insurer in 2009. The difference can be explained by a different definition of 'switcher' and differences in the research population.

Table 2. Percentage of consumers that switched insurer on 1 January 2009

	Size of the group as percentage of the total (<i>n</i> = 15,279,552)	Switching rate of the group
Total	100.0	2.81
Gender		
Male	49.1	2.78
Female	50.9	2.85
Age		
0–17	21.2	3.26
18–24	8.4	4.97
25–44	27.0	3.81
45–64	27.7	2.07
65–74	8.6	0.87
75 or older	7.1	0.37
Pharmacy-based cost groups (PCGs)		
Not classified in 2009	83.5	3.08
Classified into at least one PCG in 2009 ^a	16.5	1.46
Diagnoses-based cost groups (DCGs)		
Not classified in 2009	97.5	2.86
Classified into a DCG in 2009 ^b	2.5	0.98
Multiple-year high costs (MHC)		
Not classified in 2009	92.7	2.93
Classified into a MHC in 2009 ^c	7.3	1.30
Combination PCG, DCG, and MHC		
Not classified into a PCG, DCG, and MHC in 2009 (i.e. healthy consumers)	80.6	3.12
Classified into at least one PCG, DCG, or MHC in 2009 (i.e. unhealthy consumers)	19.4	1.54

^aThese consumers received in 2008 at least 180 daily dosages of a specific pharmaceutical.

^bThese consumers had a specific (hospital) diagnosis in 2008.

^cThese consumers' health care expenses were in 2006, 2007, and 2008 at least in the top 15% of total health care expenses.

insurer is highest at age 24 and 25 (not presented in Tables and Figures). Females aged 18–30 were about 20% more inclined to switch insurer than males aged 18–30.

Although healthy consumers switch twice as much as unhealthy consumers (Table 2), this difference becomes much smaller after adjusting for age (Figure 1). This finding is consistent with previous studies (see Section 1). At each age, healthy consumers are 10–20% more likely to switch than unhealthy consumers. Figure 2 shows that switching rates strongly decrease as the predicted health care expenses increase. For example, 5% of the consumers with very low predicted health care expenses switched insurer in 2009, while this percentage decreases to about 0.5 for consumers with high predicted health care expenses.

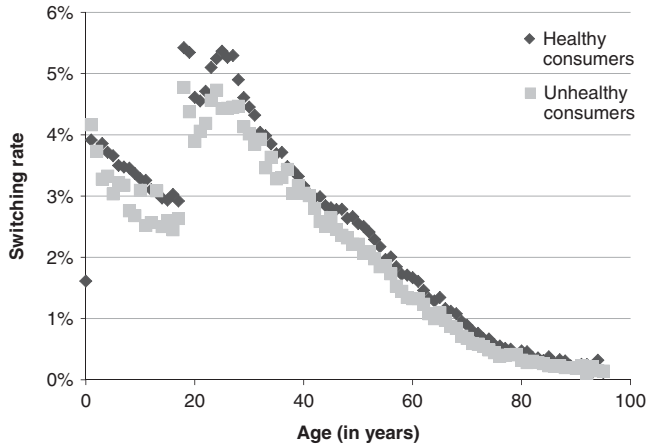


Figure 1. Switching rates on 1 January 2009 of healthy consumers (i.e. in 2009 not classified into a PCG, DCG, and MHC) and unhealthy consumers (i.e. in 2009 classified into at least one PCG, DCG, or MHC) by age.

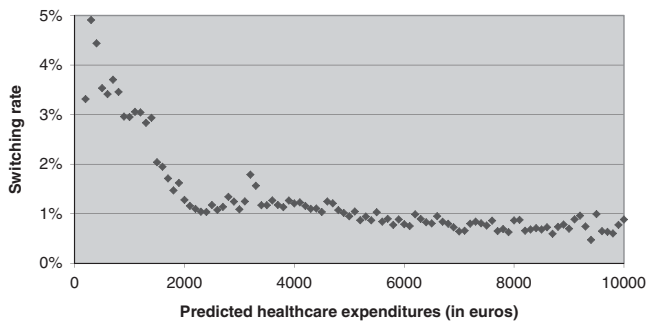


Figure 2. Switching rates on 1 January 2009 by predicted health care expenses (in euros) for 2009.

NB. Predicted expenses are based upon the risk equalization formula of 2012. About 80% of individuals had predicted health care expenses lower than 2000 euro.

4.2 Switching rates in the period 2010–2012

In the period 2010–2012, 10.3% of all consumers switched insurer at least once: 8.85% switched once, 1.39% switched two times, and 0.09% switched three times. Bivariate analyses show that switching rates differ significantly among age groups (Table 3). For example, about 3% of the consumers aged 76 or older switched insurer at least once in the period 2010–2012 compared to about 15% of the consumers aged 31–50. Consumers without a self-reported disease were about 40% more likely to switch insurer than consumers with a self-reported disease. In contrast, based on consumers' three-year switching rate and subjective health indicators, we can conclude that consumers with a good, very good, or excellent

Table 3. Percentage of consumers that switched insurer (yes/no)^{a,b} in the period 2010–2012

	Size of the group as percentage of the total	Three-year switching rate of the group
Total (<i>n</i> = 1152)	100.0	10.3
Gender (<i>n</i> = 1142)		
Male	56.1	8.5
Female	43.9	12.6**
Age (<i>n</i> = 1152)		
18–30	3.6	23.8
31–40	13.0	14.7
41–50	16.2	15.5
51–60	24.2	11.8***
61–70	26.5	6.2
71–75	7.9	3.3
76 or older	8.5	3.1
Self-reported health (<i>n</i> = 1142)		
Bad or moderate	22.5	9.7
Good, very good, or excellent	77.5	10.4
Self-reported disease (<i>n</i> = 1152)		
None	32.2	12.9
At most one	32.6	10.9
At most two	18.2	6.7*
At least three	17.0	8.2
Education (<i>n</i> = 1143)		
Low	32.4	7.0
Middle	29.6	10.7**
High	38.0	12.9
Supplementary insurance (SI) (<i>n</i> = 1024)		
No	15.7	18.6
Yes	84.3	9.0***

^aWe asked consumers whether they switched insurer. Dutch insurers are allowed to offer the BI under different names. Consequently, consumers who switched to a BI that is offered under another name by their current insurer may have stated that they switched insurer while they did actually not.

^b'Yes' indicates a switch on 1 January 2010, and/or 1 January 2011, and/or 1 January 2012 (i.e. 'three-year switching rate').

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

self-reported health are not more inclined to switch insurer than consumers with a bad or moderate self-reported health. This may partly be affected by the fact that respondents revealing their perceived health status take their age into account. High-educated people switched insurer about 85% more than low-educated people. Furthermore, consumers without a SI switched twice as much as consumers with a SI.

Multivariate analyses do also show that elderly consumers are, *ceteris paribus*, less inclined to switch insurer than young consumers (Table 4). For example, the

Table 4. Logit model of consumer's decision to switch insurer (yes/no)^a in the period 2010–2012 ($n = 1009$)

	Odds ratio	<i>p</i> -value
Gender		
Female	Reference	
Male	0.617	0.026**
Age		
18–30	10.465	0.002***
31–40	3.554	0.055*
41–50	5.646	0.007***
51–60	3.609	0.041**
61–70	2.016	0.274
71–75	0.674	0.672
76 or older	Reference	
Self-reported health		
Bad or moderate	Reference	
Good, very good, or excellent	0.634	0.145
Self-reported disease		
None	Reference	
At most one	0.922	0.755
At most two	0.731	0.400
At least three	0.935	0.865
Education		
Low	0.559	0.039**
Middle	0.840	0.485
High	Reference	
Supplementary insurance		
Yes	0.441	0.001***
No	Reference	

^a‘Yes’ indicates a switch on 1 January 2010, and/or 1 January 2011, and/or 1 January 2012 (i.e. ‘three-year switching rate’).

McFadden $R^2 = 0.086$

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

odds of having switched in the period 2010–2012 for those aged 41–50 are 565% of those aged 76 or older, *ceteris paribus*. The difference in switching behaviour of consumers with and consumer without a self-reported disease disappears after adjusting for age. The results regarding education and SI are consistent with previous studies: low-educated consumers and consumers with SI were less likely to switch insurer than, respectively, high-educated consumers and consumers without SI, *ceteris paribus*. For example, keeping all other explanatory variables constant, having a SI decreases the odds by 56% compared to having no SI.

5. Interpretation of our results

Consumers will switch insurer if their perceived switching benefits outweigh their perceived switching costs (Scanlon *et al.*, 1997; Laske-Aldershof *et al.*, 2004).

Therefore, switching rates indicate for which proportion of consumers the switching benefits did outweigh the switching costs.⁹ Our main finding is that switching rates decrease sharply with age. This raises the question: did elderly consumers switch less frequently than young consumers because they (1) face higher switching costs; (2) face lower switching benefits; or (3) face higher switching costs and lower switching benefits?

5.1 *Switching costs*

Previous studies mentioned that the differences in the switching behaviour of young and elderly consumers can be attributed to differences in their switching costs (Atherly *et al.*, 2005; Shmueli *et al.*, 2007; Hendriks *et al.*, 2010; Lako *et al.*, 2011; Reitsma-van Rooijen *et al.*, 2011¹⁰).¹¹ The finding is supported by Nosal (2012) and Handel (2013) who found higher switching costs in the US Medicare market with relatively old consumers (65+) than in the US employer-sponsored insurance market with relatively young consumers (below 65). Nosal (2012) found a switching cost of \$4163 for the median Medicare consumer and Handel (2013) showed that, due to switching costs, an average employee forgoes \$2032 each year in expected savings from an alternative option. In addition, Buchmueller (2000) and Strombom *et al.* (2002) found that young consumers were more price sensitive than elderly consumers and attributed this finding to lower switching costs for young consumers than for elderly consumers.

Given this background, it seems likely that differences in the perceived switching costs by young and elderly consumers are also an explanation for our results. Elderly consumers may face higher transaction costs than young consumers, because they may consider price and quality information, while young consumers may be interested in price information only (Hendriks *et al.*, 2010). Different studies did further conclude that elderly consumers have more difficulties with processing health insurance information than young consumers (Hibbard *et al.*, 2001; Hanoch and Rice, 2006). Moreover, the psychological switching costs of elderly consumers – which may result from habit, tradition, and sunk costs

9 Next to consumers' decisions to switch insurer, switching can be influenced by exogenous changes, for example job changes, moves outside an insurer's area, bankruptcies, and mergers (Schlesinger *et al.*, 1999; Shmueli *et al.*, 2007; Lako *et al.*, 2011).

10 Shmueli *et al.* (2007) mentioned insurers' risk selection practices as another potential explanation. Due to the Israeli incomplete age-based risk-adjustment scheme, children are profitable clients and insurers' risk selection practices to attract them may also encourage their young parents to switch insurer. Risk selection is not an explanation for our findings because in the Netherlands no age group is systematically under- or overcompensated by the risk equalization model. In addition, the Dutch risk equalization model contains much more relevant risk adjusters than only age (see Section 3.1).

11 Duijmelinck *et al.* (2015) found that *non-switching* consumers aged 55 or older did not mention switching costs more often as main reason for staying with the current insurer than *non-switching* consumers aged 18–55. However, in the context of explaining differences in the switching behaviour of young and elderly consumers the switching costs of the different consumer groups in general – and not only of the non-switchers – are relevant.

(Samuelson and Zeckhauser, 1988; Frank and Lamiraud, 2009) – may be greater than the psychological switching costs of young consumers. For example, elderly consumers may face higher sunk costs – that is the non-recoverable investments in terms of time, money, and effort in establishing and maintaining a relationship with the current insurer (Duijmelinck *et al.*, 2015) – than young consumers, because elderly consumers may be quite familiar with the rules and procedures of their current insurer (Samuelson and Zeckhauser, 1988; Zhang *et al.*, 2012). This is consistent with the results of Beaulieu (2002) and Frank and Lamiraud (2009) who found that longer tenures of enrolment continuously reduce the likelihood of switching. In addition, previous studies showed that elderly consumers mentioned the loss of the favourable conditions of their current SI – in terms of premium and acceptance – more frequently as a switching barrier than young consumers (Duijmelinck and van de Ven, 2014).

Consumers choosing an insurer for the first time – which are most likely the consumers aged 18–24 – may be the consumer group with the lowest switching costs (Pomp *et al.*, 2005). For example, sunk costs and the loss of the favourable conditions of SI may be irrelevant switching costs for these consumers entering the health insurance market. Therefore, low switching costs may explain their high switching propensity.

5.2 Switching benefits

Potential switching benefits for consumers are: price, (financial) welcome gifts, the benefits of SI, the insurer's service level, and the insurer's contracted provider network (i.e. the quality of the provider network and the freedom to choose a provider or drug) (Duijmelinck *et al.*, 2015). During the research period, these switching benefits were quite comparable for low-risks and high-risks in the Netherlands. First, insurers did mainly compete on price (Brabers *et al.*, 2012), which is a relevant switching benefit for both elderly and young consumers. Second, welcome gifts were a relevant switching benefit for both consumer groups, because there were no indications that insurers provided welcome gifts to attract specific consumer groups. Third, given the considerable amount of differentiated SI products in the Dutch health insurance market (e.g. in 2009, consumers had the choice among about 370 SI products (NZa, 2009)), SI was a switching benefit for both young and elderly consumers. Because the SI coverage regarding maternity care is a relevant switching benefit for young females, young females were probably more inclined to switch insurer than young males. Fourth, the insurer's service level and the insurer's contracted provider network are in particular important switching benefits for high-risks because of their high health care use. However, these were quite irrelevant switching benefits during the research period (Brabers *et al.*, 2012). For example, in the period 2009–2012, insurers contracted all hospitals (NZa, 2009, 2010, 2011, 2012).

So far, the above mentioned arguments indicate that during our research period switching benefits were roughly similar for young consumers and

elderly consumers. However, consumers' switching benefits are also influenced by consumers' switching behaviour in previous years. The switching benefits for consumers who did not switch in previous years will be relatively higher than the switching benefits for consumers who did so. For example, the latter group may have switched to lower-priced insurance products, while the former group may still have to pay a high price. In the period 2006–2008, elderly consumers were – such as in later years – less likely to switch insurer than young consumers (Vektis, 2006, 2007, 2008). This implies that elderly consumers faced on average higher switching benefits in the period 2009–2012 than young consumers.¹²

The above arguments lead to the conclusion that during the research period the switching benefits for the elderly consumers were not lower than those of the young consumers. This implies that the substantial lower switching rate of the elderly consumers compared to the young consumers cannot be explained by a difference in their switching benefits. Therefore, we conclude that elderly consumers face higher switching costs than young consumers.

6. Discussion

In general, low switching rates in the health insurance market may have some positive side-effects, such as low administrative expenditures and increased insurers' incentives to invest in preventive care (Pomp *et al.*, 2005; Brandon *et al.*, 2009; Lako *et al.*, 2011). However, in the Netherlands the low switching rates are concentrated among the elderly consumers who perceive high switching costs compared to their switching benefits. In this respect, the positive effects do most likely not outweigh the potential negative effects.

First, large differences in switching rates among groups of consumers reduce effective price competition (Pomp *et al.*, 2005; Nosal, 2012). Insurers may initially charge premiums below costs to attract consumers and subsequently increase their premiums to exploit consumers with high switching costs (Pomp *et al.*, 2005; Farrell and Klemperer, 2007; Han *et al.*, 2014). Simultaneously, they could introduce cheaper products to attract the consumers with low switching costs. Marzilli Ericson (2012) provided evidence for such insurers' behaviour in the US Medicare Part D insurance market. Insurers who charge very low premiums to attract the consumers with low switching costs may enter the market. However, incumbent insurers can keep their premiums above the premiums of entrants, because the profits made on those consumers who do not switch may outweigh the losses associated with the consumers who switch to new entrants (Pomp *et al.*, 2005).

Second, lower switching rates for elderly consumers than for young consumers may reduce insurers' incentives to act as quality-conscious purchasers of care for the elderly consumers (Pomp *et al.*, 2005; Shmueli *et al.*, 2007). The developments

¹² It is an open question whether these potential switching benefits are similar to consumers' perceived switching benefits.

in the Dutch long-term care sector may exacerbate this problem. In 2015, insurers became responsible for the purchase of long-term outpatient care (i.e. nursing and personal care). In particular elderly consumers need this type of care (Sietsma and Groot Koerkamp, 2014). Due to the high perceived switching costs by elderly consumers compared to their switching benefits, it is questionable whether insurers are sufficiently motivated to become prudent buyers of long-term outpatient care.

Third, in case of an imperfect risk equalization model, cross-subsidies among risk groups may be threatened, because young consumers with low switching costs can switch to lower-priced alternatives (Atherly *et al.*, 2005). For example, Nuscheler and Knaus (2005) found that heterogeneous switching costs resulted in the separation of low-risks from high-risks in the German public health insurance system.

To avoid the above effects, the Dutch government should develop strategies to improve elderly consumers' choice of insurer. For example, the integration of BI and SI into one basic-plus-insurance (BPI) would be an effective solution to decrease the switching costs of the elderly consumers and the chronically ill (Duijmelinck and van de Ven, 2014). This solution takes into account that almost all insurers currently offer BI and SI as a joint product and that one-stop shopping has several advantages for consumers (e.g. a good coordination of basic benefits and supplemental benefits). After the introduction of a BPI, open enrolment also holds for the supplemental benefits. Insurers are still allowed to apply risk rating for the supplemental benefits within the BPI. However, they must charge groups of enrollees with equal risk characteristics and the same supplemental benefits, the same premium. Consequently, consumers opting for a BPI would no longer face the risk that a new insurer imposes less favourable conditions for SI in the next contract period than their current insurer does (Duijmelinck and van de Ven, 2014). A BPI will not threaten the affordability of the basic benefits, because insurers are still bound to community-rated premiums for the basic benefits.

In addition, special attention should be paid to potential strategies to decrease the transaction costs of elderly consumers, for example by focusing on the development of standardized health insurance information that is easily to understand (Hibbard *et al.*, 2001; Hanoch and Rice, 2006). Moreover, the regulator could launch an information campaign – for example via television and newspapers – that emphasizes the potential switching benefits for elderly consumers in the health insurance market. This campaign could encourage elderly consumers to compare the insurance products of different insurers with each other.

Furthermore, next to the exit option, consumers could express dissatisfaction with their current insurer by using the 'voice option' (Hirschman, 1970). As long as elderly consumers do not have equal opportunities as young consumers to act as well informed and empowered buyers in the health insurance market, the voice option should be effectively facilitated for the elderly consumers; for example by establishing consumer councils and consumer questionnaires.

Due to the lack of selective contracting in the Netherlands, the costs of (not) switching to another health care provider were irrelevant during the research period. These switching costs may be more relevant in later years, because since 2013 Dutch insurers started to selectively contract with health care providers more frequently. Consumers' switching benefits may have also increase, because an insurer's contracted provider network may have become a relevant switching benefit in the health insurance market. For consumer's choice of insurer it is crucial that the switching costs do not increase more rapidly than the switching benefits. Future research can pay attention to this subject. Moreover, future research could attempt to quantify the size of the switching benefits and the switching costs for different consumer groups.

7. Conclusion

In competitive health insurance markets, consumer's choice of insurer disciplines the insurers to be responsive to consumer preferences. Because these preferences differ among consumer groups, all groups of consumers with specific preferences must be free (and must feel free) to easily switch insurer. We analysed administrative data with objective health status information (i.e. medically diagnosed diseases and pharmaceutical use) and information on health care expenses of nearly the entire Dutch population to evaluate switching rates in the Netherlands in 2009. Our findings indicate that switching rates decrease strongly with age. For example, consumers aged 25–44 switched 10 times more than consumers aged 75 or older. The same conclusion holds when evaluating whether consumers switched in the period 2010–2012 (i.e. a three-year switching rate). In addition, we found that switching rates strongly decrease as the predicted health care expenses increase. For example, 5% of the consumers with very low predicted health care expenses switched insurer in 2009, while this percentage decreases to about 0.5 for consumers with high predicted health care expenses. Another finding is that although healthy consumers switch twice as much as unhealthy consumers, this difference becomes much smaller after adjusting for age.

We conclude that our findings can be explained by higher perceived switching costs by elderly consumers than by young consumers. Because an essential precondition of a competitive health insurance market – the disciplining effect of 'voting with one's feet' – is not fulfilled for elderly consumers, insurers have low incentives to act as quality-conscious purchasers of care for them. Policymakers should develop strategies to increase the choice of insurer of elderly consumers, because a competitive health insurance market can only succeed if all groups of consumers with specific preferences feel free to easily switch insurer.

Acknowledgements

The authors would like to thank René van Vliet for his valuable help with the data analyses.

Funding source

This study was partly supported by the Dutch Healthcare Authority (NZa). The views expressed in this paper are those of the authors and not of the Dutch Healthcare Authority.

References

- Atherly, A., C. Florence and K. E. Thorpe (2005), 'Health plan switching among members of the Federal Employees Health Benefit Program', *Inquiry*, 42(3): 255–265.
- Beaulieu, N. D. (2002), 'Quality information and consumer health plan choices', *Journal of Health Economics*, 21(1): 43–63.
- Boonen, L. H. H. M., T. Laske-Aldershof and F. T. Schut (2015), 'Switching health insurers: the role of price, quality and consumer information search', *European Journal of Health Economics*, doi:10.1007/s10198-015-0681-1.
- Brabers, A. E. M., M. Reitsma-van Rooijen and J. D. de Jong (2012), 'The Dutch health insurance system: mostly competition on price rather than quality of care', *Eurohealth*, 18(1): 30–33.
- Brandon, W. P., R. Sundaram and A. A. Dunham (2009), 'Multiple switching in medicaid managed care: a proportional hazards model', *Journal of Health Care for the Poor and Underserved*, 20(4): 1124–1141.
- Buchmueller, T. C. (2000), 'The health plan choices of retirees under managed competition', *Health Services Research*, 35(5): 949–976.
- De Jong, J., A. van den Brink-Muinen and P. P. Groenewegen (2008), 'The Dutch health insurance reform: switching between insurers, a comparison between the general population and the chronically ill and disabled', *BMC Health Services Research*, 8(58): 58–66.
- Dormont, B., P. Y. Geoffard and K. Lamiraud (2009), 'The influence of supplementary health insurance on switching behaviour: evidence from Swiss data', *Health Economics*, 18(11): 1339–1356.
- Duijmelinck, D. M. I. D. and W. P. M. M. van de Ven (2014), 'Choice of insurer for basic health insurance restricted by supplementary insurance', *European Journal of Health Economics*, 15(7): 737–746.
- Duijmelinck, D. M. I. D., I. Mosca and W. P. M. M. van de Ven (2015), 'Switching benefits and costs in competitive health insurance markets: a conceptual framework and empirical evidence', *Health Policy*, 119(5): 664–671.
- Farrell, J. and P. Klempner (2007), 'Coordination and lock-in: competition with switching costs and network effects', in M. Armstrong and R. Porter (eds), *Handbook of Industrial Organization*, Amsterdam: North Holland, 1967–2072.
- Frank, R. G. and K. Lamiraud (2009), 'Choice, price competition and complexity in markets for health insurance', *Journal of Economic Behavior & Organization*, 71(2): 550–562.
- Han, J., D. W. Ko and J. M. Urmie (2014), 'The role of satisfaction and switching costs in Medicare Part D choices', *Research in Social and Administrative Pharmacy*, 10(2): 398–407.
- Handel, B. R. (2013), 'Adverse selection and inertia in health insurance markets: when nudging hurts', *American Economic Review*, 103(7): 2643–2682.
- Hanoch, Y. and T. Rice (2006), 'Can limiting choice increase social welfare? The elderly and health insurance', *Milbank Quarterly*, 84(1): 37–73.

- Hendriks, M., J. D. de Jong, A. van den Brink-Muinen and P. P. Groenewegen (2010), 'The intention to switch health insurer and actual switching behaviour: are there differences between groups of people?', *Health Expectations*, 13(2): 195–207.
- Hibbard, J. H., P. Slovic, E. Peters, M. L. Finucane and M. Tusler (2001), 'Is the informed-choice policy approach appropriate for Medicare beneficiaries?', *Health Affairs*, 20(3): 199–203.
- Hirschman, A. O (1970), *Responses to Decline in Firms, Organizations, and States*, Cambridge, MA: Harvard University Press.
- Hoffmann, F. and A. Icks (2011), 'Do persons that changed health insurance differ from those who did not? The case of diabetes', *Experimental and Clinical Endocrinology & Diabetes*, 119(9): 569–572.
- Kerssens, J. J. and P. P. Groenewegen (2005), 'Consumer preferences in social health insurance', *European Journal of Health Economics*, 6(1): 8–15.
- Lako, C. J., P. Rosenau and C. Daw (2011), 'Switching health insurance plans: results from a health survey', *Health Care Analysis*, 19(4): 312–328.
- Laske-Aldershof, T., E. Schut, K. Beck, S. Groß, A. Shmueli and C. van de Voorde (2004), 'Consumer mobility in social health insurance markets: a five-country comparison', *Applied Health Economics and Health Policy*, 3(4): 229–241.
- Marzilli Ericson, K. M (2012), *Consumer Inertia and Firm Pricing in the Medicare Part D Description Drug Insurance Exchange*, Cambridge: National Bureau of Economic Research.
- Mosca, I. and A. Schut-Welkzijn (2008), 'Choice determinants of the mobility in the Dutch health insurance market', *The European Journal of Health Economics*, 9(3): 261–264.
- Nosal, K (2012), 'Estimating switching costs for Medicare Advantage Plans'. Working paper.
- Nuscheler, R. and T. Knaus (2005), 'Risk selection in the German public health insurance system', *Health Economics*, 14(12): 1253–1271.
- NZa (2009), *Monitor Zorgverzekeringsmarkt 2009. Trends en Acties van de NZa*, Utrecht: Dutch Healthcare Authority.
- NZa (2010), *Marktscan Zorgverzekeringsmarkt 2010. Een Scan van de Belangrijkste Indicatoren*, Utrecht: Dutch Healthcare Authority.
- NZa (2011), *Marktscan Zorgverzekeringsmarkt. Weergave van de markt 2007–2011*, Utrecht: Dutch Healthcare Authority.
- NZa (2012), *Marktscan Zorgverzekeringsmarkt. Weergave van de markt 2008–2012*, Utrecht: Dutch Healthcare Authority.
- Pomp, M., V. Shestalova and L. Rangel (2005), *Switch on the Competition. Causes, Consequences and Policy Implications of Consumer Switching Costs*, Den Haag: CPB Netherlands Bureau for Economic Policy Analysis.
- Reitsma-van Rooijen, M., J. D. de Jong and M. Rijken (2011), 'Regulated competition in health care: switching and barriers to switching in the Dutch health insurance system', *BMC Health Services Research*, 11: 95–104.
- Roos, A. F. and F. T. Schut (2012), 'Spillover effects of supplementary on basic health insurance: evidence from the Netherlands', *The European Journal of Health Economics*, 13(1): 51–62.
- Samuelson, W. and R. Zeckhauser (1988), 'Status quo bias in decision making', *Journal of Risk and Uncertainty*, 1(1): 7–59.
- Scanlon, D. P., M. Chernew and J. R. Lave (1997), 'Consumer health plan choice: current knowledge and future directions', *Annual Review of Public Health*, 18: 507–528.

- Schlesinger, M., B. Druss and T. Thomas (1999), 'No exit? The effect of health status on dissatisfaction and disenrollment from health plans', *Health Services Research*, **34**(2): 547–576.
- Shmueli, A., J. Bendelac and L. Achdut (2007), 'Who switches sickness funds in Israel?', *Health Economics, Policy and Law*, **2**(3): 251–265.
- Sietsma, A. and R. Groot Koerkamp (2014), 'Het gebruik van wijkverpleging door ouderen', *ESB*, **99**(4680): 148–151.
- Strombom, B. A., T. C. Buchmueller and P. J. Feldstein (2002), 'Switching costs, price sensitivity and health plan choice', *Journal of Health Economics*, **21**(1): 89–116.
- Tamm, M., H. Tauchmann, J. Wasem and S. Greß (2007), 'Elasticities of market shares and social health insurance choice in Germany: a dynamic panel data approach', *Health Economics*, **16**(3): 243–256.
- Van de Ven, W. P. M. M (2011), 'Risk adjustment and risk equalization: what needs to be done?', *Health Economics, Policy and Law*, **6**(1): 147–156.
- Van Kleef, R. C., R. C. J. A. van Vliet and W. P. M. M. van de Ven (2013), 'Risk equalization in the Netherlands: an empirical evaluation', *Expert Review of Pharmacoeconomics & Outcomes Research*, **13**(6): 829–839.
- Vektis (2006), *Verzekerdennobiliteit en keuzegedrag. De feiten over de marktontwikkelingen na invoering van de basisverzekering*, Zeist: Vektis.
- Vektis (2007), *Verzekerdennobiliteit en keuzegedrag. Hoe staat het ervoor in 2007?*, Zeist: Vektis.
- Vektis (2008), *Verzekerdennobiliteit en keuzegedrag. Begin of einde van de rust?*, Zeist: Vektis.
- Vektis (2009), *Verzekerdennobiliteit en keuzegedrag 2009*, Zeist: Vektis.
- Vektis (2010), *Zorgthermometer 2010. Verzekerden in beweging*, Zeist: Vektis.
- Vektis (2011), *Zorgthermometer 2011. Verzekerden in beweging*, Zeist: Vektis.
- Vektis (2012), *Zorgthermometer. Verzekerden in beweging 2012*, Zeist: Vektis.
- Zhang, K. Z. K., C. M. K. Cheung and M. K. O. Lee (2012), 'Online service switching behavior: the case of blog service providers', *Journal of Electronic Commerce Research*, **13**(3): 184–197.