

Exit, Voice or Loyalty? An Investigation into Mandated Portability of Front-Loaded Private Health Plans[‡]

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Abstract

This paper studies how consumers in an individual private health insurance market with front-loaded contracts respond to newly mandated portability requirements of their provisions. To foster competition between insurers, effective January 2009, German policymakers made the portability of standardized old-age provisions mandatory. Unique claims panel data from a big private insurer with 0.4 million enrollees show that the probability to cancel contracts and switch insurers increased only slightly in post-reform years. However, restored consumer bargaining power—probably in interaction with insurer retention efforts that doubled the health plans offered—led to a strong increase in internal switches.

Keywords: individual private health insurance; portability, old-age provisions, switching costs, health policy reform, consumer bargaining, retention.

JEL classification: G22; I11; I18.

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1 Introduction

Very few countries in the world organize their health insurance system around private health insurance markets. Even in the US, the leading example of a largely private system, public health insurance accounts for an increasing share of overall spending. In addition, private health insurance has been increasingly regulated. For example, the Affordable Care Act (ACA) prohibits experience rating of premiums and pre-condition clauses. One major question of interest is how to regulate such private insurance markets in order to foster competition between insurers, contain premium growth, and increase quality of care.

Besides the US and Chile, Germany is one of the very few industrialized countries with an entirely private health insurance market, not just a supplemental one.¹ The existence of this individual private market is due to historical reasons and allows the self-employed, civil servants, and high-income earners to irreversibly opt out of the public system and insure their entire health risks privately and individually. The German individual private market is in some respects less regulated than the US market. For example, there exists no guaranteed issue and pre-condition clauses are (still) legal. Furthermore, at the beginning of the contract period, premiums are individually underwritten and risk-rated. However after the initial risk-rating and in subsequent periods—to avoid jumps in premiums due to health shocks—all premium increases are strictly community-rated at the health plan level.

One special feature of the German private market is the legal obligation of insurers to build up old-age provisions for each enrollee. The rationale behind this regulation is to incorporate a mandatory savings component in order to keep premiums stable over enrollees' life-cycle and to prevent excessively high premiums and costs for the elderly.² Therefore, the premiums for the young exceed their actuarially fair value, whereas they fall behind for the elderly. Furthermore, there is no official enrollment period and enrollees remain insured until they actively decide to cancel their contracts and switch insurers. Guaranteed renewability exists and, while the insured can cancel their contract, insurers may not terminate contracts as long as premiums are paid. This leads to a one-sided insurer commitment and insurer risk if good risks predominately lapse their contracts (Hofmann and Browne, 2013). Until 2009,

¹ In contrast, there basically exists no private group market in Germany.

² In Germany, there exists no Medicare for the elderly which means that individuals are privately insured for the rest of their life.

this one-sided commitment was, however, limited since old-age provisions were not transferable to competing insurers. Along with the renewed risk rating when lapsing contracts and switching insurers, the non-portability of provisions and front-loading of plans created a substantial lock-in effect because switching insurers typically entailed considerable financial losses. Currently, the average old-age provision is around \$20K per policyholder (Association of German Private Healthcare Insurers, 2014). Consequently, effective 2009, the German legislature passed a bill that mandated old-age provisions to be portable. The intention of the bill was to reduce switching costs, restore consumer confidence, and foster competition in the market.

The main purpose of this study is to empirically evaluate the effects of this bill that significantly cut switching costs. We base our empirical investigation on detailed claims panel data from one of the largest German individual private health insurers. In total, we observe more than 400K individuals from 2005 to 2011. We do not only know their detailed medical history, diagnoses, and claims but also have detailed information on their plan parameters such as cost-sharing amounts and benefit generosity.

Our findings provide evidence for, at most modest, overall effects of the portability reform on the decision to cancel contracts and switch insurers. However, interestingly, the likelihood of switching health plans *internally* more than doubled in the first year of the reform and then fell back to initial levels. We also find that consumer choice increased substantially post-reform and that the number of offered health plans doubled. While, most internal switchers downgraded their coverage pre-reform, health plan generosity remained roughly the same post-reform but monthly premiums decreased by €20. We explain the empirical pattern with the reform-induced increase in consumer bargaining power in interaction with insurer's retention policies. The findings illustrate that regulatory efforts to strengthen consumer sovereignty in the health care sector can lead to a substantial increase in consumer action and a re-optimization of health plan choices.

In the broadest sense, the paper relates to the large literature on the design of private health insurance markets and markets with lock-in effects and one-sided commitments (Klemperer, 1987; Beggs and Klemperer, 1992; Buchmueller and Feldstein, 1997; Cutler and Reber, 1998; Werden, 2001; Cardon and Hendel, 2001; Crocker and Moran, 2003; Zauberman, 2003; Herring and Pauly, 2006; Farrell and Klemperer, 2007; Viard, 2007; Bouckaert et al., 2010; Handel and

Hendel, 2013; Biglaiser et al., 2013; Starc, 2014; Bajari et al., 2014; Handel et al., 2015; Hackmann et al., 2015; Einav et al., 2015). Since the German private health insurance system is comparable to life insurance markets—well-known examples of front-loaded contracts—the paper contributes to a better understanding of the functioning of such front-loaded insurance markets and the issue of portability (Hendel and Lizzeri, 2003; Gründl et al., 2006; Farrell and Klemperer, 2007; Schmeiser et al., 2012; Eling and Kiesenbauer, 2014; Schmeiser et al., 2015a,b). The paper also naturally relates to papers studying health plan switching and switching costs (Buchmueller and Feldstein, 1997; Strombom et al., 2002; Schut and Hassink, 2002; Schut et al., 2003; Atherly et al., 2004; Abraham et al., 2006; Nuscheler and Knaus, 2005; Dijk et al., 2008; Dafny and Dranove, 2008; Bouckaert et al., 2010; Chen and Pearcy, 2010; Schram and Sonnemans, 2011; Biglaiser et al., 2013; Grunow and Nuscheler, 2014; Schmitz and Ziebarth, 2013; Bünnings et al., 2015; ?; Bünnings and Tauchmann, 2015).

In the most narrow sense, this paper exploits unique claims panel data and is the first to evaluate the 2009 portability reform. In that sense, the following papers are closest in spirit to ours since they all analyze switching behavior in the German PHI market. Using panel claims data from a German PHI insurer, Hofmann and Browne (2013) empirically test several theoretical hypotheses about enrollees' switching behavior in front-loaded contracts. Their main results are that front-loading creates a lock-in effect and that more front-loading is associated with lower lapsing rates. They also find that bad risks are less likely to lapse than good risks. Hofmann and Browne (2013) do not cover the 2009 reform but discuss the reform as promising field for future research. Exploiting 2010 claims data of another German PHI insurer, Christiansen et al. (2015) empirically study determinants of lapsing and switching behavior and find that premium development and adjustment play a crucial role. Finally, Baumann et al. (2008) theoretically model the life-cycle premium development in the German PHI market. Simulations show that a considerable part of the old-age provisions could be made portable between insurers without harming insurers, which was a typical pre-reform complaint by the insurance industry. Baumann et al. (2008) show that—due to the design of the old-age provision formula—the accumulated reserves rise fast enough in the early years of a contract to allow for portability of a considerable share of the old-age provisions. Eekhoff et al. (2006) discuss the possibility of risk-adjusted, transferable old-age provisions to increase competition in the German PHI market.

The next section discusses the institutional and legal background of the German health insurance system and the 2009 reform. Section 3 introduces the dataset. Section 4 first presents descriptive statistics, and then parametric regression results. Section 5 concludes.

2 Background

2.1 The German Individual Private Health Insurance Market

The health insurance market in Germany consists of two coexisting systems: Statutory Health Insurance (SHI) and Private Health Insurance (PHI). The default option is SHI coverage where 90% of the population are insured (German Statistical Office, 2012). The SHI premium is paid in form of a contribution rate, proportional to individuals' gross labor income. Currently the 15.5% contribution rate is split between employees and their employers. Non-working family members can be covered in the SHI family plan without extra costs. Risk rating is prohibited in the SHI and the non-profit insurers' health plans are heavily regulated, including the obligation to offer essential health benefits without being able to apply deductibles or co-insurance rates (Eibich et al., 2012; Bünnings et al., 2015).

Opting out of PHI. For historical reasons, select population sub-groups have the choice to opt out of SHI: (1) the self-employed, (2) high income earners³ and (3) civil servants. Opting out of the SHI is essentially a lifetime decision: to avoid strategic selection, switching back to SHI is only possible for people under 55 years and if their income falls below the income threshold.

In SHI and PHI, provider networks and managed care are unknown, hence people can freely choose their provider. In addition, in SHI and PHI, reimbursement rates are centrally determined and do not vary by insurers or health plans. In the first place, private insurers process, scrutinize, and deny claims.

One main advantage of getting full PHI is choice. Applicants can freely choose their level of coverage in terms of benefits and cost-sharing amounts. The PHI market consists of 43 private insurance companies that provide full and supplemental insurance coverage. In 2013, German private insurers provided 8.9 million 'comprehensive' health insurance poli-

³High income earners are defined by a gross labor income above a politically defined threshold. In 2015, it is €54,900 p.a.

cies, and 23.5 million ‘supplemental’ policies (Association of German Private Healthcare Insurers, 2014). The supplemental policies are mostly held by SHI enrollees who top-up their SHI essential benefit package by insuring dental care, glasses, or other non-essential benefits. Henceforth, we focus on full, or ‘comprehensive’ plans, and abstain from supplemental private coverage.

PHI Premium Calculation. The majority of the private insurers operate nationwide and are open to all applicants who opt out of SHI. In order to understand switching behavior between PHI comprehensive health plans, and how switching interacts with individuals’ health risks, the premium calculation is crucial. When opting out of SHI and first signing a private contract, the initial PHI premium is individually underwritten and risk-rated.⁴ It consists of four distinct components:

- (1) The actuarial part, which depends on a comprehensive risk assessment based on age, sex, health status, and the plan chosen (benefits, cost-sharing, family vs. single plan).
- (2) The old age provisions.
- (3) The administrative loading factor.
- (4) The old-age provision loading factor of 10%.

While the initial premium is risk rated, all subsequent premium increases have to be community rated at the health plan level. However, some insurers have a policy to refund typically one or two monthly premiums to policyholders with zero claims at the end of the calendar year (‘Beitragsrückerstattung’).

One-Sided Commitments. While guaranteed issue does not exist at inception, i.e., insurers can deny coverage to (bad) risks, insurers cannot terminate ongoing contracts and dump enrollees who experienced health shocks or consume more health care than expected. This regulation intends to avoid active cream-skimming on the insurer side. Since, after the initial

⁴ The only exception is the ‘Basic Plan’ (‘Basistarif’) which was introduced in 2009 along with the portability of old-age provisions. This plan is structured after the SHI standardized health plan with the same set of essential benefits and guaranteed issue. Premiums are strictly community rated. This regulation was an attempt by policymakers to provide an affordable private health plan option for PHI enrollees who cannot switch back to SHI, yet would have to pay excessive premiums or would be denied coverage. However, overall, the demand for the basic plan is extremely low which is why, henceforth, we will abstain from further considering it. In 2013, in the entire PHI, only 30,200 people or 0.3% were enrolled in the basic plan (Association of German Private Healthcare Insurers, 2014). In our data, only 1,006 out of 357,418 enrollees chose the basic plan in 2010.

screening, insurers are prohibited from cancelling contracts while policyholders are free to switch to a different insurer, it is a market with a one-sided commitment.

Old-Age Provisions. One important and distinct characteristic of the market is the legal obligation of insurers to build up old-age provisions, constituting parts (2) and (4) above. Thus premiums are heavily front-loaded over the individuals' life cycle. While young enrollees' premiums significantly exceed their actual health care spending, old enrollees' premiums are significantly lower than their actual claims. The idea is to dampen age-related increases in health care costs through old-age provisions and a capital stock. Ideally, real premiums would then remain stable over the life cycle. In 2013, the total old-age provisions amounted to € 167 billion (\$184 billion) for the 8.9 million comprehensive health insurance policies, i.e., € 18,700 (\$20,600) per enrollee (Association of German Private Healthcare Insurers, 2014). Component (2) above is only based on age, whereas the old-age provision loading factor (4) works as a multiplier on the actuarial component and thus, to some extent, reflects individual risk. The front-loading of contracts induce switching costs to non-linearly increase with age.

Pre-Reform Non-Portability. Until the portability reform was implemented, old-age provisions were not portable—or, to be more specific, there was no portability mandate and insurers did not legally have to transfer them to competitors when consumers switched. However, internal portability was typically given. The non-portability essentially implied that choosing private health insurers was a life-time decision. Switching rates were very low, as was competition between private insurers. Only young and healthy individuals would even consider switching insurers, while it became less and less attractive (and also impossible) to switch insurers for older and unhealthy people due to (i) the loss of the individual capital stock, the related (ii) age-related increase in premiums as well as (iii) the necessity to undergo the individual risk-rating procedure again, and (iv) no guaranteed issue and the possibility to exclude pre-conditions.

A additional factor reinforces the lock-in effect in the German PHI and resembles the life insurance market: due to the very long average contract periods, insurance brokers receive a relatively high commission of typically six monthly insurance premiums, which would equal € 2,100 for a contract with a monthly premium of € 350. German private law stipulates that the insurer can deduct these acquisition costs from the old-age provisions during

the first years of the contract via the Zillmer method (Para 8, Kalkulationsverordnung). Obviously, when canceling contracts and switching insurers, these (v) acquisition costs have to be paid again.

2.2 The Reform

The legislature mandated that, effective January 1 2009, old-age provisions have to be made portable when enrollees cancel their private health plan and switch to a competitor.⁵ The bill thus reduced external switching costs for the great majority of enrollees. Because, already pre-reform, internal health plan switching mostly entailed the provision portability, in the first place the reform affected consumers' external switching costs.

The reform differentiated between two groups of enrollees. (a) First, for enrollees with existing contracts before January 1 2009 (the great majority), external switching and provision transferability was only possible in the 6 months period between January 1 and June 30, 2009. To be specific, old-age provisions had to be made portable as long as the contract was *canceled* between January 1 and June 30, 2009 (Para. 204, 2b, Versicherungsvertragsgesetz (VVG)).⁶

Our data do not identify when exactly the contract was *canceled* but we see when the old contract formally ended and a new coverage became effective (which is typically at the beginning of a calendar year). Thus, it is very reasonable to assume that enrollees who canceled contracts and switched insurers effective January 2010 actually canceled their contract during the six months cancellation period between January 1 and June 30, 2009.

(b) Second, for new enrollees whose coverage became effective after December 31, 2008, standardized provisions remain always portable. However, because the minimum contract period in our sample is two years and we only have data until 2011, we have to disregard subgroup (b) and exclusively focus on the subgroup (a) of existing policyholders. This has the additional advantage that reform-induced selection into PHI is not a serious concern for our study.

⁵ To reduce the administrative burden for insurers, the portability of provisions has been standardized. The standardization is oriented toward the SHI and PHI 'Basic Plan' generosity. However, when the actuarial value of the own plan lies below the SHI standard, then solely the value of the own plan is portable.

⁶ Enrollees above 55 were exempt from the six month cancellation period as long as they switched to the (unpopular) Basic Plan.

3 Dataset

This study is based on unique claims panel data from a large German private non-group health insurer. The database includes the universe of contracts and claims between 2005 and 2011, and therefore allows for an explicit evaluation of the 2009 portability reform. In total, we observe more than 400,000 different enrollees along with detailed information on plan parameters such as benefits and cost-sharing amounts, claims and diagnoses.

Table 1 illustrates the number of different health plans offered by the insurer as well as the number of enrollees in these plans. Column (1) shows that the number of health plans has strongly increased from 77 to 147 between 2005 and 2011. As a comparison: In the US non-group market, which is organized at the state level around the so called ‘Exchanges’, on average 50.9 different plans (min. 7 and max. 169) were offered by 3.9 different insurers in the first year (Dafny et al., 2015). Columns (4) to (11) show how enrollees are distributed over the different start years of the different plans.⁷

Table 1 also shows that the total number of enrollees strongly increased from 257K in 2005 to 345K in 2011. We will discuss some of numbers and trends in Table 1 again in the Results Section.

Table 1: Stock of Contracts over Time

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	# Plans			Enrollees by Introduction of Plan (in %)						
Year	Total Plans	HHI	Total Enrollees	2005	2006	2007	2008	2009	2010	2011
2005	77	0.0508	257,101	100.0	99.8	98.6	97.8	94.9	76.7	67.6
2006	83	0.0446	272,555	0.0	0.2	1.3	2.1	2.5	2.4	2.6
2007	84	0.0481	284,159	0.0	0.0	0.1	0.1	0.1	0.0	0.0
2008	85	0.0612	306,345	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	143	0.0776	344,006	0.0	0.0	0.0	0.0	2.6	20.7	29.7
2010	146	0.0533	357,418	0.0	0.0	0.0	0.0	0.0	0.1	0.1
2011	147	0.0445	345,056	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The first column shows the number of active plans in each year and *HHI* in the second column denotes the Herfindahl-Hirschman index for each year. The third column reports the total number of enrollees. Columns (4) to (10) show the distribution of enrollees over (observed) start years for each year.

Sample Selection. Table 2 presents descriptive statistics for our main sample with 1.2 million person-year observations. The total number of observations is lower than in the aggregate exposition in Table 1 because of how we selected the sample: First, we disregard enrollees

⁷For plans introduced before 2005 we report 2005 as the start year.

with missings on their observables and only focus on actual policyholders, i.e., those who pay the premium and who most likely make switching decisions. In other words, we disregard insured family members.

Second, the minimum contract period for the insurer in our sample is two years, which is why we ignore observations with contract lengths below three years. Recall that we are mainly interested in switching decisions. Also note that this sample selection criterion effectively means that we disregard inflows after the 2009 reform. This entails the positive side-effect of shutting down potential treatment-induced selection into PHI. As seen, the final sample consists of 1,206,286 enrollee-year observations.

3.1 Main Outcome Variables: External and Internal Switching

The main individual-level outcome variables of interest are realized health plan switches. First, we observe (a) whether enrollees cancel their contract and switch insurers. Accordingly, we generate a binary variable *External Switch*. Table 2 shows that an *External Switch* occurs in six percent of all enrollee-year observations. Looking at the means by calendar years, no significant trend is identifiable.

Second, we also observe (b) whether enrollees switch within the insurer to a different health plan. Hence, we generate a second binary variable *Internal Switch* which is one for the nine percent of internal switches. Looking at the means by calendar years, this time one observes a huge jump from 5% to 17% between 2008 and 2009.

3.2 Socio-Demographics, Plan Parameters, and Claims

Socio-Demographics. As displayed in Table 2, we know the *age* and *gender* of enrollees. We also know their *profession* and the age when they first signed a contract with the current insurer. The mean age is about 46 years, 72% of all policyholders are male, and 49% high-income employees, whereas 44% are self-employed. On average, policyholders have been clients of the insurer for 14 years and have been enrolled in their current health plan for 8 years.

Splitting up the covariate means by calendar year, not surprisingly, despite the inflow of new younger enrollees, the pool of enrollees ages over time. While the share of females

Table 2: Summary Statistics

	Analysis Sample				By Calendar Years					
	Mean	Min	Max	N	2005	2006	2007	2008	2009	2010
External switch	0.06	0.00	1.00	1,206,259	0.06	0.07	0.07	0.06	0.05	0.07
Internal switch	0.09	0.00	1.00	1,206,259	0.07	0.06	0.08	0.05	0.17	0.07
Age (in years)	46.00	19.00	106.00	1,206,259	44.65	45.12	45.63	46.16	46.71	47.28
Female	0.28	0.00	1.00	1,206,259	0.28	0.28	0.27	0.28	0.28	0.30
Employee	0.49	0.00	1.00	1,206,259	0.51	0.50	0.50	0.48	0.47	0.46
Self-employed	0.44	0.00	1.00	1,206,259	0.41	0.42	0.43	0.44	0.46	0.47
Policyholder since (in years)	8.08	3.00	40.00	1,206,259	7.79	7.84	8.06	8.17	8.27	8.26
Client since (in years)	14.10	3.00	85.00	1,206,259	13.18	13.59	14.00	14.26	14.57	14.76
Mean claims > average claims	0.45	0.00	1.00	1,206,259	0.47	0.47	0.47	0.45	0.45	0.43
Annual premium (in euros)	3,734	0.00	22,669.8	1,206,215	3,594	3,668	3,711	3,818.3	3,662	3,914
Deductible (in euros)	503.97	0.00	2,600.00	1,206,259	447.05	461.40	471.25	511.72	533.85	576.89
Total claims (in euros)	2,263.36	0.00	1.68e+06	1,206,259	2,108	2,152	2,306	2,244	2,357	2,368
Annual mark-up	1,470	-1.67e+06	16,926	1,206,215	1,487	1,516	1,405	1,573	1,305	1,545

Authors' calculations. More summary statistics can be found in Table A1 in the Appendix.

remains stable over time, the enrollee age increases from 44.65 in 2005 to 47.28 in 2010.

Health Plan Parameters. We make use of eight different health plan measures to characterize health plans. The average *deductible* is € 504 per year, but we observe a strictly increasing trend over time without a structural break around the reform date. The same tendency—strictly positive time trends of consumer cost-sharing—is observable in the US (Kaiser Family Foundation, 2014). In our sample, annual deductibles increased from an average of € 447 in 2005 to € 577 in 2010.

Policyholders' average annual *premium* is € 3,734 (€ 311 per month) over the entire time period. Like in the US and in other health care markets, we observe a positive trend in premium growth. In our case, the average monthly premium increased from € 300 in 2005 to € 326 in 2011. Although this absolute increase appears moderate, for an accurate comparison, one also needs to consider the simultaneous increase in deductibles. All in all, total annual claims remained relatively stable at € 2,368 in 2011 (vs. € 2,108 in 2005).

Note that *premium* only represents the employee share of the total premium for privately insured high-income earners (*Employees* in Table 2). Employers cover one half of the total premium. Only the self-employed have to pay the full premium. Otherwise there are no (tax-funded) subsidies that have to be considered to obtain the full market premium. Thus, because 44% in our sample is self-employed, the full annual market premium is on average about € 5,800 (\$6,500) and close to the average premium for a single plan in the US group market (Kaiser Family Foundation, 2014).

In terms of the benefits covered, we simplify the extremely rich data and focus on the three main health plan generosity indicators *Top*, *Plus*, *Eco* (see Table A1 in the Appendix). These plan categories are provided by the insurer. As seen, about 44% of all enrollees chose the *Top* plan, 37% the *Plus* plan, and 19% the *Eco* plan.

Finally, we know whether enrollees have the option to *upgrade* their coverage without a new risk assessment. Sometimes insurers contractually require a new risk rating when enrollees internally switch to a more generous plan in order to reduce moral hazard. Downgrading is typically always feasible without a new risk rating. As seen, about 15% of all enrollees have the option to internally upgrade coverage without a new risk assessment.

4 Empirical Approaches and Results

4.1 First Nonparametric Evidence

Supply-Side Response. In a first step, we investigate the key supply- and demand-side outcome parameters nonparametrically and descriptively. Table 2 already suggested that, while the number health plans was smooth and stable between 2005 and 2008, it almost doubled from 85 to 143 between 2008 and 2009, exactly when the portability reform had been implemented (Table 2, column (1)). Analogously, the number of enrollees significantly increased (Table 2, column (3)). Figure 1 visualizes these two developments. In particular the dramatic increase in the number of health plans around the reform date is easily identifiable. This could clearly be interpreted as a supply-side reform effect, absent the existence of other developments that could possibly explain a coincidence.

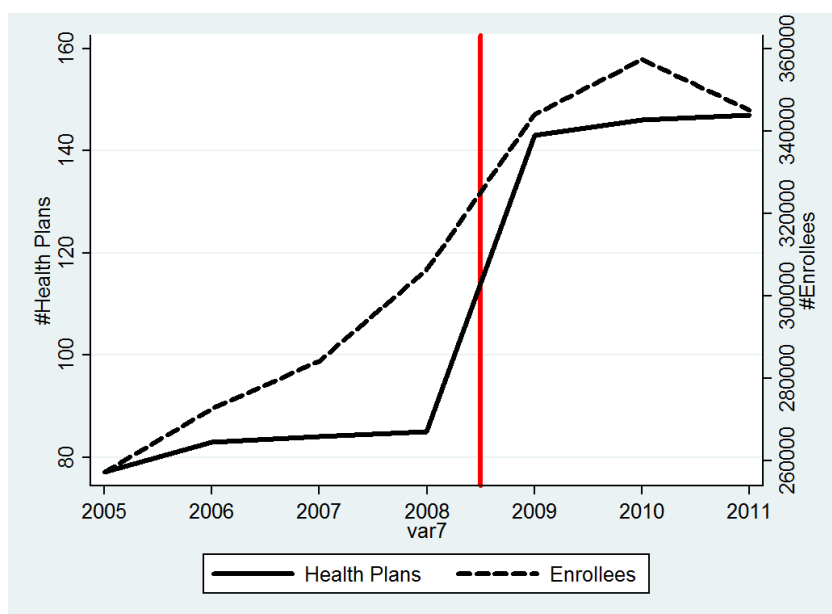


Figure 1: Number of Health Plans and Enrollees Over Time

However, the introduction of new plans was not associated with a decrease in the consumer concentration across plans. According to the Herfindahl-Hirschmann Index (HHI) in column (2) of Table 2—the HHI takes on values between $1/N$ (a completely even distribution) and 1 (a consumer concentration in just one plan)—the concentration peaked in 2009 and then fell back to normal levels. Thus, the introduction of new plans did not lead to customers being spread more thinly.⁸ Nevertheless, the new plans were apparently in high demand: Columns

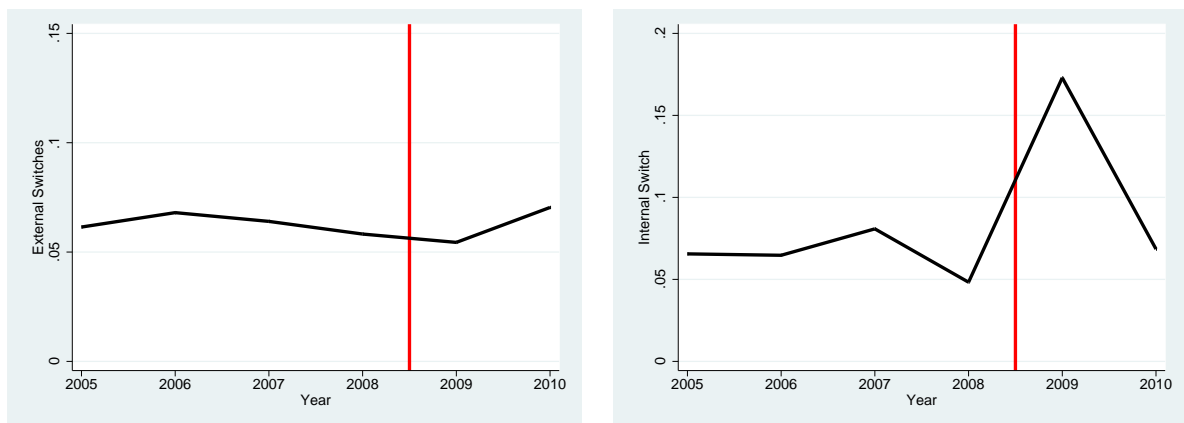
⁸If no one had switched to the newly offered health plans in 2009, the HHI would have remained unchanged

(4) to (10) of Table 1 show that 98% of the 2008 stock of enrollees had a plan which was introduced in 2005 or earlier; the corresponding number for the 2010 stock of enrollees is only 77%. By 2011, 30% of the entire insuree pool were enrolled in health plans that had been introduced in 2009.

Demand-Side Response. Next, we nonparametrically investigate individual-level demand side factors that could be associated with the 2009 reform which dramatically cut switching costs for consumers.

Figure 2a visualizes the outflow of consumers to other insurers (*External Switch*), and Figure 2b shows the development of the internal health plan switching rate (*Internal Switch*). In general and for both switching indicators, the pre-reform period from 2005 to 2008 is characterized by relatively smooth and stable switching rates without much trending. Without a natural control group and in a pure before-after estimation framework, the identifying assumption would be the absence of significant changes in the switching rates in post-reform years without a reform. The absence of major pre-reform trends makes this assumption obviously more credible.

Figure 2: Shares of Enrollees Who Switch Health Plans (a) Externally and (b) Internally



Source: Own calculations and illustrations.

As for external switches and Figure 2a, we only observe a slight uptick in the lapsing rate from 2009 to 2010. As discussed previously, the slight increase in cancellations between 2009 and 2010 was very likely triggered in the first six months of 2009 when contracts of long-term policyholders could be canceled with reserves made portable. Our data only records the

at the 2008 level. In an alternative scenario where the number of plans doubles and half of all consumers switch to a new plan (and their distribution over these new plans is identical to the distribution over older plans), the HHI would drop by 50%. Thus, the development observed in Table 1 implies that the concentration amongst already existing plans must have increased in 2009.

effective contract period which, in most cases, starts and ends at the beginning of a calendar year absent a formal enrollment period in Germany.

The picture looks very different when it comes to internal switches in Figure 2b. One observes a very strong increase in internal switching rates just at the time of the reform implementation in 2009. From 2009 to 2010, the internal switching rate decreases again significantly to pre-reform levels. The observation of a potentially strong reform-induced increase in internal rather than external switching rates may appear surprising at first sight, given that the reform intended to increase insurer competition by primarily decreasing external switching costs.

Discussion and Explanation of First Evidence. However, on second thought, the observed developments make perfectly sense when considering the institutional framework and typical company-customer interactions. First of all, while external switching costs substantially decreased in the course of the reform, they clearly remained high for some population subgroups like the unhealthy and old—as a result of the new risk rating and potential pre-condition clauses when switching insurers (and the absence of guaranteed issue in general). In addition, the reform made reserves portable but only to a standardized degree, which effectively means that most enrollees still lose money when switching to a competitor (see Section 2).

Given Figure 2a, consumers do not seem to have effectively switched insurers at substantially higher rates as a result of the reform. However, this does not imply the absence of any reform effect as visualized by Figure 2b. Switching plans internally is a lot easier than switching to a different insurer. In addition, enrollees effectively do not lose any money when switching internally. Obviously, the number of health plans offered by this particular insurer—very likely in response to the reform—almost doubled to around 150 health plans in post-reform reform. Simultaneously, internal switching rates doubled from a pre-reform 6-8% to a staggering 17% in 2009.⁹

Putting these empirical and institutional pieces of knowledge together, it seems very likely that retention efforts by the insurer led to the strong increase in health plan choice which induced enrollees to switch internally (at lower costs) rather than externally. However, the

⁹Note that the slight decrease in internal switching rates from 2007 to 2008 may represent an anticipation effect of the reform.

reform-induced reduction in external switching costs appears to be the trigger for these internal switches because they unambiguously increased consumers' bargaining power and outside options.

4.2 More (Non)Parametrics and Empirical Identification

4.2.1 Before-After Approach and Assumptions

This study is based on unique claims panel data from a big German private insurer. While these data have great advantages, they do not easily lead to a natural control group. Identifying causal reform effects absent a control group requires one additional assumption: namely the absence of significant changes in the outcome variable in post-reform years absent a reform. In other words, the implied and imaginary control group would reveal no significant trends when taking the difference between post and pre-reform values.

Depending on the outcome variable of interest and the pre-reform trends, this may be a very strong or a weaker assumption. In our case, Figures 1 and 2 make us confident that the assumption is rather weak. Despite some minor trending, the pre-reform developments of our main variables of interest are surprisingly smooth and stable. *A priori* there is no reason to believe that, without the portability reform, the switching rates wouldn't have continued to be smooth and stable.

4.2.2 A Second Approach with Control Groups

However, to base our empirical analysis on broader pillars, we enrich our main before-after framework with a control group and a difference-in-differences (DiD) approach. The control group is derived from the institutional framework. As discussed, despite a decrease in external switching costs for all privately insured, external switching costs remained prohibitively high for some subgroups after the reform. External switching implies a new health check-up and individually underwritten, risk-rated, premiums with the possibilities to entirely deny coverage or at least coverage for certain pre-conditions. Hence switching insurers is prohibitively expensive for unhealthy people. In addition, since only standardized provisions are portable, a share of accrued reserves is typically lost when switching to a competitor—and this share increases in the length of the contract duration. Note that all these considerations

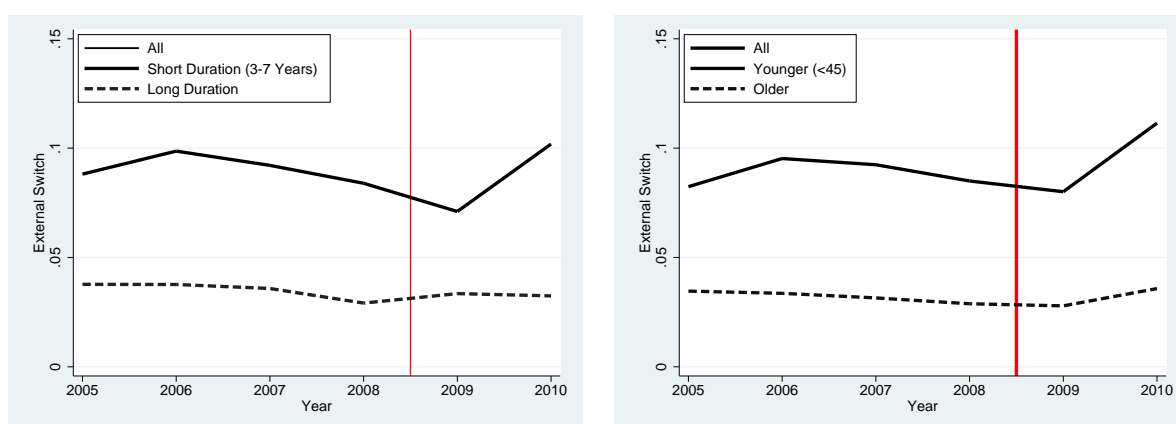
only apply to lapsing contracts and switching insurers, not to internal switches.

Figure 4 plots the development of the external switching rate, but differentiates by contract duration and age of the policyholder. Contracts characterized as “short” have been in effect for more than two years (given the minimum contract period of two years) and at most seven years, which corresponds to the median contract duration. The second line in Figure 4a corresponds to the lapsing rate for “long” contracts with a duration of more than seven years. Figure 4b displays the lapsing rates separately for policyholders younger and older than 45 years, respectively.

It is easy to infer from Figure 4a that shorter contracts are more likely to be lapsed: The probability of leaving the company lies consistently at around 8% for short contracts and is twice as high as for long contracts. A similar picture emerges when differentiating by older and younger enrollees: In general, younger enrollees are about twice as likely to lapse contracts and switch to a different insurer. Around the reform date in 2009, we observe moderate but identifiable increases in the external switching probabilities for short contracts and young policyholders, but no changes for long contracts and old policyholders.

What is most important in our context is that there is literally no trend in the lapsing rates for older policyholders and longer contracts. In particular, one does not observe any systematic change in external switching rates around the reform date in 2009, which lets us conclude that these subgroups of policyholders are reasonable control groups due to their prohibitively high external switching costs.

Figure 3: Enrollees Who Switch Externally by (a) Contract Duration and (b) Age



Source: Own calculations and illustrations.

Unfortunately, the arguments why these subgroups represent valid control groups for Ex-

ternal Switch do not apply to the case of *Internal Switch* since internal switching is typically not an issue, *inter alia*, as a result of the guaranteed renewability of contracts. In fact, we observe strong increases in internal switching rates not only for short contracts and older policyholders but also for longer contracts and younger policyholders (see Figure A1 in the Appendix). This interesting findings suggests spillover effects from the stronger bargaining position of young and healthy enrollees to those of older and unhealthy enrollees which obviously took advantage of the increase in health plan choice and the opportunities to switch internally and optimize their choices.

In summary, the almost non-existing pre-reform trends in our main outcome variables as witnessed by Figure 2 make us confident that a traditional before-after framework identifies reform effects that are at least highly suggestive. Still, we warrant caution when interpreting the effects and are well aware of the additional assumption required. In addition, we enrich the main framework with a difference-in-difference (DID) model for *External Switch* using older policyholders as control group. As discussed, the institutional framework leads to prohibitively high switching costs for older policyholders. Figure 4 supports the common time trend assumption and shows no trending for the control group.

Consequently, we define a control group based on the age of the policyholder.¹⁰ Policyholders below the age of 45 are identified by the treatment group indicator $D \equiv \mathbf{1}(age_i < 45)$. This group indicator is then used in a standard DID framework:

$$Y_i = \alpha + \gamma D_i + \delta T_i + \tau \times D_i \times T_i + X_i \beta + \rho_p + \psi_t + \epsilon_i \quad (1)$$

where T_i is the post-reform indicator and X_i is the set of observables displayed in Table 2 and A1, i.e., socio-demographics and health plan parameters. τ represents the parameter of interest. Under the common time trend assumption—i.e., in the absence of the reform, the lapse rates of the two groups would exhibit parallel trends—this model is identified. ρ_p is a set of 147 health plan fixed effects and ψ_t a set of calendar year fixed effects. Standard errors ϵ_i are routinely clustered at the health plan level. The models are linear probability models but robust to probit models and calculating marginal effects.

¹⁰Varying the age cut-off leads to robust results.

4.2.3 Main Parametric Results

Table 3 presents a main set of parametric estimates using the traditional before-after framework which assumes zero trending in the control group. The first three columns use *External Switch* as outcome variable and the last three columns use *Internal Switch* as outcome variable. For both outcomes, we increase the number of control variables from one specification to the next, and left to right.

Table 3: External and Internal Switching Pre- and Post-Reform

	(1)	(2)	(3)	(4)	(5)	(6)
	External Switch			Internal Switch		
Postreform	-0.0174*** (0.004)	-0.0095*** (0.003)	-0.0006 (0.002)	0.0654*** (0.009)	0.0638*** (0.009)	0.0639*** (0.009)
Baseline	0.082	0.082	0.082	0.056	0.056	0.056
r2	0.041	0.073	0.085	0.033	0.034	0.037
N	1,206,286	1,206,286	1,206,286	1,206,286	1,206,286	1,206,286
Health Plan Fixed Effects	✓	✓	✓	✓	✓	✓
Year Fixed Effects	✓	✓	✓	✓	✓	✓
Demographic controls		✓	✓		✓	✓
Other controls			✓			✓
Region Fixed Effects			✓			✓

The table shows regression results from linear probability models. The sample excludes contracts with less than three year contract period since the minimum contract period is two years. Demographic controls are dummies for sex and calendar age. Additional controls include the professional group, years since joining the company, whether claims in the previous year were above the median, risk rating and a dummy indicating whether pre-existing conditions limit the service package. The standard errors are clustered at the plan level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

As seen, the regression results do not deliver much evidence that making accrued reserves portable has led to a significantly higher share of policyholder canceling contracts. Column (1), just controlling for health plan and year fixed effects, yields a significantly negative effect of 1.74 percentage points (ppt), relative to a baseline of 8.2%. The effect shrinks to 0.95ppt when adding demographic controls (column (2)) and entirely vanishes when adding more controls in column (3). The non-significant estimate in column (3) is just a tiny 0.06ppt, or 0.7% of the mean.

However, in line with Figure 2, columns (3) to (6) provide strong evidence that the reform induced more internal switches—and this effect is robust and significant in statistical and economic terms. Accordingly, the reform induced an increase in the internal switching rate by 6.5ppt and thus more than doubled the baseline probability to switch from 5.6%. What is particularly noteworthy is the robustness of the estimated coefficient which barely increases or

decreases once we include sets of enrollee level and health plan level covariates. This suggests that health plan level and socio-demographic adjusters are not significantly correlated with the strong increase in switching rates from 2008 to 2009. This observation is reassuring because it implies, for example, that changes in the enrollee or health plan composition do not significantly alter our estimates.

Table 4: External Switching in a Difference-in-Differences Framework

	(1)	(2)	(3)
	External Switch		
DID	0.0008 (0.005)	0.0001 (0.004)	0.0063** (0.003)
Treated	0.0457*** (0.006)		
Baseline	0.082	0.082	0.082
r2	0.050	0.074	0.085
N	1,206,286	1,206,286	1,206,286
Health Plan Fixed Effects	✓	✓	✓
Year Fixed Effects	✓	✓	✓
Demographic Controls		✓	✓
Additional Controls			✓
Region Fixed Effects			✓

The table shows regression results from linear probability models. The sample excludes contracts with less than three year contract period since the minimum contract period is two years. Demographic controls are dummies for sex and calendar age. Additional controls include the professional group, years since joining the company, whether claims in the previous year were above the median, risk rating and a dummy indicating whether pre-existing conditions limit the service package. The standard errors are clustered at the plan level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Next, we turn to the DiD framework for the model using *External Switch* as outcome variable. Table 4 shows the results in three columns. The first two model specifications yield tiny and non-significant coefficients, whereas the most saturated model in the last column yields a small but significant effect of 0.63ppt (or about 8% of the mean). This represents basically the parametric, sample-adjusted, equivalent to Figure 4b. Using short-term contracts as controls as suggested by Figure 4a yields very similar results.

4.3 Comparing Internal Switchers' Old and New Health Plans

The above analysis has shown evidence of an increase in internal health plan switches as a result of the strengthened consumer bargaining position. Thanks to our claims panel data we observe internal switchers and their chosen health plans before and after a switch. Hence,

as a next step, we analyze how switchers' health plan parameters and health care utilization change as they move from one contract to another. Table 5 presents the results of this exercise. Again, in each of the columns from left to right, we add more control variables to the models. Each panel represents models with different health plan parameters as outcome variables. We consider the type of plan (Eco/Plus/Top) as well the deductible, premium, and claims. All outcomes are measured, whenever applicable, in the year following the switch. The regressor *Internal Switch* informs us about the changes in health plan parameters in pre-reform years, and the interaction term *Internal Switch* × Postreform informs us about incremental changes in health plan parameters in post-reform years.

Starting with pre-reform health plan changes associated with switches (captured by the parameter *Internal Switch*), a very clear pattern emerges: Switches are typically downgrades. A typical pre-reform switch is associated with reduction in choosing the most generous "Top Plan" category by 22ppt or more than 50% (Panel A, Table 5). The annual deductible increased on average by € 150 and monthly premiums decreased by about € 50 (Panel C and D, Table 5). Interestingly, monthly claims decreased by almost the same amount as monthly premiums, by € 50 (Panel E, Table 5). It is worthwhile mentioning that the coefficient estimates are relatively robust to including region and individual fixed effects as well individual-level time-variant covariates such as whether previous claims were above the median, whether pre-existing condition clauses existed, or whether individuals are employees or self-employed. Obviously none of these covariates seems to be severely correlated with the switching decision.

Next, the interaction term contrasts the post-reform switches to the pre-reform switches. Again, a very clear picture emerges: pre-reform internal switches represent downgrades, whereas this is not the case for post-reform switches. More specifically, post-reform, the likelihood to choose the most generous Top Plan category is significantly reduced by 13ppt as compared to pre-reform (but overall still a negative -10ppt). Similarly, the likelihood to choose a higher deductible is significantly reduced as compared to pre-reform. Post-reform, the size of deductibles remains very stable when enrollees switch plans (Panel C, Table 5). Premiums still decrease by an average of € 243 per year, or € 20 per month but much less than pre-reform (Panel D, Table 5). And claims only decrease by € 150 instead of € 590 per year (Panel E, Table 5). The last finding may indicate a higher degree of moral hazard on the consumer side in post-reform years. An explanation could be that insurer retention efforts were good enough

Table 5: Characterizing Destination Plans of Switchers Pre- and Post-Reform

	(1)	(2)	(3)	(3)
Dependent Variable: See Panel Heading				
A. New Plan TOP Plan_{t+1}				
<i>Internal Switch</i> × Postreform	-0.0663*** (0.003)	0.1265*** (0.002)	0.1266*** (0.002)	0.1269*** (0.002)
<i>Internal Switch</i>	0.0457*** (0.002)	-0.2211*** (0.002)	-0.2207*** (0.002)	-0.2211*** (0.002)
Baseline	0.407	0.407	0.407	0.407
B. New Plan PLUS Plan_{t+1}				
<i>Internal Switch</i> × Postreform	-0.0787*** (0.003)	-0.1325*** (0.002)	-0.1325*** (0.002)	-0.1325*** (0.002)
<i>Internal Switch</i>	0.0487*** (0.002)	0.1827*** (0.002)	0.1827*** (0.002)	0.1827*** (0.002)
Baseline	0.330	0.330	0.330	0.330
C. New Plan Deductible_{t+1}				
<i>Internal Switch</i> × Postreform	-147.85*** (3.605)	-124.01*** (3.052)	-124.09*** (3.050)	-124.34*** (3.052)
<i>Internal Switch</i>	241.57*** (3.014)	144.24*** (2.553)	144.46*** (2.552)	144.82*** (2.553)
Baseline	608.83	608.83	608.83	608.83
D. New Plan Premium_{t+1}				
<i>Internal Switch</i> × Postreform	-81.96*** (10.484)	688.74*** (8.250)	703.26*** (7.957)	381.19*** (7.463)
<i>Internal Switch</i>	118.59*** (7.872)	-912.02*** (6.820)	-924.13*** (6.643)	-624.52*** (6.172)
Baseline	4,009.19	4,009.19	4,009.19	4,009.19
E. Claims_{t+1}				
<i>Internal Switch</i> × Postreform	-181.53*** (37.521)	518.2181*** (37.233)	513.73*** (36.592)	441.88*** (34.369)
<i>Internal Switch</i>	-660.91*** (27.575)	-790.94*** (28.023)	-696.45*** (27.399)	-591.95*** (24.878)
Baseline	3,282.44	3,282.44	3,282.44	3,282.44
Health Plan Fixed Effects	✓	✓	✓	✓
Year Fixed Effects	✓	✓	✓	✓
Demographic Controls		✓	✓	✓
Additional controls			✓	✓
Region Fixed Effects			✓	✓
Individual Fixed Effects				✓

Demographic controls are dummies for sex and calendar age. Additional controls include the professional group, years since joining the company, whether claims in the previous year were above the median, risk rating and a dummy indicating whether pre-existing conditions limit the service package. The regression always use the full sample, do not condition on contracts with less than three years. The number of person-year observations in all regressions is 1,661,561. The standard errors are clustered at the individual level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

to make enrollees switch internally rather than canceling their contract, but that consumers were not entirely happy with the outcome of their negotiations which, on average, merely led to a reduction in the monthly premium by €20.

4.4 Which Policyholders Switched Internally Post-Reform?

Lastly, we want to identify those consumers who took opportunity of their improved bargaining position in post-reform years and switched at higher rates to other health plans within the same insurer. Figure 2 documents this upswing in internal switching rates in post-reform years. We would like to know: Who is driving these effects?

To empirically investigate this question, we obviously use *Internal Switch* as dependent variable. Then, we split the sample by the stratifying variable we are interesting in, and estimate the same model as in columns (4) to (6) of Table 3. Table 6 shows the results where each of the three columns only differ by the sets of covariates included, as in columns (4) to (6) of Table 3. The labeling of the panels indicate on which subsample the models condition.

The effect heterogeneity findings in Table 6 can be summarized as follows: First, again, all estimates are remarkably robust to the inclusion of additional sets of covariates.

Second, in terms of health plan characteristics, we find that enrollees in Eco Plans and with short contract durations were almost twice as likely to switch to a different plan (as compared to Top Plans and longer contract holders) in post-reform years. However, also longer contract and Top Plan holders switched internally at significantly higher rates. For example, longer contract holders' internal switching probability increased by 65% and Top Plan holder's internal switching probability increased by 50%, whereas short contract holders' internal switching rates increased by 140% and Eco Plan holders' internal switching rates even increased fivefold.

Third, males switched at significantly higher rates than females (+125% vs. +80%), and enrollees with below median claims, i.e., presumably healthier enrollees, at higher rates than enrollees with above median claims, i.e., sicker enrollees (130% vs. 95%). The fact that healthier enrollees switched more often is not really surprising since their new outside option to switch externally represents a credible threat to the insurer. However, it is interesting to observe that even relatively unhealthy enrollees switched at higher rates post-reform. This might be

Table 6: Which Consumers Switched Internally After their Bargaining Position Was Strengthened

	(1)	(2)	(3)
	External Switch		
A. Old Plan Category TOP_t			
Postreform	0.0629*** (0.006)	0.0586*** (0.006)	0.0597*** (0.006)
Baseline	0.095	0.095	0.095
B. Old Plan Category ECO_t			
Postreform	0.1017*** (0.014)	0.1014*** (0.014)	0.1016*** (0.014)
Baseline	0.026	0.026	0.026
C. Contract Duration 3 – 7 Years_t			
Postreform	0.0892*** (0.008)	0.0878*** (0.008)	0.0872*** (0.008)
Baseline	0.061	0.061	0.061
D. Contract Duration > 7 Years_t			
Postreform	0.0443*** (0.012)	0.0430*** (0.011)	0.0449*** (0.011)
Baseline	0.069	0.069	0.069
E. Previous Claims Below Median_t			
Postreform	0.0720*** (0.009)	0.0703*** (0.009)	0.0704*** (0.009)
Baseline	0.054	0.054	0.054
F. Previous Claims Above Median_t			
Postreform	0.0577*** (0.009)	0.0562*** (0.009)	0.0561*** (0.009)
Baseline	0.059	0.059	0.059
G. Males			
Postreform	0.0761*** (0.008)	0.0742*** (0.008)	0.0747*** (0.008)
Baseline	0.059	0.059	0.059
H. Females			
Postreform	0.0395*** (0.011)	0.0388*** (0.011)	0.0385*** (0.011)
Baseline	0.048	0.048	0.048
Health Plan Fixed Effects	✓	✓	✓
Year Fixed Effects	✓	✓	✓
Demographic controls		✓	✓
Additional controls			✓
Region Fixed Effects			✓

The table shows regression results from linear probability models. The sample excludes contracts with less than three year contract period since the minimum contract period is two years. Demographic controls are dummies for sex and calendar age. Additional controls include the professional group, years since joining the company, whether claims in the previous year were above the median, risk rating and a dummy indicating whether pre-existing conditions limit the service package. Panel A to H include the following number of observations: 2,355,602; 259,003; 657,176; 549,110; 658,945; 547,341; 866,147; 340,139. The standard errors are clustered at the plan level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

an alternative explanation of why post-reform claims were higher as compared to pre-reform claims after enrollees switched plans (see Panel E of 5 above): Pre-reform, predominately healthy employees were in the position to actually switch and downgrade the generosity (and premiums) of their health plans. Post-reform, by contrast, the pool of internal switchers became worse in the sense that more unhealthy enrollees decided to switch to health plans that they obviously considered more optimal for them.¹¹

As a last point, we would like to remind the reader that the identification of the effects here is based on the assumption of no significant changes in post-reform years had the reform not been implemented. Figure 2b supports this assumption given the small fluctuations in pre-reform years. However, we still have to be careful when interpreting the effect heterogeneity findings. In our reading, there is strong suggestive evidence that the internal switching rates increased substantially and significantly for all subgroups of policyholders as a result of the reform. This is a fascinating and relevant finding in itself. In addition, we find evidence that the switching rates for males and healthier enrollees as well as Eco plan and more recent clients were particularly high. However, given the assumptions required for a causal interpretation of the identified effects, the latter statement naturally involves more statistical uncertainty.

5 Conclusion

Using panel claims data from a large German non-group private health insurer, this study is the first to empirically evaluate a regulatory reform that mandated the portability of old-age provisions. The German individual private health insurance market is characterized by a front-loading of premiums over the life-cycle—in form of a legal obligation of insurers to build up old-age provisions. The idea behind the insurer mandate to build up provisions is to include a mandatory savings component that dampens the premium growth when enrollees become older. However, combined with the experience rating of new applicants when switching insurers, it creates a strong lock-in effect and rather dampens competition between insurers. Making old-age provision portable was a regulatory attempt to reduce switching costs and to strengthen consumers' market position, thereby fostering competition which may

¹¹When interpreting these numbers it has to be considered that the health expenditure distribution has a long right tail and that the 10% highest spenders consume 53% of all health care. This means that it is very likely that also very sick enrollees switched at higher rates post-reform.

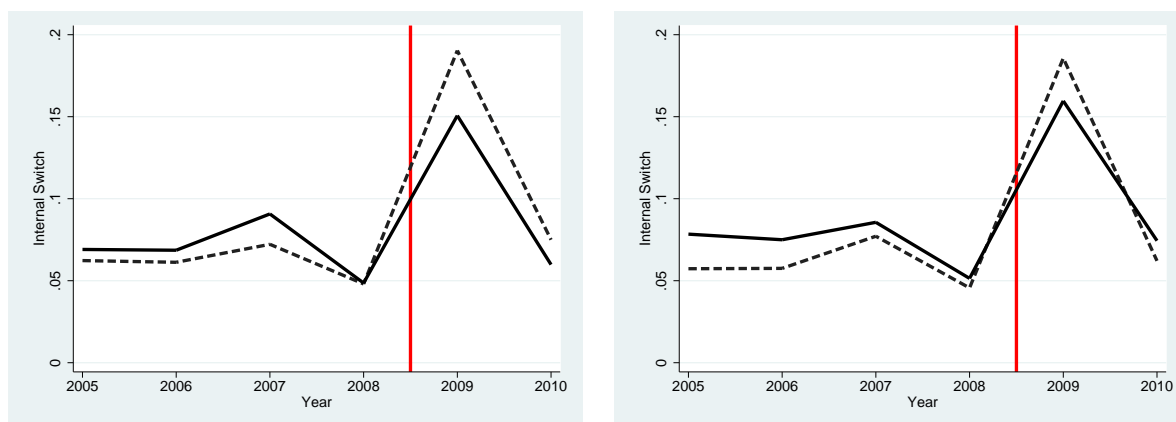
eventually lead to lower premiums and more consumer choice.

We do not find much evidence that the newly mandated portability led to a substantial increase in contract cancelations and switches to competitors. However, we do find evidence for a significant and substantial increase in (a) the number of health plans offered by the insurer as well as (b) internal health plans switches. Interestingly, it seems like the regulatory reform induced positive spillover effects even for relatively old and unhealthy policyholders. Although actual external switching rates did not increase significantly, we find that all enrollees subgroups—even the relatively old and unhealthy—could take advantage of the new choice opportunities and switched health plans internally at significantly higher rates.

The most likely explanation for the increase in consumer choice and internal health plan switching is the reform-induced increase in consumer bargaining power in interaction with retention efforts by the insurer. Overall, the findings demonstrate that health care consumers do make active use of their increased sovereignty when policymakers enable them.

Appendix

Figure 4: Enrollees Who Switch Internally by (a) Contract Duration and (b) Age



Source: Own calculations and illustrations.

Table A1: Descriptive Statistics—Stock vs. Inflow

	Stock vs Inflow			
	Stock Mean	Std.Dev.	Inflow Mean	Std.Dev.
Female	0.28	(0.45)	0.32	(0.47)
Deductible (in €)	509.00	(574.58)	560.37	(322.55)
Monthly premium (in €)	291.35	(156.55)	210.51	(106.25)
Policyholder since (in yrs.)	14.50	(10.83)	3.94	(6.29)
Age at entry	31.63	(8.86)	34.87	(10.20)
Upgrade w/o health check	0.15	(0.36)	0.63	(0.48)
GP Gatekeeper	0.22	(0.42)	0.83	(0.38)
Total claims (in €)	2655.14	(6602.54)	1050.65	(4188.40)
Claims > mean claims	0.38	(0.49)	0.19	(0.39)
Plan Category: Top	0.44	(0.50)	0.06	(0.23)
Plan Category: Plus	0.37	(0.48)	0.29	(0.46)
Plan Category: Eco	0.19	(0.39)	0.65	(0.48)
Age (in years)	46.11	(11.49)	38.80	(10.11)
25-34	0.12	(0.33)	0.32	(0.47)
35-44	0.36	(0.48)	0.35	(0.48)
45-54	0.29	(0.45)	0.21	(0.41)
55-64	0.14	(0.35)	0.06	(0.23)
65-74	0.06	(0.23)	0.01	(0.10)
75-84	0.01	(0.12)	0.00	(0.04)
85-94	0.00	(0.06)	0.00	(0.02)
N	1,450,480		510,970	

Note: Authors' calculations.

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