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Consumer Price Sensitivity and Health Plan Choice in a Regulated Competition Setting

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Keywords: health plan switching; premium elasticity; salience.

JEL: D12, G22, I13.

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1 INTRODUCTION

Many countries including the United States, the Netherlands, Germany, Israel and Switzerland rely at least partly on (regulated) competition to contain health care costs and to maintain quality of services. Competition should incentivize health insurers to improve quality, reduce costs, and satisfy patients in order to attract more consumers (Enthoven, 1978). However, the success of competition as a strategy to contain costs depends largely on the individuals response to premium changes (Buchmueller and Feldstein, 1997), that is, the premium elasticity has to be sufficiently high. In this paper, we exploit a quasi-exogenous premium increase for young adults in Switzerland to examine health plan switching and premium elasticities.

Health plan choices and premium elasticities have been analyzed in previous studies (see Pendzialek et al., 2016, for a recent overview). In general, the results suggest that consumers are price sensitive to some degree. However, our study differs from the existing literature in several important aspects. Most importantly, previous estimates are rarely based on exogenous variation in the premium. One notable exception is Buchmueller and Feldstein (1997), but they study employer-sponsored insurance where a zero-premium option is available. As zero-price options are a very particular case (see Douven et al., 2017), these results are not directly applicable to most regulated competition markets. Furthermore, the majority of studies considers employer-sponsored insurance. In contrast, we analyze a market with individual health insurance and out-of-pocket premiums that correspond (on average) to the actual costs of the plan. Similar to the marketplaces under the Affordable Care Act (ACA), individuals in Switzerland generally pay the full premium of their chosen health plan unless they receive in-kind premium subsidies (see Kaufmann et al., 2017). Moreover, we analyze a regulated competition setting and use register data on an individ-

ual level. This has been done previously by Beck (2004) for Switzerland and van Dijk et al. (2008) for the Netherlands, but the variation in the premium was not exogenous. Thus, our first contribution is to examine a quasi-exogenous premium increase in a regulated competition setting.

Our second contribution is related to the observation that consumers often fail to choose the cost-minimizing option in their choice set. In Switzerland, for instance, health plans with mid-range deductibles between CHF 500 and CHF 2,000 do not minimize individuals' total expenditure (i.e. premium plus co-payments) in most cases and are thus dominated by health plans with the lowest or highest deductible (CHF 300 and 2,500, respectively). Back-of-the-envelope calculations suggest that consumers with mid-range deductibles could reduce their total expenditures by roughly 12% (or CHF 500) per year by adjusting the deductible level. A more recent strand of the literature describes and examines these inefficient consumer decisions. In the context of health insurance, the analysis is mostly focused on Medicare Part D. There is evidence that consumers are likely not optimizing effectively (Heiss et al., 2016), switch plans infrequently and search imperfectly (Ho et al., 2015) and that switching probabilities decrease in the time enrolled in Part D and the number of options (Ketcham et al., 2015).[1] Frank and Lamiraud (2009) find similar results for Switzerland, suggesting that agents' willingness to switch plans is decreasing in the number of choices offered. While switching costs may partly explain inertia in these markets, salience provides another potential explanation. Based on car liability insurance, Kiss (2016) provides evidence that salience of the switching opportunity increases switching rates considerably. As a second contribution, we provide evidence that salience of the premium increase also affects the switching probability.[2]

[1] Hortaçsu et al. (2015) find similar results in the context of residential electricity markets.

[2] We use 'salience' to refer to the visibility of the premium increase. Namely, a 'salient' premium increase is sufficiently large to trigger attention.

In our analysis, we exploit two specific features of the premium regulation in the compulsory health insurance in Switzerland. First, young adults aged 19 to 25 face lower (out-of-pocket) premiums than adults aged 26 and older. In other words, young adults pay considerably less for the *same* health plan than their adult peers. Second, the age class is altered at the beginning of the year during which the individuals turn 26. As a consequence, there is a sharp discontinuity in the annual premium increase for individuals born on either December 31st or January 1st. Henceforth, we refer to the group born before and after the turn of the year as treatment and control group, respectively. Thus, we exploit this institutional setting by comparing these two groups and examining their price sensitivity.

For our empirical analysis, we study health insurance register data provided by a large Swiss health insurer. First, we analyze the effect of being in the treatment group on the probability to switch health plans. Our results suggest that an additional increase in the annual premium of CHF 525 (22%) increases the probability to change the health plan by roughly 50% (from a baseline probability of 19%). Second, we analyze health plan choices in more detail based on a conditional logit model. We find that the premium elasticity is up to five times larger for the treatment group compared to the control group. Possible explanations for this finding include switching costs and salience of the price change. We argue that the latter explanation is more likely as searching and witching is very inexpensive in Switzerland.

The remainder of this paper is organized as follows: Section 2 provides information on the institutional background in Switzerland and the identification strategy. In Section 3, we explain the data and present descriptive statistics. Section 4 and 5 describe the empirical methods and present and discuss the main results for the analysis of plan switching and plan choice, respectively. Section 6 concludes.

2 INSTITUTIONAL BACKGROUND

Compulsory health insurance in Switzerland is based on principles of regulated competition, that is, health plans and providers compete on price and quality while regulation ensures risk solidarity, individual affordability, and accessibility of health plans (see Schmid et al., forthcoming, for a recent overview). Health plans are offered by approximately 60 private insurance companies that are obliged to accept all consumers who wish to enroll regardless of health status, age, gender, etc. (open enrollment). Similar to the ACA Marketplaces, premiums are generally fully born by the individual and are independent of employment. Unlike in the Marketplaces, all contracts between consumer and insurer are on an individual basis, that is, health plans do not cover dependents, and collective contracts are not allowed in compulsory health insurance (Leu et al., 2008). Moreover, each health plan has to offer the same coverage in terms of outpatient and inpatient services, prescription drugs, and so on. However, insurers can offer several forms of managed care health plans, and health plans may differ in the voluntary deductible.[3] Both the choice of a higher deductible and a managed care plan lead to lower premiums though the premium reductions are subject to regulations. Overall, health plans differ in the health insurer offering the plan, the deductible of the plan, and whether the plan has some managed care features or not. Finally, it is worth noting that health plan premiums are community-rated on a cantonal basis. Nevertheless, premiums may differ between several age classes and among up to three premium regions per canton, that is, only individuals who purchase identical health plans for the same age class and who live in the same premium region face the same premium.

[3]The selectable annual deductibles for the population under consideration are CHF 300, 500, 1000, 1500, 2000, and 2500. Once the deductible is filled, individuals face a co-insurance rate of 10% up to the stop-loss amount of CHF 700.

Regarding health plan choices and switching, three features of the compulsory health insurance are particularly important for our analysis. First, the contract period corresponds to the calendar year and insurers have to announce the change in the plan premiums no later than October 31st of the previous year. In turn, consumers can give notice to change the current health plan or insurer until November 30th, that is, all consumers have the annual right to adapt their health plan.[4] Second, all health plans and premiums have to be approved by the Federal Office of Public Health (FOPH). Afterwards, all approved health plans and premiums are published by the FOPH, that is, the entire choice set for each individual is observable. This implies for instance that we can determine the counterfactual premium for individuals who switched the health plan. Third, the premium for the *same* health plan differs between 'young adults' $(19-25)$ and 'adults' (26 and older), that is, the latter have to pay considerably more. By regulation, the age class is altered at the beginning of the year during which the individuals turn 26.

Regulation implies that individuals who were born within a few days can face different future premiums for the *same* health plan. For instance, an individual that turns 26 on December 31st is considered an 'adult' and has to pay more for the same health plan than her marginally younger peer who turns 26 one day later, that is, January 1st of the next year. Thus, we have individuals who are de facto the same age face the same health plan premium during the current year but differ substantially in the future premium. Therefore, individuals who are born before the turn of the year are 'treated', whereas all others individuals are used as 'controls'. Moreover, we refer to the year before the treatment group turns 26 as 'year zero' whereas the year during which they turn 26 is referred to as 'year one'.

[4]Note that a few exceptions exist. In particular, individuals are allowed to change their health plan (and insurer) if the insurer has to extraordinarily increase the premium during the year (e.g. due to insufficient solvency).

The implications of this regulation and how we will be able to exploit them are best explained using an example. (i) Consider agent C, born on January 1st 1985. As of her 26th birthday in 2011, C is grouped into the 'adult' age class and starts paying the higher premium. For the previous years, including 2009 and 2010, C is a 'young adult' and benefits from a premium discount. (ii) Now consider C's marginally older peer, agent T, who was born one day before, on December 31st 1984. Because T turns 26 in 2010, he will be considered an 'adult' starting from January 1st 2010. That is, despite being of virtually the same age, C and T face vastly different premium levels for the *same* health plan in 2010. (iii) In the remainder of the paper, we will refer to the last year where C and T face identical premiums as 'year zero' (here: 2009). 'Year one' will denote the year where T is treated with the change of age class (here: 2010). That is, C and T will belong to the control and treatment group, respectively.[5]

In summary, we can exploit that individuals generally have an annual health plan choice, that the choice set is known for all individuals, and that we have two specific groups that differ in their future premium.

3 DATA

We have access to the records of a large Swiss health insurer (CSS Insurance) and its subsidiaries for the years 2006 to 2014 with an annual average of roughly one million individuals enrolled in health plans under the compulsory health insurance law. Our data comprises all individuals aged between 23 and 28. For each individual, we have information on the exact date of birth, gender, region of residence, and language. Regarding annual health plan choices, we observe the deductible level, whether the chosen health plan exhibits some managed care fea-

[5]Illustration: If we assume that both agents live in the region Zurich I, C and T both pay CHF 2,671 in 2009. At the turn of the year, T's premium will increase by CHF 848 (or 34%), while C's premium only increases by CHF 180 (or 7%). For simplicity, we assume that both live in the same region (Zurich I) and are enrolled in the 'standard plan' (deductible of CHF 300, no managed care) with CSS, without accident coverage.

tures, and whether the health plan additionally provides accident coverage. Note that the latter is a proxy for non-participation in the labor market as virtually all employees have to be insured against accidents by their employer. In addition, we observe the so-called insurance carrier, that is, the insurance company within CSS Insurance that offers the plan.[6] For individuals entering and leaving CSS Insurance we know the pre-insurer and the post-insurer, respectively.[7] However, we do not observe the health plan details for the time before entering and after leaving CSS Insurance. Regarding individuals' health care expenditures, we have annual total expenditures.

We complement our data with the publicly available premium data provided by the Federal Office of Public Health (FOPH). The so-called 'premium archive' consists of almost all available health plans and premiums since 1996 and allows us to impute counterfactual premiums for any given health plan, that is, we are able to determine the counterfactual premium of adults if they were young adults.

Finally, we apply three refinements to obtain our estimation sample. First, we exclude 1,187 individuals who are forced to switch their plan at the turn of the year, e.g. because the original plan is no longer offered or the individual moves between regions at the turn of the year. Second, we limit our sample to all individuals born within 60 days before or after the turn of the year, thus dropping 91,063 individuals. Third, we have to further reduce our sample as some dates of births are incorrectly recorded. In Switzerland, January 1st is often assigned as day of birth if the exact date is unknown, e.g. for individuals that (illegally) immigrated and had no official documents (see Fargahi, 2017).[8] These individuals might, however, differ considerably in terms of e.g. health status, income, and

[6] Between 2006 and 2014, CSS Insurance consisted of up to five insurance carriers, namely CSS, INTRAS, Arcosana, Sanagate (since 2010), and Auxilia (until 2010).

[7] This information is available for most individuals starting from 2008.

[8] As a result, observing January 1st as date of birth is four times more likely than any other date in our data.

education from the general population. As our identification strategy relies on the assumption that all unobserved factors are as good as randomly assigned given birthdays around the turn of the year, we thus drop all individuals born on January 1st. To preserve the relative sizes of the treatment and the control group, we additionally drop all individuals born on December 31st. Note that dropping these 1,292 observations also mitigates concerns regarding strategic birth timing e.g. reported in Dickert-Conlin and Chandra (1999), LaLumia et al. (2015), and Shigeoka (2015). In the end, our sample consists of 18,444 treated individuals and 20,616 controls.[9] Table I reports descriptive statistics separately for both groups in year zero.

– Insert Table I about here –

As evident from Table I, the two groups are very similar in terms of gender, language, foreign nationality and the region of residence. Quite obviously, given their young age, both groups are in good health with only around 5% suffering from chronic conditions. In turn, individuals in both groups spent around CHF 2,500 on basic health insurance and CHF 1,500 on health care and less than 40% exceeded their deductible. Despite all similarities, the groups differ in certain characteristics. Most notably in the regional composition, with less individuals from the French-speaking part of Switzerland (Region Lemanique) in the treatment group. Moreover, the treated are slightly more likely to choose a managed care plan, a carrier different from CSS, and are more often self-payers. These differences are, however, negligible in economic terms.

To provide additional evidence on the similarity of the two groups, Figures 1 and 2 plot the average health plan choices against day of birth (centered around the turn of the year). There are two observations worth highlighting. First, all means are roughly constant within each group. Second, there are no jumps around zero, that is, members of the treatment group (left of the dashed line)

[9]Section O.A in the Online Appendix describes the data cleaning process in more detail.

and the control group exhibit comparable health plan choices. Figure 1 shows that around 40% opted for a high deductible level of CHF 1,500 or more, with an equal share choosing a managed care plan. Within the CSS group, CSS is the most popular carrier enrolling around 68% of the sample. Around 43% include accident coverage in their plan. Figure 2 provides more detailed information on deductible levels. Most notably, the standard deductible of CHF 300 is the most popular with approximately half our sample choosing it. To sum up, the descriptive evidence supports our claim that the treatment group and the controls are very similar in terms of observables.[10] Overall, these similarities provide first evidence for our assumption that the treatment is as good as randomly assigned.

– Insert Figure 1 and Figure 2 about here –

4 ANALYSIS OF PLAN SWITCHING

Despite all similarities, there is one important difference between the treatment group and the controls, namely the premium in the subsequent year. The current plan exhibits an average annual increase of CHF 170 (7%) and CHF 695 (29%) in the control and treatment group, respectively. Thus, without altering the health plan, treated individuals face on average a much larger increase in their premium than the controls, as shown in Table I. However, individuals can respond to changes in the premium by *switching* the health plan, that is, altering health plan details such as the deductible level or switching to another insurance carrier within CSS, or by completely *leaving* CSS. Henceforth, we refer to this two groups as 'switchers' and 'leavers', respectively. Those individuals who keep their current plan are referred to as 'stayers'. Note that endogeneity of the premium structure should not be an issue. In particular, the high premium level is not determined by switchers, but by the older (oldest) age group. Compared to these groups,

[10] The same information for all other discussed variables can be found in Figures 4 − 6 in the Online Appendix.

first, the overall health costs of young adults are too low and second, the group size is too small when compared to older cohorts.

Regarding any changes, the treatment group is roughly 1.5 times more likely to switch or leave. More precisely, in the treatment (control) group, 12% (8%) are switchers and 16% (11%) are leavers. Thus, most individuals are stayers although the share of individuals that does not alter the health plan is somewhat smaller in the treatment group compared to the control group. The (unconditional) plan switching and leaving behavior is shown in more detail in Table II. Overall, the switchers tend to increase their deductible level, to choose managed care options more often, and to alter their insurance carrier. In turn, their premium increase is lowered by an average of CHF 82. However, we do not observe health plan choices of leavers.

– Insert Table II about here (detailed switching / leaving table) –

4.1 Model Specification

To further analyze health plan switching and leaving behavior, we estimate a probit model using the entire treatment and control group with $i = 1, \ldots, N$ individuals. The dependent variable, Y_i, is zero for all stayers and one for both switchers and leavers. The effect of a premium increase on the switching probability is captured by three variables. First, as our main (price) variable of interest, we include a treatment indicator $T_i = 1$ if the individual belongs to the treatment group and zero otherwise. Second, we add a variable, P_i, that measures how the premium of individual i's plan evolves compared to all other plans in the market. This variable captures changes in relative prices unrelated to the premium effect of the treatment. Third, we include the interaction of these two variables, $T_i \times P_i$ to allow for differing effects by treatment status. We can control for individual-specific heterogeneity using several covariates. The vector $\mathbf{X}_i$ consists of health measures and socioeconomic factors such as gender and

language while the vector $\mathbf{Z}_i$ consists of health plan details in year zero such as the chosen deductible level and managed care option. $\mathbf{F}_i$ additionally includes insurer, regional and year fixed effects. Using different sets of these covariates, we estimate

$$P\left(Y_i = 1|X_i\right) = \phi\left(\alpha_0 + \alpha_1 T_i + \alpha_2 T_i \times P_i + \alpha_3 P_i + \beta \mathbf{X}_i + \gamma \mathbf{Z}_i + \delta \mathbf{F}_i + u_i\right) \quad (1)$$

where α_0 is the constant, u_i is the individual-specific error term, and α, β, γ and δ are coefficient vectors to the corresponding matrices consisting of the covariates.[11]

4.2 Results and Discussion

Table III shows marginal effects for selected specifications (the underlying coefficients are printed in Table V in the Appendix).[12] There are three findings that we would like to highlight.

– Insert Table III about here –

First, we find that the treatment group is about 50% more likely to change their health plan than the control group. Compared to earlier findings in the literature, the effect seems to be small. In particular, Buchmueller and Feldstein (1997) find that a premium increase of $10 implies a five times higher switching probability. However, Buchmueller and Feldstein analyze employer-sponsored health plans where, after changes in the sponsoring scheme, a zero out-of-pocket premium option still existed. Zero-price options are not only very attractive to

[11] The underlying assumption is that an individual changes its health plan if the latent utility from the change is larger than zero, that is, $U_i^* > 0$ where $U_i^* = \alpha_0 + \alpha_1 T_i + \alpha_2 T_i \times P_i + \alpha_3 P_i + \beta \mathbf{X}_i + \gamma \mathbf{Z}_i + \delta \mathbf{F}_i + u_i$.

[12] We additionally estimate two types of models: First, we run a a set of multinomial probit models, where the price variable is allowed to have different effects on switching and leaving. The results are in line with the baseline estimation, both in magnitude and in robustness to the inclusion of a full set of covariates. Table VI in the appendix shows marginal effects. Second, the main results are robust to excluding the leavers (cf. Table VIII in the appendix).

consumers but the change in relative prices might also have been much more pronounced than in our case (see e.g. Douven et al., 2017).

Second, the marginal effect of changes in the relative prices are smaller for the treatment group than for the control group (see the last two columns). More precisely, an average increase in the annual premium of ten Swiss francs (relative to the market average), increases the change probability by 0.28 percentage points. Thus, changes in the relative prices do not have a large effect on switching behavior, especially when compared to the effect of a large price jump, as measured by the treatment dummy. This implies that the huge jump in the premium might even affect choices if the relative prices remained constant. Potential explanations for this finding include transaction costs or salience of the premium increase.

Third, the results reported in Table III are roughly constant over all specifications.[13] Moreover, the estimates are very close to the overall effect based on raw means as shown in Table II. In other words, the main effects of interest are largely unaffected by the inclusion of covariates, and we could simply compare sample means of the treatment and control group. In particular, this provides further evidence that the treatment is indeed as good as randomly assigned. We are therefore confident that the variation in health plan premiums is exogenous such that we can further analyze health plan choices.

5 ANALYSIS OF PLAN CHOICE

5.1 Model Specification

Our analysis of the individuals' health plan choice is based on the conditional logit model (see McFadden, 1974; Abramson et al., 1998, specifically for health

[13] Additional estimation results including different sets of covariates can be found in Tables IX − XII in the Online Appendix.

plan choice) that has been applied in a similar context before by e.g. Feldman et al. (1989), Farley Short and Taylor (1989), Strombom et al. (2002), and Atherly et al. (2004). Henceforth, we focus on stayers and switchers as we do not observe health plan choices of leavers. Consequently, the population consists of all individuals $i = 1, \ldots, N$ for which we observe health plan choices $Y_{it} = j \in \{1, ..., J\}$ in year zero and year one.[14] We assume that individual i's indirect utility from choosing plan j is given by

$$U_{ij} = \underbrace{\alpha P_{ij} + \gamma Z_j}_{V_{ij}} + \varepsilon_{ij} \tag{2}$$

where the indirect (expected) utility U_{ij} consists of a measured component V_{ij} and a random component ε_{ij}. P_{ij} is the price that the individual faces for the plan (see below), Z_j is a plan-specific constant capturing the plan characteristics, and α and γ are the corresponding coefficients and vectors of coefficients, respectively.[15]

Individuals are assumed to select the plan that offers the highest indirect utility, that is, individual i chooses plan j if $U_{ij} > U_{ik}$, $\forall k \neq j$ (see Abramson et al., 1998). By additionally assuming that ε_{ij} exhibits a type 1 extreme value distribution, the probability of individual i to choose plan j is given by

$$\Pr\left(Y_i = j\right) = \frac{\exp(V_{ij})}{\sum_{k=1}^{J} \exp(V_{ik})} \tag{3}$$

which can be estimated by maximum likelihood.[16] Afterwards, we may calculate

[14] Note that the choice set, $J_r = \{\text{carrier} \times \text{deductible} \times \text{plan type}\}$, is constant across years.

[15] Apart from the premium, we do not include individual-specific characteristics in the estimation, as our treatment is likely to be as good as randomly assigned (see Section 3). In addition, including individual-specific characteristics is computationally very intensive due to the large size of the choice set without improving the analysis much.

[16] Note that by aggregating the choice probabilities over all individuals and plans, one obtains the 'market shares' of plan j in our sample.

the premium elasticity for plan j, that is,

$$\eta_{ij} = \frac{\partial \Pr(Y_i = j)}{\partial P_{ij}} \frac{P_{ij}}{\Pr(Y_i = j)} = \widehat{\alpha} P_{ij} \left[1 - \Pr\left(Y_i = j | P_{ij}, Z_j\right)\right] \tag{4}$$

and average over all j and i to obtain average elasticities. Standard errors are obtained by bootstrapping.

5.2 Results and Discussion

As we focus on stayers and switchers, the sample shrinks to $N = 36,383$ whereof $16,879$ individuals are in the treatment group. The price of a health plan j is measured by the difference to the premium paid for the chosen plan in year zero. That is, we assume that individuals compare prices to their status quo premium level. Additionally, taking the difference to the status quo premium accounts for regional differences in premiums levels.[17] Note that the size of the choice set depends on the location of residence, since not all health plans are offered in every region. On average, individuals can choose among 57 health plans, the minimum being 37 while the maximum is 78. We established in Section 3 that the treatment is as good as randomly assigned. Therefore, we do not include individual-specific characteristics in our baseline estimations. The resulting coefficient and elasticity estimates are shown in Panel A of Table IV along with effects from separate estimations by treatment status in columns 2 and 3.

– Insert Table IV about here –

We find that the premium elasticity is -0.56 in the entire sample, that is, an increase of one percent in the premium difference between plan j and the

[17] We further considered two alternative specifications of P_{ij}; the absolute premium level in year one and the relative difference between year zero and year one. While the marginal effects are different (and have different interpretations), the qualitative results are similar across specifications.

status quo premium is associated with a 0.56% lower choice probability for plan j. Separate estimations by treatment status, however, reveal that this effect is mainly driven by the treatment group. In fact, the estimated elasticity in the control group is -0.19 and amounts to -1.03 in the treatment group. In other words, treated individuals respond more than five times stronger to an additional one percent increase in the premium difference to last year's premium. There are two main implications of these results. First, given that the premium dispersion is comparable in both age classes, this result indicates that the treated react stronger to price dispersion than the controls. Second, both groups face the same baseline premium structure in year zero. However, a large upward shift in premium, as experienced by the treated, likely makes the choice situation more salient. Hence, our results suggest that more salient price changes induce a re-evaluation of the chosen plan and thus increase the probability of switching the health plan.[18] These results are in line with the finding from Section 4.2, where we argue that changes in relative prices are a less important driver of health plan choice than are large (and thus salient) price jumps.

As a robustness check, we perform a subgroup analysis addressing the most notable difference between the two groups, the share of self-payers. Even though health plan contracts are on an individual basis, not all invoices are. Families or co-habitating couples often share resources and find it easier to enlist all household members on a collective invoice. On the one hand, individuals that are billed separately are presumably economically self-reliant. That is, they are more likely to cover their health insurance out of their own expenses rather than relying on their parents' or spouses' funds. Therefore, we expect a higher price-sensitivity among self-payers. On the other hand, we are most confident that the health plan choice of the subgroup of self-payers reveals their own preferences rather than, say, those of a caring parent. In light of these considerations, we

[18] Note that the search and switching costs are very small in Switzerland, especially for this group (cf. Laske-Aldershof et al., 2004).

additionally estimate elasticities for the subgroup of self-payers (see Panel B). While the elasticity level of -0.68 is overall considerably higher, the treated still react four times stronger to a premium increase than do the controls.

6 CONCLUSION

This paper exploits quasi-exogenous variation in health insurance premiums to study health plan choices and premium elasticities of young adults in a regulated competition setting. Individuals' health plan decisions are modeled using probit and conditional logit models. While overall only relatively few individuals switch their health plan, we find that a large price jump increases the switching probability by roughly 50 percent. For our treatment group, we find a premium elasticity of up to five times the magnitude of the control group.

Possible explanations for these results include salience of the price change and switching costs. We argue that the latter is of less importance in our setting. First, switching costs in Switzerland are found to be generally low. Insurance coverage is standardized, all premiums are publicly available in a comprehensive list and there exists a popular and easy-to-use price comparison website. Besides, the actual switching process mainly consists of filling out a standardized form. Second, we study a healthy sample of young adults with relatively low health expenditures. Hence, switching the insurance carrier should not impose a large burden upon the consumers. Most importantly, we compare two virtually identical groups that presumably face similar switching costs. Yet, one group experiences a considerable and persistent upward shift in the premium level. We thus argue that this premium increase is large enough for individuals to reconsider their plan choice and adapt their current plan. The argument is further supported by the comparable level of (premium) price dispersion within the two relevant age categories. Hence we conclude that more salient price changes ren-

der health plan choice more sensitive to price dispersion.

The success of regulated competition crucially depends on sufficiently price-sensitive consumers. Yet, smooth premium increases such as those encountered by the control group seem to have little effect on switching behavior.[19] If the policymaker intends to increase switching rates, our results suggest only one suitable approach to increase premium elasticities, because a repeated increase of premiums by 30% hardly seems desirable. The proposed approach involves increasing α, the disutility weight of the premium in the utility function. Namely, this may be achieved by actively informing consumers about savings potentials of alternative health plans.[20] Doing so may provide an ideal setting for nudging, where policymakers may demand insurance companies to make saving options more visible to their customers.[21]

[19]Interestingly, sizeable price discontinuities may have positive effects on the consumers. This result connects to the taxation public finance literature. E.g. in the context of labor taxation, Chetty et al. (2011) analyze why there is not more bunching at kinks (i.e. why elasticities are not larger). Possible explanations include price misperceptions, salience effects, and optimization frictions. They develop a theoretical model with optimization frictions, where one key prediction is that larger tax changes generate larger observed elasticities. In our case, such an optimization friction may be the complexity of the choice problem

[20]Additionally, cutting down the number of alternatives may reduce 'choice overload' and thereby increase attention and decision quality of consumers

[21]For example, Schmitz and Ziebarth (2017) provide evidence that consumers react much stronger, when premium differences are announced in absolute monetary terms rather than in percentages.

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Appendix

A In-Text-Tables

Table I: Descriptive Statistics for Year Zero, 2006 − 2013

	Control group	Treatment group	t-statistics
Health Cost and Health Details			
Healthcare Cost (Annual, CHF)	1,482.81	1,487.94	−0.088
of which paid Out-of-Pocket	334.67	330.43	1.005
Premium (Annual, CHF)	2,556.85	2,578.62	−2.731***
Hit Deductible (share)	0.38	0.39	−1.662*
Chronic Conditions (share)	0.05	0.05	−1.046
Self-Payer (share)	0.64	0.65	−3.359***
Socio-Economics			
Female (share)	0.50	0.50	−0.021
Language (shares):			
German	0.66	0.64	4.596***
French	0.30	0.32	−4.273***
Italian	0.04	0.04	−0.737
Region (shares):			
Region Lemanique	0.22	0.24	−4.903***
Espace Mitelland	0.20	0.19	0.785
Nordwestschweiz	0.13	0.12	0.147
Zurich	0.11	0.12	−1.542
Ostschweiz	0.14	0.13	2.489**
Zentralschweiz	0.17	0.15	3.825***
Ticino	0.03	0.03	−0.261
Size of Premium Increase (in CHF, annually)			
Premium increase of year zero plan	171.90	696.00	−212.240***
Market increase(1)	168.43	135.97	21.783***
Premium increase, net of market(2)	3.82	−2.60	6.694***
Savings from plan switching(3)	−33.96	−82.32	16.358***
Number of Obs.	21,927	20,056	

Notes: This table reports variable means for our baseline sample divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. Regions correspond to NUTS-2-Regions (cantons in brackets): Region Lemanique (VD, VS, GE) , Espace Mittelland (BE, FR, SO, NE, JU), Nordwestschweiz (BS, BL, AG), Zurich (ZH), Ostschweiz (GL, SH, AR, AI, SG, GR, TG), Zentralschweiz (LU, UR, SZ, OW, NW, ZG) and Ticino (TI).
(1): The market increase is the average premium increase of all offered health plans in a market, where a market is defined by region, age category (*in year one*), and calendar year. I.e. for the control group it measures the average increase for all 'young adult' plans, for the treatment group, it measures the average increase for all 'adult' plans. (2): This variable measures the increase of the annual premium for each individual, net of the market increase (see (1)) and unrelated to treatment. (3) This is the difference of the observed premium in year one to the (hypothetical) premium of an individual's year-zero plan. The variable is conditional on being observed in year one, that is, it is only measured for stayers and switchers (Controls: $N = 19,504$, Treated: $N = 16,879$).
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table II: Plan switching, by treatment status 2006 − 2014

Control Group					
	Overall	Standard plans		Managed care plans	
		low deduct.	high deduct.	low deduct.	high deduct.
Stayer	81.26	81.61	76.18	84.00	82.63
Switcher	7.69				
... to Standard Plans					
low deductible		1.41	1.76	1.25	0.06
high deductible		1.75	2.52	0.08	0.43
... to Managed Care Plans					
low deductible		2.79	0.49	1.95	2.04
high deductible		1.43	5.27	3.73	4.30
Leaver	11.05	11.01	13.78	9.00	10.53
Number of Obs.	21,927	9,239	4,043	3,999	4,646
Treatment Group					
	Overall	Standard plans		Managed care plans	
		low deduct.	high deduct.	low deduct.	high deduct.
Stayer	72.52	72.79	66.88	76.18	73.35
Switcher	11.64				
... to Standard Plans					
low deductible		2.23	1.31	1.07	0.11
high deductible		2.94	4.26	0.29	0.91
... to Managed Care Plans					
low deductible		4.01	0.43	3.58	2.29
high deductible		2.99	6.73	5.94	7.11
Leaver	15.84	15.04	20.39	12.94	16.23
Number of Obs.	20,056	8,336	3,521	3,824	4,375

Notes: Table shows aggregated health plan switching behavior for four different health plan choices (plan choices: rows) and both the possibilities to keep the current plan as well as to quit the insurance. High deductibles are CHF 1,500 and higher; switching within managed care and deductible category implies for instance the selection of plan with a more restrictive gatekeeping or a further increase of the deductible level.

Table III: Determinants of Health Plan Switching: Marginal Effects (Full Sample)

	Without Interaction		With Interaction	
	base	full	base	full
Treatment	0.090***	0.087***	0.089***	0.087***
	(0.004)	(0.004)	(0.004)	(0.004)
Premium increase, net of market (CHF 100)	0.028***	0.025***		
	(0.002)	(0.002)		
Control × Premium increase, net of market			0.031***	0.027***
			(0.003)	(0.003)
Treatment × Premium increase, net of market			0.022***	0.021***
			(0.003)	(0.004)
Included Covariates:				
Interaction Term	No	No	Yes	Yes
Health Measures, Socioeconomics	No	Yes	No	Yes
Health Plan Details	No	Yes	No	Yes
Insurer Eff.	No	Yes	No	Yes
Region Eff.	No	Yes	No	Yes
Year Eff.	No	Yes	No	Yes
Number of Obs.	41,817	41,817	41,817	41,817
LogL	-22,192	-21,469	-22,186	-21,465
Pseudo R^2	0.0141	0.0462	0.0144	0.0464

Notes: This table reports estimated marginal effects of probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.) The interaction term is treatment × Premium increase, net of market; Health Measures/Socioeconomics include chronic, female, german; Health Plan Details include managed care plan, deductible level, and hit deductible. Standard errors in parentheses.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table IV: Prices and Health Plan Choice: Estimated Coefficients and Elasticities

Panel A: Full Sample

	Pooled	Control	Treatment
Elasticity	−0.556	−0.189	−1.028
Coefficient Premium Difference (in CHF)	−0.002***	−0.002***	−0.002***
	(0.000)	(0.000)	(0.000)
Alternative-Specific Intercepts	*Yes*	*Yes*	*Yes*
Number of obs. $(N \cdot j)$	2,085,508	1,115,295	970,213
Number of obs. (N)	36,383	19,504	16,879
Log likelihood	-103,684	-55,037	-48,476

Panel B: Self-Payers Only

	Pooled	Control	Treatment
Elasticity	−0.676	−0.316	−1.139
Coefficient Premium Difference (in CHF)	−0.002***	−0.002***	−0.002***
	(0.000)	(0.000)	(0.000)
Alternative-Specific Intercepts	*Yes*	*Yes*	*Yes*
Number of obs. $(N \cdot j)$	1,386,458	734,858	651,600
Number of obs. (N)	24,044	12,774	11,270
Log likelihood	-68,573	-36,142	-32,296

Notes: This table reports estimated coefficients of conditional logit estimations for our baseline sample and for the subsamples of control group and treatment group in columns (2) and (3), respectively. Panel A reports effects for the full sample of stayers and switchers, panel B only includes those individuals who payed their insurance premium themselves. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. The premium variable measures the monthly premium difference of each plan in year one relative to the observed premium in year zero. All printed specifications additionally include alternative-specific constants. Standard errors in parentheses.
$^{*}p < 0.10,^{**} p < 0.05,^{***} p < 0.01$

B Additional Tables

Table V: Determinants of Health Plan Switching: Estimated Coefficients (Full Sample)

	Without Interaction		With Interaction	
	base	full	base	full
Treatment	0.298***	0.300***	0.300***	0.302***
	(0.014)	(0.014)	(0.014)	(0.014)
Premium increase, net of market (CHF 100)	0.094***	0.085***	0.116***	0.103***
	(0.007)	(0.008)	(0.009)	(0.010)
Net of market × treatment			−0.049***	−0.039***
			(0.014)	(0.014)
Female		−0.017		−0.017
		(0.014)		(0.014)
German		0.000		−0.001
		(0.039)		(0.039)
Managed Care Plan		−0.035*		−0.036**
		(0.018)		(0.018)
Deductible		0.000***		0.000***
		(0.000)		(0.000)
Chronic		−0.145***		−0.145***
		(0.033)		(0.033)
Hit Deductible		0.308***		0.309***
		(0.016)		(0.016)
Constant	−0.895***	−1.249***	−0.898***	−1.248***
	(0.010)	(0.061)	(0.010)	(0.061)
Insurer Eff.	No	Yes	No	Yes
Region Eff.	No	Yes	No	Yes
Year Eff.	No	Yes	No	Yes
Number of Obs.	41,817	41,817	41,817	41,817
LogL	-22,192	-21,469	-22,186	-21,465
Pseudo R^2	0.0141	0.0462	0.0144	0.0464

Notes: This table reports estimated coefficients of probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.) Standard errors in parentheses.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table VI: Switching Multinomial Probit: Marginal Effects (Full Sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment Dummy								
Pr(Stayer)	−0.090***	−0.089***	−0.088***	−0.087***	−0.088***	−0.090***	−0.088***	−0.086***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Pr(Switcher)	0.040***	0.040***	0.040***	0.040***	0.040***	0.040***	0.040***	0.040***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Pr(Leaver)	0.050***	0.049***	0.048***	0.047***	0.047***	0.050***	0.047***	0.046***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
premium increase, net of market (CHF 100)								
Pr(Stayer)	−0.028***	−0.027***	−0.026***	−0.022***	−0.025***	−0.031***	−0.028***	−0.024***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Pr(Switcher)	0.008***	0.006***	0.006***	0.008***	0.009***	0.009***	0.010***	0.009***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)
Pr(Leaver)	0.020***	0.021***	0.020***	0.014***	0.016***	0.022***	0.018***	0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
N	41,817	41,817	41,817	41,817	41,817	41,817	41,817	41,817
LogL	-28,698	-28,473	-27,950	-27,749	-28,189	-28,538	-28,040	-27,308
Wald χ^2	639	1,082	2,034	2,406	1,622	957	1,905	3,178

Notes: This table reports estimated marginal effects of multinomial probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.)

$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table VII: Determinants of Health Plan Switching: Estimated Coefficients (Excluding Leavers)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treatment	0.279***	0.281***	0.281***	0.281***	0.281***	0.281***	0.283***	0.284***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
premium increase, net of market (CHF 100)	0.064***	0.051***	0.052***	0.056***	0.065***	0.074***	0.076***	0.064***
	(0.009)	(0.010)	(0.010)	(0.010)	(0.009)	(0.009)	(0.009)	(0.011)
female		0.059***	0.076***	0.079***				0.079***
		(0.018)	(0.018)	(0.018)				(0.018)
german		0.062***	0.057***	0.055***				0.075
		(0.019)	(0.019)	(0.020)				(0.051)
managed care plan		−0.088***	−0.090***	−0.102***				−0.136***
		(0.020)	(0.020)	(0.021)				(0.023)
deductible		0.000***	0.000*	0.000**				0.000**
		(0.000)	(0.000)	(0.000)				(0.000)
chronic			0.025	0.024				−0.001
			(0.040)	(0.040)				(0.041)
hit deductible			−0.108***	−0.109***				−0.111***
			(0.022)	(0.022)				(0.022)
constant	−1.366***	−1.456***	−1.396***	−1.388***	−1.356***	−1.403***	−1.397***	−1.488***
	(0.013)	(0.024)	(0.027)	(0.029)	(0.053)	(0.027)	(0.058)	(0.080)
Insurer Eff.	No	No	No	Yes	No	No	No	Yes
Region Eff.	No	No	No	No	Yes	No	Yes	Yes
Year Eff.	No	No	No	No	No	Yes	Yes	Yes
N	36,236	36,236	36,236	36,236	36,236	36,236	36,236	36,236
LogL	-12,445	-12,420	-12,408	-12,387	-12,406	-12,397	-12,356	-12,290
Pseudo R^2	0.0116	0.0136	0.0146	0.0162	0.0148	0.0155	0.0187	0.0240

Notes: This table reports estimated coefficients of probit estimations for the stayers and switchers (i.e. baseline sample excluding leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.)
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

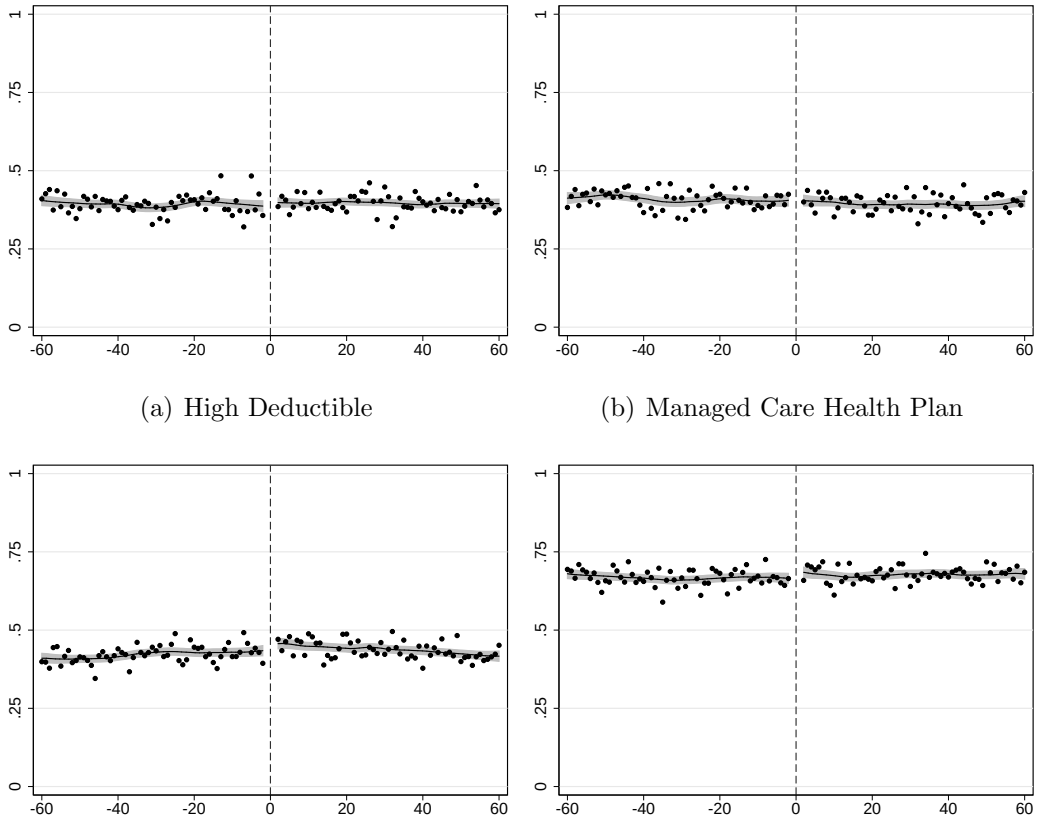
Table VIII: Determinants of Health Plan Switching: Marginal Effects (Excluding Leavers)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treatment	0.053***	0.053***	0.053***	0.053***	0.053***	0.053***	0.053***	0.053***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
premium increase, net of market (CHF 100)	0.012***	0.010***	0.010***	0.010***	0.012***	0.014***	0.014***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
N	36,236	36,236	36,236	36,236	36,236	36,236	36,236	36,236
LogL	-12,445	-12,420	-12,408	-12,387	-12,406	-12,397	-12,356	-12,290
Pseudo R^2	0.0116	0.0136	0.0146	0.0162	0.0148	0.0155	0.0187	0.0240

Notes: This table reports estimated marginal effects of probit estimations for stayers and switchers (i.e. baseline sample excluding leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.)
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

C In-Text Figures

Figure 1: Pre-Treatment Outcomes: Health Plan Choice ($t = 0$)



(a) High Deductible

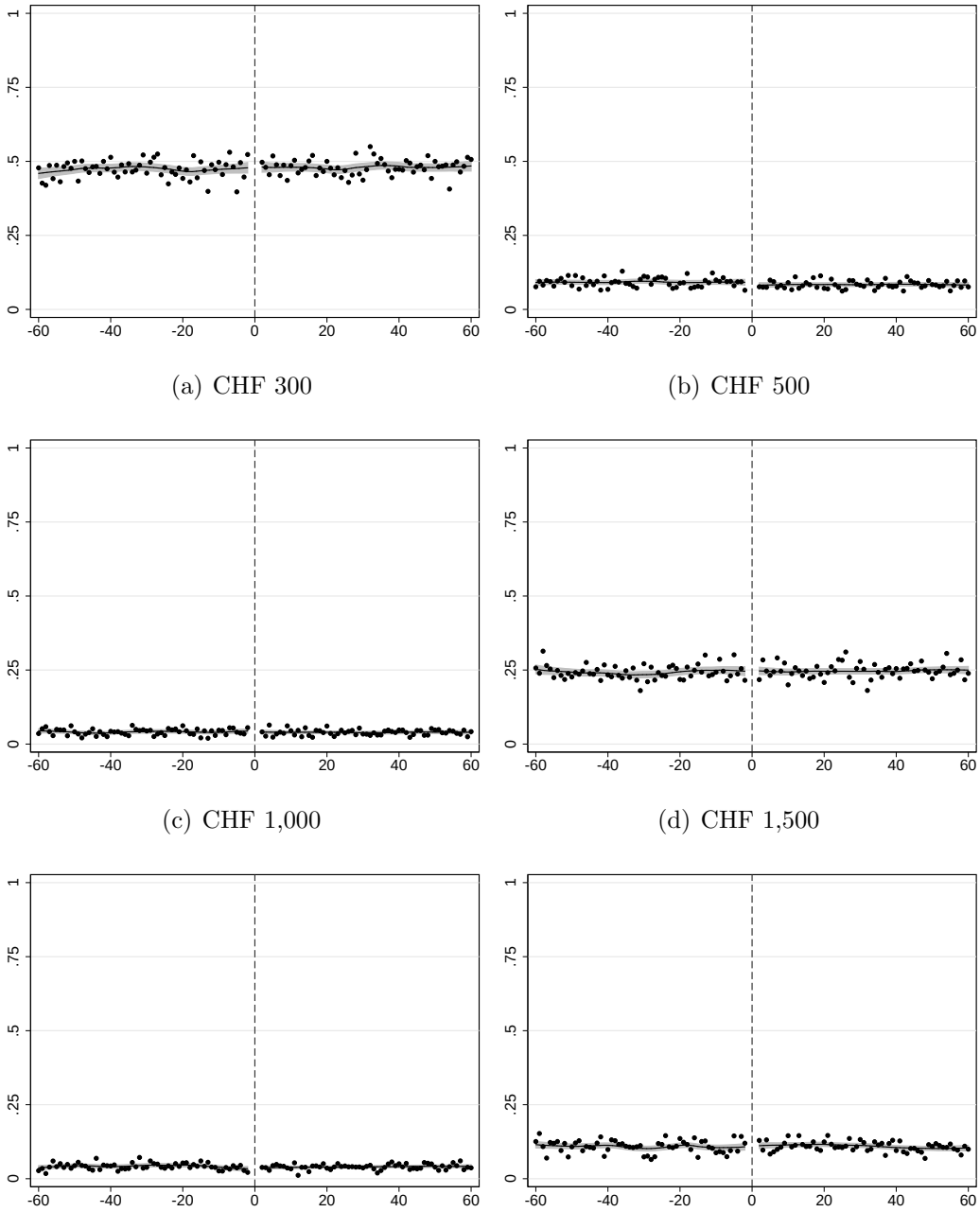
(b) Managed Care Health Plan

(c) Accident Coverage

(d) Insured at CSS

Notes: This figure shows average health plan choices in year $t = 0$ per day of birth across the two groups. Birthdays are centered around the turn of the year (dashed line). Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before (-60 to -1) are treated, individuals born afterwards ($+1$ to $+60$) belong to the control group. The solid line is a local mean smooth (Epanechnikov kernel), shaded in grey is the 95%-confidence band. The sample excludes individuals born on December 31 and January 1.

Figure 2: Pre-Treatment Outcomes: Annual Deductible Level ($t = 0$)



(a) CHF 300

(b) CHF 500

(c) CHF 1,000

(d) CHF 1,500

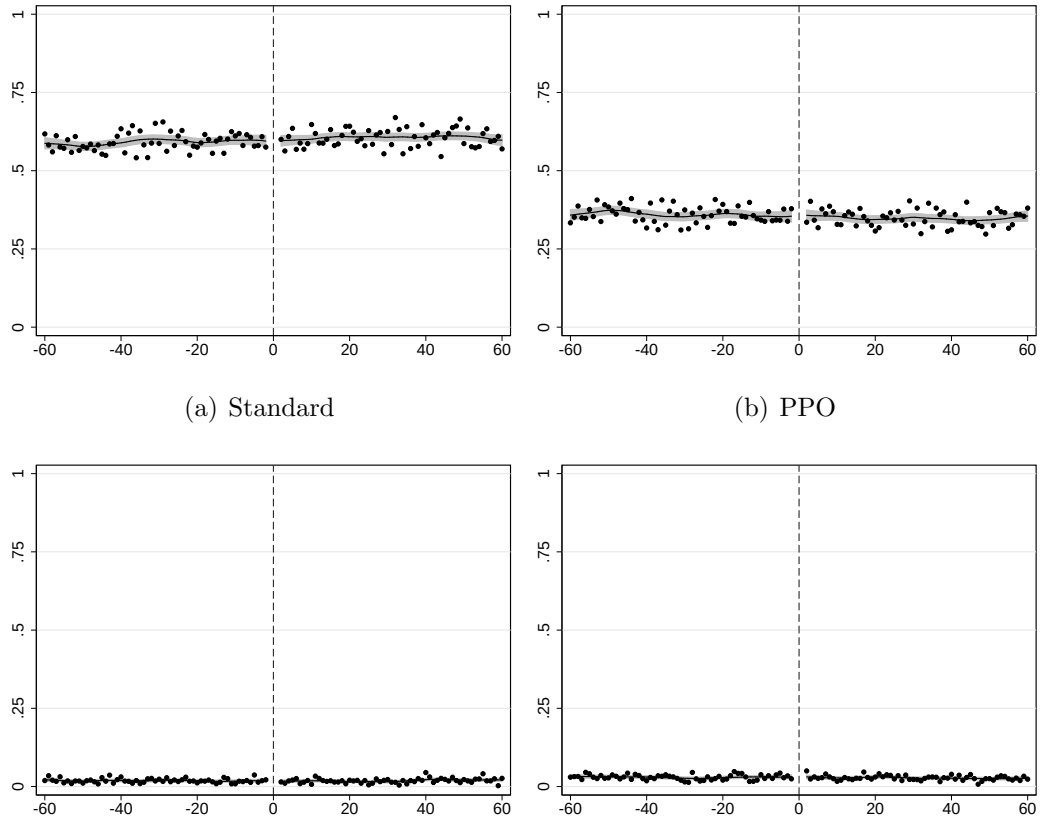
(e) CHF 2,000

(f) CHF 2,500

Notes: This figure shows average health plan choices in year $t = 0$ per day of birth across the two groups. Birthdays are centered around the turn of the year (dashed line). The solid line is a local mean smooth (Epanechnikov kernel), shaded in grey is the 95%-confidence band. The sample excludes individuals born on December 31 and January 1.

D Additional Figures

Figure 3: Pre-Treatment Outcomes (Health Plan Choice, more detailed) ($t = 0$)



(a) Standard (b) PPO

(c) HMO (d) TelMed

Notes: This figure shows average health plan choices in year $t = 0$ per day of birth across the two groups. Birthdays are centered around the turn of the year (dashed line). Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before (-60 to -1) are treated, individuals born afterwards ($+1$ to $+60$) belong to the control group. The solid line is a local mean smooth (Epanechnikov kernel), shaded in grey is the 95%-confidence band. The sample excludes individuals born on December 31 and January 1.

Online Appendix

O.A Data Preparation

Although health plan choices are made on an annual basis, health contracts may still change during the year, e.g. because the individual starts working and suspends accident coverage or the individual moves to a different premium region. Because the premium increase at the turn of the year is determined by both the contract details on December 31st and January 1st, we only keep contracts that include at least one of these two dates. In other words, we reduce the number of contract observations per individual and calendar year to at most two. We drop all observations that are not in year zero or year one, that is, we keep only treated individuals aged 25 and 26 and controls aged 24 and 25 at the end of year zero and year one, respectively. Additionally, we exclude individuals whose year zero (one) falls into the last (first) year of our sample period. Thereby, we drop a total of 101,270 individuals. In order to study the health plan choice at the beginning of the policy-relevant year, we exclude all individuals whose health plan details are not fully observed in year zero, a total of 18,187. We drop 50 individuals with inconsistent and erroneous information in at least one contract segment, e.g. overlapping contract periods or contracts that last only for one day. In addition, we drop 183 individuals with non-standard contracts, e.g. posted workers and frontier commuters. In a next step, we complement our data with the publicly available premium data provided by the Federal Office of Public Health (FOPH). The so-called 'premium archive' consists of almost all available health plans and premiums since 1996 and allows us to impute counterfactual premiums for any given health plan, that is, we are able to determine the counterfactual premium of adults if they were young adults. For a tiny fraction of health plans in the insurance claims data (931 or less than 1 percent), there is no matching health plan in the premium archive. We drop the

corresponding individuals and additionally restrict our sample in the following ways: First, we exclude individuals who are forced to switch their plan at the turn of the year, e.g. because the original plan is no longer offered (N=191) or the individual moves between regions at the turn of the year (N=996). Second, we exclude individuals with inconsistent information on their posterior insurer (N=571), thereby reducing our sample size to 134,338 individuals. Third, we limit our sample to all individuals born within 60 days before or after the turn of the year, thus dropping 91,063 individuals. Finally, we have to further reduce our sample as some dates of births are incorrectly recorded. In Switzerland, January 1st is often assigned as day of birth if the exact date is unknown, e.g. for individuals that (illegally) immigrated and had no official documents (see Fargahi, 2017).[22] These individuals might, however, differ considerably in terms of e.g. health status, income, and education from the general population. As our identification strategy relies on the assumption that all unobserved factors are as good as randomly assigned given birthdays around the turn of the year, we thus drop all individuals born on January 1st. To preserve the relative sizes of the treatment and the control group, we additionally drop all individuals born on December 31st. Note that dropping these 1,292 observations also mitigates concerns regarding strategic birth timing e.g. reported in Dickert-Conlin and Chandra (1999), LaLumia et al. (2015), and Shigeoka (2015). In the end, our sample consists of 18,444 treated individuals and 20,616 controls. Table I reports descriptive statistics separately for both groups in year zero.

[22] As a result, observing January 1st as date of birth is four times more likely than any other date in our data.

O.B Additional Tables

Table IX: Determinants of Health Plan Switching: Estimated Coefficients (Full Sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treatment	0.298***	0.297***	0.298***	0.296***	0.297***	0.299***	0.298***	0.300***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
premium increase, net of market (CHF 100)	0.094***	0.090***	0.088***	0.074***	0.083***	0.106***	0.097***	0.085***
	(0.007)	(0.008)	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.008)
female		0.023*	−0.017	−0.017				−0.017
		(0.014)	(0.014)	(0.014)				(0.014)
german		−0.121***	−0.100***	−0.052***				0.000
		(0.014)	(0.014)	(0.015)				(0.039)
managed care plan		−0.075***	−0.064***	−0.019				−0.035*
		(0.016)	(0.016)	(0.016)				(0.018)
deductible		0.000***	0.000***	0.000***				0.000***
		(0.000)	(0.000)	(0.000)				(0.000)
chronic			−0.134***	−0.116***				−0.145***
			(0.032)	(0.032)				(0.033)
hit deductible			0.317***	0.305***				0.308***
			(0.016)	(0.016)				(0.016)
constant	−0.895***	−0.907***	−1.101***	−1.200***	−0.788***	−0.969***	−0.870***	−1.249***
	(0.010)	(0.018)	(0.021)	(0.023)	(0.040)	(0.021)	(0.044)	(0.061)
Insurer Eff.	No	No	No	Yes	No	No	No	Yes
Region Eff.	No	No	No	No	Yes	No	Yes	Yes
Year Eff.	No	No	No	No	No	Yes	Yes	Yes
N	41,817	41,817	41,817	41,817	41,817	41,817	41,817	41,817
LogL	-22,192	-22,073	-21,875	-21,777	-21,927	-22,058	-21,799	-21,469
Pseudo R^2	0.0141	0.0194	0.0282	0.0325	0.0259	0.0201	0.0316	0.0462

Notes: This table reports estimated coefficients of probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.) Standard errors in parentheses.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table X: Determinants of Health Plan Switching: Marginal Effects (Full Sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treatment	0.090***	0.089***	0.089***	0.087***	0.088***	0.090***	0.088***	0.087***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
premium increase, net of market (CHF 100)	0.028***	0.027***	0.026***	0.022***	0.025***	0.032***	0.028***	0.025***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
N	41,817	41,817	41,817	41,817	41,817	41,817	41,817	41,817
LogL	-22,192	-22,073	-21,875	-21,777	-21,927	-22,058	-21,799	-21,469
Pseudo R^2	0.0141	0.0194	0.0282	0.0325	0.0259	0.0201	0.0316	0.0462

Notes: This table reports estimated marginal effects of probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.) Standard errors in parentheses.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table XI: Determinants of Health Plan Switching: Estimated Coefficients (Full Sample, with Interaction)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treatment	0.300***	0.300***	0.301***	0.298***	0.299***	0.301***	0.300***	0.302***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
premium increase, net of market (CHF 100)	0.116***	0.114***	0.112***	0.094***	0.101***	0.126***	0.111***	0.103***
	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)
net of market × treatment	−0.049***	−0.051***	−0.052***	−0.043***	−0.039***	−0.043***	−0.033**	−0.039***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
female		0.023*	−0.017	−0.017				−0.017
		(0.014)	(0.014)	(0.014)				(0.014)
german		−0.118***	−0.098***	−0.050***				−0.001
		(0.014)	(0.014)	(0.015)				(0.039)
managed care plan		−0.077***	−0.066***	−0.022				−0.036**
		(0.016)	(0.016)	(0.016)				(0.018)
deductible		0.000***	0.000***	0.000***				0.000***
		(0.000)	(0.000)	(0.000)				(0.000)
chronic			−0.134***	−0.116***				−0.145***
			(0.032)	(0.032)				(0.033)
hit deductible			0.317***	0.305***				0.309***
			(0.016)	(0.016)				(0.016)
constant	−0.898***	−0.911***	−1.106***	−1.202***	−0.790***	−0.969***	−0.870***	−1.248***
	(0.010)	(0.018)	(0.021)	(0.023)	(0.040)	(0.021)	(0.044)	(0.061)
Insurer Eff.	No	No	No	Yes	No	No	No	Yes
Region Eff.	No	No	No	No	Yes	No	Yes	Yes
Year Eff.	No	No	No	No	No	Yes	Yes	Yes
N	41,817	41,817	41,817	41,817	41,817	41,817	41,817	41,817
LogL	-22,186	-22,067	-21,869	-21,773	-21,923	-22,053	-21,797	-21,465
Pseudo R^2	0.0144	0.0197	0.0285	0.0328	0.0261	0.0203	0.0317	0.0464

Notes: This table reports estimated coefficients of probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.) Standard errors in parentheses.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

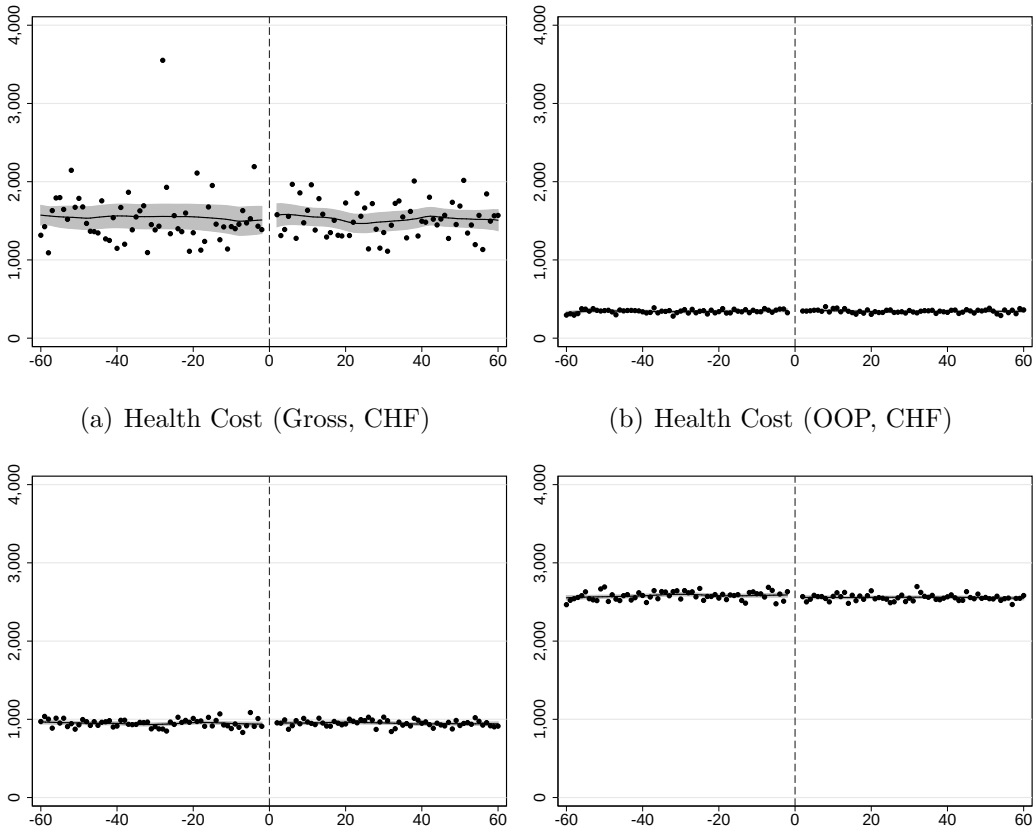
Table XII: Determinants of Health Plan Switching: Marginal Effects (Full Sample, with Interaction)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
treatment	0.089***	0.089***	0.088***	0.087***	0.088***	0.089***	0.088***	0.087***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
control × market deviation	0.031***	0.030***	0.029***	0.025***	0.027***	0.033***	0.029***	0.027***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)
treatment × market deviation	0.022***	0.021***	0.020***	0.017***	0.020***	0.027***	0.026***	0.021***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
N	41,817	41,817	41,817	41,817	41,817	41,817	41,817	41,817
LogL	-22,186	-22,067	-21,869	-21,773	-21,923	-22,053	-21,797	-21,465
Pseudo R^2	0.0144	0.0197	0.0285	0.0328	0.0261	0.0203	0.0317	0.0464

Notes: This table reports estimated marginal effects of probit estimations for the full sample (including leavers) divided into treatment and control group. Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before are treated, individuals born afterwards belong to the control group. 'Premium increase, net of market' measures the increase of the annual premium (in CHF 100) for each individual, net of the market increase and unrelated to treatment. (A market is defined by region, age category (*in year one*), and calendar year.) Standard errors in parentheses.
$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

O.C Additional Figures

Figure 4: Pre-Treatment Outcomes: Annual Health Cost (CHF) ($t = 0$)



(a) Health Cost (Gross, CHF)

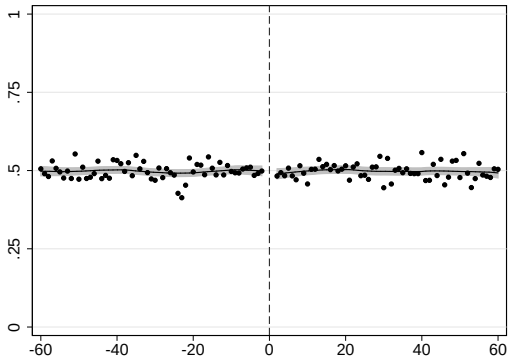
(b) Health Cost (OOP, CHF)

(c) Annual Deductible (CHF)

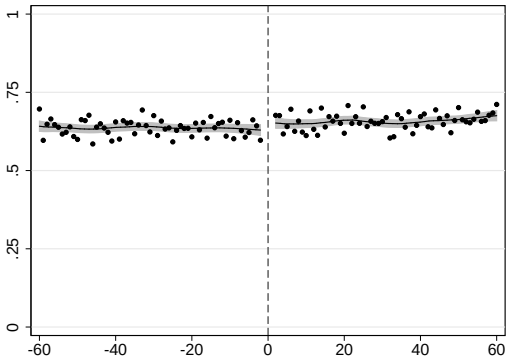
(d) Annual Premium (CHF)

Notes: This figure shows average health cost in year $t = 0$ per day of birth across the two groups. Birthdays are centered around the turn of the year (dashed line). Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before (-60 to -1) are treated, individuals born afterwards ($+1$ to $+60$) belong to the control group. The solid line is a local mean smooth (Epanechnikov kernel), shaded in grey is the 95%-confidence band. The sample excludes individuals born on December 31 and January 1.

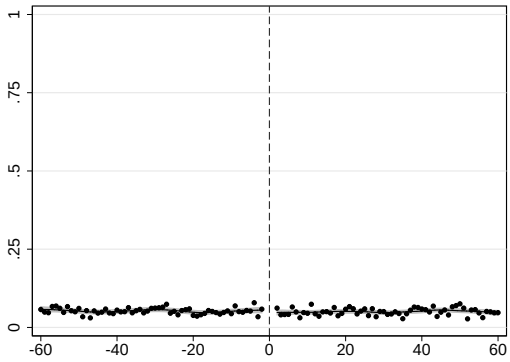
Figure 5: Pre-Treatment Outcomes: Demographics & Health Status ($t = 0$)



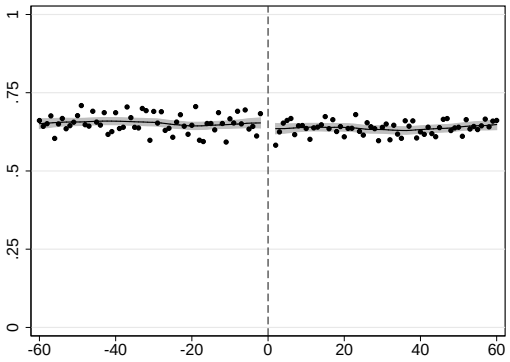
(a) Female



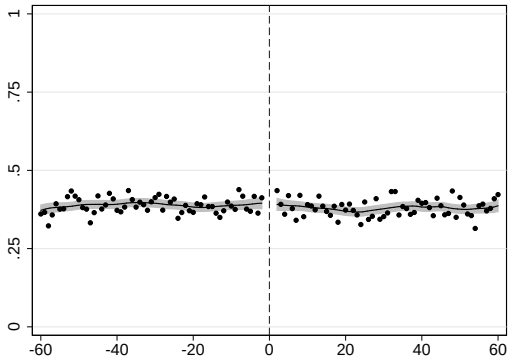
(b) German Language



(c) Chronic Condition



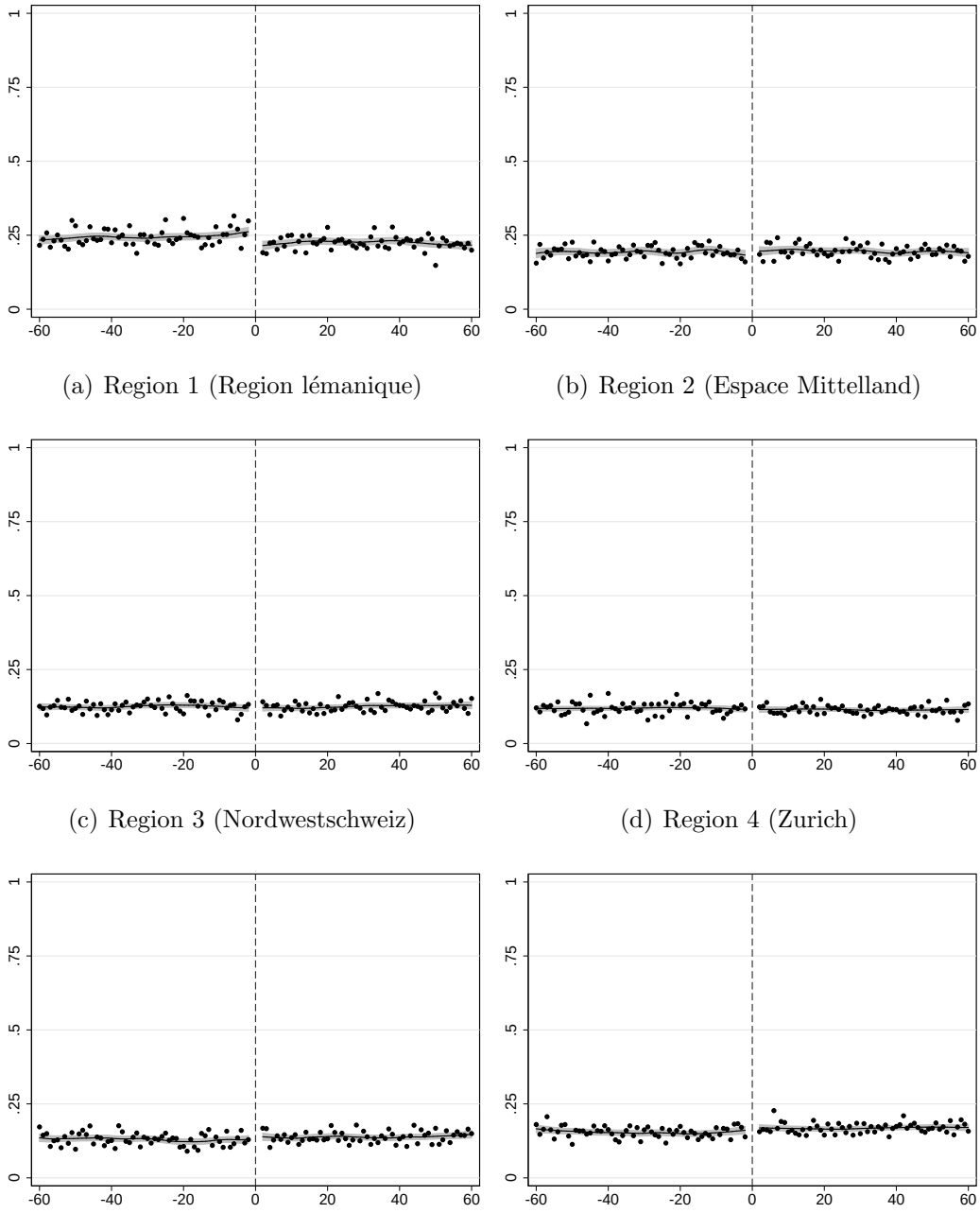
(d) Self-Payer



(e) Hit Deductible in $t = 0$

Notes: This figure shows average demographic and health status characteristics in year $t = 0$ per day of birth across the two groups. Birthdays are centered around the turn of the year (dashed line). Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before (-60 to -1) are treated, individuals born afterwards ($+1$ to $+60$) belong to the control group. The solid line is a local mean smooth (Epanechnikov kernel), shaded in grey is the 95%-confidence band. The sample excludes individuals born on December 31 and January 1.

Figure 6: Pre-Treatment Outcomes: Region ($t = 0$)



(a) Region 1 (Region lémanique)

(b) Region 2 (Espace Mittelland)

(c) Region 3 (Nordwestschweiz)

(d) Region 4 (Zurich)

(e) Region 5 (Ostschweiz)

(f) Region 6 (Zentralschweiz)

Notes: This figure shows the share of individuals residing in a given region in year $t = 0$ per day of birth across the two groups. Birthdays are centered around the turn of the year (dashed line). Treatment status depends on the date of birth relative to the turn of the year, that is, individuals born on December 31st and before (-60 to -1) are treated, individuals born afterwards ($+1$ to $+60$) belong to the control group. The solid line is a local mean smooth (Epanechnikov kernel), shaded in grey is the 95%-confidence band. The sample excludes individuals born on December 31 and January 1. Regions correspond to NUTS-2-Regions (cantons in brackets): (1) Region Lemanique (VD, VS, GE) , (2) Espace Mittelland (BE, FR, SO, NE, JU), (3) Nordwestschweiz (BS, BL, AG), (4) Zurich (ZH), (5) Ostschweiz (GL, SH, AR, AI, SG, GR, TG), (6) Zentralschweiz (LU, UR, SZ, OW, NW, ZG) and (7) Ticino (TI) *(omitted)*.