The Impact of Positive Income Effect on Health Insurance: Evidence from Switzerland

Timothy Layton* Lan Zou†

August 12, 2026

Abstract

Plan-choice elasticities are central to welfare analysis in insurance markets, yet standard estimates treat observed demand responses as pure substitution effects. We exploit a 2019 Swiss reform that cut base premiums for young adults by 15% without changing the regulated price gap between plan options—a pure income shock. Young adults upgrade to lower deductibles with little change in utilization; active decision-makers respond 3.6 times more strongly than the inertial population. Using these estimates to decompose nominal elasticities from a separate subsidy setting, we find income accounts for 11–14% of the demand response.

*Layton: University of Virginia and NBER(e-mail: timothyjlayton@virginia.edu).
†Zou: University of St Gallen (e-mail: lan.zou@unisg.ch).

1 Introduction

Households face different premiums for more and less generous health insurance plans. How much they are willing to pay for additional coverage, relative to its price, is central to understanding plan choice, measuring deadweight loss, and evaluating the welfare effects of premium policies (Einav et al., 2010; Einav and Finkelstein, 2011). To measure this, researchers typically use variation in premiums across plans to estimate willingness to pay in employer-sponsored insurance (Bundorf et al., 2012; Cutler and Reber, 1998; Strombom et al., 2002) and in subsidized individual markets (Saltzman, 2019; Handel, 2013).

Previous literature typically assumes that income effects from premium changes are small. Accordingly, estimated demand responses are interpreted as substitution effects under quasilinear preferences (Einav et al., 2010; Handel, 2013). The main rationale is that premium-induced changes in disposable income are generally small relative to household income (Willig, 1976). When premiums constitute only a modest share of the household budget, treating premium variation as pure relative-price variation is a reasonable approximation.

The income effect matters for both the interpretation and the policy relevance of estimated plan-choice responses. First, a positive income effect indicates health insurance as a normal good: consumers desire more generous coverage when they are wealthier. Second, a positive income effect implies an asymmetry in how policies influence demand. In the absence of income effects, demand depends only on relative prices. When the income effect is positive, lowering premiums raises disposable income, whereas raising premiums reduces it, so demand responds differently even when the price gap changes by the same amount. Third, related evidence on mental accounting suggests that how premium changes enter the household budget can affect insurance choices independently of relative prices (Hastings and Shapiro, 2013).

In this paper, we examine this mechanism by isolating a pure income effect on health insurance plan choice. We exploit a natural experiment in the Swiss mandatory health insurance market. In this setting, residents are mandated to purchase basic coverage but can choose between a mandatory high deductible plan (HD) and a more generous low deductible upgrade (LD). In 2019, a policy reform significantly reduced premiums for HD while leaving the price upgrade to the LD plan (upgrading price fixed at CHF 1,540) unchanged. The reform therefore delivers a premium cut that raises disposable income without altering the marginal cost of upgrading coverage. This premium cut exclusively affected young adults aged 19–25; slightly older adults aged 26–30 were essentially unaffected. Using difference-in-differences on national administrative data from 2017 to 2022, we quantify the income effect on deductible choice.

First, we document a positive income effect on health insurance generosity. Following the premium cut, young adults are more likely to select lower deductibles. The average chosen deductible falls by CHF 68, and take-up of the LD plan increases by 1.8 percentage points. This increase in take-up is

not driven by deteriorating health or moral hazard, as medical spending rises by a negligible CHF 42 with no change in hospitalizations. These results indicate that health insurance behaves as a normal good.

Second, when inertia is muted, the demand response increases dramatically (Handel, 2013). Most enrollees default to their prior plan if they do not make choices actively. To uncover consumers' latent income sensitivity, we investigate a subsample of active decision-makers: individuals turning 19 who face health insurance menu changes and mostly like to make active choices to avoid punitive default penalties. [1] We find that, facing the identical premium cut, these individuals respond roughly 3.6 times more strongly than the full sample. Their chosen deductible falls by CHF 244 (compared to CHF 68), and take-up of the LD plan rises by 8.8 percentage points (compared to 1.8). Consistent with evidence that new enrollees are significantly more responsive than incumbents (Strombom et al., 2002), this gap quantifies a friction wedge. It implies that low observed elasticities in health insurance markets are affected by switching costs and inattention.

Third, we follow the conventional studies to estimate a plan-choice elasticity. We explore a parallel setting in Canton Valais. The canton provides premium subsidies to low-income households. The lower the income, the higher the subsidy. Much as in the Massachusetts setting studied by Finkelstein et al. (2019), the subsidies generate price variation across income groups. Specifically, the subsidy first reduces the premium of the high-deductible (HD) plan. Crucially, once the HD premium is reduced to zero, any excess subsidy cannot be cashed out; instead, it continues to decrease the price of the low-deductible (LD) upgrade. Exploiting this variation with a regression kink design, we estimate a substitution elasticity of approximately -0.67. Combined with our income effect estimates, we obtain a nominal arc elasticity of -0.78, or a semi-elasticity of -6.4% per CHF 100 of premium. This lies within the range reported for subsidized individual insurance markets—from -7.2% to -10.6% in Saltzman (2019)'s ACA exchange estimates—and close to the -7% to -9% semi-elasticities in Bundorf et al. (2012).

Our structural decomposition reveals that the income effect drives 11 to 14% of the nominal demand response. Standard welfare analyses typically treat these nominal responses entirely as pure substitution (Hendren, 2021). This practice systematically overstates the welfare costs of relative-price distortions. The income channel reflects normal-good behavior, not sensitivity to the price wedge (Currie and Gahvari, 2008). It must therefore be excluded from the welfare calculus. Correcting this fundamental bias is essential for evaluating premium policies in any subsidized market.

This paper makes three contributions. First, we provide causal evidence on the income effect in

[1] Prior to age 19, enrollees face a child-specific choice menu with lower deductibles (CHF 0, 100, 200, 300, 400, 500, and 600) and significantly lower premiums. At age 19, enrollees transition to the young-adult menu (CHF 300, 500, 1,000, 1,500, 2,000, and 2,500) and to young-adult community-rated premiums, which are substantially higher than child premiums. Enrollees are generally required to select a new contract; if they fail to do so, they are automatically enrolled in a default contract, often at a higher premium (e.g., with a more expensive insurer).

mandatory health insurance plan choice. Exploiting a reform that cuts premiums while holding the regulated upgrade price fixed, we show that coverage responds to disposable income. Health insurance therefore behaves as a normal good, identifying a channel the literature typically assumes away (Willig, 1976). Second, we separate consumer inertia from underlying preferences. Active decision-makers respond more strongly to the same premium cut. This demonstrates that choice frictions, rather than latent preferences, drive the muted overall response (Saltzman et al., 2021). Third, we develop a theoretical framework that decomposes nominal plan-choice elasticities into income and substitution components (Chernew et al., 2008; Saltzman, 2019). The income channel accounts for a non-trivial share of the nominal response. This structural distinction directly corrects willingness-to-pay and deadweight-loss calculations. Methods that treat nominal premium responses as pure substitution systematically bias welfare estimates (Hendren, 2021).

The remainder of this paper is organized as follows. section 2 presents the theoretical framework for decomposing demand responses into income and substitution components. section 3 describes the institutional setting, data, and identification strategy. section 4 presents the main empirical results. section 5 estimates nominal elasticities in Canton Valais and decomposes them using the Stage 1 income effect. section 6 concludes.

2 Theoretical Framework

We develop a model of insurance choice to formalize the mechanisms through which premium subsidies affect demand. Our primary goal is to decompose the causal effect of a price reduction into structural substitution and income components. This decomposition allows us to assess the validity of standard willingness-to-pay (WTP) estimates, which typically abstract away from income effects.

2.1 Agent's Problem

Consider a population of risk-averse consumers indexed by type θ, representing heterogeneity in preferences for health coverage. Consumers maximize a Von Neumann-Morgenstern utility function $u(c)$ over consumption c and enjoy a non-monetary benefit from insurance quality v. We assume $u(\cdot)$ is increasing and strictly concave ($u' > 0, u'' < 0$).

Consumers face a mandatory choice between two health insurance plans $j \in \{HD, LD\}$:

1. **HD plan:** The basic plan offering baseline coverage v_{HD} at a lower annual premium P_{HD}.
2. **LD plan:** The enhanced plan offering superior coverage $v_{LD} > v_{HD}$ at a higher premium $P_{LD} > P_{HD}$.

Let Y denote the consumer's exogenous income. To highlight the relevant economic trade-offs, we rewrite the problem in terms of *disposable wealth* and the *upgrade price* of coverage.

Let w denote the consumer's disposable wealth if they purchase the mandatory basic plan (HD):

$$w \equiv Y - P_{HD} \tag{1}$$

Let π denote the upgrade price required to move from the HD to the LD plan:

$$\pi \equiv P_{LD} - P_{HD} \tag{2}$$

The consumer's consumption bundle in each state is therefore:

$$c_{HD} = w \tag{3}$$

$$c_{LD} = w - \pi \tag{4}$$

2.2 Consumer Optimization

A consumer of type θ chooses the Low Deductible plan (LD) if the utility gain from better coverage exceeds the utility cost of forgone consumption. The decision rule is:

$$\theta(v_{LD} - v_{HD}) > u(w) - u(w - \pi) \tag{5}$$

We assume that the valuation of coverage is increasing in type θ. A consumer upgrades if the value of gaining insurance coverage is larger than the utility cost of paying the extra premium π.

Marginal Consumers: Aggregate demand is determined by the *marginal consumer*, denoted as $\theta^*(w, \pi)$, who is exactly indifferent between the two plans. For this consumer, Equation (5) holds with equality:

$$\theta^*(w, \pi)\Delta v = u(w) - u(w - \pi) \tag{6}$$

where $\Delta v \equiv v_{LD} - v_{HD}$. Consumers with $\theta > \theta^*$ purchase the LD plan. Assuming types are distributed according to the cumulative distribution function $F(\theta)$, aggregate demand for the LD plan is $D(w, \pi) = 1 - F(\theta^*(w, \pi))$.

2.3 The Mechanism: Decomposing the Subsidy Effect

We now analyze the impact of a policy that reduces the baseline premium P_{HD} while holding the enhanced premium P_{LD} constant. Let ε denote the magnitude of this subsidy. This variation affects the consumer's budget set through two simultaneous channels:

1. **Income Channel:** The cost of the mandatory baseline plan falls, increasing disposable wealth ($dw/d\varepsilon = 1$).

2. **Substitution Channel:** Since P_{LD} is fixed, a reduction in P_{HD} widens the price gap between

the plans ($d\pi/d\varepsilon = 1$).

We decompose the total response of demand to this subsidy using the chain rule. We define the structural parameters η_{sub} (substitution effect) and η_{inc} (income effect) as follows:

$$\frac{dD}{d\varepsilon} = \underbrace{\frac{\partial D}{\partial \pi}\frac{d\pi}{d\varepsilon}}_{\eta_{sub}(-)} + \underbrace{\frac{\partial D}{\partial w}\frac{dw}{d\varepsilon}}_{\eta_{inc}(+)} \tag{7}$$

Substituting the mechanical effects ($d\pi/d\varepsilon = 1, dw/d\varepsilon = 1$), the total derivative is the sum of these partial effects. We sign them by applying the Implicit Function Theorem to the indifference condition (6):

1. Substitution Effect ($\eta_{sub} < 0$):

$$\frac{\partial \theta^*}{\partial \pi} = \frac{u'(w-\pi)}{\Delta v} > 0 \tag{8}$$

An increase in the price gap raises the indifference threshold, strictly reducing demand.

2. Income Effect ($\eta_{inc} > 0$):

$$\frac{\partial \theta^*}{\partial w} = \frac{u'(w) - u'(w-\pi)}{\Delta v} \tag{9}$$

Under the assumption of risk aversion ($u'' < 0$), marginal utility is diminishing. Since consumption is lower in the enhanced plan state ($w - \pi < w$), marginal utility must be higher in that state: $u'(w-\pi) > u'(w)$. Consequently, the numerator is negative, implying $\frac{\partial \theta^*}{\partial w} < 0$.

Intuition: The income effect is positive because the utility cost of the premium, $u(w) - u(w-\pi)$, decreases as wealth rises. For a wealthier agent, the marginal dollars required to upgrade to the LD plan are "less painful" to give up than for a poorer agent.

2.4 Bias in Welfare Estimation

Equation (7) highlights that the observed demand response to a standard subsidy is a composite parameter. To recover the structural parameters governing welfare, we distinguish between two scenarios.

Equation (7) reveals why standard welfare calculations may fail in this context. Standard estimators for Willingness-To-Pay (WTP) are inversely proportional to the observed slope of the demand curve ($\frac{dD}{d\varepsilon}$).

However, the true valuation depends only on the substitution parameter η_{sub}. A researcher who

ignores the income effect η_{inc} will calculate a biased WTP. We define the bias factor as:

$$\text{Bias Factor} = \frac{\text{True Sensitivity}}{\text{Observed Sensitivity}} = \frac{\eta_{sub}}{\eta_{sub} + \eta_{inc}} \tag{10}$$

Interpretation: Since $\eta_{sub} < 0$ and $\eta_{inc} > 0$, the denominator is smaller in magnitude than the numerator. If the income effect is large, the observed response approaches zero. A naive model interprets this as **inelastic demand** (infinite switching costs). Our framework reveals that consumers may be highly sensitive to price, but their response is masked by the liquidity provided by the subsidy.

3 Setting, Data, and Identification

Switzerland mandates that all residents purchase a standardized health insurance package. Benefits remain identical across insurers. Consumers primarily choose between a baseline HD plan and a more generous LD plan. After meeting the deductible, enrollees pay a 10% coinsurance rate up to an annual cap of CHF 700.

Crucially, insurers have limited pricing power. They freely set their own base premiums for the HD plan. Federal regulation, however, strictly fixes the price to upgrade from the HD to the LD plan at exactly CHF 1,540. [2] Finally, insurers community-rate these premiums within two distinct age bands: young adults aged 19 to 25 and older adults aged 26 and above. Within each age group, individual health risk does not affect the premium.

In 2019, Switzerland revised its risk-adjustment formula. This reform exogenously decreased all premiums for young adults, while leaving premiums for slightly older adults essentially unaffected. Figure 1 illustrates the premium trend. Average premiums for the 19 to 25 age group dropped by approximately 15%, while premiums for the 26 to 30 control group continued their prior trend.

The 2019 reform lowered community-rated premiums for young adults by roughly 15%, reducing the HD base premium while leaving the regulated upgrade price to LD fixed at CHF 1,540. Because $P_{LD} = P_{HD} + 1{,}540$, LD premiums fell by the same amount. The reform therefore delivered a pure premium cut: disposable income rose without changing the marginal cost of upgrading.

We use administrative panel data from the Swiss Federal Office of Public Health. The dataset covers the universe of mandatory health insurance enrollees from 2017 to 2022, tracking demographics, cantons, chosen deductibles, premiums, and medical expenditures.

To cleanly isolate the income effect, we restrict our sample to unsubsidized adults aged 19 to 30. This restriction prevents cantonal subsidy policies from confounding the exogenous premium cut.

[2] For policies without accident insurance, the regulator sets the fixed upgrade price at CHF 1,430.

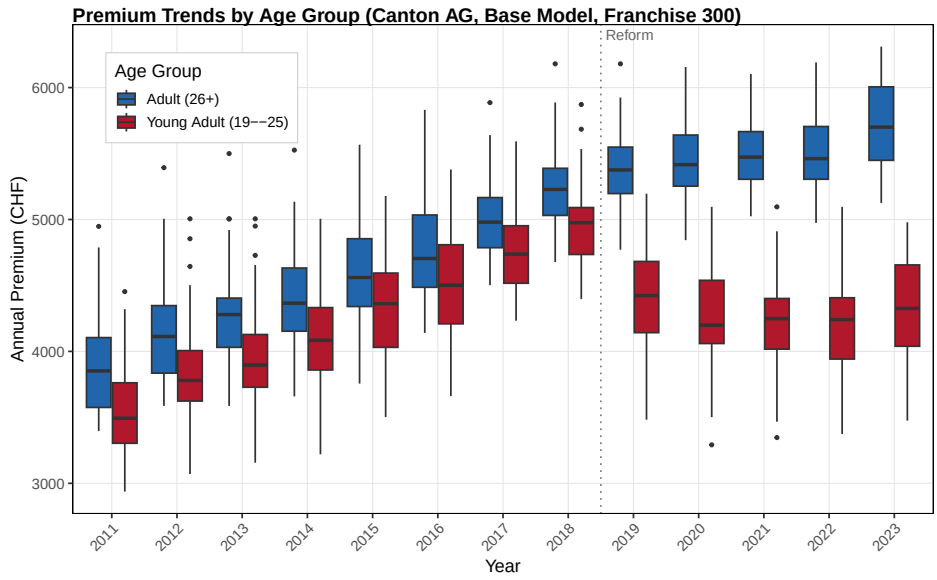


Figure 1: Annual Base Premiums by Age Group

Notes: Box plots show the distribution of annual base premiums (Franchise 300, standard insurance model) across insurers in Canton Aargau, 2011–2023. Blue: adults aged 26 and above. Red: young adults aged 19–25. The dotted vertical line marks the 2019 reform. Source: insurer-level premium data (BAG).

Young adults aged 19 to 25 form the treated group. Adults aged 26 to 30 serve as the control. Both groups face the exact same deductible menu and regulated upgrade prices. They differ only in their baseline community-rated premiums.

We run regression as:

$$Y_{it} = \beta_1 \cdot \text{Young}_i + \beta_2 \cdot (\text{Young}_i \times \text{Post}_t) + \alpha_k + \delta_t + \varepsilon_{it} \tag{11}$$

where $\text{Young}_i = \mathbf{1}[\text{age 19–25}]$, $\text{Post}_t = \mathbf{1}[t \geq 2019]$, α_k are canton fixed effects, and δ_t are year fixed effects. The coefficient β_2 is the main estimate. Standard errors are clustered at the individual level. We do not include individual fixed effects: treatment is defined by age class, which changes mechanically as individuals age, so within-person variation would conflate the treatment effect with aging.

4 Empirical Results

In this section, we first present the core empirical result for the full unsubsidized sample. Section 4.2 repeats the same design on a subsample where inertia is absent.

4.1 Main results: unsubsidized young adults versus older adults

Young adults significantly shifted their coverage toward lower deductibles following the 2019 premium cut. The average chosen deductible fell by CHF 68 (Table 1). The probability of selecting the LD plan rises by 1.8 percentage points; the probability of choosing a low deductible (CHF 300 or 500) rises by 2.5 percentage points. Health insurance coverage responds to the premium cut as a normal good: when premiums fall and disposable income rises, young adults purchase more generous plans.

This demand-side response is not driven by health shocks or moral hazard, as medical spending rose by a negligible CHF 42. There is also no significant change in hospitalizations.

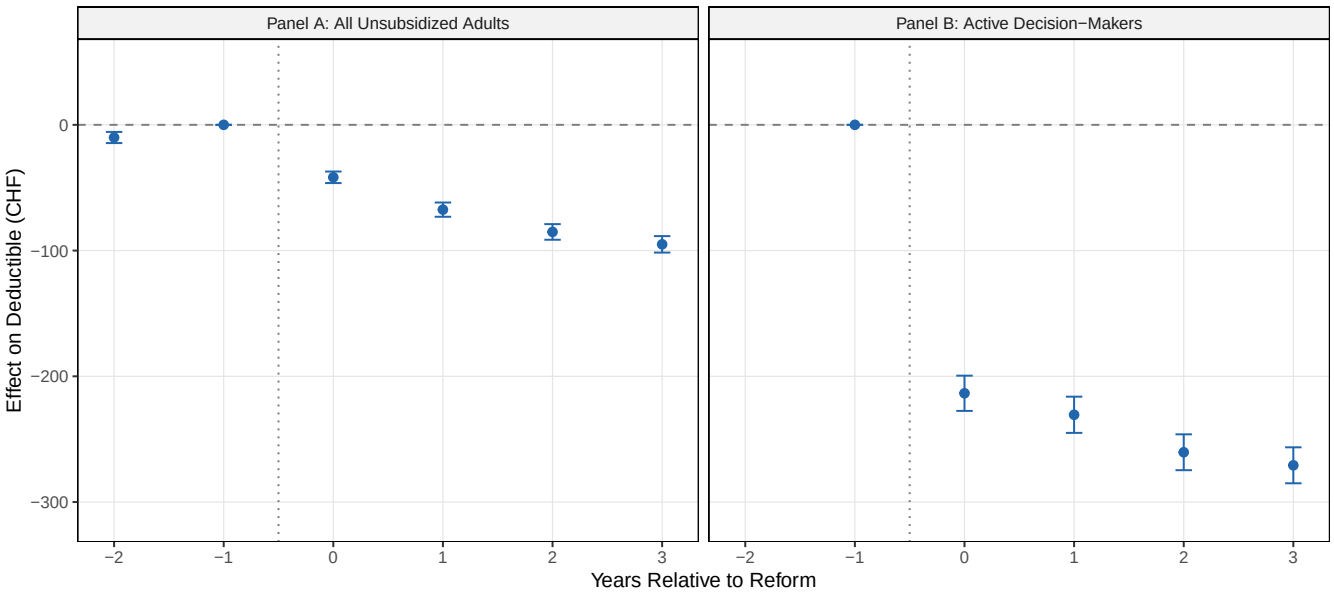


Figure 2: Event Study: Effect of Premium Reform on Deductible Choice

Notes: Panel A plots event-study estimates of the deductible level for all unsubsidized adults (ages 19–25 vs. 26–30). Panel B plots the same specification for active decision-makers (turning 19). Both panels share the same y-axis scale. The reference period is $t = -1$ (2018). Bars indicate 95% confidence intervals based on standard errors clustered at the individual level.

Table 1: Effect of Premium Reduction on Insurance and Health Outcomes

	Deductible	Choice 300	Choice 300/500	Base premium	Medical spending	Hospitalization	Chronic
Panel A: All Unsubsidized Adults							
Young	-228.789***	0.118***	0.109***	2.703***	-253.748***	0.001***	-0.002***
	(2.296)	(0.001)	(0.001)	(0.079)	(10.276)	(0.000)	(0.000)
Young × Post	-67.682***	0.018***	0.025***	-2.909***	42.121***	0.000	0.000
	(2.462)	(0.001)	(0.001)	(0.083)	(12.443)	(0.000)	(0.000)
Num.Obs.	4572375	4572375	4572375	4559667	4572375	4482180	4571650
R2	0.033	0.028	0.027	0.747	0.002	0.001	0.011
Panel B: Active Decision-Makers							
Young	-311.817***	0.186***	0.168***	0.925***	-265.572***	0.004***	-0.004***
	(5.575)	(0.003)	(0.003)	(0.179)	(18.972)	(0.001)	(0.000)
Young × Post	-244.451***	0.088***	0.097***	-1.242***	94.644***	0.001	0.003***
	(6.000)	(0.003)	(0.003)	(0.191)	(21.111)	(0.001)	(0.000)
Num.Obs.	2493379	2493379	2493379	2486521	2493379	2454402	2493005
R2	0.035	0.035	0.032	0.734	0.001	0.001	0.010
Canton FE	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X

Notes: Dependent variables are listed in column headers. Deductible is the chosen franchise (CHF). Choice 300 = $\mathbf{1}$[Franchise = 300]; Choice 300/500 = $\mathbf{1}$[Franchise $\leq$ 500]. Base premium is the insurer list price for the CHF 300 base tariff (adult). Medical spending is annual gross healthcare cost (CHF). Hospitalization and Chronic are indicators for any inpatient stay and a chronic-disease flag. "Young" = $\mathbf{1}$[age 19–25]; control group is age 26–30. "Post" = $\mathbf{1}$[year $\geq$ 2019]. Intercept and Post absorbed by fixed effects. Panel A: all unsubsidized individuals. Panel B: active decision-makers (turning 19, must sign new adult contract). All cantons, 2017–2022. OLS with canton and year fixed effects (entered additively); standard errors clustered at the individual level. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $^{+}$ $p < 0.1$.

4.2 Active decision-makers

To disentangle the latent demand response from consumer inertia (Handel, 2013), we exploit a mechanical feature of the Swiss system: individuals turning 19 face choice menu change. These individuals cannot default to a child plan, otherwise, they will be assigned to a more expensive insurance firm and LD plan.

Most enrollees therefore make an active decision when turning into 19. The demand response to the identical premium cut is roughly 3.6 times stronger than in the full sample. The average chosen deductible for these active decision-makers fell by CHF 244, and the take-up of the LD plan rose by 8.8 percentage points—compared to just CHF 68 and 1.8 percentage points in the general population. This stark divergence quantifies the friction wedge in Swiss health insurance: latent income sensitivity is high, but it is heavily obscured in the aggregate by switching costs and consumer inattention. Medical spending rises by CHF 95, and hospitalization remains statistically insignificant. The coverage upgrade is not accompanied by significant increases in utilization.

5 Counterfactual Elasticity Decomposition

Standard estimates of demand elasticity in subsidized insurance markets typically conflate price and income effects into a single "nominal elasticity." This section separates these two channels. Using the premium-subsidy schedule in Canton Valais, we isolate the pure substitution effect. We then combine this estimate with the pure income effect to reconstruct the nominal elasticity, demonstrating the impact of income effect on welfare analysis.

To estimate how price drives the upgrade choice, we need a setting where the subsidy moves that price, not just income. Canton Valais provides one. The canton assigns each household a fixed subsidy based on its income; Panel A of Figure 3 plots this schedule across the seven subsidy classes. At low subsidy levels, the subsidy lowers the premium of both plans equally. The delta price between them is unchanged, so only income rises—the pure income effect. This breaks once the subsidy reaches the premium of the high-deductible plan, marked by the shaded band in Panel A. Past that point the HD plan is free, and any further subsidy can only cut the LD premium. The delta price now shrinks as the subsidy grows. As Panel A shows, only the highest-subsidy classes cross the band, and only there does the delta price fall below CHF 1,540.

Panel B of Figure 3 shows how plan choice responds. It plots the share choosing the LD plan against the subsidy amount. Across Classes 3–7, the subsidy varies but the effective upgrade price stays at CHF 1,540. Take-up is flat there—income alone barely moves the choice. In Classes 1–2, the subsidy crosses the HD premium and the effective upgrade price falls. Take-up rises sharply, most steeply just past the threshold. Demand responds weakly to income variation and strongly to relative-price variation, indicating that a substitution effect is present and dominates the income

channel.

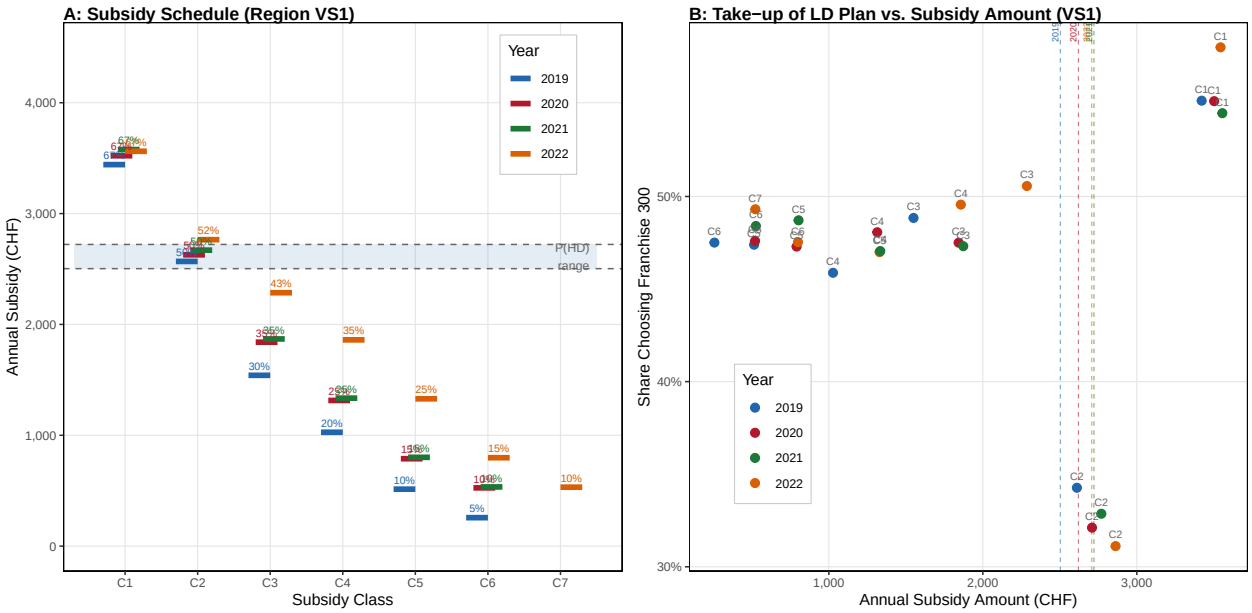


Figure 3: Subsidy Schedule and Take-up of the LD Plan in Canton Valais

Notes: Panel A plots the annual subsidy amount by subsidy class (1 = lowest income, 7 = highest income) in premium region VS1 for 2019–2022. The shaded band indicates the range of the minimum annual premium of the HD plan (CHF 2,500 deductible) across years. Subsidies above this threshold make the HD plan effectively free, compressing the delta price below CHF 1,540. Panel B plots the share choosing the LD plan (Franchise 300) against the annual subsidy amount for adults aged 26 and above. Vertical dashed lines indicate the minimum HD premium by year; colors match across panels. Each point is a subsidy class × year cell. Sample: subsidized adults in Canton Valais, enrolled 12 months, 2019–2022.

We estimate this substitution effect on subsidized adults in Valais (2019–2022) using the following specification:

$$\Pr(\text{F} = 300)_{it} = \beta \cdot \Delta P_{it} + \sum_{c} \gamma_c \cdot \mathbf{1}[\text{Class}_i = c] + \alpha_{r(i),t(i)} + \varepsilon_{it} \tag{12}$$

where ΔP_{it} is the individual's delta price in CHF 100 units and $\alpha_{r(i),t(i)}$ are region-by-year fixed effects. Identification rests on the class dummies. Because $\sum_c \gamma_c \cdot \mathbf{1}[\text{Class}_i = c]$ absorbs income-level differences across subsidy groups, β is identified only from variation in the delta price within a class and within a region-year cell. It therefore measures the response to a change in the relative price holding income fixed—a pure substitution effect.

Table 2 reports the estimates. A CHF 100 fall in the effective upgrade price raises LD take-up by 3.3 percentage points for all adults and 10.4 for active decision-makers. At sample means, these translate into arc elasticities of -0.78 and -1.38. Because income is held fixed by the class dummies, they are pure substitution elasticities, not nominal ones.

Our estimates are comparable to those in the existing literature. In employer plan choice, price changes barely affect income, so reported elasticities are close to pure substitution. Under the semi-elasticity metric of Bundorf et al. (2012)—the percent change in enrollment per CHF 100 of

Table 2: Effect of Delta Price on Lowest Deductible Choice (Canton Valais)

	Erwachsene (>26)	ADM 19–25	ADM turning 26
	(1)	(2)	(3)
ΔP / 100	-0.033^{***}	-0.104^{***}	-0.093^{***}
	(0.006)	(0.015)	(0.006)
Observations	110,579	45,114	3,155
R^2	0.032	0.263	0.121
Class FE	X	X	X
Region × Year FE	X	X	X

Notes: Dependent variable is $\mathbf{1}$[Franchise = 300]. ΔP is the out-of-pocket price difference between the low-deductible (CHF 300) and high-deductible (CHF 2,500) plans, in CHF 100 units. Sample: subsidized adults in Canton Valais, 2019–2022, enrolled 12 months. Standard errors clustered at the individual level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

annual premium—their estimate is −7% to −9%. Ours is −6.4% for all adults, squarely within that range. The ACA exchanges are different. There the subsidies are income-linked, so the estimates embed an income channel. Saltzman (2019) reports −7.2 to −10.6, systematically larger than pure substitution. Our estimate sits on the employer (substitution) side and below the ACA (nominal) side. The gap between them is the income effect, which we quantify next. The active-decision-maker estimate of −18.2% is larger still, consistent with Strombom et al. (2002), who find new enrollees two to four times more price-sensitive than incumbents.

We now combine the two clean estimates to decompose the nominal elasticity. The Valais regression delivers the substitution term, 3.3 percentage points for all adults and 10.4 for active decision-makers. The pure income effect is 0.46 percentage points per CHF 100 for all adults and 1.13 for active decision-makers. Adding them gives the nominal response: 3.76 and 11.53 percentage points, or arc elasticities of −0.89 and −1.53. Income accounts for 12% and 10% of it. Consequently, welfare calculations based on a nominal elasticity overstate price sensitivity by roughly a tenth.

6 Conclusion

Income effects in health insurance are economically meaningful. Exploiting a 2019 Swiss reform that reduced base premiums for young adults by roughly 15% while leaving the regulated CHF 1,540 gap between HD and LD plans unchanged, we isolate the pure income effect of a premium cut on deductible choice. Young adults upgrade to more generous coverage when premiums fall, with little change in medical utilization—health insurance behaves as a normal good. Consumer inertia mutes this response in the general insured population; active decision-makers who must choose a new plan at age 19 respond roughly 3.6 times more strongly, indicating that low observed elasticities reflect friction rather than negligible income sensitivity.

These findings have direct implications for how the literature interprets demand elasticities. Where subsidies move both disposable income and relative plan prices, estimated demand responses

are nominal—they conflate income and substitution channels. Using our income-effect estimates to decompose nominal elasticities from Canton Valais, we find that income accounts for roughly 11–14% of the response; the corrected substitution elasticity is smaller and closer to U.S. employer-plan benchmarks. Ignoring income effects therefore overstates price sensitivity and biases willingness-to-pay calculations in settings where premium subsidies are large relative to disposable income. Our estimates come from unsubsidized young adults in one country, and the decomposition relies on one subsidized canton; extending the framework to other subsidy schedules and populations remains an important direction for future work.

A Appendix

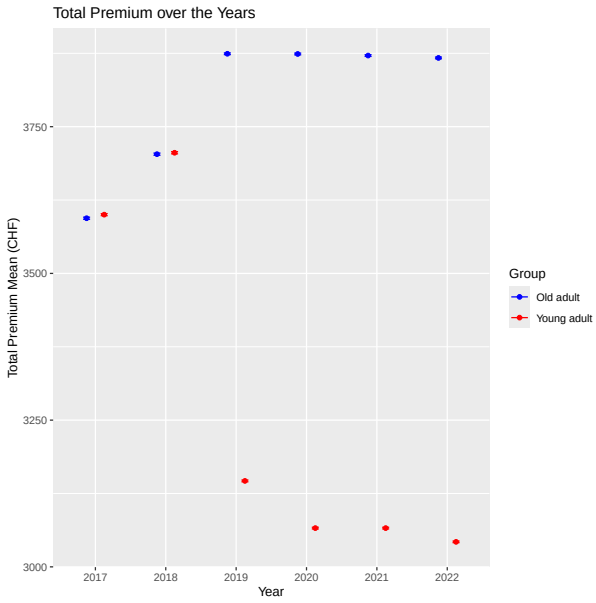
We present the first stage result in Appendix A.1.

A.1 First stage evidence

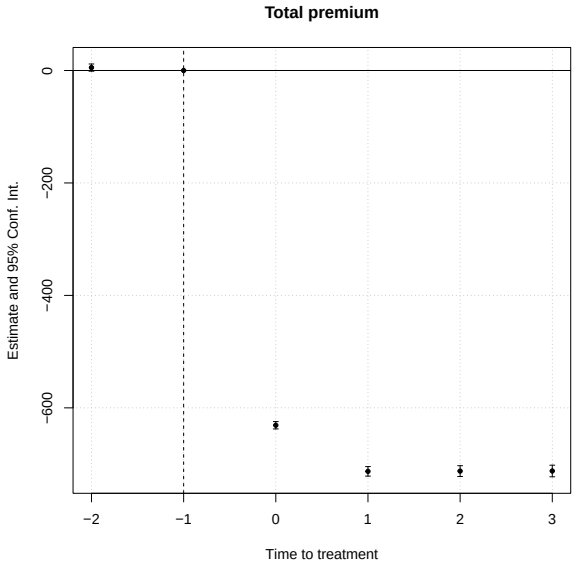
In this section, we present the first stage result examining the premium reform for the unsubsidized young adult (treatment group) versus unsubsidized adult (control group).

A.1.1 Total premium

Figure 4: Total premium amount: unsubsidized young adult versus unsubsidized adult



(a) Descriptive: young adult versus adult



(b) Event-study: young adult versus adult

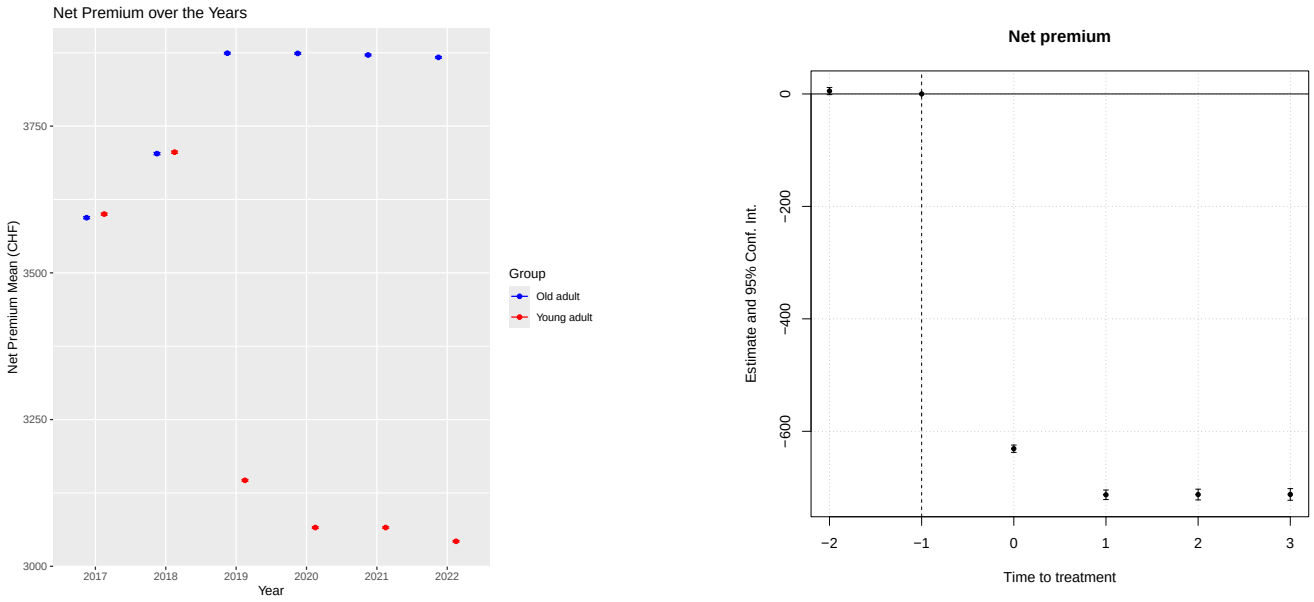
A.1.2 Net premium

A.2 Canton Valais: Institutional Details and Elasticity Estimation

A.2.1 Institutional setting

Canton Valais provides a setting to estimate the nominal demand elasticity for health insurance because its subsidy system generates variation in both the effective price of coverage and disposable income. Subsidized individuals are assigned to one of seven subsidy classes based on household income, with annual subsidy amounts ranging from approximately CHF 1,000 (Class 7) to over CHF 5,000 (Class 1). For individuals in the highest subsidy classes, the subsidy exceeds the annual premium of the high-deductible (CHF 2,500) plan, making it effectively free. This compresses the

Figure 5: Net premium amount: unsubsidized young adult versus unsubsidized adult



(a) Descriptive

(b) Event-study

out-of-pocket price difference between the low and high deductible plans (the delta price) below the unsubsidized level of CHF 1,540.

For Classes 3–7, the subsidy is below the high-deductible premium in all years, so the delta price remains at the full CHF 1,540. For Class 1, the subsidy consistently exceeds the high-deductible premium, compressing the delta price to approximately CHF 870. Class 2 is a borderline case where the delta price fluctuates around the threshold across years, providing additional time-series variation.

A.2.2 Descriptive evidence

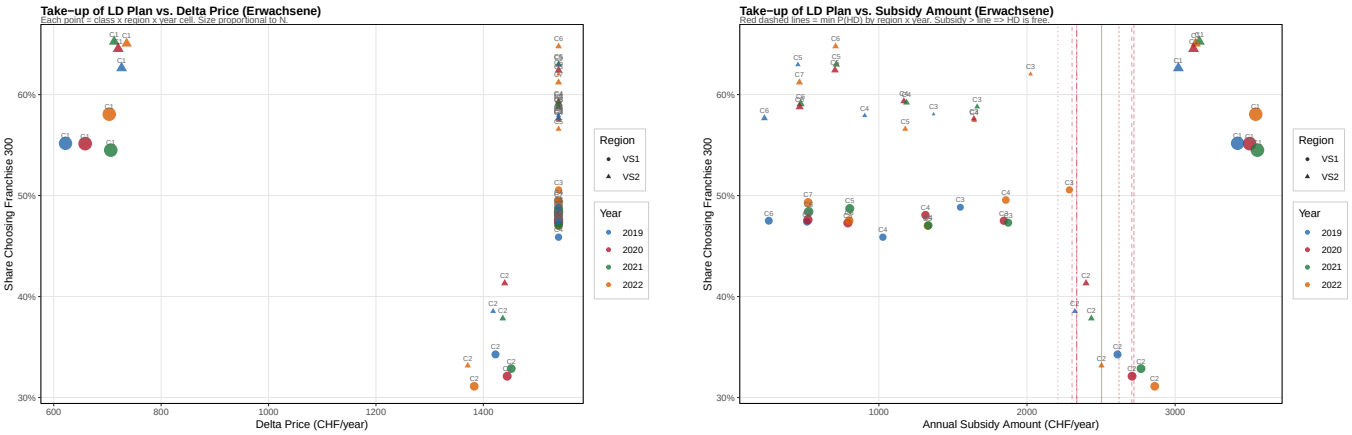
A.2.3 Regression specification

We estimate Equation 12 on the population of subsidized adults in Valais (2019–2022). The dependent variable is $\mathbf{1}[\text{Franchise}_i = 300]$. The key regressor is the delta price:

$$\Delta P_i = \max\left(0,\ 1540 - \max\left(0,\ \text{subsidy}_i - P_{HD}^{\min}(r,t)\right)\right)$$

scaled by 1/100. Class dummies control for income-level differences across subsidy groups, and region-by-year fixed effects absorb all region-specific time trends.

Identification comes from within-region-year variation in delta price across subsidy classes. Classes 3–7 have $\Delta P = 1540$ in all years; Classes 1–2 have lower delta prices that vary across regions and years due to changing $P_{HD}^{\min}$ and subsidy amounts. Full regression results are reported in Table 2.



(a) Take-up vs. delta price

(b) Take-up vs. subsidy amount

Figure 6: Take-up of Lowest Deductible Plan (Franchise 300) in Canton Valais

Notes: Each point represents a subsidy class × premium region × year cell. Point size is proportional to cell count. Colors indicate year (2019–2022); shapes indicate premium region (VS1, VS2). Class labels shown above each point. Sample: subsidized Erwachsene (>26) in Canton Valais, enrolled 12 months. Panel (a) plots take-up against the delta price (out-of-pocket price difference between F=300 and F=2500 plans). Panel (b) plots take-up against annual subsidy amount; red dashed lines indicate the minimum annual premium of the high-deductible plan by region and year—subsidy amounts exceeding these thresholds make the HD plan effectively free, compressing the delta price below CHF 1,540.

A.2.4 Literature comparison

Table 3 reports the semi-elasticity comparison following the common metric proposed by Chernew et al. (2008) and adopted by Bundorf et al. (2012): the percent change in plan enrollment per $100 (or 100 CHF) increase in the annual premium or employee contribution. Our primary comparator is Saltzman (2019), who estimates own-premium elasticities of −7.2 to −10.6 in subsidized ACA individual markets—a setting more comparable to Valais than employer plan-choice studies. Employer literature estimates are inflation-adjusted conversions from Bundorf et al. (2012), footnote 23.

A.2.5 Decomposition details

We decompose the nominal elasticity into income and substitution components using the Stage 1 estimates from the 2019 price reform (section 4). The income effect per CHF 100 annual premium reduction is 0.46 percentage points for all adults and 1.13 percentage points for active decision-makers.

The sign convention is as follows. The nominal regression coefficient $\hat{\beta}^{\text{nominal}}$ measures the change in $\Pr(\text{F} = 300)$ per 100 CHF increase in delta price. When the delta price rises by 100 CHF (because the subsidy falls by 100 CHF), the individual simultaneously faces a higher relative price for the LD plan and lower disposable income. Both channels reduce LD demand, so both components of $\hat{\beta}^{\text{nominal}}$ are negative.

From Stage 1, a 100 CHF income gain increases $\Pr(\text{F} = 300)$ by 0.46 (all adults) or 1.13 (ADM) percentage points. A 100 CHF income loss (when the delta price rises by 100 CHF) therefore decreases $\Pr(\text{F} = 300)$ by the same amount. The income component of the nominal coefficient is

Table 3: Semi-Elasticity of Health Insurance Plan Choice: Literature Comparison

Study	Setting	Semi-elasticity	Notes
This paper (Erw.)	Swiss OKP, Valais	−6.4%	Pr(F=300), nominal
This paper (ADM)	Swiss OKP, Valais	−18.2%	Pr(F=300), active DM
Saltzman (2019)	ACA exchanges (CA/WA)	−7.2 to −10.6%	Own-premium; subsidized individual market
Employer-sponsored literature (Bundorf et al. footnote 23 conversions):			
Bundorf, Levin, Mahoney (2012)	US employer (small firms)	−7 to −9%	IV preferred spec
Cutler & Reber (1998)	Harvard employer	−1.5 to −3.5%	Converted by BLM
Strombom et al. (2002)	UC employer	−1.5 to −3.5%	Converted by BLM
Royalty & Solomon (1999)	Employer, managed comp.	−2.4 to −21.1%	Wide range across specs
Jin & Sorensen (2005)	Employer, retirees	−9.0%	Converted by BLM

Notes: Semi-elasticity is the percent change in plan enrollment (or market share) per $100 (or 100 CHF) increase in the annual premium or employee contribution, following Chernew et al. (2008) and Bundorf et al. (2012). Saltzman (2019) reports own-premium elasticities for subsidized ACA exchange plans; this setting (income-linked subsidies, individual market) is more comparable to our Valais sample than employer plan-choice studies. Employer literature estimates are inflation-adjusted conversions from Bundorf et al. (2012), footnote 23. Our estimates are nominal (income + substitution effects combined); section 5 decomposes them.

$\hat{\beta}^{\text{income}} = -0.0046$ (all adults) and -0.0113 (ADM). The substitution effect is the residual.

After removing the income effect, the corrected arc elasticity falls from -0.78 to -0.67 for all adults and from -1.38 to -1.23 for active decision-makers. The corrected Erwachsene estimate is more comparable to the range of -0.3 to -0.6 found in U.S. employer-plan studies (Einav et al., 2010), suggesting that the higher elasticities observed in public insurance markets partly reflect income effects.

References

M. Kate Bundorf, Jonathan Levin, and Neale Mahoney. 2012. Pricing and Welfare in Health Plan Choice. *American Economic Review* 102, 7 (2012), 3214–3248. doi:10.1257/aer.102.7.3214

Michael Chernew, Gautam Gowrisankaran, and Dennis P. Scanlon. 2008. Learning and the Value of Information: Evidence from Health Plan Report Cards. *Journal of Econometrics* 144, 1 (2008), 156–174. doi:10.1016/j.jeconom.2008.01.001

Janet Currie and Firouz Gahvari. 2008. Transfers in Cash and In-Kind: Theory Meets the Data. *Journal of Economic Literature* 46 (6 2008), 333–83. Issue 2. doi:10.1257/JEL.46.2.333

David M. Cutler and Sarah J. Reber. 1998. Paying for Health Insurance: The Trade-Off between Competition and Adverse Selection. *Quarterly Journal of Economics* 113, 2 (1998), 433–466. doi:10.1162/003355398555649

Liran Einav and Amy Finkelstein. 2011. Selection in insurance markets: Theory and empirics in pictures. *Journal of Economic Perspectives* 25 (12 2011), 115–138. Issue 1. doi:10.1257/JEP.25.1.115

Liran Einav, Amy Finkelstein, and Mark R. Cullen. 2010. Estimating Welfare in Insurance Markets Using Variation in Prices. *Quarterly Journal of Economics* 125, 3 (aug 2010), 877–921. doi:10.1162/qjec.2010.125.3.877

Amy Finkelstein, Nathaniel Hendren, and Mark Shepard. 2019. Subsidizing Health Insurance for Low-Income Adults: Evidence from Massachusetts. *American Economic Review* 109, 4 (apr 2019), 1530–67. doi:10.1257/AER.20171455

Benjamin R Handel. 2013. Adverse selection and inertia in health insurance markets: When nudging hurts. *American Economic Review* 103, 7 (2013), 2643–2682.

Justine S. Hastings and Jesse M. Shapiro. 2013. Fungibility and Consumer Choice: Evidence from Commodity Price Shocks. *The Quarterly Journal of Economics* 128 (11 2013), 1449–1498. Issue 4. doi:10.1093/QJE/QJT018

Nathaniel Hendren. 2021. Measuring ex ante welfare in insurance markets. *The Review of Economic Studies* 88, 3 (2021), 1193–1223.

Evan Saltzman. 2019. Demand for Health Insurance: Evidence from the California and Washington ACA Exchanges. *Journal of Health Economics* 63 (2019), 197–222. doi:10.1016/j.jhealeco.2018.11.004

Evan Saltzman, Ashley Swanson, and Daniel Polsky. 2021. *Inertia, Market Power, and Adverse Selection in Health Insurance: Evidence from the ACA Exchanges.* Working Paper 29097. National Bureau of Economic Research.

Bruce A. Strombom, Thomas C. Buchmueller, and Paul J. Feldstein. 2002. Switching Costs, Price Sensitivity and Health Plan Choice. *Journal of Health Economics* 21, 1 (2002), 89–116. doi:10.1016/S0167-6296(01)00124-2

Robert D. Willig. 1976. Consumer's Surplus Without Apology. *American Economic Review* 66, 4 (1976), 589–597.