Sources of Consumer Inertia in the Individual Health Insurance Market

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Abstract:

Inertia, the tendency to stay enrolled in a health plan from one year to the next, is a well-documented phenomenon in the health insurance literature. Several studies have found that consumers are willing to pay hundreds of dollars per month to avoid switching health plans. However, it is less clear why consumers exhibit inertia. In this paper, we separately identify three distinct sources of inertia in health plan choice: (1) tastes for continuity of care from in-network healthcare providers; (2) hassle costs from switching health plans; and (3) inattention to alternatives. We incorporate these sources of inertia into a single framework by modeling attention, which is unobserved, and then modeling plan choices for attentive and inattentive consumers. To do so, we use a combination of a default-specific consideration model and a random parameters mixed logit model. Our data are household-level 2014–2018 individual-level enrollment data from Covered California, California's state-based Health Insurance Marketplace. We find that all three sources of inertia contribute to inertia in plan choice in Covered California, though hassle costs are somewhat lower than tastes for continuity and inattention. A selection mechanism also exists in which older households exhibit larger tastes for continuity of care. Due to interaction effects between these three sources of inertia, policymakers seeking to reduce inertia should pursue policies that reduce all three sources of inertia.

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1. Introduction

The Patient Protection and Affordable Care Act (ACA) produced the single largest expansion of health insurance coverage in the United States since the creation of Medicare in 1965. One of the means through which it did so was the creation of state-based Health Insurance Marketplaces in 2014. The Marketplaces, which insured 11.4 million Americans in 2019 (Centers for Medicare and Medicaid Services 2019), provide eligible enrollees with price-linked subsidies to purchase private health insurance plans. Marketplaces rely on competition between insurers to provide enrollees with affordable, high-quality health plans, as well as to reduce federal outlays for price-linked premium subsidies (Obama 2016). While many states' Marketplaces experienced instability and insurer exit from 2014 through 2018, insurer re-entry in 2019 has resulted in increasingly robust, competitive Marketplaces (Fehr, Cox, and Levitt 2018).

Yet it is not clear that insurer competition in the Marketplaces is having the desired effects. Marketplace premiums have increased substantially over time (Fehr et al. 2018), and concerns over narrow network health plans persist (Drake 2019; Haeder, Weimer, and Mukamel 2015). A potential contributor to these phenomena is *inertia*, or persistence in health plan choices over time despite changes in health plan offerings (Dubé, Hitsch, and Rossi 2010). A consumer is inertial, or has inertia in plan choice, if being enrolled in a plan during the previous year increases the probability that the consumer will select that same plan in the current year. In markets with a high share of inertial consumers, firms may rely on inertia rather than competition on price or quality to retain market share (Farrell and Klemperer 2007). As policymakers consider large changes to the Marketplaces, it is essential that they understand the role that inertia currently plays in the Marketplaces and what role it may play under potential policy regimes in the future.

In this paper, we examine how and why enrollees in California's Health Insurance Marketplace exhibit inertia in their health plan choices. California's Marketplace, Covered California, has enjoyed robust participation from enrollees and insurers since its creation in 2014. In 2019, it had 1.5 million enrollees serviced by 16 competing insurers (Covered California 2019). We examine inertia in Covered California using individual-level enrollment data from Covered California from 2014 through 2018. These data allow us to identify two potential sources of inertia in Covered California: (1) *inattention*, which occurs when enrollees implicitly choose to stay with the same plan by continuing to pay their premium without considering alternative plans, typically via automatic re-enrollment; and (2) *switching costs*, which include the time, utility, and psychological costs of making the change from one health plan to another. We consider two types of switching costs: tastes for continuity of care and hassle costs. *Tastes for continuity of care* reflect enrollees' utility derived from continuing to receive care over time from the same set of medical providers, which may be reflected in their desire to stay with the same network of providers over time. *Hassle costs* consist of the residual psychological costs of making an informed choice of health plans, as well as the time costs of managing the Covered California website. Identifying these different sources of inertia allows us to understand how policy proposals to improve the Marketplaces may or may not affect inertia in plan choice.

We make two contributions to the literature. First, we describe the extent of repeated plan selections in a seemingly competitive Health Insurance Marketplace. Between 2015 and 2018, 82 percent of returning Covered California enrollees chose the same health plan as the prior year. Since 2016, roughly 60 percent of Covered California households had the option to automatically enroll in their plans from the previous year.[1] Nearly half (49 percent) of all Covered California plan selections from 2016 to 2018 were households selecting their plans from the previous year.[2] These repeated plan selections occurred despite signif-

1 An enrollment increase of 280,000 from 2014 to 2015 meant that the percentage of inertial households was lower in 2015 than in preceding years. Enrollment stabilized around 1.7 million enrollees in 2015 and has since remained stable, as has the percentage of inertial households.
2 Some insurers discontinued certain plans from year to year. Anthem, a large insurer, also exited in 2018. In both cases, returning households were assigned a default option through which they could automatically renew their coverage. When we refer to the "same plan" above, we are referring to households that re-enrolled in their default plans, regardless of whether those were their plans for the previous year of their default option.

icant year-over-year changes in plans' post-subsidy premiums. Households that did not switch plans paid higher premiums, on average, than their counterparts who did switch, suggesting that inertia may play a significant role in these repeated selections

Our second contribution is to identify and decompose inertia into inattention and switching costs (i.e., hassle costs and tastes for continuity of care). Attention, which we define as considering available options and making a choice among those options, is difficult to identify as it cannot be observed. Instead, we only observe the choices that consumers make. Inattentive consumers enroll in the same plan as the prior year, typically through automatic enrollment, and active consumers may or may not switch plans. We separately identify the effects of inattention and switching costs using the default-specific consideration framework of Abaluck and Adams (2017) in a random-coefficient logit demand system.

Nearly 80 percent of returning Covered California households re-enroll in their health plans from the previous year.[3] We find that each source of inertia plays a role in this phenomenon. Eliminating inattention, hassle costs, and tastes for continuity individually would reduce the percentage of returning households that select their default plans by 14.3 percentage points, 9.0 percentage points, and 16.0 percentage points, respectively. Each source of inertia thus contributes to overall inertia in plan choice, though inattention and tastes for continuity contribute more than hassle costs. Therefore, interventions to decrease inattention and tastes for continuity (e.g., eliminating automatic re-enrollment and requiring that providers and insurers more clearly disclose which providers participate in which networks) may be more effective means of reducing inertia than regulations to reduce hassle costs (e.g., simplifying the Covered California website). However, decreases in plan switching resulting from reductions in multiple sources of inertia are non-linear; reductions in different sources of inertia are complementary to one another. Eliminating all three sources of inertia would reduce default plan choice among returning households by 52.6 percentage points. We also demonstrate that the use of simpler models that do not separate these three sources of inertia could lead to incorrect inference regarding policies to mitigate inertia.

This paper fits into two different bodies of literature. The first is an emerging literature on the demand for health insurance in the post-ACA individual health insurance markets. This literature has grown substantially since the creation of the Marketplaces in 2014, but it is still not as developed as research on other health insurance markets. Early contributions to this literature examined Marketplace enrollees' price sensitivity and uniformly found that Marketplace enrollees are highly price elastic in their plan choices (DeLeire and Marks 2015; Abraham et al. 2017; Gabel et al. 2017; Tebaldi 2017). More recent contributions to this literature have examined non-pecuniary aspects of Marketplace demand. Drake (2019) shows that Marketplace enrollees are sensitive to network breadth in their plan choices; Saltzman (2019) shows that the existence of (though not the level of) an individual mandate increases Marketplace enrollment; Ericson et al. (2017) found that nudges to examine health plan choices cause enrollees to examine their health plan options but not switch plans; and Drake and Anderson (2019) found that eliminating an automatic re-enrollment option was associated with a 30 percentage point decrease in re-enrollment. Diamond et al. (2018) studied attrition in Covered California enrollment and found a large, non-causal association between being previously enrolled in a given plan and re-enrolling in the plan the following year. Using a longer panel of the same Covered California data used by many of these previous studies (Tebaldi 2017; Saltzman 2019; Gabel et al. 2017; Drake 2019), we contribute to this literature by providing causal estimates of the impact of inertia on demand for Marketplace plans.

The second relevant body of literature is that which studies inertia in health plan choice. Inertia has been found to play a large role in every health insurance market in which it has been examined (B. Handel and Kolstad 2015a), particularly Medicare Part D (Polyakova 2016; Ericson 2014; Abaluck and Gruber 2011; Keane et al. 2019; Ketcham et al. 2012), as well as employer-sponsored insurance (Handel 2013;

3 As we discuss below, some households are reassigned a default option if their previous plans are discontinued. This 80 percent figure refers to households selecting their default plans, including plans from the previous year and reassigned default plans.

Handel and Kolstad 2015b), Medicaid managed care (Marton, Yelowitz, and Talbert 2017), and the pre-ACA Massachusetts Health Insurance Marketplace (Shepard 2016). Handel (2013) found enrollees in an employer-sponsored insurance setting were willing to pay $2,032 per year to stay with their previous health plan. Several other papers have examined the role of different sources of inertia in health plan choice, though they tend to examine them individually rather than holistically. Higuera, Carlin, and Dowd (2018) and Dahl and Forbes (2016) both found strong tastes for continuity of care in employer-sponsored insurance settings. We are not aware of a study in the health insurance literature that identifies hassle costs,[4] though Luco (2019) identifies substantial hassle costs in a pension system for Chilean government employees. Two other studies separate inertia into inattention and switching costs in Medicare Part D (Heiss et al. 2016; Ho, Hogan, and Scott Morton 2017). Both found that inattention plays a large role in plan choice. We contribute to this literature by holistically examining the role that each source of inertia plays in overall plan choice.

Our paper proceeds as follows. Section 2 describes the regulatory structure of the Health Insurance Marketplaces and Covered California. Section 3 describes the data used in the analyses and presents descriptive evidence of inertia. Section 4 develops a model of health plan choice that separately identifies distinct sources of inertia. Section 5 discusses results and simulates the elimination of each of these sources of inertia on the probability that households switch plans. Section 6 discusses policy implications. Section 7 concludes.

2. Background

2A. The Affordable Care Act and Health Insurance Marketplaces

The Affordable Care Act of 2010 (ACA) significantly altered the individual health insurance market (HOLC 2010). The law prevented insurers from denying or rescinding coverage for pre-existing conditions. It also required all plans to cover a set of essential health benefits, eliminated annual and lifetime caps on coverage, and capped out-of-pocket payments. The ACA requires that each plan have a "metal" level with a corresponding actuarial value (e.g., 70 percent for silver, 60 percent for bronze, etc.). Minimum coverage "catastrophic" plans are available to those under age 30. To encourage health plan enrollment, the ACA had an individual mandate that penalized the uninsured for not carrying insurance on a sliding scale. The mandate penalty was reduced to zero beginning in 2019.

Individual market insurers are subject to modified community rating, which limits plan premium variation to fixed bands based on age, family size, smoking status, and geography. Individuals are assigned an age-adjustment factor that ranges from one for 21-year-olds to three for 64-year-olds. Age-adjustment factors are summed together for covered household members and multiplied by a plan's base premium. Most states increase premiums by 50 percent for smokers, though California does not. States also design their own rating areas, typically clusters of counties, across which insurers may vary their plans' premiums.

Health Insurance Marketplaces where households can shop for individual health plans were implemented under the ACA in 2014. Consumers can use the Marketplace to compare individual plans in a standardized format. Households with incomes less than or equal to 400 percent of the federal poverty level (FPL) without affordable offers of insurance from an employer or a public insurance program (e.g., Medicaid) qualify for advanced premium tax credits to purchase Marketplace plans. The size of the tax credit is based on a household's FPL and the premium of the second-lowest cost silver plan available to that household. Premium tax credits may be applied towards the premium of any non-catastrophic plan. Households purchasing Marketplace coverage with incomes below 250 percent of the FPL also qualify for cost-sharing

4 Handel and Kolstad (2015b) do study a different type of hassle costs in an employer-sponsored insurance setting. They define hassle costs as the perceived costs of dealing with the administrative apparatus necessary to use a health plan with a health savings account, not the general administrative and time costs of switching away from one's current health plan.

reduction subsidies. These subsidies reduce cost-sharing in silver plans, including coinsurance, deductibles, and copays. They are only applicable to silver plans, which makes silver plans with CSR subsidies the dominant choice for many households at or below 200 percent of the FPL, the maximum income level at which generous CSR subsidies are available (DeLeire et al. 2017). Each state can operate its own Marketplace or use the federally facilitated Marketplace, HealthCare.gov. In 2019, 39 states used HealthCare.gov; the remaining 12 states, including California, operated state-based Marketplaces.

2B. The Covered California Marketplace

California has managed its own state-based Marketplace, Covered California, since 2014. It insured 1.36 million individuals in 2018, roughly 11.5 percent of the 11.8 million individuals insured by Marketplace plans in 2018 (Centers for Medicare and Medicaid Services 2018). Covered California is divided into 19 rating areas—all of which are sets of counties, with the exception of Los Angeles County, which is split into two rating areas. Covered California standardizes cost-sharing for each metal level (Covered California 2018). For example, all silver plans must have a $35 copay for primary care and a $2,500 individual deductible. Deductibles and coinsurance rates are also standardized such that cost-sharing characteristics do not vary within metal levels.

Each Covered California plan is associated with a network and an insurer. Covered California insurers offer between one and three networks. All plan characteristics—such as plan type (e.g., HMO, PPO) and prescription drug formularies—are set at the network level. The only exceptions are premiums and cost-sharing characteristics (e.g., deductibles, copays) associated with a metal level. Covered California requires that insurers offer exactly one health plan of each metal level for each network that they offer. Thus, for each network an insurer offers, there is one corresponding plan of each of the five metal levels, the three silver CSR variants, and a high-deductible bronze option that is also mandated by Covered California.

An example of the relationship between an insurer and its networks and plans is shown in figure 1. The Blue Shield of California (BSC) insurer offers two networks, an HMO and a PPO. BSC may vary its networks, plan types, and formularies across the HMO and the PPO, but not within them. The only characteristics that vary for plans within BSC's networks are their metal levels, which BSC must offer according to Covered California regulations, and their premiums.

All households that remained insured in Covered California as of December 31 of a given year had the option to automatically re-enroll in Covered California the following year in a *default plan*. That is, returning households do not have to actively select a plan to remain insured in the following year; instead, they can simply continue pay the premium for their default plan, which will typically change from year to year. A household's default plan is determined by a simple algorithm (California 2017). First, if a household's previous plan is offered in the following year, then the previous plan is the household's default plan. If the household's previous plan was discontinued by its insurer but its insurer did not exit the household's rating area, then the household's default plan is the lowest-cost plan offered by its insurer for the metal level of the previous plan. If the household's insurer exited the household's rating area, as occurred in 2018 when Anthem exited many of Covered California's most populous rating areas, then the household's default plan is the lowest-cost plan available in the household's rating area for the metal level of the previous plan. Households that discontinued their Covered California coverage prior to December 31 could not automatically renew their coverage in the subsequent year; instead, they had to actively select a plan.[5]

Covered California, unlike most other states' Marketplaces, has enjoyed relatively stable enrollment and insurer participation over time. Table 1, using data discussed below, shows that enrollment has varied only between 1.64 to 1.7 million from 2015 to 2018 after beginning at 1.36 million in 2014. Since 2016, about 60 percent of all participating households are returning from the prior year. Four insurers—Anthem, Blue

5 Households that moved between rating areas also were not eligible for automatic reenrollment.

Shield, HealthNet, and Kaiser—have enrolled over 80 percent of Covered California enrollees since 2014. All four insurers have participated in Covered California since 2014, though Anthem drastically reduced its presence in Covered California in 2018. Other insurers have entered and exited the market since 2014 (e.g., Oscar, United), but the total number of competing insurers always has ranged from 11 to 13. Post-subsidy premiums of plans selected by enrollees have remained relatively stable over time as well. The median selected post-subsidy monthly premium had a low of $119, which gradually increased to $156 in 2017 and decreased to $136 in 2018.

3. Data and Descriptive Evidence of Inertia

3A. Data

We obtained individual-level Covered California enrollment data for 2014 to 2018 through a public records act request. These data contain individual and household identifiers, rating area, age, and household income as percentages of the FPL. The data contain information on 8,058,217 enrollee-years. Covered California asks members of households to select their health plans jointly, and 98.4 percent of them do so. Accordingly, we collapse the enrollment data to the household level, leaving 5,464,510 households.

The data contain the name of the insurance plan each household is enrolled in, the premium paid for the plan, and a measure of whether the household registered any website activity when signing up for its plan. We will discuss this activity measure in more detail in section 3C.

We limit our sample to the 5,305,374 households that did not violate any of the following non-exclusive conditions: split plans within households (88,309); had a missing rating area (17,647); had a maximum age under 18 (41,994); or received cost-sharing reduction subsidies but not advanced premium tax credits (12,197). After these adjustments, the sample consists of 5,305,374 households. We augment enrollment data with publicly available information on Covered California plans' premiums.[6]

3B. Descriptive Evidence of Inertia

We begin our analysis by documenting descriptive patterns of inertia in the data in the spirit of Polyakova (2016) and Handel (2013). As they note, descriptive evidence of inertia is insufficient to conclude that inertia exists, since descriptive statistics cannot by themselves distinguish between "true" inertia and unobserved, serially correlated characteristics that may cause households to behave as if they are inertial (Dubé, Hitsch, and Rossi 2010). However, descriptive analyses of Covered California plan choices can be suggestive of the presence of inertia.

We observe three patterns in the data consistent with the presence of inertia. First, we find that, among households that had the option to re-enroll in their plan from the previous year—or a reassigned default option in the case of plan exit—81.83 percent of them did so. This high choice persistence suggests that some form of inertia is present, though it is unclear whether this inertia is due to inattention, tastes for continuity of care, or hassle costs.

Our second piece of evidence of inertia is that household cohorts appear to exhibit diminishing price sensitivity over time. A household's cohort is the year it enrolled. As shown in table 2, the average household's base monthly premiums—before age adjustment and subsidies are applied—are lowest for the most recent cohort and increase with the tenure of the household. For example, in 2018, the mean base premium of plans chosen by households new to the market was $308 per month. In the same year, the average base premium of plans chosen by households that entered the market in 2016 was $316, and the average base premium among plans chosen by households that entered in 2014 was $326. This pattern suggests that, due to one or more forms of inertia, returning households are not drawn to the same low-priced

6 Covered California's public data repository is located at https://hbex.coveredca.com/data-research/.

plans as households that are entering the market for the first time. We observe a similar pattern when we examine the percentage of households that selected the lowest-cost plan within their chosen plan's metal level. Roughly 40 percent of each cohort selects the lowest-premium plans when first enrolling in Covered California, but in subsequent years the percentage declines. For example, 41.84 percent of the 2014 cohort selected the lowest-premium plan in 2014, but only 30.55 percent of the 2014 cohort selected the lowest-premium plan in 2018. This second set of descriptive statistics eliminates the possibility that returning households simply prefer more generous plans because cost-sharing is constant within metal levels and switching between metal levels is relatively rare over time. We thus conclude that inertia may explain the decline in selections of lowest-premium plans over time.

Our last piece of evidence of inertia is that enrollment with insurers appears to be "sticky" over time. Figure 2 shows the brand selections of households that are new to Covered California as well as those that are returning. Brand selections are split between the four biggest insurers in Covered California—Anthem, BCBS, HealthNet, and Kaiser—and other insurers. New households tended to select insurers that offered plans with lower premiums, while returning households tended to select their previous insurer. For example, Anthem was quite price competitive in 2015. Nearly 40 percent of new households selected an Anthem plan in 2015, but only 2.5 percent of returning households did so. Returning households were thus 16 times less likely than new households to select an Anthem plan in 2015.

3C. Descriptive Evidence of Inattention

Attentive households make a conscious choice from among available options. Unlike the final plan choice of the household, attention is not directly observable by the econometrician. If a household is inattentive, we observe it selecting its default plan. If the household is attentive, we observe its utility-maximizing choice among the available options, which may or may not be the household's default plan.

In our data, we observe whether households actively selected their plans on the Covered California website and whether they automatically re-enrolled in their default plans. A household that actively selected a plan on the website can select a new plan or its default plan. Importantly, we only observe website activity if a household actively selected and confirmed a plan choice; we do not observe website activity if a household browsed the Covered California website but re-enrolled via automatic re-enrollment. We find that 44 percent of returning households actively selected a plan the following year.

While it is tempting to interpret website activity as synonymous to attention, this is not necessarily the case. For instance, a household may consider all of the available options on the website and, upon deciding that its default option remains the optimal choice, use automatic re-enrollment to re-enroll in their previous plan rather than actively select their previous plan on the website. This household would be coded as inactive in the data. Furthermore, households that do register as active on the website may simply re-select their default plans without any substantial consideration of other options. Despite these limitations, the level of website inactivity does suggest that inattention may play an important role in this market.

To find more rigorous evidence of inattention, we follow Abaluck and Adams (2017) in examining the asymmetry in households' responses to the premiums of their own default plans. Each household is informed of the future premium of its default plan via a letter from Covered California. To be aware of the prices of all other plans, the household must actively search the Covered California website.

In table 3, we present the results of linear regressions for two binary outcomes: (a) whether a household switched plans and (b) whether a household registered any website activity on Covered California. We regress both outcomes on the premium of households' default plans, the average premiums of other plans in households' choice sets, households' demographics, and year fixed effects. We also estimate similar regressions that substitute default and average premium levels with year-to-year changes in default and average premiums.

We find that households are more responsive to the premiums of their default plans, but only marginally so. The sensitivity of switching and website activity to the level of the default premium is roughly equal to the sensitivity to the average premium levels in the market. However, the sensitivity to the change in default premium is about twice as large as the sensitivity to the average change in premiums in the market. These findings suggest that the levels of attention are higher in Covered California than in Medicare Part D. For example, Abaluck and Adams (2017) find that consumers are three times as sensitive to default premium levels in Medicare Part D.

4. Model, Specification, and Identification

Below, we describe a two-stage model of plan selection that differentiates between several sources of inertia, including inattention, hassle costs, and tastes for continuity of care. This model is a combination of the default-specific consideration model (Abaluck and Adams 2017) and a random parameters mixed logit model (Train 2003). The first stage of the model addresses whether households pay attention to their plan choices. The second stage of the model concerns plan selection among households that pay attention to their choices. The second stage allows for switching costs—both in the form of hassle costs and tastes for continuity of care—to affect plan choice while controlling for unobserved preference heterogeneity. Our model is similar to those used by Ho, Hogan, and Scott Morton (2017) and Heiss et al. (2016) to estimate plan choice in Medicare Part D. Below, we discuss the structure of the choice problem (section 4A), the two stages of our model (sections 4B and 4C), specification (section 4D), and identification (section 4E).

4A. The Household's Choice Problem

Households, indexed by i, choose among health insurance plans, indexed by j, that are offered in the current year, t, and the rating area, r, in which they live. Households are free to enter and exit Covered California each year, which is common due to changes in the availability of employer-sponsored insurance and Medicaid eligibility. The set of plans available to households varies by rating area and year due to changes in the plans offered by insurers and entry and exit of insurers over time. The plan in which a given household could automatically re-enroll—usually its plan from the previous year—represents the household's default option. We refer to this plan as the "default" plan because it is the implicit choice of the household if it takes no action to select a new plan or terminate coverage. We discuss the mechanisms for automatic re-enrollment plan assignment in Covered California in section 2B.

4B. Inattention

In the first stage, consumers decide whether to be *attentive*, which we define as considering and making a choice from among the available options. Importantly, attention itself is not observable, but the choice decision—and the resulting choice—depend on whether the household is attentive. If an inertial (i.e., returning) household is not attentive, it is automatically re-enrolled into the plan it was enrolled in during the previous year, or it is transitioned to a specified default plan if its previous plan was discontinued. If an inertial household is attentive, then the household makes (and the econometrician observes) the household's selection from among available plans. Households that are new to Covered California or are returning after discontinuing their coverage prior to December 31 must be attentive and actively select a plan to be insured.

For inertial households, the decision to pay attention likely depends on how costly it is for the household to gather information about its options and how much the household expects to gain by doing so. We do not explicitly model these costs and expectations; we instead model the probability that a household pays attention to its plan choices as a logistic function of household demographic characteristics, the change in the premium of the household's default option plan, and rating area and year fixed effects. Let A_{ijrt} be

an unobserved indicator for whether household i with default plan j in rating area r in year t is attentive ($A_{ijrt} = 1$) or not ($A_{ijrt} = 0$). The probability that a household is attentive is then given by

$$\Pr(A_{ijrt} = 1) = \frac{\exp(a_{ijrt})}{1 + \exp(a_{ijrt})} \quad (1)$$

$$a_{ijrt} = \alpha D_{irt} + \beta \Delta P_{ijrt} + \theta_r + \tau_t \quad (2)$$

where D_{irt} is a vector of household demographic characteristics including the age of the oldest household member (i.e., maximum age), an indicator for whether the household qualifies for a premium tax credit, and an indicator for whether the household consists of more than one member; ΔP_{ijrt} is the difference between the premium of the household's default option plan and the premium of the household's previous plan; and θ_r and τ_t are indicators for rating areas and years, respectively. Since A_{ijrt} is not observed, we discuss how to identify this equation in section 4D.

4C. Plan Choice

In the second stage, attentive households choose a health plan that maximizes their utility. The utility U_{ijrt} that a household i in rating area r in year t derives from plan j is given by

$$\left(U_{ijrt} \middle| A_{irt} = 1\right) = -\alpha P_{ijrt} D_{irt} + \beta_i I_{ijt} D_{irt} + \gamma M_{jrt} + \xi_{jr} + \epsilon_{ijrt} \quad (3)$$

where P_{ijrt} is the age-adjusted, post-subsidy monthly premium of plan j for household i; I_{ijt} is a vector of indicators for whether plan j is the same plan as the household's plan from the previous year and for whether plan j shares the network of the household's previous plan; M_{jrt} is an indicator for plan j's metal level (with separate indicators for cost-sharing variants of silver plans); ξ_{jr} is a vector of unobserved plan characteristics; and ϵ_{ijrt} is an idiosyncratic, Gumbel-distributed error term unobserved by the researcher. We allow premium and inertia to vary demographic characteristics D_{irt}, which are the same as those used in the first stage. Note that, due to plan and insurer exit, a household's default option is not always its plan from the previous year. This creates variation in switching costs with respect to plans and networks.

4D. Identification

The first identification concern in estimating a discrete choice demand model is the co-determination of the price and aspects of product quality that are unobserved to the econometrician. Here we are able to exploit the institutional environment. First, the structure of the age-rating curve and the ACA's premium tax credits lead to variation in premiums across households and *within* rating areas that is plausibly exogenous to preferences over unobserved aspects of product quality. Additionally, due to the strict product regulations in Covered California, we are able to control for the only dimensions on which products are allowed to vary: premium, metal level, and network. As explained in section 2B, all plan characteristics besides premiums and metal level must be set at the network level in Covered California. We thus use network fixed effects to control for all plan characteristics besides premiums and metal level. Furthermore, we allow network fixed effects to vary at the rating area level to allow for households' perceptions of

network quality to vary with geography. This may occur if, for example, a prestigious hospital is included in a network in northern California. Households in northern California may be more likely to select the network due to the inclusion of the prestigious hospital, but the prestigious hospital is unlikely to affect perceptions of the network's quality in southern California. This approach has been used in other studies of Covered California (Drake 2019; Tebaldi 2017).

There are two main concerns with respect to identifying the components of inertia. The first is the initial conditions problem (Heckman 1981); it is not a concern here because our data contain the initial year of enrollment, 2014. The second is ensuring that the inertia coefficient, β_i, is picking up "true" inertia, or structural state dependence, and not serially correlated household characteristics that may resemble inertia, or spurious state dependence (Heckman 1981). We test for structural state dependence using a Chamberlain test, which produces evidence of structural state dependence in Covered California health plan choice. We describe this test and its results in detail in the technical appendix.

In our model, identification of inertia comes from the churn of households in and out of Covered California. Roughly 46 percent of households-years are new households during the study period. Our identifying assumption is that the entering cohorts of households have the same distribution of unobserved preferences—conditional on observable attributes—as the returning households. Our assumption would be violated if, for instance, new enrollees more likely to prefer less generous plans than returning enrollees with identical characteristics. Since the entering cohorts are large in number and similar in observable demographics, we consider this to be a reasonable assumption. Households' decisions to enter and exit the market are also often driven by other life events such as moving and job changes. This assumption is also maintained in other papers estimating inertia in insurance markets that exhibit less consistent churn than our environment (Handel 2013; Heiss et al. 2016).

In addition to separating inertia from other characteristics of households' choices, we separate the components of inertia in two ways. First, we exploit the product regulations of Covered California to separate switching costs into tastes for continuity of care at the network level and hassle costs at the plan level. To do so, we include switching cost indicators at the network and plan levels. Network-level switching costs correspond to tastes for continuity of care. Plan-level switching costs correspond to hassle costs.

Next, we separate inertia that is a result of inattention from switching costs. Since attention is not observable by the econometrician, we must exploit the choices of inertial households in order to determine if an inertial household is making choices *as if* it has considered the characteristics of its choice set or not. Identification of inattention comes from two sources. First, we assume that the prior period premium of a household's default plan can affect the household's choice only through the probability that it pays attention to the available plans in this period, as in Heiss et al. (2016) and Ho, Hogan, and Scott Morton (2017). The prior period premium of the default plan can also indirectly affect current period choices via the prior period choices. Second, we can identify how the level and change in attention depends on product characteristics by exploiting the asymmetry (or lack thereof) demonstrated in section 3C. See Abaluck and Adams (2017) for a more detailed explanation of the identification argument. We include fixed effects for demographics, year, and the plan's default metal level to allow the mean attention levels to vary across these groups.

4E. Estimation

Consider a household that has a default plan option of $j = 0$. If that household is active in considering the available options, the probability that it selects a plan j in the current period is given by

$$s^*_{ijrt} = \Pr\left(j \in argmax_j U_{ijrt} \middle| A_{i0rt} = 1\right) \tag{4}$$

The probability that the household selects plan j without conditioning on the household making an active choice is given by

$$s_{ijrt} = \begin{cases} \Pr(A_{i0rt} = 0) + \Pr(A_{i0rt} = 1)s^*_{ijrt}, \text{if } j = 0 \\ \Pr(A_{i0rt} = 1)s^*_{ijrt}, \text{if } j \neq 0 \end{cases}. \tag{5}$$

We estimate this model by maximizing the log-likelihood of the individual household purchases that we observe. The log-likelihood function is given by

$$\mathcal{L} = \sum_i Y_{ijrt} \log(s_{ijrt}) \tag{6}$$

where Y_{ijrt} is an indicator of whether household i purchased plan j in time t. We construct household-level choice probabilities by integrating the analytical logit probabilities across the distribution of random preferences using simulation-based integration.

5. Results

5A. Specifications

We begin by presenting three increasingly complex versions of the choice model described in section 4. Model 1 is a mixed logit model with a plan-level switching cost indicator for whether the given plan choice is the same as the household's default option. Model 2 has switching cost indicators at the plan and network levels, allowing us to separate hassle costs (the plan-level indicator) from tastes for continuity of care (the network-level indicator). Model 3 adds the attention stage described in section 4B; it is the full model described in section 4. Each model allows for unobserved preference heterogeneity by including random coefficients on the fixed effects for the four largest insurers (Anthem, Blue Shield, HealthNet, and Kaiser).

5B. Model Results

In this working paper, all models are estimated on a 5 percent sample of observations in Covered California's largest rating area, rating area 16, which is the larger of the two Los Angeles rating areas. A future manuscript will contain results estimated separately for all rating areas in California.

Since all models are estimated with maximum likelihood, we can compare their predictive power. We find that separating switching costs by plan and network, and including an attention stage in the model thus helps to explain households' plan choices. Table 4 shows the increasing likelihood and Bayesian Information Criterion across the three specifications. We find that the simpler specifications are rejected by a like-

lihood ratio test. Accordingly, we focus our subsequent discussion on model 3, though we do use models 1 and 2 to understand how using simpler models could lead to incorrect conclusions.

Table 5 reports the average marginal effects of the covariates in the attention stage of model 3, which are interpreted as percentage point changes in the probability that a household pays attention to its plan choices. Our key finding is that a $10 increase in the post-subsidy premium of the household's default plan is associated with a 5.09 percentage point increase in the probability that a household pays attention to its plan options. A $10 increase in year-over-year post-subsidy premiums is a modest change in our sample, as median premium change is $18.20 and the inter-quartile range spans increases of $7.80 to $49.40 per month. We also find that receiving a premium tax credit is associated with a 12.8 percentage point increase in the probability that a household is attentive.

In figure 3, we show how the predicted probability that a household is attentive is related to plan switching and website activity. We also find that the households with the highest probabilities of paying attention are also those most likely to actively select a plan on the website. These results suggest that the identification of attention in the model is coming from consumer behavior. Additionally, the mean predicted level of attention (63 percent) is greater than the mean observed level of website activity (44 percent), which suggests that many households are attentive but still prefer their default plans and do not take the unnecessary effort to actively re-enroll.

Appendix table 1 displays the coefficients of the plan choice models. Table 6 displays switching costs (i.e., willingness to pay) calculated from the estimated coefficients. In our preferred model, model 3, we find that total switching costs are $68 per month. Two-thirds of these switching costs are due to tastes for continuity of care ($44); the remaining third are due to hassle costs ($23.80). Total switching costs are increased by 19 to 39 percent when the attention stage is not included in the model, as is the case in models 1 ($80.80) and 2 ($94.30). These differences are due to the models without inattention overestimating hassle costs, even though they underestimate tastes for continuity of care. Specifically, network-level switching costs are $35.30 in model 2 without an attention stage and $44.30 in model 1 with an attention stage. Plan-level switching costs are $59 in model 2, but those costs decrease by slightly over 50 percent in model 3 ($23.80). Failing to account for inattention thus drastically alters our findings.

In table 7, we show the estimates of switching costs broken out by demographic groups. We find that total switching costs are between $124.80 per month for low-income, older, non-single households and $47.20 per month for high-income, young, single households. We also find that tastes for continuity of care and hassle costs are of a similar magnitude. Switching costs to retain the same network (i.e., tastes for continuity of care) range from $22.80 to $67.70 per month across demographic groups, and willingness to pay to retain the same plan (i.e., hassle costs) ranges from $16.30 to $66.10 per month.

In table 8, we predict the proportion of returning households that keep their default plans with and without each source of inertia. In the data, we observe that 79.4 percent of returning households keep their default plans. Models 1, 2, and 3 predict that 77.8 percent, 78.3 percent, and 79.0 percent of returning households will re-enroll in their default plan. Model 3 predicts that eliminating any one source of inertia would cause modest reductions in repeated plan selections. Eliminating inattention would lead to 64.7 percent of consumers selecting their default plans; eliminating hassle costs would lead to 70.0 percent of consumers selecting their default plan; and eliminating tastes for continuity would cause the largest reduction, with 63.0 percent of consumers selecting their repeat plan. While we find that tastes for continuity play the largest role in consumer inertia, each of the three sources that we identify has a similar magnitude in its effect on repeated plan selection. This same pattern can be seen when considering the presence of only one form of inertia, rather than the absence of only one. Without any of these sources of inertia, we still find that consumer preferences lead to 26.4 percent of households selecting their default plans. These results suggest that, while attention and hassle costs may be playing an important role in limiting the switching of consumers, tastes for continuity and preference heterogeneity account for more than

half of the households that enroll in the same plans as the prior year. Relative to model 3, model 2 vastly over-predicts the percentage of households that would switch away from their default plans if hassle costs were eliminated.

6. Discussion

Although inertia is a well-documented phenomenon in the health insurance literature, relatively little is known about its causes. Furthermore, the literature has not examined inertia in the Health Insurance Marketplaces created by the Affordable Care Act. This paper isolates three sources of inertia—inattention, hassle costs, and tastes for continuity of care—in the largest Health Insurance Marketplace, Covered California.

We exploit variation in inertia in plan choice stemming from the churn of households in and out of Covered California over time. We find that each source of inertia plays a role in returning households' plan choices, though hassle costs are somewhat smaller than inattention and tastes for continuity. Our finding that inattention is not the dominant source of inertia is at odds with Ho, Hogan, and Scott Morton (2017) and Heiss et al. (2016). However, both papers examine Medicare Part D, and enrollees in this market —seniors selecting prescription drug plans— may simply behave differently than those in the Marketplace. Our finding that tastes for continuity are an important source of switching costs is consistent with previous studies on the role of continuity of care in plan choice in employer-sponsored insurance (Higuera, Carlin, and Dowd 2018; Dahl and Forbes 2016). We also find that tastes for continuity increase more steeply with age than hassle costs, suggesting that preferences for continuity of care may be greater for those who more frequently use their health insurance.

These findings have important policy implications. The first implication pertains to a request for comments from the Centers for Medicare and Medicaid Services on eliminating automatic re-enrollment in the federally facilitated Marketplace (Department of Health and Human Services 2019), which currently serves 39 states. The rationale for this proposal is that consumers make better health plan choices when they actively select a health plan. However, our findings suggest that inattention is not the dominant contributor to inertia in plan choice in the Marketplaces, and recent analyses by Drake and Anderson (2019) and the Department of Health and Human Services (Verma 2018) indicate that eliminating automatic re-enrollment would lead to decreases of roughly 30 percent in the number of individuals insured in the Marketplaces. Collectively, these results suggest that the welfare cost of eliminating automatic re-enrollment may exceed the benefit: it would eliminate less than a third of inertia in plan choice, but it may also reduce re-enrollment by nearly a third, potentially increasing the uninsured rate.

Second, given the importance of inattention, policymakers may wish to consider "smart default" options (Handel and Kolstad 2015b). An algorithm could reassign returning households to a default plan within their given network based on medical expenses from the previous year. For example, if a household were enrolled in the gold plan for a given network in 2019 and had no claims costs, it could be reassigned to a bronze plan the following year. The household could still select to remain in the gold plan (or choose another plan), but its default option would likely minimize its total medical expenditures.

Third, eliminating hassle costs cannot be the primary mechanism to affect large reductions in inertia. Eliminating hassle costs completely without reducing other sources of inertia would only reduce the probability of plan re-selection by nine percentage points. However, reducing hassle costs alongside reductions in other sources of inertia may lead to higher rates of plan switching. Reducing hassle costs should thus be viewed as a component of a larger strategy to reduce inertia in health plan choice rather than as the sole means to do so. It also is possible that hassle costs are larger in other states' Marketplaces and may play a larger role outside of California. Unlike other states, California has conducted robust outreach efforts (Lee et al. 2017) and features standardized benefits that simplify choices for enrollees (Covered California 2018).

Fourth, strong tastes for continuity of care create a selection mechanism that necessitates risk adjustment programs to offset the costs of insuring costlier enrollees. Drake (2019) found that older, presumably sicker households have a higher willingness to pay for broad network plans; we found that older households have stronger tastes for continuity than their younger counterparts. Collectively, these findings suggest that older enrollees are more likely to select plans with broader and higher quality networks *and* are more likely to stay with those networks over time. With adequate risk adjustment, this creates an incentive for insurers to "invest and harvest" (Farrell and Klemperer 2007; Ericson 2014) older enrollees by attracting them to broad network plans with relatively low premiums and raising premiums on them in subsequent years, profiting off older households' tastes for continuity of care. Covered California appears to have addressed this by controlling premium growth with an "active purchaser" model in which the state negotiates participation and premiums directly with insurers (Krinn, Karaca-Mandic, and Blewett 2014; Tebaldi 2017). If insurers cannot invest and harvest, an ensuing concern is that insurers will not offer broad network plans to avoid covering the sickest, costliest enrollees in the market. The ACA's risk adjustment program appears to have prevented this from occurring (Bertko, Feher, and Watkins 2017) and, as of 2017, there remains a wide array of network offerings in Covered California (Drake 2019). Without such policies, however, it is possible that investing and harvesting or a network breadth death spiral could occur.

Fifth, policies to reduce tastes for continuity may be a powerful tool to reduce inertia. While it may be undesirable to disrupt patients' continuity of care, part of enrollees' tastes for continuity of care may simply be due to uncertainty regarding whether they could change health plans and keep receiving care from their set of healthcare providers. Even when a provider is listed in a health plan's provider directory, it is not always clear that the provider is in fact in the plan's network (Haeder, Weimer, and Mukamel 2016; Dorner, Jacobs, and Sommers 2015). Reducing this uncertainty through increased reporting requirements for insurers and providers may reduce tastes for continuity of care. Another approach to this issue would be to implement large-scale expansions of network adequacy laws that would make the exclusion of a given provider from a network less common. However, such regulations may lead to substantial increases in pre-subsidy premiums by reducing insurers' bargaining power with providers (Ghili 2016; Ho and Lee 2016).

Sixth, it is unclear what insurers' options are to compete for enrollees who have strong tastes for continuity of care. If an insurer desired to take market share from a competitor, contracting with some of the same providers as the competitor may be an attractive means to do so. However, this might not be possible if the insurer's competitor is a vertically integrated insurer-provider such as Kaiser. Kaiser, seeing a competing insurer's efforts to contract with its providers as a threat to its market position, may simply deny its competitor the ability to contract with its providers. As vertically integrated provider-insurers continue to become more common, it is less clear whether non-vertically integrated insurers will be able to successfully compete in private insurance markets. Antitrust regulation may become necessary to promote competitive health insurance markets.

Lastly, optimal strategies to reduce inertia are likely those that simultaneously reduce multiple sources of inertia rather than focus on one source of inertia. Policymakers seeking to encourage plan switching should thus develop holistic strategies that address inertia along several dimensions.

In summary, interventions to reduce inertia in the Marketplaces vary substantially in terms of their effectiveness and trade-offs. The use of smart defaults and stricter regulations regarding provider network directories are likely to have significant benefits and modest costs. Other policies, such as eliminating automatic re-enrollment and expanding network adequacy, would perhaps be more harmful than they would be effective. However, without substantial policy changes that reduce inattention and tastes for continuity, welfare gains from competition in the Marketplaces, as in other health insurance markets, will continue to be limited by inertia.

7. Conclusion

Despite the large role that inertia plays in health insurance markets, no paper to our knowledge has holistically examined its sources or its role in the Health Insurance Marketplaces. This paper fills both gaps by identifying three sources of inertia in California's Marketplace: inattention, hassle costs, and tastes for continuity of care. We do so by exploiting variation in churn in enrollment and plan offerings over time. Our findings indicate that all three sources of inertia play a role in repeated plan choice. Inattention and tastes for continuity of care play larger roles than hassle costs; however, jointly reducing multiple sources of inertia has a larger effect on repeated plan choice than reducing individual sources of inertia does. A selection effect also exists in which older households are disproportionately likely to have higher tastes for continuity of care. Policymakers seeking to reduce the role of inertia in the individual health insurance market should implement strategies that simultaneously address multiple sources of inertia, and they should avoid policies that offset reductions in inertia with countervailing drawbacks, such as increases in the uninsured rate from eliminating automatic re-enrollment. Future researchers should continue to identify not only *if* but also *why* inertia is present in certain markets and seek to quantify the costs and benefits of policies that may reduce inertia.

Appendix

Chamberlain Test of Structural State Dependence

We formally test for structural state dependence by using a Chamberlain test (Chamberlain 1982; Erdem and Sun 2001). The Chamberlain test is a test of inertial behavior. It tests whether prices from the previous period predict market share in the current period, conditional on plan characteristics. If inertia is associated with plan choice, then prices from the previous period should be negatively associated with plans' market shares. Using a approach similar to Ericson (2014), we implement the Chamberlain test using aggregate enrollment data for incumbent Covered California plans.

We estimate the log market share $\ln(s_{jkrt})$ of plan j in rating area r in year t as

$$\ln(s_{jrt}) = \alpha_1 P_{jrt}^{Ord} + \alpha_2 P_{jrt-1}^{Ord} + \beta M_{jrt} + \lambda_j + \theta_r + \tau_t + \omega_{jrt}. \quad (1)$$

Plan j's premium-metal order P_{jrt}^{Ord} is its rank, from least to greatest, in terms of premiums among other plans of the same metal level within its rating area r in year t. For example, the second-lowest silver plan would have a premium-metal order of two among silver plans in a given rating area-year. Note that this measure is discrete, not continuous. Lagged premium-metal order P_{jrt-1}^{Ord} is plan j's premium-metal order in rating area r in the previous year, $t-1$. We use premium-metal order rather than premiums because premiums and lagged premiums are collinear ($\rho = 0.97$), whereas premium-metal order and lagged premium-metal order are not (Spearman rank-order correlation $\rho = 0.74$). This is the case because plans' premiums do not tend to change greatly over time, but their premium-metal order does due to the entry and exit of competing plans.

We also include fixed effects for metal level (M_{jrt}), networks (λ_j), rating area (θ_r), and year (τ_t). The error term ϵ_{jkr} has a gamma distribution and is clustered by insurer. We estimate this model as a generalized linear model, confirming that a gamma distribution is appropriate using a Pregibon link test (Pregibon 1980). Inertia predicts that there is a negative relationship between past prices and current market share ($\alpha_2 < 0$), which is to say that lagged premium-metal order from the previous year is negatively associated with market share in the current year.

Table A2 shows results of several Chamberlain tests. Columns (1) and (2) are models with lagged premium-metal order. Column (1) has separated network and year fixed effects; column (2) has interacted network and year fixed effects. Both models show negative associations between premium-metal order and market share. Columns (3) and (4) are analogous to columns (1) and (2) but contain lagged premium-metal order. They both show that *lagged premium-metal order is negatively associated with current market share, which suggests that structural state dependence influences plan choice*. We also observe that the magnitude of the effect of contemporaneous premium-metal order on plan choice in models that include lagged premium-metal order (columns (3) and (4)) is lower than models that do not (columns (1) and (2)).

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TABLE 1.

ENROLLMENT, PLAN OFFERINGS, PREMIUMS, AND MARKET SHARES

	Year				
	2014	2015	2016	2017	2018
Enrollment					
Total Enrollment (Millions)	1.36	1.64	1.70	1.70	1.65
Households Enrolled (Millions)	0.89	1.08	1.13	1.12	1.09
Percent Returning	-	28.6	61.3	58.0	59.7
Percent Active*	-	40.5	43.6	43.4	48.0
Percent Switching*	-	12.4	15.5	18.0	23.9
Health Plan Offerings					
Number of Plans	88	146	182	204	204
Number of Networks	35	38	44	44	43
Number of Insurers	12	11	13	12	12
Market Share (%)					
Anthem	29.32	27.77	25.26	17.60	4.83
Blue Shield	27.15	24.95	27.81	24.77	30.76
HealthNet	19.43	16.58	11.71	10.09	13.70
Kaiser	18.19	24.92	24.66	29.48	34.46
Other Insurers	5.91	5.78	10.56	18.06	16.25
Median Monthly Premiums ($, Median (Interquartile Range))					
Before Premium Tax Credits					
Offered Plans	499	514	527	605	673
	(307-788)	(317-813)	(321-848)	(369-974)	(411-1084)
Selected Plans	490	501	507	551	652
	(293-721)	(298-739)	(302-759)	(332-841)	(392-1014)
After Premium Tax Credits					
Offered Plans	193	206	227	278	252
	(86-341)	(97-363)	(113-401)	(146-487)	(106-464)
Selected Plans	119	127	139	156	136
	(55-237)	(62-250)	(67-268)	(68-295)	(50-282)

Notes. Base monthly premiums are monthly premiums before age adjustment and premium tax credits are applied. Products are sets of plans offered by insurers that have the same network, plan type, and all other characteristics besides premiums and metal levels. Anthem largely exited Covered California in 2018, reducing its presence to three smaller rating areas (1, 7, and 10).

* The percent of households switching plans and active on the website applies only to those who are retuning.

TABLE 2.

CHARACTERISTICS OF PLAN SELECTIONS ACROSS ENROLLMENT COHORTS

	Enrollment Year				
	2014	2015	2016	2017	2018
Mean Base Monthly Premiums ($)					
2014 Cohort	230	239	248	275	326
2015 Cohort		233	243	268	318
2016 Cohort			238	266	316
2017 Cohort				259	312
2018 Cohort					308
All Cohorts	230	237	243	267	316
Enrollment in Lowest-Premium Plan (%)					
2014 Cohort	41.84	38.53	29.09	23.95	30.55
2015 Cohort		41.72	30.09	26.41	31.43
2016 Cohort			38.72	32.56	32.79
2017 Cohort				41.07	36.65
2018 Cohort					42.46
All Cohorts	41.84	40.01	32.74	31.36	35.44

Notes. Base monthly premiums are monthly premiums before age adjustment and premium tax credits are applied. They are inflated to 2018 dollars using the medical CPI. Lowest-premium plans are plans with the lowest premiums within their metal respective metal levels.

TABLE 3.
SENSITIVITY TO DEFAULT AND RIVAL PLAN PREMIUMS

	Switch Plans		Website Activity	
	Price Level	Price Change	Price Level	Price Change
Default Premium	0.205*	0.296*	0.167*	0.231 *
Average of Non-Default Premiums	-0.190*	-0.146*	-0.177*	-0.123 *
Demographics				
Maximum Age: 30 to 50	0.006	0.000	0.021*	0.024*
Maximum Age: Over 50	-0.003	0.008	0.066*	0.049*
Non-Single Household	-0.039*	-0.035*	0.091*	0.077*
Receives Premium Subsidy	-0.020*	0.023*	0.081*	0.070*
Year Fixed Effects	X	X	X	X
R-squared	0.094	0.035	0.048	0.024
Observations	111,050	111,050	111,050	111,050

Notes: Table 3 reports the results of a regression of whether or not a household switched plans or registered any website activity on the demographics of the household, the premium of the household's default plan, and the average of the premiums of all other plans in the household's choice set. We report regressions using the premium levels and year-over-year premium changes. All premiums are in hundreds of dollars per month ($00/month).

* Coefficients are significant to the 0.1 percent level.

TABLE 4.

COMPONENTS AND PROPERTIES OF CHOICE MODELS

	Model		
	(1)	(2)	(3)
Model Components			
Switching Cost	X	X	X
Switching Costs by Plan, Network, Insurer		X	X
Attention Stage			X
Model Properties			
Number of Parameters	36	46	63
Log Likelihood*	-73,200	-72,400	-71,800
Bayesian Information Criteria (BIC)	147,000	145,000	144,000

Notes. All models are estimated on 42,301 households-years in Los Angeles rating area 16 from 2014 to 2018. The mean household in the sample had 34.6 plan choices. There were 1,462,880 household-year choices in each model.

* Likelihood ratio tests reject the simpler models relative to model (3).

TABLE 5.

AVERAGE MARGINAL EFFECTS OF CONSIDERATION MODEL

Covariate	Average Marginal Effect (Percentage Point Change)
Change in Default Plan's Premium ($10/month)	4.81*
Demographics	
Maximum Age: 30 to 50	0.23
Maximum Age: Over 50	-3.95
Non-Single Household	0.60
Household Receives Premium Tax Credit	12.8*
Fixed Effects	
Metal Level of Default Plan	X
Rating Area	X
Year	X
Observations	42,301

Notes. Average marginal effects represent the percentage point change in the probability that a household pays attention to its plan options. The reference household has a maximum age under 30, is single, and does not receive a premium tax credit.

* Coefficients are significant at the 0.1 percent level in the 5 percent preliminary sample.

TABLE 6.

MEAN SWITCHING COSTS

	Willingness to Pay ($/Month)		
Type of Household	(1)	(2)	(3)
Mean Willingness to Pay	80.8	94.3	67.9
Plan Level	80.8	59.0	23.8
Network Level	-	35.3	44.0

Notes. Willingness to pay, or switching costs, is calculated as the relevant inertia coefficient over the premium coefficient from model 3 as described in table 3. For example, plan level willingness to pay is calculated as the coefficient of the plan-level inertia term over the premium coefficient.

TABLE 7.
SWITCHING COSTS ACROSS DEMOGRAPHIC GROUPS

	Willingness to Pay ($/month)		
	Plan	Network	Total
Single with Premium Tax Credit			
18-29	18.5	28.7	47.2
30-49	16.3	41.9	58.1
50-64	19.1	55.6	74.7
Non-Single with Premium Tax Credit			
18-29	24.3	28.5	52.9
30-49	23.9	45.7	69.6
50-64	31.5	67.7	99.2
Single without Premium Tax Credit			
18-29	31.0	24.0	55.0
30-49	32.8	36.3	69.0
50-64	41.3	49.0	90.2
Non-Single without Premium Tax Credit			
18-29	40.0	22.8	62.7
30-49	46.3	38.5	84.8
50-64	66.1	58.7	124.8

Notes. Willingness to pay, or switching costs, is calculated as the relevant inertia coefficient over the premium coefficient from model 3 as described in table 3. For example, plan-level willingness to pay is calculated as the coefficient of the plan-level inertia term over the premium coefficient.

TABLE 8.

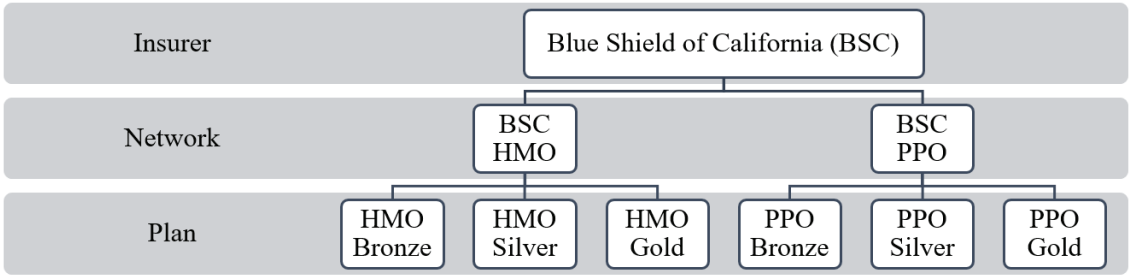
DEFAULT PLAN SELECTION WITH AND WITHOUT SOURCES OF INERTIA

	Returning Households Enrolling in Default Plan (%)		
Scenario	(1)	(2)	(3)
Observed Default Enrollment	79.4	79.4	79.4
Predicted Default Enrollment	77.8	78.4	79.0
No Inattention	-	-	64.7
No Hassle Costs	31.2	44.3	70.0
No Tastes for Continuity	-	63.0	63.0
Inattention Only	-	-	49.7
Hassle Costs Only	31.2	63.0	40.7
Taste for Continuity Only	-	44.3	54.2
No Sources of Inertia	31.2	26.2	26.4

Notes. In this table we display the model-predicted probability that a returning household will re-enroll in its default plan. We decompose the components of inertia by eliminating each mechanism one at a time. We do so by predicting a counter-factual model in which each type of switching cost (hassle costs and tastes for continuity) are equal to $0 and a model where the attention probability of all consumers is 1.

FIGURE 1.

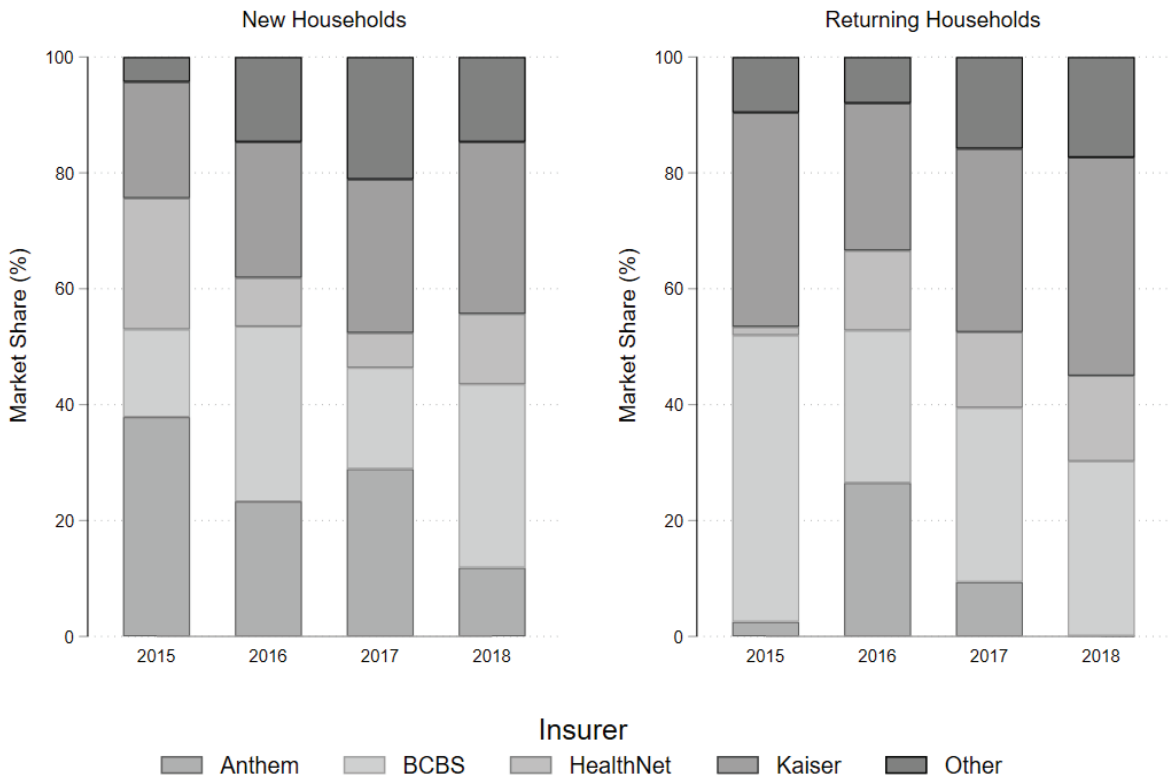
EXAMPLE INSURER-NETWORK-PLAN HIERARCHY



Notes. Other metal levels are excluded for illustrative simplicity. This hierarchy exists for all Covered California insurers, though they may vary the number of networks they offer.

FIGURE 2.

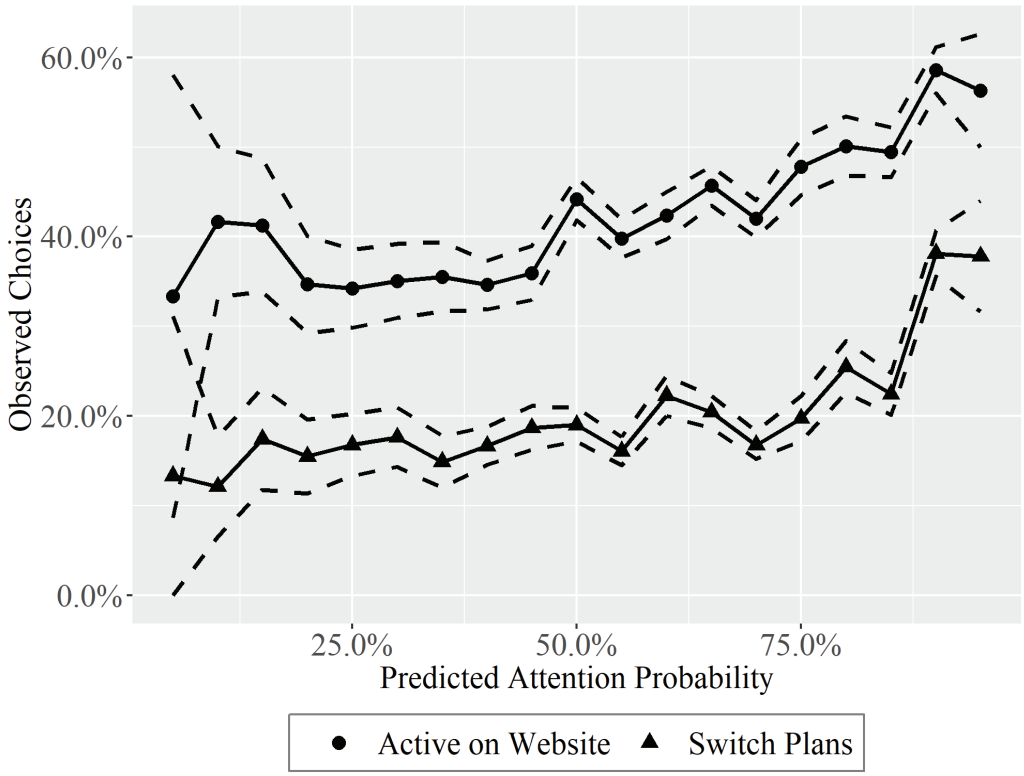
INSURER MARKET SHARES AMONG NEW AND RETURNING HOUSEHOLDS



Notes. Anthem, Blue Shield, HealthNet, and Kaiser are the four largest insurers in Covered California, accounting for over 80 percent of market share. Anthem withdrew from much of Covered California in 2018.

FIGURE 3.

PREDICTED ATTENTION AND OBSERVED ACTIVITY



Notes. This figure shows the empirical switching probability and website activity probability conditional on intervaled values of predicted attention probability. The dashed lines represent 5 percent confident intervals around the empirical means.

APPENDIX TABLE A1.

COEFFICIENTS OF PLAN CHOICE MODELS

Covariate	(1)	(2)	(3)
Premium	-6.57*	-6.38*	-6.36*
Maximum Age: 30-50	1.60*	1.53*	1.57*
Maximum Age: 50-64	2.81*	2.73*	2.78*
Family (Non-Single)	1.15*	1.12*	1.20*
Receives Premium Tax Credit	0.01	0.02	-0.21
Switching Costs			
Plan	4.26*	3.36*	1.97*
Maximum Age: 30-50	-0.14	-0.21	-0.40
Maximum Age: 50-64	-0.12	-0.15	-0.49
Family (Non-Single)	-0.21*	-0.02	0.09
Receives Premium Tax Credit	-0.76*	-0.92*	-0.76*
Network		1.45*	1.53*
Maximum Age: 30-50		0.09	0.21
Maximum Age: 50-64		-0.01	0.22
Family (Non-Single)		-0.27*	-0.35*
Receives Premium Tax Credit		0.10	0.36*
Fixed Effects			
Metal Level	X	X	X
Insurer[a]	X	X	X

[a] Insurer indicators are specified as random effects for the four largest insurers in Covered California—Anthem, Blue Shield, HealthNet, and Kaiser, which covered roughly 80 percent of households from 2014 to 2018—and as fixed effects for other insurers.

* Coefficients are significant at the 0.1 percent level in the 5 percent preliminary sample.

APPENDIX TABLE A2.

CHAMBERLAIN TESTS OF STRUCTURAL STATE DEPENDENCE

	Log Enrollment Share $\ln(s_{jrt})$			
Covariate	(1)	(2)	(3)	(4)
Premium-Metal Order				
Second	-0.415***	-0.486***	-0.310***	-0.371**
	(6.22)	(3.76)	(3.96)	(3.11)
Third	-0.939***	-0.962***	-0.738***	-0.767**
	(4.94)	(3.85)	(4.54)	(3.28)
Fourth	-1.195***	-1.160***	-0.953***	-0.923***
	(5.65)	(4.46)	(5.71)	(3.71)
Fifth or greater	-1.388***	-1.358***	-1.069***	-1.060***
	(5.70)	(4.80)	(6.15)	(4.15)
Lagged Premium-Metal Order				
Second			-0.396*	-0.266***
			(2.14)	(3.97)
Third			-0.421*	-0.325*
			(2.15)	(2.42)
Fourth			-0.495*	-0.401**
			(2.42)	(2.62)
Fifth or greater			-0.552*	-0.439*
			(2.38)	(2.14)
Fixed Effects				
Metal Level	X	X	X	X
Network	X		X	
Year	X		X	
Network-Year		X		X
Observations	1,581	1,581	1,581	1,581

Notes. All models are estimated with generalized linear models with log links and gamma-distributed, insurer-clustered error terms. The dependent variable is the log enrollment share for plan j in rating area r in year t. The sample is all incumbent Covered California plans (i.e., plans that were active in the previous year). All plan characteristics besides premiums and metal levels are set at the network level. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$