Sources of Inertia in the Individual Health Insurance Market

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Abstract (187): Consumers in private health insurance markets are highly inertial. The literature has repeatedly found consumers are willing to pay thousands of dollars to keep their health plan. However, the causes of inertia are not well understood despite being critical to determining whether welfare can be improved by reducing inertia and which types of policies would be effective in doing so. Using administrative data from California's Health Insurance Marketplace, we separately identify three sources of inertia—tastes for provider continuity, inattention, and hassle costs—using two-stage models of inattention and health plan choice. We find that eliminating inattention and hassle costs would reduce repeated health plan choice by 53 percentage points and that interventions to reduce inattention and hassle costs are complements. Inattention and hassle costs cost consumers over a billion dollars in foregone consumer surplus in 2018, roughly $1,790 per household per year or half the annual premium paid by the median household, with inattention accounting for the largest source of forgone surplus. We conclude that interventions to reduce inertial plan choice should jointly focus on hassle costs and particularly inattention, but not tastes for provider continuity.

Keywords: Health insurance, inertia, attention, switching costs, Health Insurance Marketplace

1. Introduction

Inertia, defined as persistence in health plan choice over time despite changes in health plan offerings (Dubé, Hitsch, and Rossi 2010), has the potential to reduce the efficiency of health insurance markets by decreasing insurers' incentives to compete on price and quality (Farrell and Klemperer 2007). While the existence of inertia is well documented in Medicare Advantage, Medicare Part D, and Medicaid managed care (Handel and Kolstad 2015a), the reason consumers are willing to pay thousands of dollars per year to keep their health plan is not well understood. Identifying the causes inertia is crucially important because doing so allows policymakers to determine whether welfare can be improved by reducing inertia and, if it can be reduced, which types of policies would be effective. If inertia stems from informational frictions, then informational nudges, changes to default plan assignment algorithms, and simplified choice presentation could improve consumer welfare and market-level efficiency.[1] However, policy interventions to reduce inertia may be limited—and not necessarily welfare improving—if inertia is due to consumers' desire to keep their doctor in their provider network.

We decompose the sources of inertia in the Health Insurance Marketplaces created by the Affordable Care Act (ACA), a market in which inertia has not previously been examined.[2] We consider three sources of inertia in health plan choice. *Inattention* occurs when consumers do not pay attention to their options and implicitly select a default option (Abaluck and Adams 2021; Goeree 2008), typically the consumer's previous health plan. *Tastes for provider continuity* reflect consumers' preference keep their health care providers, which they can do by not leaving their health plan's network. *Hassle costs* account for the remaining time and psychological costs

[1] See, for example, Domurat, Menashe, and Yin (2021), Anderson, Rasmussen, and Drake (2021), and Schmitz and Ziebarth (Schmitz and Ziebarth 2017).
[2] A contemporaneous study, Saltzman, Swanson, and Polsky (2021) also examines inertia in this market. We discuss this study below.

necessary to change health plans (Handel 2013). We use the term *switching costs* to refer to the combination of tastes for provider continuity and hassle costs. We find that inattention and hassle costs account for nearly all of consumer inertia in this market and that the role of tastes for provider continuity are quantitatively small.

We estimate the extent to which each of these sources of inertia drives health plan choice. Using administrative enrollment data from California's Health Insurance Marketplace from 2014 through 2018, we estimate a two-stage demand system that can separately identify each of the three sources of inertia. In the first stage, consumers decide whether to be attentive, which we define as acquiring information about the choice set. In the second stage, inattentive consumers remain in their default plan and attentive consumers select a health plan according to their preferences, which include tastes for provider continuity and hassle costs.

We employ two alternative and complementary empirical strategies to separately identify inattention in plan choice in the first stage. The first approach employs the default-specific consideration model of Abaluck and Adams (2021) to identify latent inattention in plan choice. This approach relies on demand asymmetry to identify inattention and an exclusion restriction that year-over-year changes in the default plan's premium only affect plan choice through the probability that a consumer pays attention to their choice set—a common assumption in models of attentive plan choice (Ho, Hogan, and Scott Morton 2017; Heiss et al. 2021). The second approach leverages an unusual feature of our data—we observe whether households actively selected their health plan or chose to automatically reenroll in their default option. For this approach, we assume active plan selection is equivalent to attention, allowing us to "observe" attention via active selection. This paper is the first to exploit either methodology to determine the level of inattention in consumer decision making in this market. We show that both

approaches produce remarkably similar findings under different sets of identifying assumptions, which validates the identification strategy of Abaluck and Adams (2021).

We leverage plan standardization regulations in Covered California to identify tastes for provider continuity and hassle costs in the second stage. Covered California insurers must offer five health plans—one at each "metal" level of coverage generosity—for each network that they offer. This regulation allows us to observe four plans that share the same network as the consumer's default plan, each of which can satisfy the consumer's tastes for provider continuity. However, these same-network non-default plans still bear the hassle costs involved with switching health plans. We rely on this variation in combination with a large cohort of consumers that are new to the market each year to separately identify the consumers' tastes for provider continuity and hassle costs.

We find that inertial plan choice is driven primarily by inattention and hassle costs, not tastes for provider continuity.[3] We simulate that repeat plan choice among returning consumers could be reduced by 55 percentage points, from 81% to 25%, by eliminating inattention and hassle costs—reducing either source of inertia in isolation reduces repeat plan choice by roughly 20 percentage points.[4] We then estimate the consumer welfare gains from eliminating sources of inertia. We estimate that inattention and hassle costs led consumers to forgo $1.25 billion of consumer surplus in 2018, roughly $1,790 per returning household per year or about half of the premium paid by the median household. Unlike plan switching, these welfare gains primarily result from reducing inattention rather than a mixture of inattention, hassle costs, and their

[3] This finding is consistent with Handel (2013), who found large inertia in health plan choice after controlling for health plan's networks. In contrast to this paper, Handel examined the group health insurance market and did not separate attention and switching costs.

[4] The approach of our welfare analysis is similar to Heiss et al. (2021) and Gruber et al. (2021), both of whom examine how independently and jointly reducing choice frictions affects plan choice.

interaction. There is still, however, an interaction effect whereby consumer welfare gains from reducing hassle costs are larger as inattention is reduced. These results suggest that interventions to reduce inertia could affect substantial consumer welfare gains.[5] Our findings are robust to whether we identify attention using a default-specific consideration model or observed active selection.

Our work makes three main contributions. The first two contributions build on the literature on health plan choice and inertia through novel data and applying recent methodological innovations. First, our novel use of an observed active selection variable allows us to estimate unobserved attention under two differing sets of identifying assumptions, increasing the robustness of our findings and providing a powerful robustness check for future research studying demand systems with inattention. We are the first, alongside Brot-Goldberg et al. (2021), to use information on active selection to study attention, despite the large role it plays in health plan choice (e.g., Abaluck and Adams 2021; Ketcham, Lucarelli, and Powers 2015; Bischof, Gerfin, and Muller 2021). Second, we expand upon prior research that separates inertia into inattention and switching costs (Heiss et al. 2021; Abaluck and Adams 2021; Ho, Hogan, and Scott Morton 2017) by further separating switching costs into tastes for provider continuity and hassle costs.[6] As our results demonstrate, disentangling these sources of inertia is important for policy and welfare.

Third, while inertia in health plan choice is well documented (Handel 2013b; Polyakova 2016; Atherly et al. 2020), this paper is the first to examine inertial health plan choice in the

[5] This statement does not account for whether reducing inertia is cost effective. However, an emerging literature has consistently found that low-cost interventions are an effective means to reduce inattention and hassle costs (Feher and Menashe 2021; Domurat, Menashe, and Yin 2021; Ericson et al. 2017).

[6] Our work also complements a broader of literature that examines various choice frictions in health insurance markets (Abaluck and Gruber 2011; 2016; Bhargava, Loewenstein, and Sydnor 2017; Ketcham et al. 2012; Keane et al. 2019; Ericson et al. 2018; Schmitz and Ziebarth 2017; Ketcham, Lucarelli, and Powers 2015; Kling et al. 2012).

Health Insurance Marketplaces created by the ACA, alongside Saltzman, Swanson, and Polsky (2021).[7] This market is now more important than ever, as Marketplace enrollment has reached historic highs (Keith 2021). Our finding that inertia created roughly a billion dollars in foregone consumer surplus in California in 2018 indicates that inertia can be a highly salient issue for the future success of the Marketplaces. Insurer exit, once common in the Marketplaces, has stopped almost entirely since 2020 (Fehr, Kamal, and Cox 2020), suggesting that welfare losses from inertia are likely to increase nationwide unless they are addressed.

Our findings suggest that policy interventions that reduce inattention and hassle costs would improve consumer welfare, though this recommendation is subject to two limitations of our analysis. First, we do not consider the cost of policies to reduce inertia; however, prior literature that has studied interventions including informational nudges, changes to defaults, and consumer assistance outreach all indicate that these interventions are relatively low cost (Feher and Menashe 2021; Domurat, Menashe, and Yin 2019; Goldin, Lurie, and McCubbin 2021; Ericson et al. 2017; Anderson, Rasmussen, and Drake 2021; Handel and Kolstad 2015a; Lee et al. 2017; Hero et al. 2019). Second, we do not consider supply responses of insurance firms which may have ambiguous effects on welfare in the presence of adverse selection. Saltzman, Swanson, and Polsky (2021)'s analysis of California's Marketplace indicates that welfare gains from increased insurer price competition outweigh losses from increased adverse selection. Our estimates thus may underestimate welfare gains.[8] In conjunction with the literature, we thus can more confidently recommend policy interventions to reduce inattention and hassle costs.

[7] Diamond et al. (2021) and Drake et al. (2021) consider inertia in their analyses of the ACA Marketplaces, though it was not the primary focus of their analyses, nor do they attempt to identify it.
[8] Our analysis and Saltzman, Swanson, and Polsky (2021) are complements. They do not examine the underlying causes of inertial plan choice, while we do not examine the equilibrium effects of reducing inertia.

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 and concludes.

2. Background

2.1. The Affordable Care Act and Health Insurance Marketplaces

The Affordable Care Act (ACA) altered the individual health insurance market in the United States. The law prevented insurers from denying or rescinding coverage for pre-existing conditions, required all health plans to cover a set of essential health benefits, eliminated annual and lifetime caps on coverage, and capped annual out-of-pocket payments. Additionally, the ACA requires that each plan have a "metal" level with a corresponding actuarial value (e.g., 70% for silver, 60% for bronze, etc.).[9] The ACA had an individual mandate that penalized the uninsured for not carrying insurance on a sliding scale. It was reduced to zero in 2019.

Individual market insurers are subject to modified community rating, which limits plan premium variation to fixed bands based on age, family size, 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. States also designate their own rating areas, typically clusters of counties. Insurers may vary their plans' base premiums across rating areas.

[9] Minimum coverage "catastrophic" plans are available to those under age 30.

Health Insurance Marketplaces where households can shop for individual health plans were implemented in 2014. Consumers can use the Marketplaces to compare health plans in a standardized format. Households with incomes less than or equal to 400% 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 household FPL and the premium of the second-lowest cost silver plan. Premium tax credits may be applied towards the premium of any plan.[10] Households purchasing Marketplace coverage with incomes below 250% of the FPL also qualify for cost-sharing reduction subsidies. These subsidies reduce cost-sharing (e.g., deductibles, copays) and are applicable only to silver plans. Each state can operate its own Marketplace or use the federal platform, HealthCare.gov. In 2021, 36 states used HealthCare.gov. The remaining 14 states, including California, operated state-based Marketplaces.

2.2. The Covered California Marketplace

California has managed its state-based Marketplace, Covered California, since 2014. It insured 1.36 million individuals in 2018 and is divided into 19 rating areas. All Covered California's rating areas are sets of counties except for Los Angeles County, which is split into two rating areas.

Each Covered California plan is associated with a network and an insurer. Covered California insurers offer one to three networks. All plan characteristics besides premiums and cost-sharing (e.g., deductibles) are set at the network level. California requires insurers offer exactly one plan of each metal level for each network they offer. Thus, for each network, there is one corresponding plan for each metal level, the three silver CSR variants, and a high-deductible

[10] Except catastrophic plans.

bronze option that is also mandated. Covered California also standardizes cost-sharing for each metal level (Covered California 2018). For example, all silver plans must have a $35 primary care copay and a $2,500 individual deductible.

An example of the relationship between an insurer, its networks, and its plans is shown in Figure 1. Blue Shield of California (BSC) 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.

Consumers can view available plan options, check their subsidy eligibility, and enroll in an insurance plan on CoveredCA.com. This website is also where households input the income, age, and family size information that determines premium tax credit eligibility and size. Households must enroll in Covered California during an open enrollment period that typically runs from mid-October through January; exceptions are allowed for qualifying life events, such as changes in employment.

All households that remain insured in Covered California as of December 31 have the option to automatically reenroll in Covered California in their *default plan* for the following year. These returning households do not have to actively select a plan to remain insured in the following year; instead, they can simply continue to pay the premium for their default plan. Households receive a renewal notice by mail that alerts them to premium changes and whether their default plan has changed. If they take no action, they are automatically reenrolled.

The *default plan* is generally the plan in which the household was enrolled during the prior year. If a household's previous plan is no longer available, the default plan is determined by a simple algorithm (California 2017). First, if the household's previous plan was discontinued by

its insurer and 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, then the household's default plan is the lowest-cost plan available for the metal level of the previous plan. Households that discontinue their Covered California coverage prior to December 31 cannot automatically renew their coverage in the subsequent year; they must return to the website and actively select a plan.

Covered California, unlike many 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 1.70 million from 2015 to 2018 after beginning at 1.36 million in 2014. Since 2016, about 60% of all participating households are returning from the prior year. Four insurers—Anthem, Blue Shield, HealthNet, and Kaiser—have enrolled over 80% 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 10 to 12. Post-subsidy, inflation-adjusted premiums of plans selected by enrollees have increased over time. The median selected post-subsidy monthly premium had a low of $193 in 2014 (in 2018 dollars), which gradually increased to $278 in 2017 and decreased to $252 in 2018.

3. Descriptive Evidence of Inertia and Inattention

3.1. Data

We obtained individual-level Covered California enrollment data for 2014 to 2018 through a California Public Records Act request. These data contain individual and household identifiers, rating area, age, and household income as percentages of the FPL for 8.1 million

enrollee-years. Covered California asks households to select their health plans jointly; 98.4% of them do so. We thus collapse the enrollment data to the household level, leaving 5.5 million households.[11] The data also contain the name of the health plan each household is enrolled in, the premium paid for the plan, and an indicator for whether households actively selected their plan on the Covered California website. We augment enrollment data with publicly available information on Covered California plans' premiums.[12]

3.2. Descriptive Evidence of Inertia

Approximately 83% of returning households remained enrolled in their default plan, suggesting that inertia may be present in Covered California. We proceed by examining whether reduced form evidence is consistent with the presence of inertia. Descriptive analysis can be suggestive of the presence of inertia, but as Polyakova (2016) and Handel (2013) 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).

Our primary descriptive evidence of inertia is that enrollment cohorts exhibit diminishing premium sensitivity with respect to the number of years they are insured through Covered California. A household's cohort is the year it enrolled. Table 2 shows that the mean household's base monthly premium—premiums before age adjustment and subsidies are applied—are lowest for the youngest cohort and increase over time. For example, in 2018, the mean base premium of

[11] We limit our sample to households that did not violate any of the following non-exclusive conditions: split plans within households (88,000); had a missing rating area (18,000); had a maximum age under 18 (42,000); received CSR subsidies but not advanced premium tax credits (12,000); or had a plan ID that did not match plans listed by Covered California (6,000). After these adjustments, the sample consists of 5.3 million households.
[12] Covered California's public data repository is located at https://hbex.coveredca.com/data-research/.

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 $314, and the average base premium among plans chosen by households that entered in 2014 was $319. This pattern suggests that, perhaps due to inertia, premium sensitivity decreases with length of time in Covered California.

We observe similar patterns when we account for premium trends and metal level selections across each cohort. In Table 2, we examine the mean difference between the monthly base premiums of selected plans and the lowest-premium plans within the metal level of the selected plan. In 2018, the mean difference between the plans selected by the 2018 cohort and the lowest premium plan was $25; it was $32 among the 2014 cohort. We see the same pattern in the percentage of households that selected the lowest-premium plan, conditional on metal level. Roughly 40% of each cohort selects the lowest-premium plan when it first enrolls, but this percentage declines over time. These findings suggest that inertia may explain the decline in selections of lowest-premium plans as cohorts age.

We show that enrollment within insurers appears to be "sticky" over time. Figure A1 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, 29% of returning and new households selected BCBS in 2015. Only 21% of new households selected BCBS in 2016 after BCBS raised its baseline premiums by an average of 21%. Yet, 29% of returning households still selected BCBS in 2016.

Finally, the switching behavior of consumers in this commercially insured population suggests that tastes for provider continuity is not the most important factor in determining consumer inertia. Among the consumers that switch plans from one year to the next, only about 30% select a new plan within the same network. Nearly 50% of switching consumers select the identical metal level in a new network, and the remaining 20% of consumers switch both the metal level and network of their plan. The fact that most consumers that do decide to change plans opt for a new network suggests that network attachment may not be the primary diver of inertia in this market. This aspect of consumer behavior is key to identifying tastes for provider continuity in our demand model, which we discuss in more detail in the next section.

3.3. Descriptive Evidence of Inattention

Households are informed of the future premiums of their default plans each October via mail. Households may use the Covered California website to view the premiums and characteristics of other plans. We consider households that obtain that information on the available plan options to be attentive, and we consider those that are uninformed of the choice set and remain in their default plan to be inattentive.

Unlike the final plan choice of the household, attention is not directly observable by the analyst. If a household is inattentive, we observe it "selecting" its default plan. If the household is attentive, we observe its utility-maximizing choice, which may or may not be the household's default plan.

We observe whether households actively select their plans on the Covered California website or automatically reenrolled in their default plans. A household actively selects a plan can switch plans or reenroll in their default plan; households using automatic reenrollment can only reenroll in their default plan. We find that 43% of returning households actively selected their

plan, though 55% of them actively selected their default plan. Thus, only 19% of returning households actively switched plans.[13]

Active selection is not necessarily synonymous with attention for two reasons. First, a household may consider all available options and, upon deciding that its default option remains the optimal choice, use automatic reenrollment to reenroll in their previous plan rather than actively select their previous plan on the website. This household would be coded as *not* actively selecting its plan in the data. Second, 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 data on active plan choices suggest that inattention may play an important role in this market.

If a substantial fraction of consumers are inattentive, we should expect consumer demand responses to the premiums of their default plan and the premiums of all other plans to be asymmetric (Abaluck and Adams 2021). The premium of a consumer's default plan can influence plan choices through two channels: encouraging the consumer to obtain information about the rest of the choice set and the traditional demand channel of affecting the consumer's utility from selecting the plan. In contrast, the premiums of alternative plans only affect consumer choices if they are attentive. As a result, in the presence of inattention, we should find that consumer choices are more sensitive to the premium of their default plan than to the premiums of the other available options.

In Table 3, we present the results of linear regressions for two binary outcomes: (a) whether a returning household actively selected its plan and (b) whether a returning household switched plans. We regress both outcomes on the year-over-year change in the premium of

[13] About 1 percent of returning households switch health plans despite not making an active selection because their default plan is no longer available.

households' default plans, the year-over-year change in average premiums of other plans in households' choice sets, household demographics, and rating area and year fixed effects.

We find that active plan selection is about 50 percent more sensitive to the year-over-year changes in the premium of the default plan than to the changes in the premiums of alternative plans. A $100 year-over-year increase in the household's default plan is associated with a 3.4 percentage point increase in the probability that the household actively selects its plan, whereas a $100 year-over-year increase in the average premiums of other available plans is associated with a 2.4 percentage point decrease in the probability that the household actively selects its plan. Plan switching is more sensitive to increases in default premiums than increases in the average rival premium. A $100 year-over-year increase in the household's default plan is associated with a 6 percentage point increase in the probability of switching plans, and a $100 year-over-year increase in the average alternative premiums is associated with a 5 percentage point reduction in the probability of switching.[14] For both active plan selection and switching, we find larger effects when we allow for increases and decreases in premiums to have separate slope coefficients; reductions in the default premium are associated with an increases in the probabilities of active selection and switching. This suggests that large decreases in a consumer's default plan premium may lead to more switching by encouraging more consumers to examine their choices.

These results are suggestive of inattention in two respects. First, consumers are more responsive overall to the premiums that they are notified about (default plans' premiums) than those they are not (other plans' premiums). Second, that decreases default premiums are associated with increased switching probabilities, conditional on average changes in all other premiums, is not consistent with a discrete choice model of a fully informed consumer.

[14] We have estimated these descriptive results with other moments of the alternative plans, including the median, 25th percentile, and 75th percentile. Each of these different measures produces similar results.

However, in the presence of inattention, large decreases in a consumer's default plan premium may lead to more switching by encouraging more consumers to examine their choices.

4. Empirical Strategy and Identification

In this section, we describe a two-stage model of plan selection that differentiates between three sources of inertia: inattention, hassle costs, and tastes for provider continuity. In the first stage, households decide whether to be *attentive*, which we define as acquiring information about the choice set. We assume attentive households have full information about the entire choice set, which may be costly to obtain. If a household is not attentive, then the choice set of the household contains only the default plan (i.e. the plan they will be enrolled in if they continue to pay a monthly premium and take no other action). We assume all returning households are informed of the characteristics and availability of this plan, since they are notified of its characteristics by mail. In the second stage, attentive households choose a health plan that maximizes their utility among available options. Households with full information about their choice sets still face two types of switching costs: tastes for provider continuity and hassle costs.[15]

We proceed by discussing identification of each source of inertia and premium sensitivity, the latter of which is necessary to interpret switching costs in dollar terms. Briefly, inattention is identified through two alternative identification strategies. The first approach, based on Abaluck and Adams (2021), uses demand asymmetry and exclusion restriction assumptions to identify latent inattention in plan choice. The second approach treats active plan selection as a proxy for attention, despite the caveats described in Section 3.3. We use standard approaches to identify inertia in plan choice (e.g., Handel (2013)). We separate inertia in plan

[15] For households that are new to the market, there is no default insurance plan. In this case, we assume that all households that newly enter the market have full information about their choices.

choice into tastes for provider continuity and hassle costs by using indicators for whether a given plan is in the network of a returning household's previous plan (tastes for provider continuity) and whether a given plan is a returning household's default option (hassle costs). We rely on plausibly exogenous variation in each plan's premium across households within rating areas created by the age-rating formula and premium tax credits to identify premium sensitivity. This approach is standard in the Marketplace literature (Tebaldi 2020; Drake 2019; Saltzman 2019).

4.1. The Household's Choice Problem: To Choose or Not to Choose?

Consider the choice of household i in rating area r during year t. The household chooses among health plans, indexed by j, where the household's default plan is j_0. The probability that the household selects plan j, s_{ijrt}, is

$$\begin{aligned} s_{ijrt} &= \left(1 - \mu_{ij_0rt}\right) + \mu_{ij_0rt}\, s^*_{ij_0rt} \;\; \forall j = j_o \\ s_{ijrt} &= \mu_{ij_0rt}\, s^*_{ijrt} \;\; \forall\, j \neq j_o \end{aligned} \tag{1}$$

where μ_{ij_0rt} is the probability that the household is attentive to its choice set, given default plan j_o; s^*_{ijrt} is the conditional probability that the household will select plan j, conditional on the household being attentive.

The probability that the household selects its default plan is the sum of the probability that it is *not* attentive and the probability that it *is* attentive and the plan is the utility-maximizing option for the household. The probability that a household selects a plan other than its default is the product of the probability that it *is* attentive and the probability that the plan is the utility-maximizing option.

4.2. Attention and the Choice Set

The first source of inertia facing returning households is the informational barrier of attention. Attention itself is not observable. However, the household's options—and their

resulting choice—depend on whether the household is attentive. If a returning household is not attentive, it implicitly chooses its default plan, typically via automatic reenrollment. If a returning household is attentive, then it makes—and the analyst observes—its choice from the full set of available plans. Households that are new to Covered California or are returning after discontinuing their coverage must be attentive, meaning that they must actively select a plan to obtain coverage.

Returning households' decisions to be attentive likely depend on how costly it is to gather information about their options and how much households expect to gain by doing so. We do not explicitly model these costs and expectations; instead, we model the probability that a household pays attention to its plan choices as a logistic function of the change in the premium of the household's default plan, household demographics, and rating area and year fixed effects. Let μ_{ijrt} be the probability that household i with default plan j in rating area r in year t is attentive. We specify this probability as

$$\mu_{ijrt} = \frac{\exp(\alpha \Delta P_{ijrt} + \beta D_{irt} + \theta_r + \tau_t)}{1 + \exp(\alpha \Delta P_{ijrt} + \beta D_{irt} + \theta_r + \tau_t)} \quad (2)$$

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 rating area and year fixed effects.[16]

4.3. Plan Choice

[16] This is identical to defining a household as attentive if $\alpha \Delta P_{ijrt} + \beta D_{irt} + \theta_r + \tau_t + \eta_{ijrt} > 0$, where η_{ijrt} is a logistic random variable.

Attentive households choose a health plan that maximizes their utility. The utility, U_{ijrt}, that a new household i in rating area r in year t derives from plan j is

$$U_{ijrt} = u_{ijrt} + \Psi_{ijrt} + \Phi_{ijrt} + \epsilon_{ijrt} \quad (3)$$

where u_{ijrt} is the static utility to the household; Ψ_{ijrt} is the taste for provider continuity, a utility benefit to maintaining access to preferred medical providers; Φ_{ijrt} is a hassle cost, a switching cost that captures the additional time, administrative, and psychological costs associated with changing insurance plans. Each of these utility components are further specified below. Households have an unobserved idiosyncratic preference ϵ_{ijrt}.

The static utility u_{ijrt} is specified as

$$u_{ijrt} = -\alpha_i P_{ijrt} + \nu_i F_{jrt} + \xi_{jr} \quad (4)$$

$$\alpha_i = \alpha' D_{irt}$$

$$\nu_i \sim N(0, \Omega)$$

where P_{ijrt} is the age-adjusted, post-subsidy monthly premium of plan j for household i; F_{jrt} is a vector of indicators for whether plan j is offered by one of the four largest firms (Anthem, Blue Shield, Kaiser, and HealthNet); and ξ_{jr} is a vector of unobserved plan quality.

We allow α_i to vary by demographic characteristics D_{irt}. Following Ho, Hogan, and Scott Morton (2017), we allow for a distribution of preferences, ν_i, over the four largest firms with a variance matrix Ω in order to incorporate the possibility of persistent unobserved preferences for different insurance products. We assume these preference distributions are normal and independent for each firm (i.e. Ω is diagonal).

We exploit the institutional features of the market to capture unobserved plan qualities ξ_{jr}. As described in Section 2.2, all characteristics of insurance plans besides premiums and cost-sharing, which we control for, are constant within networks. We assume the premiums,

cost-sharing, and other plan characteristics are additively separable and control for ξ_{jr} using network-level fixed effects for each rating area. These fixed effects also capture mean preferences for brands (i.e., insurers), since networks are offered by insurers.

Returning attentive households face two sources of inertia in their choice of health plans. The first is associated with the household's preferred medical providers, Ψ_{ijrt}. A health plan may be more valuable to a household if its network includes the household's preferred medical providers. Under the simplifying assumption that a household is certain that their current providers are available in their current network and believe there is a lesser and equal probability that their current providers are available in any other network, the preference for provider continuity will appear as a network-level switching cost, which we specify as

$$\begin{aligned} \Psi_{ijrt} &= \psi_i N_{ijrt} \\ \psi_i &= \psi' D_{irt} \end{aligned} \tag{5}$$

where N_{ijrt} is an indicator for whether plan j is a part of the same network as the plan that household i is currently enrolled in. We allow ψ to vary by demographic characteristics D_{irt}, in the same manner as the premium sensitivity parameter, α_i.

The second source of inertia, hassle costs, captures other forces that make it costly for households to switch health plans after accounting for attention and tastes for provider continuity. These costs are captured in the plan choice model as a plan-level switching cost, $\Phi_{ijrt,}$ which we specify as

$$\begin{aligned} \Phi_{ijrt} &= \phi_i I_{ijrt} \\ \phi_i &= \phi' D_{irt} \end{aligned} \tag{6}$$

where I_{ijrt} is an indicator for whether plan j is the same insurance plan that household i is currently enrolled in. We allow the parameter ϕ to vary by demographic characteristics D_{irt}.

Conditional on being attentive—that is, having full information on the choice set—a household's probability of choosing plan j is given by

$$s^*_{ijrt} = \frac{\exp\left(u_{ijrt} + \Psi_{ijrt} + \Phi_{ijrt}\right)}{\sum_k \exp(u_{ikrt} + \Psi_{ikrt} + \Phi_{ikrt})}. \quad (7)$$

We compute the probability that a household chooses plan j by integrating over the distribution of preferences given by the parameter Ω (see section 4.5 for details). Note that for households that are newly entering the market, or for whom their prior plans are no longer offered, Ψ_{ijrt} and Φ_{ijrt} are zero.

4.4. Identification: Inattention

We employ two separate approaches to identify inertia resulting from inattention to plan choices. Our first approach is to employ the default-specific consideration model of Abaluck and Adams (2021), which identifies latent inattention through demand asymmetry and an exclusion restriction. Specifically, we exploit the choices of inertial households in order to determine whether they make choices *as if* they have information about their choice sets or not. The key determinant of attention in the model is the year-over-year change in the premium of the household's default plan, which is identified in part through demand asymmetry (Abaluck and Adams 2021) and in part through exclusion (Goeree 2008). One implication of full information is that households will have symmetric substitution patterns. For example, a change in the premium of plan x will have the same effect on the market share of plan y that a change in premium of plan y will have on the market share of plan x. Deviation in household substitution patterns from this symmetry helps separately identify the degree to which a change in the premium of a household's default plan affects its attentiveness. We assume that the premium of a household's default plan in the prior year affects its choice in the current year only through the probability that the household pays attention to the available plans in the current year, as in Heiss

et al. (2016) and Ho, Hogan, and Scott Morton (2017). We include fixed effects for demographics, year, and the default plan's metal level to allow mean attention levels to vary across these dimensions.

Our second approach leverages a key feature of our data. That is, we observe whether returning households actively selected their health plan or used automatic reenrollment to reenroll in their default plan. In this model, we make the more restrictive assumption that only households that actively select their health plans are attentive. We then estimate active selection, which is equivalent to attention under our identifying assumption, as a function of the same covariates that we use to estimate latent inattention discussed above. We again use the year-over-year change in the premium of the household's default plan to identify this specification, meaning that this approach is subject to the same exclusion restriction as the first approach. Collectively, these two approaches allow us to examine the robustness of our findings to their mutually exclusive identifying assumptions of demand asymmetry and equivalence between observed active selection and attention.

4.6. Identification: Tastes for Provider Continuity and Hassle Costs

We rely upon the churn of households and insurers in and out of Covered California to identify inertia in health plan choice, conditional on attention. That is, churn allows us to see similar households actively selecting from the same set of health plans with and without inertia. Our identifying assumption is that entering cohorts of households have the same distribution of preferences—conditional on observable attributes—as returning households. This identification approach and identifying assumption are used in other studies estimating inertia in insurance markets that exhibit considerably less churn than Covered California (Handel 2013a; Polyakova 2016; Heiss et al. 2016), where roughly 46% of households were new to the market after 2014.

We separate inertia conditional on attention into tastes for provider continuity and hassle costs. To capture tastes for provider continuity, we include an indicator for whether each plan has the same network as the household's previous plan. The parameters of this network-level switching cost are identified by the relative frequency with which households that switch to a new insurance plan do so within the same network of their previous plan. This identification strategy relies on an assumption that either a household's preferred providers are unavailable through other insurance networks (as is often the case with Kaiser), or that households are uncertain about which networks cover their preferred providers. While households can search network directories on the Covered California website, these directories are often inaccurate and can change at any time (Haeder, Weimer, and Mukamel 2016). Even informed households may thus be uncertain about which providers participate in which networks, suggesting that the risk averse strategy for a household that wishes to maintain continuity of care is to stay with its current network.

A hassle cost indicator for whether a given plan is the household's default plan in the choice equation captures remaining inertia that cannot be attributed to other factors. This switching cost may contain things like the time and cognitive costs of switching health plans, uncertainty about receiving medical care and prescriptions with different cost-sharing levels, or additional search costs that are not captured by our binary information framework.

4.7. Identification: Premium Sensitivity

We use an approach developed by Geruso (2016) to exploit features of Marketplace regulations to identify premium sensitivity and avoid bias from unobserved aspects of plan quality. Specifically, age-rated premiums and premium tax credits create plausibly exogenous variation in premiums for a given plan across households within rating areas that is plausibly

exogenous to preferences over unobserved aspects of plan quality. Due to the strict plan standardization regulations in Covered California, we can also control for the only three dimensions on which plans can vary: premium, metal level, and network. As explained in Section 2.2, all plan characteristics besides premiums and metal level must be set at the network level in Covered California. We therefore 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 approach for identify premium sensitivity has been used in three other studies of Covered California (Drake 2019; Saltzman 2019; Tebaldi 2020).

4.8. Estimation

We estimate the model from a panel of household choices. For a given household in the data, we observe a sequence of choices, (Y_{ijr0}, Y_{ijr1}, ...), for the years in which the household enrolls in Covered California. The panel structure is not only important for determining the household's default plan but also for estimating unobserved, household-specific consumer preferences.

Consumers have two sources of unobserved heterogeneity in their preferences. The first source is the idiosyncratic preference term, ϵ_{ijrt}, which is identically and independently distributed across time, as well as across consumers and products (see equation 4). The second source of unobserved heterogeneity, ν_i, allows us to capture some unobserved serial correlation in consumer preferences. These terms represent unobserved brand preferences for the four most popular insurance firms and are assumed to be identically and independently distributed across households, but constant within households over time. This approach, which closely follows Ho,

Hogan, and Scott Morton (2017), allows the model flexibility to capture persistence in consumer choices.

Because the choices in each period are not independent conditional on observables, we evaluate the likelihood of the entire sequence of a household's choices by integrating the combined probability of a given sequence over the distribution of the persistent unobserved preferences, ν_i, which are normally distributed with variance Ω.

The likelihood of observing any sequence of choices for a given household that is enrolled in the market for time $t = 0, \dots, T$ is given by

$$\mathcal{L}_i = \int_{\nu} \prod_{t} \prod_{j} \left(s_{ijrt}\right)^{Y_{ijrt}} \; dF(\nu; \Omega) \tag{8}$$

where Y_{ijrt} is an indicator of whether household i purchased plan j in time t.

We evaluate the integral using integration-by-simulation. We solve for all parameters by maximizing the sum of the log-likelihood of the data, weighting equally each household's sequence of choices for a 5% sample. We locate the maximum using Newton's method with a combination of the analytical hessian matrix and BFGS approximated hessian matrix.

5. Results

5.1. Model Summary

We present our findings using two models. The first model estimates latent inattention following Abaluck and Adams' (2021) default-specific consideration model. The second model uses the active selection variable present in the Covered California data. In Appendix Table A1, we show that these models have superior fit to those that do not consider all three sources of inertia using Bayesian Information Criterion. Model coefficients are shown in Appendix Table A2. Appendix Table A3 demonstrates that each model can closely predict choice probabilities across different types of consumers—new, returning, those that do and do not make active

selections, and those that switch plans. In the technical appendix, we demonstrate that our results are robust to alternative specifications that consider Kaiser's role as a vertically integrated insurer, allow for heterogeneity in insurer brand preferences by demographic characteristics, and consider alternative moments of the distribution of changes in premiums in modeling inattention.

5.2. Attention and Active Selection

Table 4 reports the average marginal effects of the attention stages of the latent attention and active selection models. The average marginal effects represent percentage point changes in the probability that a household is attentive. Our key finding is that year-to-year changes in the absolute value of the post-subsidy premium of the household's default plan are associated with relatively large changes in the probability that a household is attentive. Our findings resemble Heiss et al. (2021) and Ho, Hogan, and Scott Morton (2017), and are similar regardless of whether we measure attention as latent attention or active selection. Relative to a premium change of zero to less than a $10 decrease, premium increases of over $50 are associated with 44.88 and 58.16 percentage point increases in the probability that a household pays attention to its plan choices in the latent attention and active selection models, respectively. Changes of similar magnitude—43.01 and 37.63 percentage points in the latent attention and active selection models—are associated with premiums *decreases* of over $50. Our findings suggest that households are sensitive to the absolute value of year-over-year premium changes when deciding whether to be attentive. Decreases in year-over-year premiums, not just increases, are associated with increased attention. We also find that maximum household age and being a non-single household are negatively associated with latent attention and active selection.

In Figure 2, we show how the predicted probability that a household is attentive in the latent attention model is related to observed active plan selections and plan switching.

Households with the highest predicted probabilities of being attentive are also those most likely to actively select their plan. These results suggest that the identification of attention in the latent attention model is coming from consumer behavior, and that active selection—as measured by manually selecting a plan on the Covered California website—is a reliable proxy for attention.[17] The differing identifying assumptions of the latent attention and active selection models do not produce substantively different predictions about households' attention probabilities.

5.3. Welfare Analysis Approach

We use model results to: (1) simulate plan switching in the absence of inertia; (2) estimate switching costs; and (3) estimate how inertia affects consumer surplus. In each case, we examine the role of reducing each source of inertia independently and jointly. We simulate the percentage of returning households that would switch plans by simply predicting plan choice with and without each source of inertia. We use the standard approach of dividing switching costs (i.e., willingness to pay) over premium sensitivity to calculate switching costs. Using the notation from Equations (3) and (4), switching costs for tastes for provider continuity and hassle costs are $-\Psi_{ijrt}/P_{ijrt}$ and $-\Phi_{ijrt}/P_{ijrt}$, respectively.

Estimating switching costs provides an incomplete picture of the magnitude of choice frictions because it does not include inattention. We therefore calculate the difference in consumer surplus were consumers to choose without a particular source(s) of inertia,[18] which allows us to directly compare the different sources of inertia and quantify the average amount of

[17] We also note the mean predicted level of attention (37%) is below the mean observed level of active selection (43%). This suggests that a minority of households are making active selections on the website without fully considering their options. Figure 2 shows that this difference diminishes as the predicted attention probability increases towards full attention.

[18] This measure is related to the standard, willingness to pay measures of switching costs. If a source of inertia has no positive welfare value, the switching cost is the maximum amount of surplus that a consumer will forgo due to that particular source of inertia. If a source of inertia has a positive welfare value, the switching cost is the maximum surplus a consumer will lose by not accounting for that particular source of inertia in her choice.

forgone utility by consumers. To perform this calculation, we must decide whether a source of inertia should be included in the welfare calculation (Handel and Kolstad 2015b; Polyakova 2016). We assume that tastes for provider continuity are welfare relevant (i.e. households are willing to pay to stay in a plan with their current provider network absent any other choice frictions). We argue that this assumption is appropriate based on prior work that has found large health benefits resulting from continuity of care (Sabety 2020; Wasson et al. 1984). We assume both other sources of inertia—inattention and hassle costs—are welfare neutral and provide no welfare-relevant utility to households. Inattention and hassle costs affect consumer choices but they do not affect the welfare-relevant utility. As a result, we can measure the money-metric consumer surplus from selecting a given plan as

$$v_{ijrt} = (u_{ijrt} + \Psi_{ijrt} + \epsilon_{ijrt})/\alpha_i \quad (9)$$

where the terms of v_{ijrt} are as defined in equation (4).

We follow Polyakova (2016) and compute the gross welfare effect of each source of inertia by simulating consumer choices when facing different sources of inertia and comparing the average consumer surplus from the selected choices.[19] We draw a vector of ϵ_i for each consumer in the 5% estimation sample, and hold these draws fixed across each counterfactual scenario. In each counterfactual, we hold the utility of each plan fixed. Accordingly, we do not allow the equilibrium prices of the insurance plans to change as a result of removing each source of inertia. The exercise predicts the forgone consumer surplus that comes from a change in consumer decision making, while holding fixed the true welfare-relevant utility of the selection.

5.4. Plan Switching without Inertia

[19] The standard method of welfare calculation in logit demand systems following Small and Rosen (1981) does not work in our setting for two reasons. First, this method only applies when decision utility and hedonic utility are equivalent. Second, the model does not provide a utility interpretation for inertia that comes from inattention.

We simulate the percentage of returning households that would have kept their default plans with and without each source of inertia in Table 5.[20] Our baseline models predict that eliminating any one source of inertia would lead to modest decreases in returning households keeping their default plans, though these decreases are higher for inattention (23 percentage points in the latent attention model, 19 percentage points in the active selection model) and hassle costs (14 percentage points in both models) than they are for tastes for provider continuity (2-3 percentage points in both models). When we estimate models that do not consider inattention, they overestimate the switching effects of reducing hassle costs, which appear to capture the "true" increased switching from reducing hassle costs *and* increased switching due to reduced inattention.

There is an interaction effect that occurs when eliminating inattention and hassle costs. Eliminating both reduces default plan reenrollment by 50 percentage points in the active selection model, from 79% to 28%; results are nearly identical in the latent attention model. The intuition for this interaction in the model is simple: eliminating inattention has a much larger effect when consumers do not face large hassle costs to switch in the plan choice stage. Tastes for provider continuity are not large enough to create similar interaction effects in either model. This suggests that interventions to reduce inertia will be most effective if they jointly reduce inattention and hassle costs.

Eliminating switching costs may directly encourage consumers to be attentive by increasing the probability of switching plans after observing their choices, and we find suggestive evidence that this may be the case. Older and higher-income consumers face the

[20] We first note that, in the data, 81% of returning households keep their default plans. Models 1 and 2 predict 78% of returning households will keep their default plan; Models 3 and 4 predict 81% and 79% of households will do so, respectively.

highest switching costs, including both hassle costs and tastes for provider continuity, and are also the least likely to be attentive. However, our identification strategy does not allow us to separate whether this is due to a causal link or some third characteristic of consumer preferences. In section 5.6, we show that hassle costs and tastes for provider continuity are responsible for a small amount of forgone consumer surplus relative to inattention, which suggests that switching costs are not the primary cause of inattention.

Eliminating all sources of inertia would lead to a default plan reenrollment rate of 25%, over a two-thirds reduction from the predicted rate of 81%. This suggests that roughly a third of default plan reenrollment is due to returning households simply preferring their previous plan in the subsequent year. The remaining two-thirds of default plan reenrollments comprising roughly 60% of returning households, however, are due to inertia.

5.5. Switching Costs

Table 6 displays switching costs (i.e., willingness to pay) due to hassle costs and tastes for provider continuity. In the latent attention and active selection, we find that total switching costs are approximately $193 and $213 per month, respectively. These estimates are slightly higher than those of Handel (2013), who estimated switching costs of $169 per month. In each model, about 80% of these switching costs are due to hassle costs; the remaining 20% are tastes for provider continuity. Total switching costs increase by 74 to 78 percent when the attention stage is not included in the model. These differences are due to overestimating hassle costs when inattention is not considered.

5.6. Consumer Surplus from Reduced Inertia

Table 7 displays the predicted effect of eliminating each source of inertia on consumer surplus. The highest predicted consumer surplus occurs in the absence of inattention and hassle

costs, which follows from the assumption that tastes for provider continuity provide a welfare-relevant benefit to consumers. Eliminating inattention and hassle costs would increase consumer surplus by $146 and $149 in the latent attention and active selection models, respectively. These estimates indicate that inattention and hassle costs result in foregone consumer surplus of $1,752 to $1,788 per household per year, or roughly half the annual premium paid by the median household in California's Marketplace. In the aggregate, these results indicate that these two sources of inertia lead to consumer surplus losses of $1.24 to $1.27 billion dollars per year.

However, in contrast to our plan switching results, these welfare gains are primarily due to eliminating inattention. Eliminating inattention alone increases consumer surplus by $120-$125 per month, which translates to $1,440-$1,500 per year or $1.02 to $1.07 billion dollars per year across households. These results indicate that improving consumer welfare through inertia-focused policy interventions primarily depends on how much the policy interventions reduce inattention, not hassle costs. Reducing hassle costs is still an effective approach for increasing plan switching, though doing so does not produce direct consumer welfare improvements to the extent reducing inattention does.[21] Concurrent work by Saltzman, Swanson, and Polsky (2021) suggests that reducing hassle costs may, however, improve consumer welfare through by increasing premium competition among insurers. Even after adjusting for increased selection effects without inertia, they estimate welfare improvements of $2.13 billion.

We also find that removing tastes for provider continuity in consumer choices, while maintaining both hassle costs and consumer inattention, has a small positive effect on consumer surplus. This is counter-intuitive given the assumption that tastes for provider continuity provide real welfare benefits and the finding that consumer surplus is maximized in the presence of *only*

[21] The fact that hassle costs lead consumers to forgo a relatively small amount of consumer surplus, even in the absence of inattention, suggests that inattention is not primarily a response to large hassle costs.

this source of inertia. When consumers face large choice frictions, any intervention that encourages switching has the possibility of improving consumer surplus, even if it comes at the cost of something the consumer values. Because inattention and hassle costs are the dominant sources of inertia, the potential gains from switching plans (and ignoring tastes for provider continuity) outweigh the cost of having to switch provider networks.

6. Conclusion

Inertia plays a strong role in health plan choice in health insurance markets in the United States. Inertia can reduce insurers' incentives to compete on price and quality, but it also may stem from aspects of repeated plan choice that provide utility to consumers, such as being able to maintain continuity of care with their current health care providers. It is thus unclear whether policy interventions to reduce inertia can result in welfare gains, even if they are low cost. In this paper, we model how three sources of inertia—inattention, tastes for provider continuity, and hassle costs—affect health plan choice in Covered California. We also examine how reducing these sources of inertia could reduce repeated plan choice and affect consumer welfare.

We have three key findings. First, inertia plays a large role in Marketplace health plan choice. Default plan selection among returning households is 81%, two thirds of which stems from households automatically reenrolling in their default plan. Second, we find that while each source of inertia contributes to overall inertia, the effects of inattention and hassle costs are much greater than tastes for provider continuity. Separately eliminating inattention and hassle costs would reduce default plan selection by 19 and 14 percentage points; jointly eliminating them would reduce default plan selection by 50 percentage points, 17 percentage points more than the sum of their individual effects. We also find that the large role that inattention plays in our findings is consistent with previous studies (Brot-Goldberg et al. 2021; Abaluck and Adams

2021; Heiss et al. 2021; Ho, Hogan, and Scott Morton 2017). Third, we find that consumer surplus losses due to inattention are large. There are welfare losses from hassle costs—they are roughly 8% the size of those for inattention, though reducing inattention and hassle costs do have complementary welfare effects. Inattention and hassle costs lead to between $1,752 and $1,788 in forgone consumer surplus per year for the mean returning household, more than half of the median annual premium of $3,024 paid by Covered California households. In the aggregate, these results indicate that these two sources of inertia lead to consumer surplus losses of $1.24 to $1.27 billion dollars per year.

Our findings thus support policy interventions to reduce both inattention and hassle costs. Three limitations of our analysis potentially undercut this policy recommendation, though we argue that the literature helps to address these limitations. One limitation is that we do not examine the cost of policy interventions to reduce inertia. However, the literature indicates that low-cost interventions to reduce inertia can be quite effective. Informational nudges to reduce inattention have been found to improve consumer choices in several settings including health plan choices in California (Feher and Menashe 2021; Kiss 2014; Goeree 2008) and increase in enrollment in the federally-facilitated Marketplace and California (Goldin, Lurie, and McCubbin 2021; Domurat, Menashe, and Yin 2021), and the interventions in health plan choice settings tend to be low-cost.[22] Other potential interventions, such as changes to default assignment schemes to reduce the negative effects of inattention (Anderson, Rasmussen, and Drake 2021; Handel and Kolstad 2015a) or funding personalized enrollment outreach to reduce hassle costs

[22] A similar intervention in Colorado reduced inattention but did not succeed in causing consumers to switch plans (Ericson et al. 2017). This intervention was smaller than the other cited studies; its failure to affect plan switching may be a result of hassle costs, which the intervention did not address.

(Lee et al. 2017), are also relatively low cost.[23] A related limitation is that we cannot isolate particular hassle costs, such as transferring prescriptions, health care providers, and medical records, and other paperwork related to switching health plans.

The third limitation of our analysis is that we do not examine equilibrium effects in our welfare analysis. Specifically, we do not consider welfare losses from adverse selection or welfare gains from increased competition resulting from decreased inertia (Handel, Kolstad, and Spinnewijn 2019). These welfare effects are examined by Saltzman, Swanson, and Polsky (2021), who also study Covered California from 2014-2018. Their results indicate that welfare gains from competition outweigh welfare losses from adverse selection, suggesting that our analysis underestimates the welfare gains from reducing inertia. We conclude that the literature supports our recommendation to reduce inattention and hassle costs through policy interventions.

We contribute to the literature by providing evidence of the role that inattention, hassle costs, and tastes for provider continuity play in health plan choice in a relatively understudied market, the Health Insurance Marketplaces. We demonstrate that not considering each of these sources of inertia can lead to biased estimates of the role that the other sources of inertia play in plan choice. We also validate the use of latent attention models of health plan choice through the use of information on active plan selection, providing a new approach for modeling demand systems with inattention. Lastly, we examine the interactive effects of reducing different sources of inertia on consumer welfare. Together, these contributions provide researchers with new tools to examine the causes of inertia in other health insurance markets.

[23] Although informational nudges are low-cost, the magnitude of their effects, typically ranging from 10-20% (Domurat et al., 2019; Feher & Menashe, 2021; Goldin et al., 2021), is smaller than that of policies to change default plan assignment algorithms, which can apply to large numbers of enrollees (Anderson et al., 2021; Drake & Anderson, 2019). However, informational nudges have proven to be easier to implement. Whereas at least three Marketplaces (California, Colorado, federal) have used informational nudges, no Marketplace has yet experimented with changes to default mechanisms. California will be the first to do so in 2022 for a small subset of enrollees with incomes below 150% FPL (Covered California 2021).

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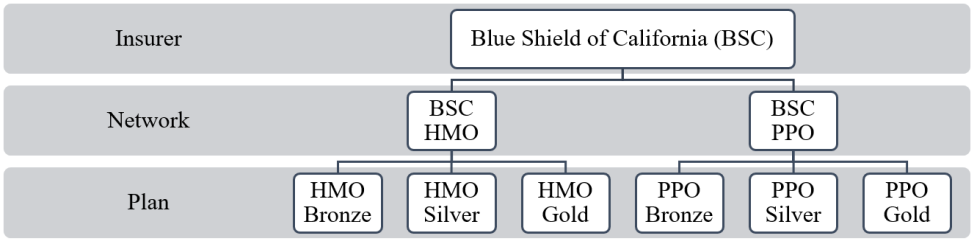
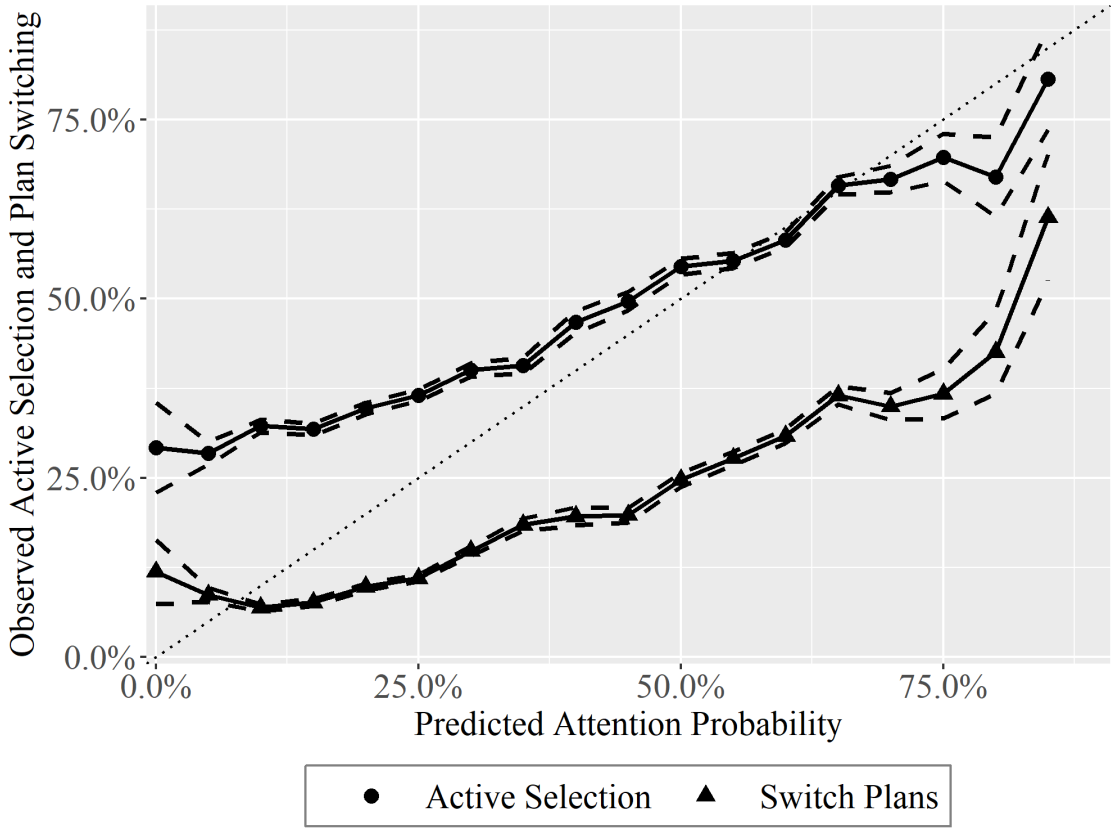
FIGURE 1
EXAMPLE INSURER-NETWORK-PLAN HIERARCHY



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

FIGURE 2
PREDICTED ATTENTION AND ACTIVE SELECTION



Notes: This figure shows the empirical switching probability and active plan selection probability conditional on values of predicted attention probability. The dashed lines represent 5 percent confident intervals around the empirical means. The dotted line marks the 45-degree line. The model under-predicts attention relative to active selection for relatively inattentive consumers, but model predicted attention and active selection are tightly related among consumers with more than a 50 percent predicted attention probability.

TABLE 1
ENROLLMENT, MARKET SHARES, AND CHOICE SETS

Characteristic	2014	2015	2016	2017	2018
Enrollment (Millions)					
Individuals	1.36	1.64	1.70	1.70	1.65
Households	0.89	1.08	1.13	1.12	1.09
Enrollment Types (%)					
New	100	47	38	36	34
Default Plan	-	44	51	51	48
Switched Plan	-	9	11	14	19
Choice Characteristics of Returning Households (%)					
Auto Reenrolled	-	60	59	58	53
Selected Default	-	23	23	20	20
Selected Other	-	15	16	20	24
Market Share (%)					
Anthem	27	24	18	11	2
Blue Shield	27	25	29	26	31
HealthNet	20	18	13	11	14
Kaiser	19	27	28	32	36
Other Insurers	6	6	12	20	17
Median Monthly Premiums ($, Median (Interquartile Range))					
Offered Plans	264	268	270	300	328
	(220-332)	(222-334)	(218-338)	(239-375)	(265-401)
Selected Plans	193	205	227	278	252
	(86-340)	(96-361)	(113-400)	(147-486)	(108-463)
Tax Credits	285	282	269	290	389
	(145-513)	(141-518)	(122-510)	(125-546)	(196-710)

Notes: Data obtained from Covered California as described in Section 3.1. Median monthly premiums are inflated to 2018 dollars using the medical CPI.

TABLE 2
PLAN SELECTIONS ACROSS ENROLLMENT COHORTS

	Enrollment Year				
	2014	2015	2016	2017	2018
Mean Base Monthly Premiums ($)					
2014 Cohort	256	260	261	278	319
2015 Cohort		254	256	271	311
2016 Cohort			253	271	314
2017 Cohort				265	311
2018 Cohort					308
All Cohorts	256	257	257	271	312
Mean Difference, Base Monthly Premiums of Selected to Lowest-Premium Plans ($)					
2014 Cohort	17	16	20	33	32
2015 Cohort		15	19	30	29
2016 Cohort			15	26	29
2017 Cohort				22	28
2018 Cohort					25
All Cohorts	17	16	18	27	28
Enrollment in Lowest-Premium Plan (%)					
2014 Cohort	41	36	27	24	33
2015 Cohort		40	29	26	33
2016 Cohort			38	33	34
2017 Cohort				40	37
2018 Cohort					42
All Cohorts	41	38	31	32	37

Notes: Base monthly premiums are 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 levels.

TABLE 3
REDUCED FORM TESTS OF ATTENTION

Covariate	Active Selection		Switch Plans	
	(1)	(2)	(1)	(2)
Default Premium ($100s)	3.43		6.10	
	(0.04)		(0.05)	
Positive Change		11.28		17.98
		(0.07)		(0.07)
Negative Change		-5.07		-5.24
		(0.06)		(0.06)
Average Alternative Premiums* ($100s)	-2.38		-5.17	
	(0.04)		(0.04)	
Positive Change		-6.48		-14.32
		(0.07)		(0.07)
Negative Change		-0.92		-0.26
		(0.05)		(0.05)
N (Millions)	2.47	2.47	2.47	2.47

Notes: Coefficients represent percentage point changes in the probability that a household actively selects or switches its plan in response to a $100 change in monthly premiums. The effects of positive and negative changes are estimated separately. Negative coefficients on negative changes reflect that a decrease in premiums will increase active selection or switching. All models include fixed effects for age (under 30, 30 to 50, and over 50), whether the household is a single person, whether the household is subsidy eligible, and fixed effects for year, rating area, and the metal level of the default plan.
* Change in the mean premium of available plans excluding the default plan.

TABLE 4
AVERAGE MARGINAL EFFECTS OF ATTENTION MODEL

	Measure of Attention, Average Marginal Effect (SE)	
Covariate	Latent Attention	Active Selection
Change in Default Plan's Premium P ($)		
Large Decrease: $P \leq 50$	43.01 (1.01)	36.11 (0.68)
Moderate Decrease: $-50 < P \leq -10$	17.69 (1.49)	9.36 (0.66)
Small Decrease/No Change: $-10 < P \leq 0$	-	-
Small Increase: $0 < P \leq 10$	5.45 (1.78)	0.66 (0.63)
Moderate Increase: $10 < P \leq 50$	21.43 (1.20)	10.33 (0.56)
Large Increase: $50 < P$	44.88 (0.96)	58.43 (0.48)
Demographics		
Maximum Age: 18 to 29	-	-
Maximum Age: 30 to 50	-1.06 (1.40)	-1.20 (0.32)
Maximum Age: Over 50	-3.99 (1.44)	-6.70 (0.31)
Non-Single Household	0.81 (0.98)	-3.97 (0.23)
Household Receives Premium Tax Credit	8.9 (1.11)	10.59 (0.31)
Household-years	242,291	242,291

Notes: Model 3 estimates latent inattention using Abaluck and Adams' (2021) default-specific consideration model; model 4 does so using observed active selection as a proxy for attention. Each model contains fixed effects for the metal level of the default plan, rating area, and year. 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.

TABLE 5
DEFAULT PLAN SELECTION WITH, WITHOUT INERTIA

	Returning Households Enrolling in Default (%)			
Scenario	(1)	(2)	(3)	(4)
Observed Default Enrollment	81	81	81	81
Predicted Default Enrollment	78	78	81	79
Eliminate Inattention	-	-	58	60
Eliminate Hassle Costs	29	29	67	65
Eliminate Tastes for Prov. Cont.	-	78	78	77
Inattention Only	-	-	65	64
Hassle Costs Only	78	78	53	56
Tastes for Prov. Continuity Only	-	29	29	28
No Sources of Inertia	29	29	25	25
Sources of Inertia Modeled				
Hassle Costs	X	X	X	X
Tastes for Provider Continuity		X	X	X
Inattention: Latent Inattention			X	
Inattention: Active Selection				X

Notes. In this table we display the model-predicted probability that a returning household will reenroll in its default plan. We decompose the components of inertia by eliminating each mechanism from the baseline model and then including each mechanism as a single source of inertia. We do so by predicting a counter-factual model in which each type of switching cost (hassle costs and tastes for provider continuity) are equal to $0 and a model where the attention probability of all consumers is 1. Models 3 and 4 are our baseline latent attention and active selection models. See Table A1 for further details regarding model differences.

TABLE 6
MEAN SWITCHING COSTS

	Model Willingness to Pay ($/Month)			
Switching Cost	(1)	(2)	(3)	(4)
Switching Cost				
Total Switching Costs	336	344	193	213
Hassle Costs (Plan Level)	336	335	149	177
Tastes for Provider Continuity (Network Level)	-	9	44	36
Sources of Inertia Modeled				
Hassle Costs	X	X	X	X
Tastes for Provider Continuity		X	X	X
Inattention: Latent Inattention			X	
Inattention: Active Selection				X

Notes. Willingness to pay, or switching costs, is calculated as the relevant inertia coefficient over the premium coefficient from each model described in Table A1. For example, plan level willingness to pay is calculated as the coefficient of the plan-level inertia term over the premium coefficient. Models 3 and 4 are our baseline latent attention and active selection models. See Table A1 for further details regarding model differences.

TABLE 7
CONSUMER SURPLUS WITH, WITHOUT INERTIA

	Change in Consumer Surplus ($/month)	
Scenario	Latent Attention Model	Active Selection Model
Eliminate Inattention	+125	+120
Eliminate Hassle Costs	+10	+13
Eliminate Tastes for Prov. Cont.	+3	+3
Inattention Only	+9	+12
Hassle Costs Only	+132	+127
Tastes for Prov. Continuity Only	+146	+149
No Sources of Inertia	+145	+148

Notes. In this table we display the predicted change in consumer surplus when consumers face different sources of inertia. In each scenario, consumer surplus is measured in dollars per month using a fixed money-metric indirect utility for each plan. Inertia only affects this measure through the predicted choices. The latent inattention model estimates inattention using Abaluck and Adams' (2021) default-specific consideration model; the active selection model does so using observed active selection as a proxy for attention (see Table A1 for details).

TECHNICAL APPENDIX ON ROBUSTNESS CHECKS

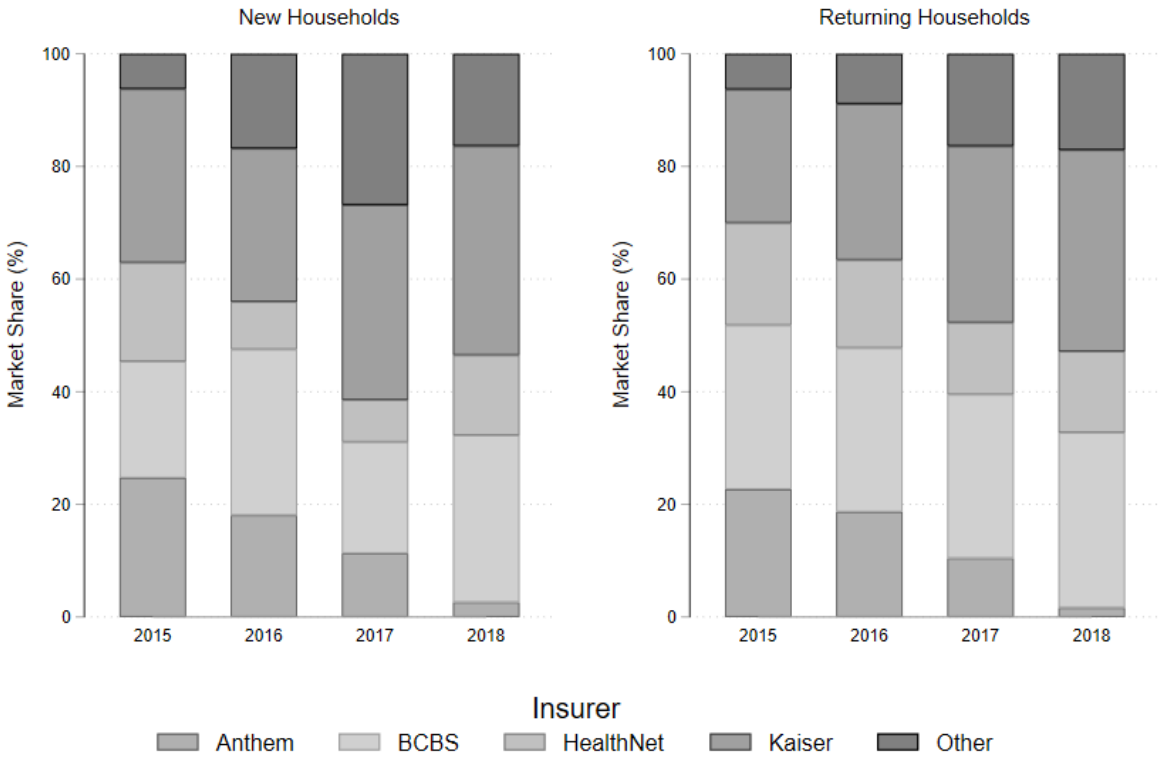
We perform three exercises to examine the robustness of our findings. First, we estimate a model that allows tastes for provider continuity to vary according to whether Kaiser is the household's insurer. The Kaiser health plan is vertically integrated and the provider network is accessible only via a Kaiser health plan. As a result, we may expect that the switching costs due to tastes for provider continuity would be stronger for Kaiser enrollees than for other consumers whose providers potentially participate in multiple insurance networks. We find that this is the case (Appendix Table A4)—households enrolled in Kaiser plans have tastes for provider continuity that are about twice as high as non-Kaiser enrollees. However, this finding may also be confounded by the possibility that consumers with greater tastes for provider continuity select into Kaiser plans. Including this interaction term between Kaiser enrollment and tastes for provider continuity interaction term has little effect on our main findings.

Second, we explicitly allow for households to have different preferences for the four largest insurance brands along the observed dimensions of age, household size, and income, in addition to the unobserved preferences included in the baseline specification. This additional flexibility in the brand-level preferences does not have a substantial effect on the parameters of interest in either the latent attention or the active selection model. Results are shown in Appendix Table A5.

And finally, we allow for particularly large premium changes in the consumer choice set to affect a household's probability of paying attention even if that premium change is not in the households default plan. As shown in Appendix Tables A6 and A7, we find that these large premium changes do not have an economically significant effect on household attention. We estimate two specifications. First, we include indicators for whether a particular household's

choice set includes a plan that experienced a premium change in the 5th percentile (a large decrease) or the 95th percentile (a large increase) of all plan premium changes in the state. Second, we estimate a specification using the 2nd percentile and the 98th percentile of premium changes. The largest effect that we find is that having a plan exceed the 98th percentile of premium changes leads to a 3.1 percentage point decrease in the probability of paying attention. This is equivalent in magnitude to a little more than half of the effect of up to a 10 dollar increase in your default plan's premium. Allowing for this extra flexibility does not have a substantial effect on the other parameters of interest.

FIGURE A1
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.

TABLE A1
COMPONENTS AND PROPERTIES OF CHOICE MODELS

	Model			
Model Components and Properties	(1)	(2)	(3)	(4)
Model Components				
Plan-Level Switching Cost	X	X	X	X
Network-Level Switching Cost		X	X	X
Attention Stage			X	**
Model Properties				
Number of Parameters	324	329	368	329
Log Likelihood*	-393,400	-393,300	-382,800	
Bayesian Information Criteria (BIC)	790,900	790,700	770,200	

Notes. All models are estimated on 5% sample of households. The data used for models (1) through (3) contain 116,877 households and 242,291 household-years. Model (4) excludes household which do not make an active choice in a particular year, leaving 177,367 household-years. The mean household in the sample had 27.0 plan choices.

* Likelihood ratio tests reject the simpler models (1) and (2) relative to model (3). The plan choice model in model (4) is estimated only using active selections and thus is not directly comparable.

** Model (4) separately estimates the attention stage using observed active selection as a measure of attention. Observed active selection means that the consumer chose to enroll in their health plan in the given year by manually selecting it on the Covered California website.

TABLE A2
COEFFICIENTS OF PLAN CHOICE MODELS

Covariate	(1)	(2)	(3)	(4)
Premium	-2.13	-2.12	-2.42	-2.29
	(0.03)	(0.03)	(0.03)	(0.02)
Maximum Age: 30-50	0.87	0.86	0.94	0.91
	(0.02)	(0.02)	(0.02)	(0.02)
Maximum Age: 50-64	1.22	1.21	1.35	1.30
	(0.02)	(0.02)	(0.02)	(0.02)
Family (Non-Single)	0.64	0.64	0.74	0.69
	(0.01)	(0.01)	(0.01)	(0.01)
Receives Premium Tax Credit	-0.27	-0.27	-0.30	-0.29
	(0.01)	(0.01)	(0.01)	(0.01)
Switching Costs				
Plan	4.30	3.90	1.74	1.79
	(0.05)	(0.06)	(0.11)	(0.06)
Maximum Age: 30-50	-0.10	-0.02	-0.03	0.14
	(0.05)	(0.06)	(0.09)	(0.06)
Maximum Age: 50-64	-0.07	0.13	0.19	0.44
	(0.04)	(0.06)	(0.09)	(0.06)
Family (Non-Single)	-0.38	-0.28	0.02	-0.04
	(0.03)	(0.04)	(0.06)	(0.04)
Receives Premium Tax Credit	-0.51	-0.27	0.03	0.02
	(0.04)	(0.05)	(0.09)	(0.05)
Network		0.91	1.14	1.07
		(0.09)	(0.10)	(0.08)
Maximum Age: 30-50		-0.17	-0.07	-0.05
		(0.08)	(0.09)	(0.07)
Maximum Age: 50-64		-0.38	-0.22	-0.25
		(0.08)	(0.08)	(0.07)
Family (Non-Single)		-0.16	-0.12	-0.13
		(0.06)	(0.06)	(0.05)
Receives Premium Tax Credit		-0.58	-0.46	-0.52
		(0.08)	(0.08)	(0.07)
Fixed Effects				
Metal Level – Rating Area	X	X	X	X
Insurer – Rating Area[a]	X	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.

TABLE A3
MODEL FIT ACROSS SPECIFICATIONS AND CONSUMER GROUPS

			Returning Consumers			
	All	New	All	Active	Inactive	Switching
Default Plan Selection (%)						
Data	40	-	80	58	100	0
Specification 1	39	-	78	72	84	62
Specification 2	39	-	78	72	84	62
Specification 3	40	-	80	76	85	67
Specification 4	39	-	79	54	100	42
Bronze Plan Selection (%)						
Data	26	27	25	24	25	32
Specification 1	27	27	26	25	27	29
Specification 2	27	27	26	25	26	29
Specification 3	26	27	25	25	26	29
Specification 4	26	27	26	26	26	30
Silver Plan Selection (%)						
Data	63	60	65	66	65	54
Specification 1	62	58	65	66	64	59
Specification 2	62	58	65	66	64	59
Specification 3	62	60	64	65	63	57
Specification 4	62	60	64	65	64	59

Notes. In this table, we show the model fit for each specification across different consumer populations. As a summary for how well each model predicts consumer choices, we compare to three moments in the data: selecting the default plan, selecting a Bronze plan, and selecting a Silver plan. Each model is reasonably able to match these characteristics of consumer choice, with the exception of the difference in default plan selection between consumers that are active and inactive on the website. Specification 4 matches the inactive default plan selection moment by construction, as those individuals are left out of the model.

TABLE A4
ROBUSTNESS SPECIFICATIONS – KAISER SPECIFIC SWITCHING COST

Covariate	Latent Attention		Active Selection	
	Coefficient	Std. Error	Coefficient	Std. Error
Attention (Marg. Effects)				
Chg. in Def. Plan Prem.			-	-
$P \leq 50$	43.15	(1.01)	-	-
$-50 < P \leq -10$	17.86	(1.49)	-	-
$10 < P \leq 0$	-	-	-	-
$0 < P \leq 10$	5.39	(1.78)	-	-
$10 < P \leq 50$	21.31	(1.20)	-	-
$50 < P$	44.80	(0.96)	-	-
Plan Choice Coefficients				
Premium	-2.40	(0.03)	-2.27	(0.02)
Maximum Age: 30-50	0.93	(0.02)	0.90	(0.02)
Maximum Age: 50-64	1.34	(0.02)	1.29	(0.02)
Family (Non-Single)	0.73	(0.01)	0.68	(0.01)
Receives Premium Tax Credit	-0.30	(0.01)	-0.29	(0.01)
Switching Costs				
Plan	1.76	(0.11)	1.80	(0.06)
Maximum Age: 30-50	-0.03	(0.09)	0.13	(0.06)
Maximum Age: 50-64	0.19	(0.09)	0.44	(0.06)
Family (Non-Single)	0.02	(0.06)	-0.04	(0.04)
Receives Premium Tax Credit	0.03	(0.08)	0.02	(0.05)
Network	1.00	(0.10)	0.94	(0.08)
Maximum Age: 30-50	-0.05	(0.09)	-0.02	(0.07)
Maximum Age: 50-64	-0.19	(0.09)	-0.21	(0.07)
Family (Non-Single)	-0.12	(0.06)	-0.12	(0.05)
Receives Premium Tax Credit	-0.46	(0.08)	-0.52	(0.07)
Kaiser Health Plan Network	0.83	(0.08)	0.90	(0.08)
Fixed Effects				
Metal Level – Rating Area	X	X	X	X
Insurer – Rating Area[a]	X	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. The taste for provider continuity for consumers that are enrolled in Kaiser health plans are governed by the overall network switching costs plus the Kaiser network switching cost.

TABLE A5
ROBUSTNESS SPECIFICATIONS – DEMOGRAPHIC INTERACTIONS

Covariate	Latent Attention		Active Selection	
	Coefficient	Std. Error	Coefficient	Std. Error
Attention (Marg. Effects)				
Chg. in Def. Plan Prem.			-	-
$P \leq 50$	42.92	(1.01)	-	-
$-50 < P \leq -10$	17.66	(1.49)	-	-
$10 < P \leq 0$	-	-	-	-
$0 < P \leq 10$	5.41	(1.78)	-	-
$10 < P \leq 50$	21.40	(1.20)	-	-
$50 < P$	44.89	(0.96)	-	-
Plan Choice Coefficients				
Premium	-2.43	(0.03)	-2.31	(0.02)
Maximum Age: 30-50	0.93	(0.02)	0.90	(0.02)
Maximum Age: 50-64	1.35	(0.02)	1.30	(0.02)
Family (Non-Single)	0.74	(0.01)	0.69	(0.01)
Receives Premium Tax Credit	-0.29	(0.01)	-0.28	(0.01)
Switching Costs				
Plan	1.75	(0.11)	1.80	(0.06)
Maximum Age: 30-50	-0.04	(0.09)	0.14	(0.06)
Maximum Age: 50-64	0.18	(0.09)	0.44	(0.06)
Family (Non-Single)	0.01	(0.06)	-0.04	(0.04)
Receives Premium Tax Credit	0.02	(0.09)	0.01	(0.05)
Network	1.11	(0.10)	1.05	(0.08)
Maximum Age: 30-50	-0.07	(0.09)	-0.05	(0.07)
Maximum Age: 50-64	-0.23	(0.08)	-0.25	(0.07)
Family (Non-Single)	-0.14	(0.06)	-0.14	(0.05)
Receives Premium Tax Credit	-0.43	(0.08)	-0.50	(0.07)
Kaiser Health Plan Network	-2.43	(0.03)	1.05	(0.08)
Fixed Effects				
Metal Level – Rating Area	X	X	X	X
Insurer – Rating Area[a]	X	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. The taste for provider continuity for consumers that are enrolled in Kaiser health plans are governed by the overall network switching costs plus the Kaiser network switching cost.

TABLE A6
ROBUSTNESS SPECIFICATIONS – ATTENTION AND LARGE PRICE SWINGS

Covariate	95th Percentile Threshold		98th Percentile Threshold	
	Coefficient	Std. Error	Coefficient	Std. Error
Attention (Marg. Effects)				
Chg. in Def. Plan Prem.				
$P \leq 50$	42.99	(1.01)	43.0	(1.01)
$-50 < P \leq -10$	17.63	(1.49)	17.66	(1.49)
$10 < P \leq 0$	-	-	-	-
$0 < P \leq 10$	5.29	(1.78)	5.52	(1.78)
$10 < P \leq 50$	21.35	(1.20)	21.43	(1.19)
$50 < P$	44.84	(0.96)	44.89	(0.96)
Any Large Price Increase	1.24	(1.05)	-3.10	(1.01)
Any Large Price Decrease	-2.69	(1.01)	0.41	(0.86)
Plan Choice Coefficients				
Premium	-2.42	(0.03)	-2.42	(0.03)
Maximum Age: 30-50	0.94	(0.02)	0.94	(0.02)
Maximum Age: 50-64	1.35	(0.02)	1.35	(0.02)
Family (Non-Single)	0.74	(0.01)	0.74	(0.01)
Receives Premium Tax Credit	-0.30	(0.01)	-0.30	(0.01)
Switching Costs				
Plan	1.74	(0.11)	1.74	(0.11)
Maximum Age: 30-50	-0.04	(0.09)	-0.04	(0.09)
Maximum Age: 50-64	0.19	(0.09)	0.19	(0.09)
Family (Non-Single)	0.02	(0.06)	0.02	(0.06)
Receives Premium Tax Credit	0.03	(0.09)	0.03	(0.08)
Network	1.13	(0.10)	1.13	(0.10)
Maximum Age: 30-50	-0.07	(0.09)	-0.07	(0.09)
Maximum Age: 50-64	-0.22	(0.08)	-0.22	(0.08)
Family (Non-Single)	-0.13	(0.06)	-0.13	(0.06)
Receives Premium Tax Credit	-0.46	(0.08)	-0.46	(0.08)
Fixed Effects				
Metal Level – Rating Area	X	X	X	X
Insurer – Rating Area[a]	X	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. The taste for provider continuity for consumers that are enrolled in Kaiser health plans are governed by the overall network switching costs plus the Kaiser network switching cost.

TABLE A7
ROBUSTNESS SPECIFICATIONS – NEW DEFAULT PLANS

Covariate	Attention Model		Active Model	
	Coefficient	Std. Error	Coefficient	Std. Error
Attention (Marg. Effects)				
Chg. in Def. Plan Prem.			-	-
$P \leq 50$	42.84	(1.03)	-	-
$-50 < P \leq -10$	17.60	(1.49)	-	-
$10 < P \leq 0$	-	-	-	-
$0 < P \leq 10$	5.47	(1.77)	-	-
$10 < P \leq 50$	21.38	(1.20)	-	-
$50 < P$	44.87	(0.97)	-	-
Plan Choice Coefficients				
Premium	-2.42	(0.03)	-2.29	(0.02)
Maximum Age: 30-50	0.94	(0.02)	0.91	(0.02)
Maximum Age: 50-64	1.35	(0.02)	1.30	(0.02)
Family (Non-Single)	0.74	(0.01)	0.69	(0.01)
Receives Premium Tax Credit	-0.31	(0.01)	-0.29	(0.01)
Switching Costs				
Plan	1.70	(0.11)	1.79	(0.06)
Maximum Age: 30-50	-0.04	(0.09)	0.14	(0.06)
Maximum Age: 50-64	0.18	(0.09)	0.44	(0.06)
Family (Non-Single)	0.02	(0.06)	-0.04	(0.04)
Receives Premium Tax Credit	0.02	(0.09)	0.02	(0.05)
Network	1.14	(0.10)	1.09	(0.08)
Maximum Age: 30-50	-0.07	(0.09)	-0.05	(0.07)
Maximum Age: 50-64	-0.22	(0.08)	-0.25	(0.07)
Family (Non-Single)	-0.12	(0.06)	-0.13	(0.05)
Receives Premium Tax Credit	-0.46	(0.08)	-0.52	(0.20)
Newly Assigned Default Plan	0.05	(0.65)	1.81	(0.17)
Maximum Age: 30-50	0.14	(0.49)	0.10	(0.17)
Maximum Age: 50-64	-0.30	(0.49)	-0.18	(0.13)
Family (Non-Single)	-0.10	(0.37)	-0.11	(0.17)
Receives Premium Tax Credit	-0.69	(0.61)	-0.97	(0.20)
Fixed Effects				
Metal Level – Rating Area	X	X	X	X
Insurer – Rating Area[a]	X	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.