Choice Overload's Effect on Inertia and Adverse Selection: Evidence from the ACA

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Abstract

In this paper I estimate the effect the number of choices has on both adverse selection and inertia within a market. Specifically, I am interested in whether choice overload can cause a decrease in adverse selection and increase inertia. To do this I utilize data from the ACA exchanges at the national level for adverse selection and individual level California data to estimate inertia. I found that it is likely that an increase in plans correlates with an increase in adverse selection as consumers can make informed decisions from a wider array of choices.

1 Introduction

1.1 Background on the Affordable Care Act and the Exchanges

Through the Affordable Care Act (ACA), consumers have been given more choices in health insurance plans compared to prior to the ACA through access to the Exchanges. The ACA Exchanges are health insurance marketplaces in each state where the plans are subsidized by the Center for Medicare and Medicaid Services (CMS). Each state can have multiple marketplaces which are divided geographically by rating areas. In these Exchanges, there are multiple providers that offer different varieties of plans by "metal" tiers that correspond to an actuarial value (90% Platinum, 80% Gold, 70% Silver, 60% Bronze).

The Exchanges were intended to provide consumers with the ability to easily compare plans between insurers and coverage level, as well as offering more affordable plans. With more choices and plans, this can lead to a phenomenon of choice overload. In this paper I investigate the effect of choice overload on adverse selection and inertia in the ACA Exchange in California.

1.2 Choice Overload

Choice overload is a phenomenon that occurs when an individual has a plethora of choices that result in people having difficulty picking an optimal choice. In the classical view of economics, more choices are always better, though we now realize this is not always the case. Choice overload can typically result in instances of decision fatigue or the unwillingness to make a choice, in the case of this paper, that would likely result in staying in the same plan. There is also evidence that indicates that over complicated plans, sometimes due to more choices, results in worse decision making(Loewenstein, G., et al., 2013).

1.3 Adverse Selection

Adverse selection occurs when there is asymmetric information between the consumer and supplier. In the case of health insurance, the consumer is aware of their health condition whereas the insurer is not privy to that same information, outside of factors such as smoking, age, and gender. The ACA also made it so insurers cannot deny consumers based on preexisting conditions and can only change premiums based on age, location, tobacco use, plan, and individual or family plan (HealthCare.gov). This condition was expected to increase adverse selection so the individual mandate was also implemented to prevent consumers from going uninsured. Although this prevents some adverse selection, it does not prevent inter-plan adverse selection.

Adverse selection can only occur if the consumer correctly utilizes their asymmetrical information. When there are many choices, it becomes increasingly likely that consumers will choose sub-optimal plans for their health (Loewenstein, G., et al., 2013). With that, I expect that we should initally see an increase in adverse selection as the number of choices increases, and then at a certain point, choice overload would take effect and decrease adverse selection. This is because at first, an increase in the number of plans should allow consumers to better utilize different plans for their own healthcare needs. Then, if there are too many plans, which could lead to consumers picking a worse plan, due to difficulty in selecting optimal plans, then any kind of selection should not take effect as the consumers are not utilizing their asymmetrical information to the best of their abilities. Adverse selection reduces consumer welfare overall as it leads to insurers raising premiums to account for it, and could potentially lead to a death spiral. Here leads to a trade-off, opting into a better plan, which may lead to an increase in adverse selection, or sub-optimal decision making. This is why I will be demonstrating how adverse selection decreases with more choices, after an initial increase. If this happens, then there is the unfortunate situation where consumers are getting the worst of both worlds, where insurers are anticipating adverse selection and increasing premiums, as well as consumers choosing worse plans for their healthcare needs.

1.4 Inertia

Inertia in health insurance is the phenomenon where consumers do not change their health insurance plan. Inertia also reduces consumer welfare and may account for one of the largest factors that increases premiums (Saltzman, et al., 2021). Prior research has found that there is heavy evidence of inertia in the California ACA Exchange (Drake, 2022, Saltzman, et al., 2021). There are also several possible explanations for inertia such as inattention and hassle costs (Drake, 2022). I intend to add another possibility to this idea with choice overload being a factor in inertia. This is also a possibility as it has been shown that consumers may not fully understand their own insurance (Garnick, D. W., et al., 1993), so it may be possible that consumers will prefer their own plan again because it may be difficult to compare it to many other plans.

Inertia also has an inverse relationship with adverse selection (Handel, 2013). This is due to the fact that when inertia is reduced, either by consumers forced to change or by willingness to change, consumers are then more likely to pick better plans for themselves which increases adverse selection. This is also consistent with my hypothesis. If choice overload decreases adverse selection, it should subsequently increase inertia. There is some prior research that indicates that when presented with more options within an alternate plan that consumers are more likely to switch, implying that choice overload may not be as strong as a factor (Ketcham, et al., 2015). The Ketcham paper differs though as it compares the willingness to switch plans between a plan with less options and a plan with more options, as it is discussing Medicare Part D rather than traditional insurance plans such as on the exchanges.

1.5 Motivation

My research intends to contribute to the literature in three ways. The first and second contributions are to study another possible cause of adverse selection and inertia. Although there has been research that identifies inertia's and adverse selection's relationships (Handel 2013, Saltzman, et al., 2021), there is little literature on attempting to identify the mechanisms that cause inertia and adverse selections, and their relationship, especially within the ACA Exchanges. Roughly 35 million Americans get their insurance through the exchanges, so it is extremely important to analyze these markets (HHS.gov). Inertia can cost consumers a total of roughly a billion dollars in the California market place, so it is critical to study the possible reasons that cause it in order to limit this welfare loss.

In addition to the above, this paper will be one of the first to try to measure adverse selection on the California ACA Exchange by using risk adjustment payments as measured by the CMS. Adverse selection is assumed to be present in most markets, and can be measured sometimes through trying to find exogenous premium variation (Panhans, 2019), but this is not doable in all markets. This methodology should be applicable to any ACA Exchange in the country at the state level.

This research has important policy implications as it may show that increased choice and competition, which the classical economic position holds to be a positive, may lead to an overall decrease in welfare and utility for consumers. By being able to identify one factor that leads to a welfare decrease through two separate means can allow policy makers to have a targeted focus to address two problems with one fix. The reason I refer to a decrease in adverse selection as a negative here is that the insurers are not changing their prices despite less adverse selection taking place. It is then possible that if the problem of choice overload is remedied, and inertia is reduced, adverse selection would then once again rise (Handel, 2013), but it is better for inertia to decrease than adverse selection since inertia drives prices up more (Saltzman, et al., 2021).

2 Methodology

2.1 Data

For this paper, I require two different final data sets, one to study adverse selection and one for inertia. In both of the following models, the subscript m refers to market, t refers to the year, and s represents state.

The datasets that I am using to study adverse selection are public use risk adjustment data files from the CMS merged with demographic data from the exchanges also publicly accessed from the CMS. I then had to drop some states due to either a lack of risk adjustment data, there being a monopoly in the exchange for a state (resulting in no risk adjustment transfers), or there is a lack of demographic data. After this I am left with 47 states' risk adjustment and demographic data from the years of 2015-2019. I then used the Robert Wood Johnson Foundation HIX Compare data to calculate the average number of plans per market per state. This is over the years from 2015 to 2021. In total it required 21 different data sets merged together to create my final dataset to measure adverse selection. It comes out to a total of 257 observations (state year pairs).

Table 1: Summary Statistics

Risk Adjustment Sum Per Capita	Number of Plans	Total Enrollees	Number of Insurers
Min. : 0.3571	Min. : 3.50	Min. : 16947	Min. : 1.000
1st Qu.: 138.0356	1st Qu.: 19.33	1st Qu.: 65676	1st Qu.: 3.000
Median : 247.0873	Median : 26.44	Median : 153020	Median : 5.000
Mean : 271.3748	Mean : 32.30	Mean : 246582	Mean : 6.741
3rd Qu.: 364.7377	3rd Qu.: 41.11	3rd Qu.: 243382	3rd Qu.:10.000
Max. :1372.8194	Max. :155.12	Max. :2120350	Max. :23.000

2.2 Econometric Model for Adverse Selection

$$AdverseSelection_{st} = \beta_0 + \beta_1 NumberOfPlans_{mt} + \beta_2 NumberOfPlans_{mt}^2 + \beta_3 Demographic_{st} + \beta_4 FixedEffects$$

By using this model, I intend to find the amount of adverse selection as a function of the average number of plans in a market per state, while controlling for the number of insurers and demographic data such as age and race. I measure adverse selection as the absolute value sum of all risk adjustment data per state and divide that by two in order to not double count the transfers to and from firms. This is then divided by the number of enrollees per state to get an accurate per capita measurement of risk adjustment. Risk adjustments are a suitable measurement of adverse selection as risk adjustment payments in the ACA exchanges are when firms either pay or receive these transfers dependent on their enrollee pool. Firms with sicker enrollee pools receive payments while firms with healthier firms pay. This is to incentivize firms to stay in these markets and disincentivize firms from attempting to select for only healthy populations. Although there are typically multiple markets per state, these transfers are at the state wide level. Because of this, I had to divide the total number of plans in a state by the number of markets to calculate the estimated levels of adverse selection.

The reason that risk adjustment transfers can function as a measurement of adverse selection is that if inter-plan adverse selection is taking place in a market, then we should see a large number of risk adjustment transfers as individuals self select into the plans best for them, causing some insurers to have higher risk pools. Unfortunately, these transfers are only between firms, this means we do not see the total effect of adverse selection between plans within the same firm, rather this model captures the adverse selection between firms, based on the number of plans available in the market.

3 Results

Table 2 demonstrates the results of my regression of the first econometric model specified above, in regards to adverse selection. As you can see, there is actually a positive coefficient for the number of plans on risk adjustment transfers. This means that as the average number of plans per market increases, the risk adjustment transfers for that state increases by $5 per enrollee. In some markets this means that risk adjustment transfers are increasing by $9,201,848 per increased plan. This is also significant at the .001 level when controlling for demographic data as well as fixed effects for states and years, as well controlling for the number of insurers. I also looked at the number of plans squared to take into account choice overload where there are a much higher number of plans, and as we see the coefficient is also statistically significant, but it is negative. This then implies that at a certain point, in this model it is at 58 plans, an increased number of plans reduces adverse selection. This seems to be where choice overload becomes a factor and enrollees do not make optimal decisions. Although it is possible that there is another explanation for this phenomenon, at this point, choice overload seems like the most reasonable explanation. These results also are robust with several different fixed effects as seen in the table. In addition to this, while regressing the adverse selection measurement by the number of insurers and the number of insurers squared, there are no statistically signifigant coeficients at all. This shows that the number of plans plays a larger role in adverse selection between plans than the number of insurers.

Figure 1 then shows the plot of risk adjustment sums per capita by the number of plans with the function of the coefficients of the number of plans and number of plans squared.

I also ran a regression where I weighted the number of plans in each market in the state. Table 2 shows these results. The results are still statistically significant and in the same direction as the previous results, although they are less strong estimators. The problem with this dataset is that there are half as many observations as there is only county-level data for 33 states. Still, this shows the robustness of my results.

	No Fixed Effects	State	Year	State and Year
(Intercept)	181.898 ***			
	(38.365)			
PlanNum	4.498 *	5.149 **	5.590 *	5.828 **
	(1.913)	(1.753)	(2.272)	(2.013)
PlanNum2	−0.037 +	−0.042 **	−0.046	−0.044 **
	(0.020)	(0.015)	(0.025)	(0.014)
Age18	0.003	0.003	0.002	0.002
	(0.002)	(0.004)	(0.001)	(0.003)
Age1825	−0.016 **	−0.022 *	−0.011 **	−0.012
	(0.005)	(0.010)	(0.003)	(0.008)
Age2634	0.009 *	0.009	0.008 *	0.007
	(0.004)	(0.007)	(0.003)	(0.007)
Age3544	−0.008	−0.004	−0.012 ***	−0.005
	(0.006)	(0.009)	(0.001)	(0.010)
Age4554	0.009 ***	0.004	0.009 **	−0.001
	(0.003)	(0.006)	(0.002)	(0.007)
Age65	0.034 ***	0.038 **	0.031 **	0.023 *
	(0.010)	(0.011)	(0.007)	(0.009)
Female	−0.001 +	−0.001	0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.001)
AIAN	0.002 +	0.001	0.002 ***	0.001
	(0.001)	(0.001)	(0.000)	(0.001)
White	−0.001 +	−0.001	−0.002 *	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
NHPI	−0.001	0.000	−0.001 *	−0.001
	(0.001)	(0.001)	(0.000)	(0.001)
Multi	−0.003 ***	−0.002 *	−0.001 **	0.000
	(0.001)	(0.001)	(0.000)	(0.001)
Asian	−0.001	−0.002	−0.001	−0.001
	(0.001)	(0.002)	(0.001)	(0.001)
unknown	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Num.Obs.	257	257	257	257
R2	0.197	0.558	0.293	0.643
R2 Adj.	0.147	0.420	0.229	0.516
R2 Within		0.126	0.197	0.090
R2 Within Adj.		0.058	0.146	0.018
AIC	3397.8	3336.3	3377.1	3293.6
BIC	3454.6	3556.3	3455.2	3535.0
RMSE	168.91	125.29	158.49	112.66
Std.Errors	IID	by: State	by: Year	by: State
FE: State		X		X
FE: Year			X	X

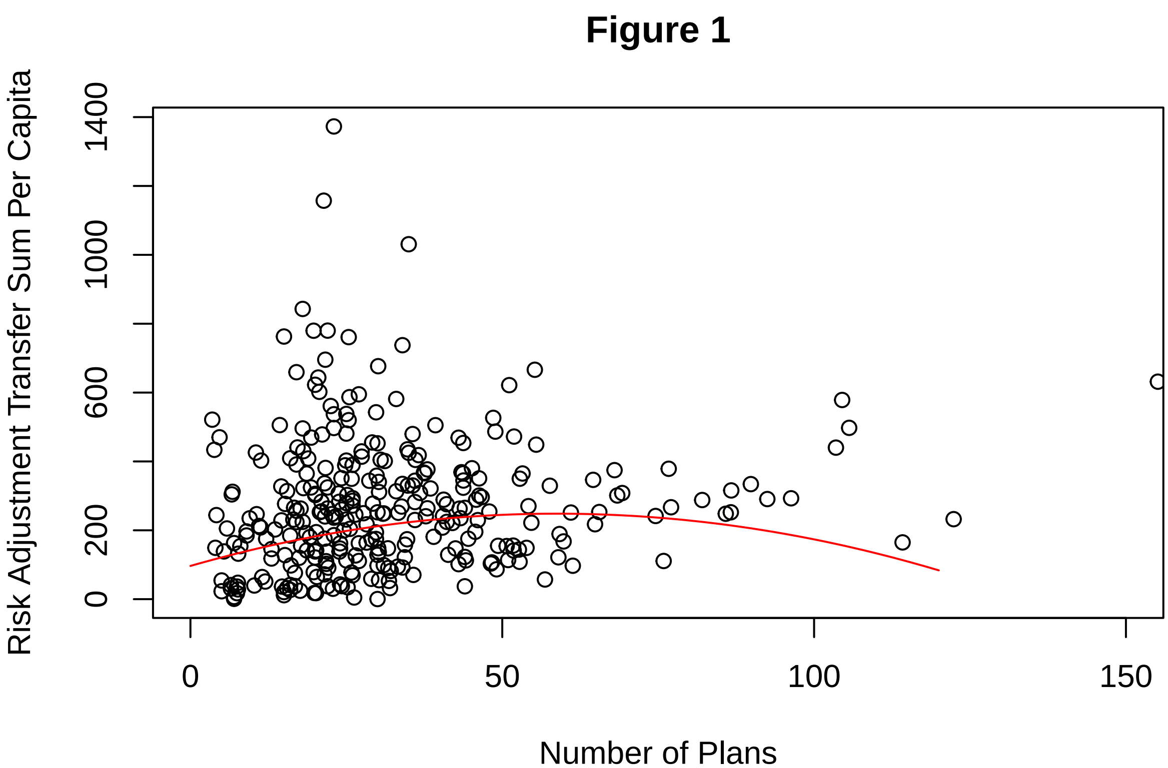

Figure 1: Risk Adjustment Plot with Regression

	(1)
weighted_avg	3.392 *
	(1.603)
weighted_avg2	−0.016 *
	(0.007)
Age18	0.006
	(0.003)
Age1825	−0.015
	(0.012)
Age2634	0.011
	(0.011)
Age3544	−0.008
	(0.012)
Age4554	−0.009
	(0.011)
Age65	0.053 ***
	(0.014)
Female	−0.002
	(0.001)
AIAN	0.004
	(0.002)
White	0.001
	(0.002)
NHPI	0.002
	(0.001)
Multi	0.001
	(0.001)
Asian	0.002
	(0.002)
unknown	0.000
	(0.002)
Num.Obs.	152
R2	0.700
R2 Adj.	0.542
R2 Within	0.166
R2 Within Adj.	0.040
AIC	1896.2
BIC	2056.4
RMSE	87.34
Std.Errors	by: ST
FE: ST	X
FE: YEAR	X