

Do Racial and Ethnic Minorities Benefit from Supplemental Benefits in Medicare Advantage?

Gregory Scala*

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Abstract

This paper analyzes different factors that lead to the increasing enrollment of racial and ethnic minorities in Medicare Advantage plans as opposed to Fee For Service Medicare. Previous work has identified this, although it does not investigate why this is the case. I develop a model where Medicare Beneficiaries observe prices and other supplemental benefits offered to analyze the attributes of Medicare Advantage plans that are popular among different racial and ethnic groups. I find that racial and ethnic minorities benefit more for dental coverage and hearing aides coverage than non-minorities. These results highlight the value of supplemental benefits, particularly among disadvantaged groups, especially as policy makers are considering adding supplemental benefits to Traditional Medicare.

*University of Pittsburgh, Department of Economics. Email: gregory.scala@pitt.edu. I am extremely grateful for my advisors Arie Beresteanu, Coleman Drake, Osea Giuntella, and Howard Degenholtz for their invaluable guidance in this project. I would also like to thank Eric Roberts for early feedback on this project and introducing me to much of the data I am using in this project. All errors are my own.

1 Introduction

When designing products, firms have different ways they can differentiate themselves from their competitors. For example, car manufacturers can compete with each other by charging different prices for cars, but they can also compete by offering different levels of safety features, or luxury items such as leather seats. In the market for health insurance plans, insurance companies compete with each other with price-attributes by offering different monthly premiums for plans and co-pays (or coinsurance) for doctors visits. In addition, firms can also differentiate their products by offering different “supplemental” benefits such as dental coverage, eyewear coverage, hearing aides coverage, levels of drug coverage, and in different aspects of the quality of care they provide.

In this paper, I focus on Medicare, a public health insurance program in the United States for people over the age of 65 or with certain disabilities. There are broadly two types of Medicare coverage: Fee for Service Medicare (henceforth known as Traditional Medicare, or TM) and Medicare Advantage. In Traditional Medicare, beneficiaries can see almost any physician in the country,¹ and pay a fixed coinsurance (20% for most inpatient and outpatient services). Alternatively, Medicare eligible individuals can opt for a Medicare Advantage plan, an insurance plan provided by a private company where Medicare pays the company an amount per enrollee to provide health insurance for enrollees. An advantage of Medicare Advantage plans is that some plans provide supplemental benefits that Traditional Medicare does not cover, such as dental coverage, vision coverage, hearing coverage. A disadvantage of Medicare Advantage is that most are managed care plans in the form of a Health-Maintenance Organization (HMO) or a Preferred Provider Organization (PPO) with limited provider networks.

Over the past several years, more Medicare eligible individuals have been enrolling in Medicare Advantage as opposed to Traditional Medicare, with 25% of Medicare eligibles choosing Medicare Advantage in 2010, up to 49% in 2022. Reasons proposed for this include

¹About 1.1% of physicians opted out of accepting Medicare patients in 2023.

many Medicare Advantage plans having zero premiums, the aggressive marketing of Medicare Advantage plans, and the supplementary benefits provided in Medicare Advantage plans. As more individuals have been enrolling in Medicare Advantage, there has been a larger growth in racial and ethnic minorities choosing Medicare Advantage plans compared non-minorities (Meyers *et al.*, 2021). I also provide descriptive evidence that racial and ethnic minorities are more likely to choose Medicare Advantage plans than non-minorities.

One natural question to ask is what is driving the increasing enrollment of minorities in Medicare Advantage. In this paper, I will focus on the supplemental benefits offered in Medicare Advantage plans, particularly dental coverage, eyewear coverage, and hearing aides coverage, and if they are a factor into why minorities are attracted to Medicare Advantage plans. There has been a large amount of attention on these particular benefits in the government and in the media recently. United States Senators Bob Casey and Ben Cardin proposed the Medicare and Medicaid Dental Vision and Hearing Act in 2023 to add comprehensive dental, vision, and hearing coverage to Traditional Medicare, and adding these benefits to Traditional Medicare is now part of the official Democratic Party platform.

In theory, consumers, particularly those in disadvantaged groups, would be willing to choose a Medicare Advantage plan with a limited provider network to obtain dental, vision, and hearing coverage that they would otherwise have difficulty accessing. I provide descriptive evidence that minority individuals are more likely to choose Medicare Advantage plans with dental coverage, eyewear coverage, and hearing aides coverage than non-minority individuals, although the differences are only statistically significant for Hispanic individuals.

Next, I develop and estimate demand model where consumers choose between different Medicare Advantage plans or Traditional Medicare based on their individual characteristics and the characteristics of the different Medicare Advantage plans offered. I find that there are differences in preferences by race for some supplemental benefits (particularly dental coverage and hearing aides coverage).

To measure how different groups value supplemental benefits, I use the demand model

to calculate the change in welfare for Medicare Beneficiaries if dental coverage, eyewear coverage, and hearing aides coverage are removed. I find removing these supplemental benefits effects racial and ethnic minorities more than non-minorities, as removing all three benefits decreases consumer welfare by only 0.30% for non-minorities, as opposed to 6.46% for Non-Hispanic Black beneficiaries and 8.71% for Hispanic beneficiaries.

These results are informative for policy makers interested in whether to add supplemental benefits to Traditional Medicare. My results quantify how much different individuals are willing to pay for dental coverage, eyewear coverage, and hearing aides coverage, which could be used in a cost-benefit analysis of providing dental, vision, and hearing coverage to Traditional Medicare. Also, previous Health Policy literature has documented that Non-Hispanic Black and Hispanic Medicare Beneficiaries typically choose lower-quality plans than non-minority individuals (Ayanian *et al.*, 2014; Li *et al.*, 2017), my results are informative as to why minorities select the plans they do, even if they may be of lower quality.

The remainder of the paper is organized as follows. I discuss relevant background information on Medicare and Medicare Advantage in Section 2, describe the data used in Section 3 and present some motivating descriptive evidence in Section 4. I present my model in Section 5, and estimate the model and present results in Section 6. I perform counterfactual exercises in 7. Finally, Section 8 concludes.

1.1 Literature Review

This paper uses tools from the Industrial Organization literature to address an economic question posed by the Health Policy literature. Previous work in Health Policy has found minority enrollment in Medicare Advantage grew faster than non-minority enrollment (Meyers *et al.*, 2021), showing some evidence of differences in revealed preferences among racial groups for Medicare Advantage. There is other research in Health Policy that focuses on disparities in health outcomes for minorities, finding that minority Medicare Advantage participants tend to have worse health outcomes than those of non-minorities. (Ayanian *et al.*,

2014; Li *et al.*, 2017; Gangopadhyaya *et al.*, 2023; Park *et al.*, 2022). This leads to the question of why racial and ethnic minorities choose Medicare Advantage plans, even though they are receiving worse care than non-minorities. I contribute to this literature by analyzing the preferences for supplemental benefits as a possible reason for racial and ethnic differences in Medicare Advantage enrollment.

There is a large literature in Economics studying Medicare Advantage. Methodologically, the first paper to analyze (an earlier version of) Medicare Advantage was Town & Liu (2003). They found that an earlier version of the Medicare Advantage program generated \$18.7 billion in Consumer Surplus from 1993-2000. Since then, there have been several papers looking at the demand for Medicare Advantage plans in different contexts (Lustig, 2009; Nosal, 2011; Curto *et al.*, 2021; Ryan, 2023; Charbi, 2021). The literature consistently finds that individuals value supplemental benefits such as dental coverage, vision coverage, and hearing coverage in Medicare Advantage plans. Other more recent papers to incorporate individual demographic characteristics in demand models for Medicare Advantage plans are Miller *et al.* (2023), and Vatter (2022). They both find that Hispanic and Non-Hispanic Black individuals have a greater preference for Medicare Advantage plans than non-minority individuals, consistent with the Health Policy literature. However, these models do not look at if there is heterogeneity in race in preferences for different plan characteristics. I closely follow and extend their approaches to allow for variation in preferences by race (and income) for dental coverage, eyewear coverage, and hearing aides coverage.

2 Background on Medicare and Medicare Advantage

Medicare was established in 1965 by the United States to provide government funded health insurance coverage for elderly and disabled individuals, and is overseen by the Center for Medicare and Medicaid Services (CMS). Traditional Medicare covers hospital insurance (Medicare Part A) and other outpatient services (Medicare Part B). In 1982, as part of

the Tax Equity and Fiscal Responsibility Act (TEFRA), certain firms were given a fixed payment to provide Medicare Coverage in the form of managed care plans, and it was brought to the entire country in 1997. In 2003, as part of the Medicare Prescription Drug, Modernization, and Improvement Act (MMA), more major reforms were enacted to Medicare Advantage, particularly in risk-adjusting payments made to firms to account for the different risk-levels of enrollees, theoretically decreasing the incentive for firms to advantageously select enrollees.² Since 2003, Medicare Advantage has grown rapidly to where, as of 2022, 49% of Medicare beneficiaries were enrolled in a Medicare Advantage plan.³ To measure the quality of different Medicare Advantage plans, CMS aggregates information on different measures of patient outcomes and customer service into an overall quality rating, measured from 1-5 stars in half-star increments. The MMA also introduced Medicare Part D, a prescription drug insurance program similar to Medicare Advantage where private firms receive money from CMS to provide prescription drug insurance. Consumers with Traditional Medicare can also purchase a Part D plan. Most consumers with Medicare Advantage plans cannot purchase a Part D plan, but most Medicare Advantage plans have prescription drug coverage included.

Most Medicare Advantage plans provide care for beneficiaries as part of Health Maintenance Organizations (HMOs) or Preferred Provider Networks (PPOs). These types of plans typically have smaller provider networks where care needs to be managed by a primary care physician and have limited coverage out of provider networks, as opposed to Traditional Medicare. Provider networks are often limited to smaller service areas where plans provide coverage.

Firms offering Medicare Advantage plans are reimbursed by CMS. Each plan provides an estimate of the cost to provide the care equivalent to what is provided by Traditional Medicare for the average consumer, known as a “bid” in CMS. The bid is compared against

²Brown *et al.* (2014) find that, after the introduction of risk-adjustment, firms still do engage in favorable selection, although it is less than before.

³See McGuire *et al.* (2011) for further details on the history of Medicare Part C.

a benchmark rate based on the average Traditional Medicare Spending in the counties the plan operates. The benchmark is then adjusted based on the quality of the plan (higher quality plans receive higher bonuses) and the risk factors of plan enrollees. If a plan bids above its adjusted benchmark, it receives the adjusted benchmark from CMS per enrollee. If a plan bids below the benchmark, it receives their bid as a subsidy, plus a fraction of the difference between the bid and the adjusted benchmark. This rebate has to be used to fund additional benefits for consumers, such as supplemental benefits or a reduction in an individual's Medicare Part B premium.

While Medicare Advantage plans offer limited provider networks, Medicare beneficiaries have several options to choose a plan that fits their needs. Three months before an individual becomes eligible for Medicare, they are able to sign up for Medicare, either Traditional Medicare or a Medicare Advantage plan. Individuals can compare Medicare Advantage plans in their county by going onto a government website and typing in their zip code. This website shows the monthly premium for the plans, various supplemental benefits the plan offers, the primary care and specialist copayments or coinsurance, the plan's star rating, and other features such as the deductible and the out of pocket limit. In addition, Medicare Advantage plans are also heavily marketed to senior citizens, with advertisements highlighting desirable attributes such as zero monthly premiums and supplemental benefits. Every year, from October 15th through December 7th, Medicare eligible individuals can change or drop their coverage during what's known as an Open Enrollment Period.

3 Data

I use two types of data in this project: plan-level data on Medicare Advantage plans and individual-level data containing an individual's demographic characteristics and choice of insurance.

For the plan-level data, the main data source I use is the Medicare Advantage Land-

scape Files, which contain summary information on the Medicare Advantage plans offered in a particular county, such as a plan’s monthly premium, the parent organization name (firm), and level of drug benefits (basic or enhanced). I supplement these landscape with files with additional plan-benefit files to add more detailed information for each plans on whether Medicare Advantage plans offer supplemental benefits. One complication arises in measuring cost-sharing in Medicare Advantage plans, as most plans offer co-payments for physician services, while some plans offer coinsurance. To account for this, I use a regulatory measure for consumer cost-sharing per member per month provided in the information used to calculate the bids for each plan.

I also construct the market shares for each Medicare Advantage plan offered in each county. I obtain enrollment data on every Medicare Advantage plan offered in a county in a year.⁴ I also obtain the total number of Medicare-eligible individuals each county, excluding those who are dully eligible for Medicare and Medicaid.⁵ The market share of a plan is then calculated by dividing its enrollment by this adjusted number of eligible individuals. Summary statistics on the plan-characteristics are presented in Table 1.

For individual-level data, I use the Medicare Current Beneficiary Survey (MCBS) from 2015-2019. The MCBS is a rolling panel where about 15,000 individuals are interviewed repeatedly over every four years. For each individual in the MCBS, I observe their county of residence, income, race, education levels, and self-reported health status. I also observe whether individuals choose FFS Medicare, or a Medicare Advantage plan. For Medicare Advantage recipients, I also observe the specific Medicare Advantage plan each individual chooses⁶, which I use to merge with the Medicare Advantage plan characteristics. I drop individuals that are dual-eligible for both Medicare and Medicaid. The MCBS also contains

⁴CMS does not report enrollment data for plans with eleven or less enrollees. I assume the enrollment for any plan with missing enrollment data is six.

⁵Individuals dual-eligible for Medicare and Medicaid have additional benefits, and are also eligible for additional plans not available to the general Medicare population, making their market different.

⁶A large number of individuals (about 11% in my sample) have employer-sponsored Medicare Advantage plans. As these individuals do not choose their plan, rather than dropping them from the sample, I include an administrative indicator of whether an individual has employer sponsored health insurance following Miller *et al.* (2023).

Table 1: Summary Statistics of Plan Characteristics

Variable	Mean	Std. Dev.
Monthly Premium	48.87	59.088
Monthly Cost-Sharing	69.90	21.59
Dental Coverage	0.794	0.405
Eyewear Coverage	0.713	0.452
Hearing Aides Coverage	0.630	0.483
Plan Market Share	0.014	0.027
Drug Benefit Level		
None	0.164	0.370
Basic	0.122	0.327
Enhanced	0.714	0.452
Star Rating		
2	0.0003	0.016
2.5	0.016	0.126
3	0.084	0.278
3.5	0.192	0.394
4	0.253	0.435
4.5	0.139	0.346
5	0.020	0.140
No Star Rating	0.295	0.456
Observations	25,913	

Notes: All dollar values are adjusted for 2015 dollars using the medical CPI. Except for premium, cost-sharing and plan market shares, all other variables are indicators.

weights to transform the population into a nationally representative population. I restrict the data to county-years with at least three individuals in the MCBS and two different plans in the plan-level data. I report summary statistics for individuals in my sample in Table 2. I report statistics for the entire sample, those enrolled in Traditional Medicare, and those enrolled in a Medicare Advantage plan. In general, Medicare Advantage enrollees tend to have lower income, a larger fraction of racial and ethnic minorities are enrolled in Medicare Advantage plans.

Table 2: Summary Statistics for Individual Characteristics

Variable	Entire Sample		TM Beneficiary		MA Beneficiary	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Race						
White	0.824	0.381	0.841	0.366	0.771	0.420
Non-Hispanic Black	0.081	0.272	0.074	0.261	0.103	0.303
Hispanic	0.047	0.213	0.038	0.191	0.077	0.266
Other Race	0.048	0.214	0.048	0.213	0.050	0.217
Income						
High Income	0.364	0.481	0.407	0.491	0.229	0.420
Middle Income	0.334	0.472	0.330	0.470	0.347	0.476
Low Income	0.302	0.459	0.263	0.440	0.424	0.494
Other Characteristics						
Age	72.940	9.083	72.921	9.164	73.001	8.823
Employer Plan	0.091	0.287	0.120	0.325	0.000	0.000
Self-Reported Health Status						
Poor Health	0.042	0.202	0.043	0.203	0.041	0.198
Fair Health	0.136	0.342	0.132	0.339	0.147	0.354
Good Health	0.301	0.458	0.300	0.458	0.303	0.460
Very Good Health	0.330	0.470	0.332	0.471	0.321	0.467
Excellent Health	0.192	0.394	0.193	0.395	0.188	0.391
Observations	45702		34225		11477	

Notes: All observations are weighted by the MCBS sample weights. Low-income, middle-income, and high-income are defined based on yearly MCBS income terciles.

4 Descriptive Evidence of Disparities in Enrollment

It has been documented that minority individuals prefer Medicare Advantage plans and enroll in Medicare Advantage plans more often than non-minority individuals Meyers *et al.* (2021); Vatter (2022); Miller *et al.* (2023). To provide evidences of racial differences in Medicare Advantage enrollment, I estimate Probit regressions to look at, controlling for demographic characteristics, whether minority individuals are more likely to enroll in Medicare Advantage plans. I estimate the following specification.

$$\mathbf{P}(MA_{it} = 1|X) = \Phi(\beta_0 + \beta_1 Black_i + \beta_2 hispanic_i + \beta_3 other_i + \gamma X_i + \lambda_m + \lambda_t) \quad (1)$$

Here, the dependent variable MA_{it} is an indicator variable that is equal to 1 if Medicare Beneficiary i is enrolled in a Medicare Advantage plan at time t , and zero otherwise. Also, $black_i$, $hispanic_i$, and $other_i$ are indicators if an individual is Non-Hispanic black, Hispanic, or of a different race (white is the base group). I include individual-level controls X_{it} indicating an individual's income in terciles, age, and self-reported health status. I also include fixed effects λ_m for counties, and λ_t for time. The results are presented in Table 3.⁷ I find

Table 3: Probit Regression on MA Enrollment

	Model 1		Model 2		Model 3	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect	Coefficient	Marginal Effect
Non-Hispanic Black	0.2455*** (0.0508)	0.0815*** (0.0174)	0.1542*** (0.0502)	0.0488*** (0.0163)	0.2084*** (0.0522)	0.0591*** (0.0154)
Hispanic	0.5336*** (0.1065)	0.1898*** (0.0417)	0.4670*** (0.1024)	0.1598*** (0.0384)	0.3328*** (0.0614)	0.0972*** (0.0190)
Other	0.0789 (0.0538)	0.0249 (0.0174)	0.0974* (0.0530)	0.0303* (0.0170)	0.0536 (0.0600)	0.0146 (0.0165)
Observations	45702	45702	45702	45702	45438	45438
Individual Controls	No		Yes		Yes	
County Fixed Effects	No		No		Yes	

Notes: Individual controls include income terciles, age, and self-reported health status. Standard errors are clustered at the county level * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

that Non-Hispanic Black and Hispanic Medicare Beneficiaries are more likely to enroll in Medicare Advantage plans than non-minority Medicare beneficiaries. One thing to note is, once I include county-level fixed effects, I find for Hispanics that the marginal effect of being a Hispanic beneficiary on enrolling in a Medicare Advantage plan decreases from about 0.16 to about 0.1. This suggests that a larger amount of attractive Medicare Advantage plans could be offered in areas with a higher Hispanic population

After confirming previous findings that minority individuals are more likely to enroll in Medicare Advantage plans, I will now explore why that is the case. Specifically, I will analyze whether racial and ethnic minorities who choose Medicare Advantage plans are more likely to choose plans that have different supplemental benefits than non-minorities. I

⁷The results for a Linear Probability specification are similar and are presented in Table B.1

estimate the following Probit regression specifications for the supplemental benefits of dental coverage, eyewear coverage, and hearing aides coverage:

$$\mathbf{P}(benefit_{it} = 1) = \Phi(\beta_0 + \beta_1 black_i + \beta_2 hispanic_i + \beta_3 other_i + \gamma X_i + \lambda_m + \lambda_t) \quad (2)$$

where $benefit_{it}$ is an indicator variable equal to 1 if Medicare Advantage beneficiary i in year t chooses a plan with a particular supplemental benefit and 0 otherwise. As before, I include controls for income levels, age and self-reported health status. I also include county-level and time fixed effects. The results are presented in Table 4.⁸

I find that Hispanic Medicare Advantage participants are significantly more likely to choose Medicare Advantage plans with dental coverage and eyewear coverage than white individuals. However, I do not find the similar effects for Non-Hispanic Black Medicare Advantage participants, as Non-Hispanic Black beneficiaries are more likely to choose plans with these supplemental benefits, but the effect is not significant. When I control for counties, I find that the marginal effects of being a racial or ethnic minority decreases. From these results, I infer that minority individuals may be more likely to live in areas where more Medicare Advantage plans with supplemental benefits are offered. I also find there appears to be no significant effect between the races defined as “other” (non-white, non-hispanic or black). Consequently, for the rest of this paper, I will absorb the “other” race category with the base group (White). For clarity, I will use the terms “non-minority” and the base-group interchangeably.

5 Model

Although I do provide some evidence that minority individuals are more likely to choose plans with supplemental benefits, I cannot answer questions about preferences or about any differences in willingness to pay for supplemental benefits for different racial and ethnic

⁸The results for a Linear Probability specification are similar and presented in Table B.2

Table 4: Probit Models for Dental, Eyewear, and Hearing Aides Coverage

(a) Probit Regressions for Dental Coverage

	Model 1		Model 2	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
Non-Hispanic Black	0.1310 (0.0902)	0.0410 (0.0278)	0.0635 (0.0877)	0.0177 (0.0241)
Hispanic	0.0275 (0.1325)	0.0089 (0.0426)	0.1394* (0.0811)	0.0381* (0.0216)
Other	-0.2273 (0.1517)	-0.0791 (0.0553)	-0.0710 (0.1134)	-0.0203 (0.0328)
Observations	11477	11477	9999	9999
Individual Controls	Yes		Yes	
County Fixed Effects	No		Yes	

(b) Probit Regressions for Eyewear Coverage

	Model 1		Model 2	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
Non-Hispanic Black	0.0837 (0.1187)	0.0300 (0.0422)	0.0144 (0.0852)	0.0038 (0.0227)
Hispanic	0.5379*** (0.1508)	0.1680*** (0.0414)	0.1604* (0.0830)	0.0418** (0.0212)
Other	-0.0208 (0.1807)	-0.0076 (0.0665)	0.0277 (0.1167)	0.0074 (0.0309)
Observations	11477	11477	10102	10102
Individual Controls	Yes		Yes	
County Fixed Effects	No		Yes	

(c) Probit Regressions for Hearing Aides Coverage

	Model 1		Model 2	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
Non-Hispanic Black	0.0547 (0.0814)	0.0194 (0.0286)	0.1057 (0.0747)	0.0309 (0.0215)
Hispanic	0.4789*** (0.1224)	0.1495*** (0.0317)	0.1137 (0.0878)	0.0332 (0.0251)
Other	-0.0212 (0.1663)	-0.0077 (0.0603)	-0.0818 (0.1049)	-0.0248 (0.0322)
Observations	11477	11477	11041	11041
Individual Controls	Yes		Yes	
County Fixed Effects	No		Yes	

Notes: Standard errors are clustered at the county level. Individual controls include income terciles, age, and self-reported health status. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

groups using the descriptive statistics themselves. To answer these questions, I develop a discrete choice model where consumers observe the premiums, cost-sharing, supplemental benefits, and other attributes of each Medicare Advantage plan offered in their counties, following the approaches of Miller *et al.* (2023) and Vatter (2022). Consumers i are medicare beneficiaries living in county (market) m . in time period t . In each county m and time period t , consumers choose between $j \in \mathcal{J}_{mt}$ possible medicare advantage plans and the outside option, which we consider to be Traditional Medicare ($j = 0$).⁹ Each consumer is seeking to choose a Medicare Advantage plan (or Traditional Medicare) to maximize their indirect utility. An individual's indirect utility for choosing plan j depends on a plan's premium p_{jmt} , a plan's cost-sharing level c_{jmt} , and a vector of plan benefits and attributes a_{jmt} . Plan benefits include dental coverage, eyewear coverage, hearing aides coverage, the level of drug coverage, and the plan's star rating. I also add fixed effects for large multi-state firms f_{jmt} ,¹⁰ market and year fixed effects m_{jmt} and t_{jmt} respectively. I include ξ_{jmt} , unobservable (to the econometrician) plan-level attributes. In this context, ξ_{jmt} could be the provider network of a given plan. An individual's indirect utility also depends on demographic variables z_{it} which effect different demographic groups tendencies to choose Medicare Advantage plans in general. Lastly, ε_{ijmt} is an individual specific shock to utility, which I assume follows the Type 1 Extreme Value distribution, a standard assumption in the demand estimation literature.

$$\begin{aligned}
u_{ijmt} = & \alpha_i p_{jmt} + \beta_i c_{jmt} + \lambda_i^a a_{jmt} \\
& + \lambda^z z_{it} + f_{jmt} + m_{jmt} + t_{jmt} \\
& + \xi_{jmt} + \varepsilon_{ijmt}
\end{aligned} \tag{3}$$

⁹For those with employer-sponsored insurance, I assign them to the outside option, but I add the indicator as an individual characteristic to the model to ensure they are not likely to choose a Medicare Advantage plan.

¹⁰I include fixed effects for Aetna, Blue-Cross-Blue Shield, United Healthcare, Kaiser Permanente, Cigna, and Humana. More than half of the firms in my data-set are part of these companies.

Here, I allow the coefficients α, β, λ^a to vary based on individual characteristics. We define $\alpha_i = \alpha_0 + \alpha_1 t_2 + \alpha_2 t_3 + \alpha_3 black_i + \alpha_4 hispanic_i$ where t_2 and t_3 represent indicators for whether an individual is part of the second or third income tercile, and $black_i, hispanic_i$ are indicators for whether an individual is Non-Hispanic Black or Hispanic respectively. The coefficients β_i and λ_i^a are defined similarly. For plan-attributes, I include individual-specific coefficients for dental coverage, hearing aides coverage, or eyewear coverage. I also include the overall star rating of a Medicare Advantage, and the level of drug coverage as additional plan characteristics. Overall, I extend the literature by allowing for individual-specific coefficients for dental, vision, and hearing, allowing me to analyze how different racial groups respond to supplemental benefits.

In addition to medicare advantage plans, Since, according to CMS, about 80% of Medicare enrollees have Part D coverage, I represent the price of the outside option, p_{0mt}^D , as the price of the most purchased Medicare Part D plan in that county. The indirect utility for the outside option is represented by

$$u_{i0mt} = \alpha_i p_{0mt}^D + \varepsilon_{i0mt} \quad (4)$$

with ξ_{0mt} normalized to zero.

Following the demand estimation literature, I divide an individual's indirect utility into three parts, the individual specific shock ε_{ijmt} , the average utility for purchasing plan that is common to all consumers j

$$\delta_{jmt} = \alpha_0(p_{jmt} - p_{0mt}^D) + \beta_0 c_{jmt} + \lambda_0^a a_{jmt} + \xi_{jmt} \quad (5)$$

and an individual's specific deviation from the product level mean, which depends on the

individual's demographic characteristics.

$$\begin{aligned}
\mu_{ijmt} = & (\alpha_1 t_2 + \alpha_2 t_3 + \alpha_3 \text{black}_i + \alpha_4 \text{hispanic}_i)(p_{jmt} - p_{0mt}^D) \\
& + (\beta_1 t_2 + \beta_2 t_3 + \beta_3 \text{black}_i + \beta_4 \text{hispanic}_i)c_{jmt} \\
& + (\lambda_1^a t_2 + \lambda_2^a t_3 + \lambda_3^a \text{black}_i + \lambda_4^a \text{hispanic}_i)a_{jmt} + \lambda_z z_{it}.
\end{aligned} \tag{6}$$

Since ε_{ijmt} follows a Type-I Extreme Value distribution, we can write the probability consumer i chooses plan j (out of \mathcal{J}_{mt} plans available in county m at time t) as

$$\mathbf{P}(i \text{ chooses } j) = \mathbf{P}(i \text{ chooses } j) = s_{ijmt}(\theta) = \frac{\exp(\mu_{ijmt} + \delta_{jmt})}{1 + \sum_{k \in \mathcal{J}_{mt}} \exp(\mu_{ikmt} + \delta_{kmt})} \tag{7}$$

From here, the market demand for plan j is sum of each individual's probability of purchasing the plan,

$$D_{jmt} = \sum_{i \in \mathcal{N}_{mt}} s_{ijmt}$$

where \mathcal{N}_{mt} is the number of consumers in market m at time t .

6 Estimation and Results

I use a share-constrained Maximum Likelihood Estimator to estimate the model parameters following Goolsbee & Petrin (2004); Miller *et al.* (2023); Vatter (2022). First, I use individual enrollment decisions and demographic characteristics from the MCBS to estimate the parameters that capture heterogeneity in preferences for Medicare Advantage plans and their attributes $\theta_1 = (\alpha_i, \beta_i, \lambda_i^a)$. Secondly, using a contraction mapping in the style of Berry *et al.* (1995), for given guess of nonlinear parameters $\tilde{\theta}_1$, I solve for the unique product-level mean utilities $\delta_{jmt}(\tilde{\theta}_1)$ that match the model-predicted choice probabilities to the market

shares observed in the data. I maximize the likelihood function below:

$$\max_{\theta_1, \theta_2(\theta_1)} \sum_t \sum_i \sum_m w_{it} \sum_j y_{ijmt} \ln(s_{ijmt}(\theta_1, \theta_2)) \quad \text{s.t.} \quad s_{jmt}^* = \sum_{i \in \mathcal{N}_{mt}} \frac{1}{N_{mt}} s_{ijmt}(\theta_1, \theta_2) \quad (8)$$

where s_{jmt}^* are the aggregate market shares observed in the data, w_{it} are the MCBS sample weights. and y_{ijmt} is an indicator variable that equals 1 if individual i chooses plan j (in county m at time t) and zero otherwise.

After estimating the non-linear parameters that maximize the likelihood function, $\hat{\theta}_1$, I use the average-product utilities $\delta_{jmt}(\hat{\theta}_1)$ to estimate the parameters $\hat{\theta}_2$ that determine average utility from equation (5).

6.1 Instruments

One potential concern in estimating the average utility parameters is that insurance companies may choose their unobserved product characteristics ξ_{jmt} jointly with their decision on monthly premiums and cost-sharing levels. To address these concerns, I construct instruments for premiums (and cost-sharing levels) calculate the average effective premium (premium - price of outside option) and cost-sharing levels for plans offered by the same contracting entity in different counties. I cannot include plans in the same county as potential instruments, as premiums and cost-sharing within the same county are likely correlated with the benchmark subsidy in each county. To address the concern that individuals will choose health insurance plans based on unobserved product characteristics in neighboring counties, I construct an additional set of instruments where I exclude contingent counties from these calculations.¹¹

¹¹Ryan (2023) uses a similar approach

6.2 Demand Model Results

I report the Maximum Likelihood Estimates of individual-specific variables in Table 5. The main results I will focus on are the interactions between different plan-attributes and demographic characteristics.

Table 5: Coefficients and Standard Errors for Nonlinear Variables

Variable	Coeff.	Std. Error	Variable	Coeff.	Std. Error
Monthly Premium (per \$100) ×			Hearing Aides Coverage ×		
Medium Income	0.1591	0.1034	Medium Income	-0.1021*	0.0559
High Income	0.3463***	0.0948	High Income	-0.1154**	0.0547
Black	-0.4147***	0.0098	Black	0.0405	0.0611
Hispanic	-0.4051***	0.0675	Hispanic	0.2046***	0.0335
Monthly Cost-Sharing (per \$100) ×			MA × Demographics		
Medium Income	-0.0431	0.1535	Medium Income	-0.2557	0.2191
High Income	0.3367***	0.0615	High Income	-1.1143***	0.1672
Black	-0.0005	0.0931	Black	0.0138	0.1156
Hispanic	-0.6494***	0.2033	Hispanic	0.4428	0.3609
Dental Coverage ×			Age/100	3.2319***	0.2031
Medium Income	-0.0128	0.0291	(Age/100) ²	-2.0458**	0.8265
High Income	-0.0463*	0.0242	Employer Insurance	-5.9932***	1.0855
Black	0.4662***	0.0845	MA × Health Status		
Hispanic	0.2851	0.2063	Excellent Health	0.0771***	0.0076
Eyewear Coverage ×			Very Good Health	0.0414	0.0273
Medium Income	-0.0950***	0.0289	Good Health	-0.0283***	0.0001
High Income	-0.1213***	0.0241	Poor Health	-0.1392**	0.0647
Black	-0.0555	0.1011			
Hispanic	0.0136	0.0502			
Observations	45702				

Notes: Income is measured in terciles based on the yearly MCBS distribution. The omitted categories are low-income, non-minority individuals, and individuals with fair health. Age is divided by 100 for computational reasons. Asymptotic Standard errors are reported in parentheses (see Appendix A.1 for details.) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

I find that both Hispanic and Non-Hispanic black beneficiaries are more premium sensitive than white beneficiaries, as the interaction coefficients between premiums and each race is negative. I also find that Hispanic individuals are more sensitive to an increase in Cost-Sharing levels than white individuals, although I do not find a similar result for Non-Hispanic Black individuals. This shows minorities are more sensitive to price increases than non-minority individuals.

When analyzing supplemental benefits, I do not find a significant difference in how minorities value Eyewear coverage as opposed to non-minority individuals. For Dental Coverage, I find that Non-Hispanic black individuals significantly value dental coverage more than white individuals, while Hispanic individuals do value dental coverage more than non-minority individuals, although the difference is not significant. I also find that Hispanic individuals value Hearing Aides coverage significantly more than white individuals, while Non-Hispanic Black individuals do value Hearing Aides coverage more than non-minorities, although the effect is not-significant.

I also find that middle and higher income individuals do not have as much of a preference for Medicare Advantage as lower income individuals. In addition, they are not as sensitive to increases in premiums and cost-sharing as lower income individuals, and they are less-attracted to dental coverage, eyewear coverage, and hearing-aides coverage. This suggests that medium and higher income individuals, with more disposable income, do not value the bundled coverage of supplemental benefits and managed care plans, in favor of the flexibility of Traditional Medicare.

I present the results for the average utility parameters in Table 6.¹² Consistent with previous work, I find that individuals are, on-average, more sensitive to increases in cost-sharing than increases in premiums. I find that excluding border counties when constructing the Hausman instruments for premium and cost-sharing do not significantly change the coefficients. I also find that making cost-sharing endogenous does not change the estimates by much, so I will proceed with Model 2 as my main specification for the rest of my analysis.

7 Counterfactuals

In this section, I use the demand model to analyze the welfare Medicare Advantage beneficiaries gain from dental coverage, eyewear coverage, and hearing aides coverage. I use the

¹²I also construct instruments using the actual premiums instead of the effective premiums, the results are similar and are presented in Table B.3

Table 6: Average Utility Parameters

	Model 1	Model 2	Model 3	Model 4	Model 5
Monthly Premium (per \$100)	-0.7930*** (0.0524)	-0.2638** (0.1076)	-0.1963 (0.4305)	-0.2535** (0.1100)	-0.1726 (0.4192)
Montly Cost-Sharing (per \$100)	-1.1155*** (0.1263)	-1.2945*** (0.1239)	-1.3174*** (0.1735)	-1.4040*** (0.1933)	-1.5465 (1.0871)
Eyewear Coverage	0.0690 (0.0558)	0.0408 (0.0540)	0.0372 (0.0612)	0.0320 (0.0545)	0.0188 (0.1046)
Dental Coverage	-0.0094 (0.0527)	-0.0604 (0.0484)	-0.0669 (0.0653)	-0.0622 (0.0485)	-0.0708 (0.0622)
Hearing Aides Coverage	0.1772*** (0.0473)	0.1441*** (0.0453)	0.1398*** (0.0491)	0.1388*** (0.0464)	0.1286* (0.0695)
Basic Drug Coverage	1.9679*** (0.0935)	1.8160*** (0.0952)	1.7966*** (0.1575)	1.8410*** (0.0953)	1.8481*** (0.3113)
Enhanced Drug Coverage	2.1745*** (0.0592)	2.0070*** (0.0688)	1.9857*** (0.1512)	2.0177*** (0.0678)	2.0073*** (0.2007)
Method	OLS	2SLS	2SLS	2SLS	2SLS
Endogenous Premiums	No	Yes	Yes	Yes	Yes
Endogeneous Cost-Sharing	No	No	No	Yes	Yes
Observations	25913	25913	25913	25913	25913

Notes: Standard errors are clustered at the county level. I include fixed effects for counties, years, and select firms (Aetna, Blue Cross Blue Shield, United Healthcare, Humana, and Kaiser Permanente.) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

compensating variation as a measure of consumer welfare, or the dollar amount (in terms of monthly premiums) an individual would need to be compensated if Medicare Advantage plans were removed as an option. Following Mcfadden (1996); Nevo (2000), if ε_{ijmt} follows a Type 1 Extreme Value distribution, the compensating variation for individual i at time t is given by

$$CS_{it} = \frac{1}{\alpha_{it}} \ln \left(1 + \sum_{j \in \mathcal{J}_{mt}} \exp(\delta_{jmt} + \mu_{ijmt}) \right). \quad (9)$$

Following Town & Liu (2003) and Miller *et al.* (2023), I also calculate the average Consumer Surplus per Medicare Advantage beneficiary.

$$\overline{CS} = \frac{\int_{it} CS_{it}}{\int_{it} s_{it}} \quad (10)$$

where $\int_{it} CS_{it}$ is the sum of the consumer surplus for everyone in the sample and $\int_{it} s_{it}$ is the sum of the model-predicted probabilities that each individual chooses any Medicare Advantage plan offered in his county.

To examine the welfare Medicare beneficiaries gain by different supplemental benefits, I examine what would happen if dental coverage, eyewear coverage, and hearing aides coverage are removed as options from Medicare Advantage plans, holding all other factors constant.¹³ I re-calculate consumer surplus under these conditions, and then calculate the percent decrease in consumer surplus per Medicare Advantage enrollee.¹⁴ The results are presented in Figure 1.

In general, I find that Medicare Advantage beneficiaries do gain welfare from dental coverage and hearing coverage, where the change in welfare from hearing coverage is the most pronounced (1.77% decrease in welfare when hearing coverage is removed) compared

¹³If dental coverage, eyewear coverage, or hearing aides coverage are removed as options from Medicare Advantage plans, firms would adjust the other price and non-price benefits different plans offer. This analysis is beyond the scope of this paper.

¹⁴An alternative way to measure the value of supplemental benefits would be to calculate the willingness to pay. The results are presented in Section A.2

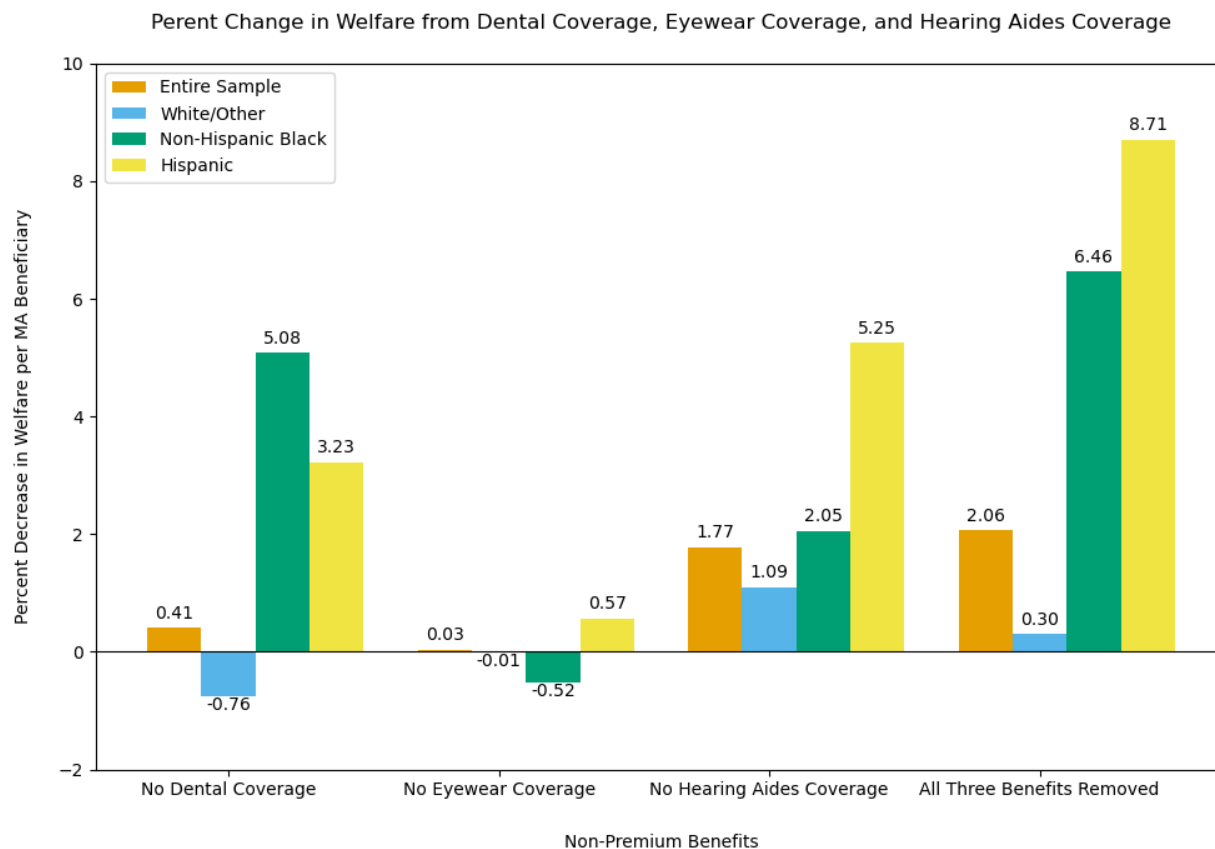


Figure 1: Change in Welfare for Medicare Beneficiaries

to a very small change in dental coverage.

I also compare the changes in welfare for different socioeconomic groups. Consistent with my prior, I find racial and ethnic minorities do lose more welfare when dental coverage, eyewear coverage, and hearing aides coverage are moved than non-minorities. Removing all three benefits results in a 8.71% decrease in welfare for Hispanic Beneficiaries and a 6.46% decrease in welfare for Non-Hispanic Black beneficiaries, compared to a 0.30% decrease in welfare for non-minorities. In particular, I find that Non-Hispanic Black Medicare Advantage beneficiaries gain much of their welfare from dental coverage, while Hispanic beneficiaries gain much of their welfare from hearing aides coverage. For eyewear coverage, I do not see much of an effect of removing eyewear coverage on consumer welfare.

8 Conclusion

Previous work in Health Policy has documented that enrollment of racial and ethnic minorities in Medicare Advantage plans has grown faster than that of non-minorities. In my main results, I find that racial and ethnic minorities benefit more (in terms of willingness to pay) than non-minorities for some popular supplemental benefits, particularly dental coverage and hearing aides coverage, than non-minority Medicare Beneficiaries. Particularly, it seems that racial and ethnic minorities are drawn to supplemental benefits not offered in Traditional Medicare. Unlike previous work that does not interact race with supplemental benefits, I do not find that minorities have a significantly different preference than non-minorities for Medicare Advantage plans themselves. I interpret this as minority individuals being attracted to supplemental benefits Medicare Advantage plans offer and not necessarily to Medicare Advantage plans themselves.

These results are informative to policy makers considering adding dental, vision, and hearing coverage to Traditional Medicare, as they provide a measure of how much different groups specifically benefit from different supplemental benefits. Future work is needed to quantify the cost of adding supplemental benefits to do a Cost-Benefit analysis of adding supplemental benefits to Traditional Medicare.

References

- AYANIAN, JOHN Z., LANDON, BRUCE E., NEWHOUSE, JOSEPH P., & ZASLAVSKY, ALAN M. 2014. Racial and Ethnic Disparities among Enrollees in Medicare Advantage Plans. *New England Journal of Medicine*, **371**(24), 2288–2297.
- BERRY, STEVEN, LEVINSOHN, JAMES, & PAKES, ARIEL. 1995. Automobile Prices in Market Equilibrium. *Econometrica*, **63**(4), 841–890.
- BROWN, JASON, DUGGAN, MARK, KUZIEMKO, ILYANA, & WOOLSTON, WILLIAM. 2014. How Does Risk Selection Respond to Risk Adjustment? New Evidence from the Medicare Advantage Program. *American Economic Review*, **104**(10), 3335–64.
- CHARBI, ALEXANDRA. 2021. The Fault in our Stars! Quality Reporting, Bonus Payments and Welfare in Medicare Advantage. *Working Paper*.
- CURTO, VILSA, EINAV, LIRAN, LEVIN, JONATHAN, & BHATTACHARYA, JAY. 2021. Can Health Insurance Competition Work? Evidence from Medicare Advantage. *Journal of Political Economy*, **129**(2), 570–606.
- GANGOPADHYAYA, ANUJ, ZUCKERMAN, STEPHEN, & RAO, NIKHIL. 2023. Assessing the difference in racial and ethnic disparities in access to and use of care between Traditional Medicare and Medicare Advantage. *Health Services Research*, **58**(4), 914–923.
- GOOLSBEE, AUSTAN, & PETRIN, AMIL. 2004. The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV. *Econometrica*, **72**(2), 351–381.
- HANSEN, LARS PETER. 1982. Large Sample Properties of Generalized Method of Moments Estimators. *Econometrica*, **50**(4), 1029–1054.
- LI, YUE, CEN, XI, CAI, XUEYA, THIRUKUMARAN, CAROLINE P., ZHOU, JIE, & GLANCE, LAURENT G. 2017. Medicare Advantage Associated With More Racial Disparity

- Than Traditional Medicare For Hospital Readmissions. *Health Affairs*, **36**(7), 1328–1335. PMID: 28637771.
- LUSTIG, JOSH. 2009. Measuring Welfare Losses from Adverse Selection and Imperfect Competition in Privatized Medicare. *Working Paper*.
- MCFADDEN, DANIEL. 1996. Computing Willingness-to-Pay in Random Utility Models. *University of California at Berkeley, Econometrics Laboratory Software Archive, Working Papers*, 01.
- MCGUIRE, THOMAS G., NEWHOUSE, JOSEPH P., & SINAICO, ANNA D. 2011. An Economic History of Medicare Part C. *The Milbank Quarterly*, **89**(2), 289–332.
- MEYERS, DAVID J., MOR, VINCENT, RAHMAN, MOMOTAZUR, & TRIVEDI, AMAL N. 2021. Growth In Medicare Advantage Greatest Among Black And Hispanic Enrollees. *Health Affairs*, **40**(6), 945–950. PMID: 34097525.
- MILLER, KEATON S, PETRIN, AMIL, TOWN, ROBERT, & CHERNEW, MICHAEL. 2023. Optimal Managed Competition Subsidies. *National Bureau of Economic Research Working Paper*.
- NEVO, AVIV. 2000. Mergers with Differentiated Products: The Case of the Ready-to-Eat Cereal Industry. *The RAND Journal of Economics*, **31**(3), 395–421.
- NOSAL, KATHLEEN. 2011. Estimating Switching Costs for Medicare Advantage Plans. *Working Paper*.
- PARK, SUNGCHUL, WERNER, RACHEL, & COE, NORMA. 2022. Racial and ethnic disparities in access to and enrollment in high-quality Medicare Advantage plans. *Health Services Research*, **58**(03).
- RYAN, CONOR. 2023. How does Insurance Competition Affect Medical Consumption? *Working Paper*.

- TOWN, ROBERT, & LIU, SU. 2003. The Welfare Impact of Medicare HMOs. *The RAND Journal of Economics*, **34**(4), 719–736.
- VATTER, BEJAMIN. 2022. Quality Disclosure and Regulation: Scoring Design in Medicare Advantage. *Working Paper*.

A Appendix

A.1 Calculating Standard Errors for Maximum Likelihood Estimates

Following Goolsbee & Petrin (2004), I calculate the standard errors of the Maximum Likelihood Estimates by re-framing the estimation as a Generalized Method of Moments problem. Here, there are two sets of moments that are zeroed at the estimates. For the first set of moments, we have that the non-linear parameters ($\hat{\theta}_1$) are chosen to maximize the log-likelihood equation 8, so

$$m_1(\theta, \delta(\theta)) = \frac{\partial}{\partial \theta_1} \ell(\theta_1, \delta) = 0 \quad (11)$$

Our second moment equation, which identifies the average utility levels, is based on the share constraint in equation 8, which matches the model predicted market shares of each plan to the market shares observed in the data. To compute the standard errors, the second moment condition needs to be written in terms of all N observations. To do so, I include an indicator $\mathbf{1}_{i \in mt}$ that is equal to 1 if individual i lives in county m at time t and zero otherwise.

$$m_2(\delta) = \sum_i \mathbf{1}_{i \in mt} (s_{jmt}^* - \frac{1}{N_{mt}} s_{ijmt}(\theta_1, \delta)) = 0, \quad \forall j, m, t. \quad (12)$$

Let \hat{S} be the value of (stacked) moment conditions evaluated at our estimates and let \hat{D} be the value of the gradient of the (stacked) moment conditions with respect to θ and δ . Following Hansen (1982), the variance-covariance matrix for our parameters is as follows:

$$Var \begin{pmatrix} \hat{\theta}_1 \\ \hat{\delta} \end{pmatrix} = \left(\hat{D}' \hat{D} \right)^{-1} \hat{D}' \hat{S} \hat{D} \left(\hat{D}' \hat{D} \right)^{-1}. \quad (13)$$

The reported standard errors are the square-root of the diagonal elements of this matrix divided by \sqrt{N} .

A.2 Willingness to Pay Estimates

I also calculate the average willingness to pay for different supplemental benefits. Willingness to pay, defined by $WTP = -\gamma_i/\alpha_i$ where α_i is the premium coefficient for an individual i , and γ_i is the coefficient for a particular plan attribute. For the supplemental benefits, it represents the dollar amount (in terms of monthly premiums) consumers are willing to pay for dental coverage, eyewear coverage, and hearing aides coverage. For cost-sharing, the Willingness to pay represents the dollar amount (in monthly premiums) individuals have to be compensated for a one dollar increase in cost-sharing per month. The results are presented in Figure A.1.

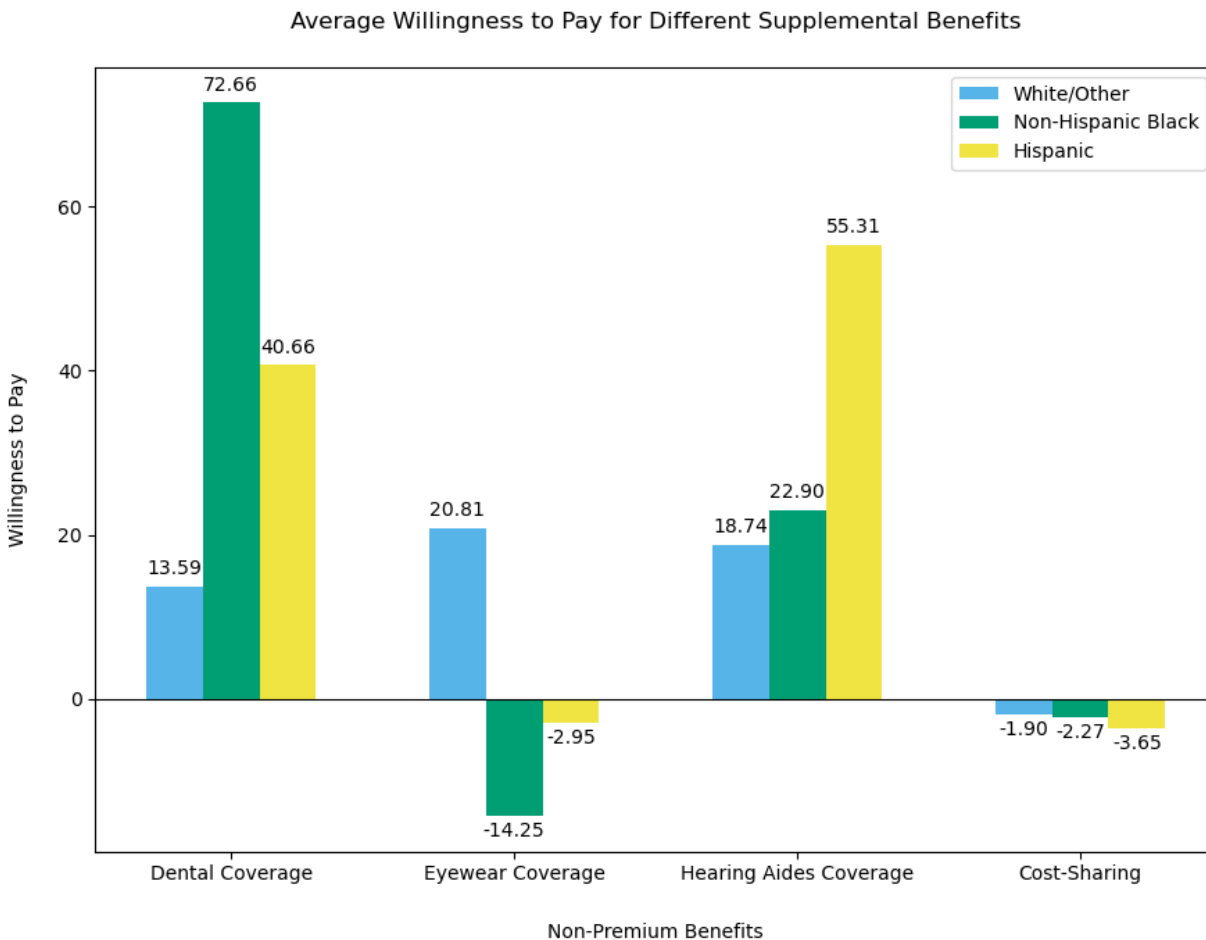


Figure A.1: Average willingness to Pay by Race

The results are consistent with those in Section 7. Racial and Ethnic minorities are,

on average, willing to pay more for dental coverage and hearing aides coverage than the base-group. Racial and ethnic minorities are also more sensitive to increases in cost-sharing than the base-group.

B Additional Tables and Figures

Table B.1: Linear Probability Regression on MA Enrollent

Dependent Variable: MA Participant	Model 1	Model 2	Model 3
Non-Hispanic Black	0.0815*** (0.0174)	0.0516*** (0.0170)	0.0616*** (0.0151)
Hispanic	0.1898*** (0.0417)	0.1657*** (0.0392)	0.1068*** (0.0202)
Other	0.0249 (0.0174)	0.0297* (0.0168)	0.0136 (0.0167)
Observations	45702	45702	45702
Individual Controls	No	Yes	Yes
County Fixed Effects	No	No	Yes

Notes: Individual controls include income terciles, age, and self-reported health status. Standard errors are clustered at the county level * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B.2: Linear Probability Models for Dental, Eyewear, and Hearing Aides Coverage

(a) Linear Probability Regressions for Dental Coverage

	Model 1	Model 2
Non-Hispanic Black	0.0409 (0.0278)	0.0170 (0.0215)
Hispanic	0.0091 (0.0428)	0.0395* (0.0229)
Other	-0.0793 (0.0552)	-0.0212 (0.0326)
Observations	11477	11477
Individual Controls	Yes	Yes
County Fixed Effects	No	Yes

(b) Linear Probability Regressions for Eyewear Coverage

	Model 1	Model 2
Non-Hispanic Black	0.0303 (0.0420)	0.0022 (0.0218)
Hispanic	0.1671*** (0.0411)	0.0280* (0.0156)
Other	-0.0079 (0.0670)	0.0111 (0.0259)
Observations	11477	11477
Individual Controls	Yes	Yes
County Fixed Effects	No	Yes

(c) Linear Probability Regressions for Hearing Aides Coverage

	Model 1	Model 2
Non-Hispanic Black	0.0194 (0.0285)	0.0307 (0.0219)
Hispanic	0.1489*** (0.0314)	0.0235 (0.0201)
Other	-0.0083 (0.0610)	-0.0196 (0.0290)
Observations	11477	11477
Individual Controls	Yes	Yes
County Fixed Effects	No	Yes

Notes: Standard errors are clustered at the county level. Individual controls include income terciles, age, and self-reported health status. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table B.3: Average Utility Parameters (using non-effective premiums as instruments)

	Model 1	Model 2	Model 3	Model 4	Model 5
Monthly Premium (per \$100)	-0.7930*** (0.0524)	-0.3085** (0.1091)	-0.2470 (0.6201)	-0.2990** (0.1116)	-0.2102 (0.6129)
Monthly Cost-Sharing (per \$100)	-1.1155*** (0.1263)	-1.2794*** (0.1224)	-1.3002*** (0.2199)	-1.3787*** (0.1920)	-1.5165 (1.1159)
Eyewear Coverage	0.0690 (0.0558)	0.0432 (0.0541)	0.0399 (0.0670)	0.0352 (0.0547)	0.0221 (0.1114)
Dental Coverage	-0.0094 (0.0527)	-0.0561 (0.0485)	-0.0621 (0.0795)	-0.0577 (0.0486)	-0.0671 (0.0767)
Hearing Aides Coverage	0.1772*** (0.0473)	0.1469** (0.0452)	0.1430** (0.0542)	0.1420** (0.0462)	0.1317 (0.0749)
Basic Drug Coverage	1.9679*** (0.0935)	1.8289*** (0.0962)	1.8112*** (0.2071)	1.8515*** (0.0961)	1.8544*** (0.3263)
Enhanced Drug Coverage	2.1745*** (0.0592)	2.0212*** (0.0697)	2.0017*** (0.2087)	2.0308*** (0.0687)	2.0170*** (0.2375)
Method	OLS	2SLS	2SLS	2SLS	2SLS
Endogenous Premiums	No	Yes	Yes	Yes	Yes
Endogeneous Cost-Sharing	No	No	No	Yes	Yes
Observations	25913	25913	25913	25913	25913

Notes: Standard errors are clustered at the county level. I include fixed effects for counties, years, and select firms (Aetna, Blue Cross Blue Shield, United Healthcare, Humana, and Kaiser Permanente.) * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.