Insuring Wisdom: Brokers in the Market for Medicare Advice*

Elaine Shen† Margaret Kallus

March 26, 2026

Preliminary: Do not cite or distribute

Abstract

Choosing an insurance plan is a highly complex decision for the 66 million seniors and individuals with disabilities insured by Medicare. It is also a decision that has costly long-term financial and health consequences that are difficult to reverse. While over half of beneficiaries rely on Medicare insurance brokers to navigate this choice, brokers often face misaligned financial incentives and little is known about the quality of broker advice. To address this gap, we conduct a large-scale audit study where real, Medicare-eligible seniors solicit plan recommendations from Medicare insurance brokers using standardized profiles. We find that 64.84% (SE 1.89) of brokers steer seniors towards high-commission low-fit plans in a scenario where broker incentives and consumer preferences conflict. Focusing on the Medigap market, a subsegment of the Medicare market where plans are standardized, we are able to measure broker quality in precise monetary terms: as the price difference between the broker-recommended plan and the low-cost identical plan. We find that the average Medigap Markup is $376.38/year (SE 8.64), a 28.77% markup. A natural experiment and a treatment increasing competitive pressures provide evidence that advice is strategic and heavily driven by misaligned incentives. We use these facts to build a simple model of broker advice that helps explain the results.

*IRB of record: UC Berkeley Protocol #2024-04-17373 (Audit), 2024-08-17690 (Senior Survey), 2024-03-17226 (Broker Survey); AEA Trial Registration #AEARCTR-0014329.
We thank our advisors, Professors Stefano DellaVigna, Pat Kline, Jon Kolstad, Ben Handel, Ned Augenblick, Ulrike Malmendier, Dmitry Taubinsky, Chris Walters, Supreet Kaur, and Gautam Rao for their immensely valuable feedback. We gratefully acknowledge funding from J-PAL North America's US Health Care Delivery Initiative (HCDI), the Robert Wood Johnson Foundation (RWJF), the UC Berkeley Experimental Social Science Laboratory, the Commonwealth Fund, the USC Dornsife Center for Economic Research Understanding America Study (UAS), and the Stanford Initiative for Financial Decision-Making. This work was supported by the Robert Wood Johnson Foundation, grant DOI https://doi.org/10.62700/qmhCqlQeHQ. All errors are our own.

†Shen: UC Berkeley (elaineshen@berkeley.edu); Kallus: UC Berkeley (margaret_kallus@berkeley.edu).

1 Introduction

Insurance plan choice is an area where research has shown that individuals are prone to costly mistakes.[1] This is especially true for the 66 million senior citizens and individuals with disabilities who are insured by Medicare, many of whom are vulnerable and may be susceptible to cognitive decline. It is also a decision where mistakes have long-term financial and health consequences. Unlike younger individuals who can recover from financial setbacks with the help of future earnings, seniors are retired, rely on a fixed income, and cannot increase their earnings in response to financial mistakes. Additionally, outside of the Medicare Open Enrollment window, it often becomes difficult to switch your Medicare plan outside of special enrollment periods or without medical underwriting. This makes a poor Medicare plan choice difficult and sometimes impossible to reverse, especially for less healthy individuals.

Given the important and complex nature of the initial enrollment decision, studies suggest that over half of seniors rely on expert intermediaries, or insurance brokers and agents (hereafter, brokers), to enroll them in their Medicare plan.[2] As with all markets of advice, however, the objectives of the brokers and their clients may not be aligned. There are several benefits of using brokers: as the "experts" in this market, brokers usually have a better understanding of the complex Medicare market than many seniors and can provide valuable guidance. Furthermore, since brokers are often compensated directly by insurance companies when they enroll beneficiaries in a plan, brokers appear free for seniors to use. However, since broker compensation is set by the insurance companies, brokers often face incentives to enroll seniors in plans that are not the best fit for their needs, an issue that policymakers have begun to recognize.[3] Thus, despite the widespread use of these intermediaries, it is still ambiguous whether brokers lead to better or worse Medicare plan choice.

To evaluate the welfare impact of brokers in this market, we conduct a large-scale audit study. We randomly assign Medicare-eligible seniors to insurance brokers at the individual level, randomizing both consumer and broker characteristics. To test whether broker recommendations are

[1] See Handel and Kolstad (2015); Handel and Schwartzstein (2018); Abaluck and Gruber (2016, 2011); Ho et al. (2017); Ketcham et al. (2015); Bhargava et al. (2017).

[2] Data on the use of brokers or agents is limited and mostly comes from surveys, including Leonard et al. (2022) Freed et al. (2023). Maestas et al. (2009) estimate that 72% of seniors choose their Medicare Supplement plan with the help of an insurance broker.

[3] In response to these potentially mis-aligned incentives and complaints of inappropriate marketing, the Centers for Medicare and Medicaid Services (CMS) have recently enacted several regulations focused on monitoring broker sales practices and increasing consumer protections. For example, beginning in 2023 CMS required all Medicare brokers and brokers to record phone calls with clients if Medicare Advantage plans were discussed. See https://www.cms.gov/files/document/agent-broker-marketing-faqs-10-19-2022.pdf and https://www.cms.gov/newsroom/fact-sheets/cy-2023-medicare-advantage-and-part-d-final-rule-cms-4192-f for details. In 2025, the US Department of Justice (DOJ) also filed a lawsuit under the False Claims Act against three large insurance companies and three large Medicare insurance broker call centers for denying coverage to disabled beneficiaries and for steering Medicare beneficiaries towards MA plans. See https://www.justice.gov/opa/pr/united-states-files-false-claims-act-complaint-against-three-national-health-insurance for details.

driven by strategic behavior, our main treatment experimentally varies "perceived competition" or whether the senior emphasizes talking to multiple brokers before enrolling in a plan. Evidence from a natural experiment where Medicare Advantage insurance carriers stop paying broker commissions for new enrollments further suggests that broker advice is largely driven by incentives.

We find that 64.84% (SE 1.89) of Medicare insurance brokers recommend a dominated, higher-commission plan when incentives are misaligned. A natural experiment where broker commissions are removed leads to a 20.79 percentage point decrease in low quality recommendations, suggesting advice is largely driven by broker incentives. Advice quality is elastic to a randomly assigned competition treatment, however increasing perceived competition causes brokers to focus on price and provide lower-price plans, which is not always in line with consumer interests. Specifically, in one recommendation decision, the competition treatment causes brokers to recommend a lower price plan which leads to higher broker pay and is worse for the consumer. However, in a second decision the competition leads brokers to recommend a lower price plan that is identical in quality, which is better for the consumer and leads the broker to be paid less. We propose a theoretical framework explaining the results.

This paper contributes to the literature on misaligned incentives and the deceptive sales tactics of expert intermediaries in a new, arguably more important context. While studies have found evidence of discriminatory sales practices in housing sales (Ondrich et al., 2000, 2003), car sales (Ayres, 1991; Ayres and Siegelman, 1995), online marketplaces (Besbris et al., 2015; Doleac and Stein, 2013), and investment recommendations (Mullainathan et al., 2011), the Medicare market differs from these markets in two important dimensions.[4] First, Medicare is a government product. This leads many consumers enrolling in Medicare to believe the individuals helping them enroll in Medicare are representing the government and acting in their best interests. In fact, many brokers and agencies purposely try to market themselves as representing Medicare.[5] Second, Medicare insurance is much more complex, unfamiliar, and permanent purchase than any of the aforementioned products. When buying a house or a car, consumers usually have some experience with the product that they can draw from; they know to ask about the engine of a car and they understand the consequences of their car breaking down. For most seniors, their first experience with Medicare is when they make their enrollment decision, forcing seniors to conceptualize multiple abstract tradeoffs and evaluate insurance products with which they have almost no prior experience.

The stakes from an incorrect insurance plan choice, especially for this vulnerable population of seniors and individuals with disabilities, are incredibly high and often impossible to reverse.

[4]In a non-sales context, discrimination has been found in medical settings as well. (Das et al., 2016; Alsan et al., 2019)

[5]In response to this, CMS has passed regulations that it illegal for agencies to say they are representing Medicare and require disclosures saying they are not Medicare. However studies have found these deceptive sales practices still exist. See Biniek et al. (2023) for details.

Medical debt is one of the leading causes of bankruptcy in the US and despite near universal Medicare coverage, nearly one in four seniors report having medical debt (Gaffney et al., 2024; Jacobson and Blumenthal, 2022; Biniek et al., 2024). Furthermore, surveys suggest that roughly one in three seniors avoid medical care due to the cost (Gunja et al., 2024). This is compounded by the fact that Medicare plan choice is very difficult to reverse. While the Annual Enrollment window allows you to switch between different Medicare Advantage (MA) plans, it is very hard to switch from MA to Medigap since insurance companies are allowed to conduct medical underwriting and may deny your coverage outside of special enrollment periods. Similarly, in the majority of states, once you choose your Medigap plan you cannot switch your plan *without undergoing medical underwriting*. The permanent nature of your initial Medicare plan choice only raises the stakes of an already highly complex, stressful decision.

This paper also contributes to the nascent literature evaluating the quality of insurance broker advice. One of the few articles that looks at the quality of broker recommendations in the Medicare market is Gruber et al. (2020), which finds that brokers provide inconsistent plan recommendations and that an AI-based tool improves recommendation quality. Similarly, Anagol et al. (2017) studies the recommendations given by life insurance brokers in India and finds that insurance brokers exacerbate existing client biases. This paper builds on these studies by precisely measuring broker quality in price terms. To our knowledge, our study is the first to use an audit study to measure the quality of intermediary advice in the Medicare market, a market composed of vulnerable individuals for whom health concerns are extremely important and stressful. We also build on these papers by identifying characteristics of better and worse brokers in a newly constructed broker database. Additionally, we evaluate whether broker quality changes in response to consumer characteristics and an explicit competition signal.

Our study also contributes to the research on discrimination by quantifying its precise monetary impact on a highly vulnerable population. Few papers are able to quantify discrimination in precise monetary terms.[6] Additionally, since insurance brokers usually directly enroll beneficiaries into the plan the broker chooses, there is a clear link between recommendations in our audit and insurance outcomes. In fact, many Medigap plans *require* beneficiaries to enroll through an broker, even if the beneficiary has selected the plan themselves. Evaluating the optimality of insurance recommendations often requires detailed information about current insurance utilization, assumptions about risk preferences, and assumptions about future health risks and utilization. By carefully assigning consumer characteristics and focusing on the Medigap market, we are able to circumvent these assumptions by measuring recommendation quality and potential exploitation as the price markup (i.e. as the price difference between the recommended plan and the cheapest identical plan).

[6]Exceptions include Ayres and Siegelman (1995), which looks initial offers in car sales, and Besbris et al. (2015) and Doleac and Stein (2013), which study price differences in iPhone sales.

This paper also contributes to the literature on advice. In the context of investment decisions, it is well-documented that financial advisors who face misaligned incentives often push clients towards financial products that earn them higher fees (Andries et al., 2024; Egan, 2019) and exacerbate existing investment biases (Gennaioli et al., 2015; Hoechle et al., 2018; Chalmers and Reuter, 2020; Bergstresser et al., 2009).[7] Most similar to our study is Mullainathan et al. (2011), which uses an audit study to show that financial advisors exacerbate the investment biases of potential clients and often push them towards actively managed funds with higher fees. While we also consider the role of monetary incentives on broker advice, our paper focuses on identifying broker-level heterogeneity in advice quality. Our results suggest that, while some brokers do provide low-quality recommendations, some brokers provide high-quality recommendations, despite the monetary loss and additional effort required on their part to implement this recommendation. Given the significant heterogeneity in broker quality, our results also suggest that the match between broker quality and consumer sophistication warrants greater attention.

This paper is also one of the few studies to experimentally test how increasing competitive pressures affect market functioning. In theory, greater competition and consumer protection should be complementary: in well-functioning markets where consumers fully understand products, increased competition should improve efficiency, expand choice, and increase welfare. Policymakers might even view policies which encourage competition as a substitute for consumer education. However, our findings suggest that when consumers cannot adequately understand and evaluate products and intermediary incentives, increased competitive pressures may fail to improve welfare and may even reduce welfare in the presence of known consumer biases.

The paper proceeds as follows. Section 2 provides a brief overview of the Medicare market for context. Section 3 provides an overview of the audit study, including an explanation of the main scenarios of interest, sampling methodology and other protocol details. Section 4 presents our main findings from the audit study. Section 5 provides a theoretical framework for the results of the competition treatment. Finally, we conclude in Section 6 and provide a short discussion of the policy implications of our findings.

2 Background on the Medicare Market

In this section we provide institutional context on the Medicare market. An overview of the Medicare Choice Landscape is shown in Figure 1. When seniors turn 65, they become eligible to sign up for Medicare during a 7-month Initial Enrollment Window.[8] During this 7-month window, seniors can choose any Medicare insurance plan they want *without* medical underwriting.[9]

[7] See Beshears et al. (2018) for a broader discussion.

[8] This window starts 3 months before you turn 65 and ends 3 months after the month you turn 65.

[9] Seniors who are still working and have insurance through an employer get a similar Special Enrollment Period when they retire.

Beneficiaries first decide whether to purchase a Medicare Advantage (MA) plan from a private insurance company or to enroll in Original Medicare under the federal government.

This decision has complex trade-offs: MA plans are almost always less expensive than Original Medicare and has a maximum out of pocket limits (MOOP) set annually by the federal government, however MA plans have more limited coverage. MA plans typically restrict the network of providers that seniors are able to access and require a referral before seeing a specialist. Additionally, since MA plans are not standardized, coverage varies by plan name, geography, and provider and all care requiring prior authorizations is approved by the private insurance company. The bespoke nature of MA plans makes it difficult to even understand which medical expenses will be covered and even more difficult to obtain authorization. This often leads to mistaken claim denials and lower quality care, which studies have suggested leads to worse health outcomes (Biniek et al., 2024; Gaffney et al., 2024). About 33 million ppl or 50% of Medicare Beneficiaries have Medicare Advantage (MA) and about 50% of Medicare Beneficiaries have Original Medicare. Individuals with Medicare Advantage tend to be lower income, and are disproportionately minorities.

Original Medicare is often more expensive for the consumer, but provides more flexibility and coverage. Original Medicare has no network or geographic restrictions and does not require a referral before seeing a specialist. This makes it a preferred option for individuals who travel frequently within the US and who do not want to be limited to in-network doctors. Since Original Medicare has a 20% coinsurance payment with no MOOP and does not include prescription drug coverage, many who enroll in Original Medicare also enroll in a Medicare Part D prescription drug plan and/or a Medicare Supplement (or Medigap) plan to fill the "gap" in Original Medicare's coverage.[10] Unlike Medicare Advantage, Original Medicare and Medigap claims are approved by the federal government (CMS) and not a private insurance company. Furthermore, since Medigap plans are standardized under federal regulations, the approval process is fairly automatic and Medigap policyholders rarely talk to their insurance company.

About 14 million people today have a Medigap plan. Given their less restrictive coverage and higher quality of care, these plans are a popular choice for experts in the health insurance field (Ochieng et al., 2023). In fact, several brokers stated during the phone calls and in interviews with the authors that "anyone who can afford to should have Original Medicare plus Medigap."

2.1 Broker Use in the Medicare Market

Surveys suggest that over half of Medicare beneficiaries use brokers to enroll in a plan, however there exists shockingly little administrative data on broker utilization.[11] One of the few sources of

[10]Specifically, a Medigap plan might cover the 20% coinsurance and any copays or deductibles.

[11]We reached out to CMS and multiple spoke to the Department of Insurance at several states. We also explored whether we could obtain data on Medigap enrollment figures through states with all-payer claims databases including California, Maine, and Maryland. Many of these states do not require companies to report this data. These data

Figure 1: Medicare Choice Landscape

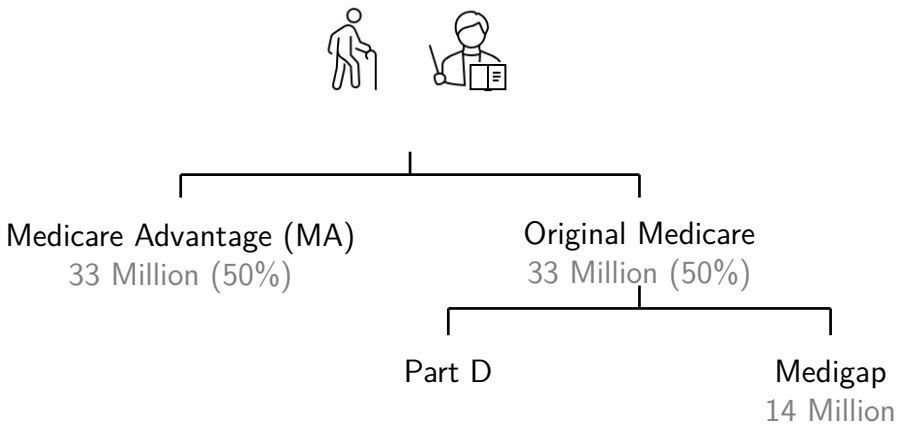
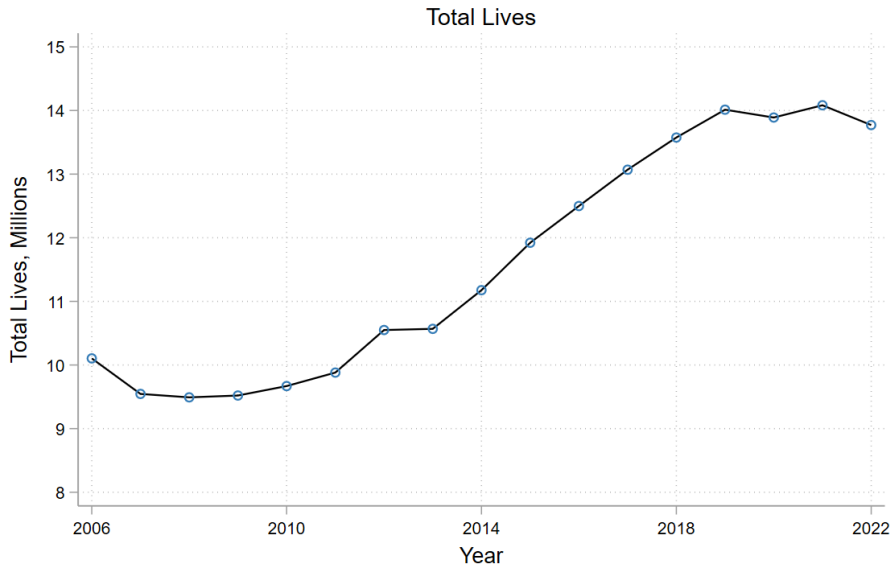


Figure 2: Medicare Supplement Beneficiaries Using Medicare Brokers, Over Time



Notes: Figure 2 shows the number of seniors who are enrolled in Medigap plans which allow or require broker use over time as of December 2024. Number of lives are calculated using data in the annual Medicare Supplement exhibit which insurance companies are required to report to the National Association of Insurance Commissioners.

data on brokers is annual data all insurance companies are required to self-report to the National Association of Insurance Commissioners (NAIC). The measure of broker usage is a plan-level indicator for whether this plan allows broker usage for enrollment. While this indicator is not verified and may be noisy since it is reported at the plan level, the data suggests that broker use has increased over time (Figure 2). This trend is expected to accelerate under the current administration, which has expressed support for expanding Medicare Advantage which is primarily sold through brokers.[12]

To gain a better understanding of broker use in the Medicare market, we also conduct a survey of seniors who are currently enrolled in Medicare through the Understanding America Study (UAS). Our population includes seniors who are 65 years of age or older and individuals with disabilities who have Medicare. We re-weight our responses so they better reflect the US population.[13]

As shown in Table 1, we find that 66.24% of seniors spoke to only 1 broker before enrolling in a plan and 7.28% "do not know" if they spoke with an broker. Note that this is striking given the low search cost of finding a brokers; brokers can easily be reached found by calling a call center at any hour of the day or by scheduling an appointment online and most appointments take less than 30 minutes.

Table 1: Number of Medicare Brokers Consulted Prior to Enrolling

Number of Brokers	Percent (%)
1	66.24
2	18.47
3	5.84
4	1.21
5 or more	0.97
Don't know	7.28
Total	100.00

Notes: Table 1 shows the results from a survey of Medicare Beneficiaries we conducted through the Understanding America Study (UAS). The table reports the number of Medicare Brokers seniors reported talking to before enrolling in a Medicare plan with responses reweighted to reflect the national population. The results show that the large majority of Medicare beneficiaries only talk to one broker before enrolling in a plan. Note that we believe this may be an underestimate since many seniors do not realize they are talking to Medicare brokers.

The survey also shows that 51.86% of beneficiaries find their broker existing networks (through word of mouth or prior relationships) and 48.14% of beneficiaries find their brokers through new

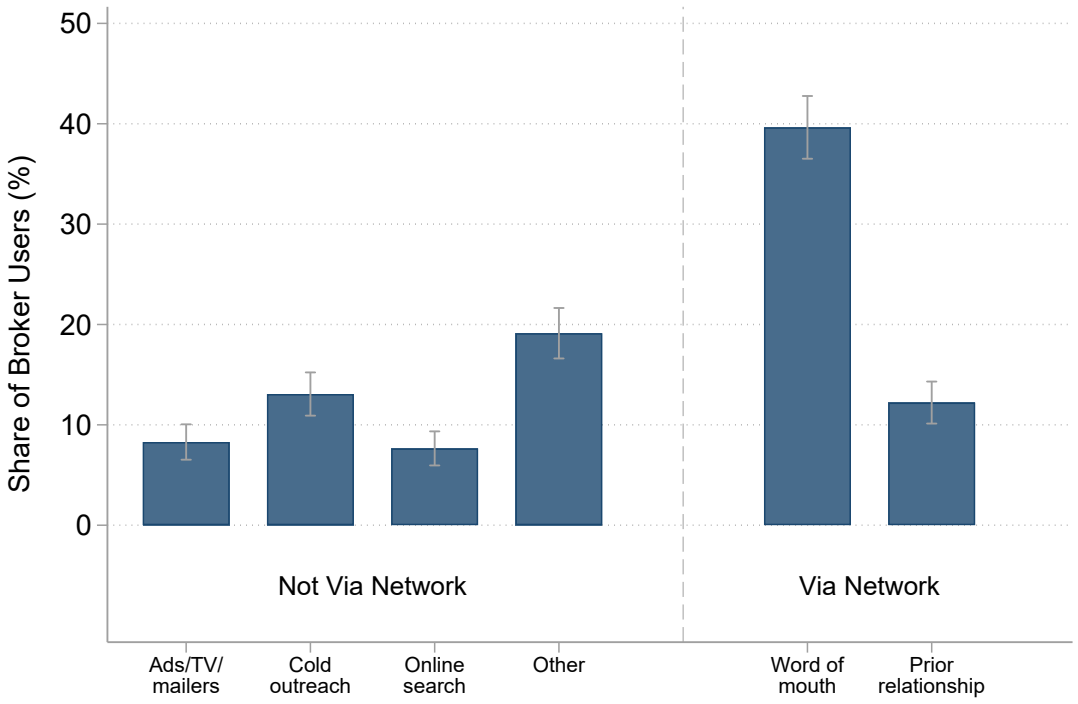
shortcomings were also discussed extensively at a Medicare Payment Advisory Commission meeting on March 6, 2025.

[12]https://www.npr.org/sections/shots-health-news/2024/11/07/nx-s1-5183092/trump-election-2024-medicare-advantage

[13]This helps adjust for a slight oversampling of respondents from California, where the University that conducts the UAS study is based.

networks (advertisements/TV/mailers, cold outreach (the broker reached out to the senior directly), online search, or "other" methods). We take this as evidence that our sampling method of finding brokers through non-network means is not unusual. Figure 3 shows the distribution channel that seniors used to find their Medicare broker.

Figure 3: Broker Channel (Broker Users Only)



Notes: Figure 3 shows the reweighted share of Medicare beneficiaries who found their broker through each distribution channel. Distribution channel options included advertisements/TV/mailers, cold outreach (the broker reached out to the senior directly), online search, word of mouth, prior relationship, or other. Error bars show the 95% confidence intervals. Note that this may underestimate brokers found through channels such as ads/TV since many seniors who speak to brokers through these channels believe they are speaking to Medicare representatives and do not realize they are speaking to brokers.

Finally, our UAS survey results highlight why Medicare survey evidence should be treated with caution, since seniors are often confused and unsure what plan they actually have. In fact, in our UAS survey results we estimate that at least 30% of Medicare beneficiaries incorrectly report which Medicare plan they have.[14] Our audit study methodology addresses these limitations by directly asking brokers to recommend plans in a specially designed "textbook" scenario rather than using self-reported data from seniors.

[14]This includes beneficiaries who report having Medigap plans with premiums that are $0 a month (which is impossible), beneficiaries who report having Medicare Advantage plans that are over $200/month (which is impossible), beneficiaries who report Medigap plan letters that do not exist, and beneficiaries who answer "do not know" to questions asking which Medicare plan they have.

2.2 Broker Incentives in the Medicare Market

Medicare insurance brokers are appointed to sell for either one or multiple insurance companies and are *directly compensated* by the insurance company for every beneficiary they enroll in a plan.[15] Broker commissions vary depending on the Medicare product. Commission structures are set by the insurance company, but are subject to state and federal limits enacted by the Federal Centers for Medicare and Medicaid Services (CMS). When a senior enrolls in a MA plan, their broker makes about $750 at the time of enrollment, and a smaller percentage of this commission in future years.[16] When a senior enrolls in a Medicare Part D plan, the broker makes approximately $150 year. Finally, when a senior enrolls in a Medigap plan, the broker makes approximately 10-30% of the premium the senior pays.[17] Note that both Part D and Medigap commissions are paid out in 12 monthly installments while the MA commission is paid out as a lump-sum. Some firms also pay their brokers a flat hourly rate in addition to percentage-based enrollment bonuses, but the vast majority of brokers are paid a percent-based commission.

According to a study by the Medicare Payment Advisory Commission (MedPAC) and the authors calculations, at these commissions, a purely profit-maximizing broker would steer seniors towards a MA plan rather than an Original Medicare plus Medigap plan. We corroborate this in interviews with several insurance brokers, who confirm they feel that they make more money when they enroll seniors in a MA plan.

Conditional on a senior wanting a Medigap plan, a profit-maximizing broker would have an incentive to steer a senior towards a more expensive Medigap plan.[18] This creates incentives for brokers to enroll beneficiaries in more expensive plans and could contribute to the choice of dominated options within a plan letter. On the other hand, brokers may have incentives to provide the best recommendations for their clients due to reputation concerns, altruism, or potential referrals from happy customers. Interestingly, surveys suggest significant heterogeneity in which consumers use Medicare broker. For example, the use of brokers is more prevalent among high-income individuals and less prevalent among racial minorities (see Leonard et al., 2022; Freed et al., 2023). This suggests consumers who use brokers may be sophisticated, which may limit the scope for

[15] At a March 2025 MedPAC meeting it is noted that consumers do not always realize the insurance broker is working for the insurance company and not Medicare or the government. It is also not obvious to some consumers that insurance brokers only represent the limited number of insurance companies that they are appointed with.

[16] Specifically, the national initial enrollment rate (and therefore the rate for Texas in 2025 was $626. The 2025 rate for California was $780. These rates increased to $694 and $864 for Texas and California, respectively. These maximum amounts are set by the Federal Centers for Medicare and Medicaid Services (CMS) every year, and since most major Medicare Advantage carriers pay the maximum commission amount each year there are no differential incentives across plans. We also confirmed the commission amounts paid for the zip codes used in the audit study using the CMS MAPD Broker Compensation Data.

[17] In practice, this is often less since broker compensation structures are similar to multi-level marketing schemes and depend on the level they are at within their Field Marketing Organization (FMO) and the number of people above them in the organization.

[18] CMS corroborated this analysis with evidence from interviews with numerous insurance brokers. We have independently confirmed this in several interviews with insurance brokers as well.

Figure 4: Example Medicare Supplement Commission Structure

TX	Plan**	Age**	Policy Years 1 - 7	Policy Years 8 - 10	Policy Years 11+
	Plan A	<65 Disability***	$0	$0	$0
	All Plans EXCEPT High G & N	65 - 79	24%	8%	3.5%
		80+	12%	4%	0%
			Policy Years 1 - 7	Policy Years 8 - 10	Policy Years 11+
	PLAN High G & N	65 - 79	28%	9%	3.5%
		80+	14%	4.5%	1%

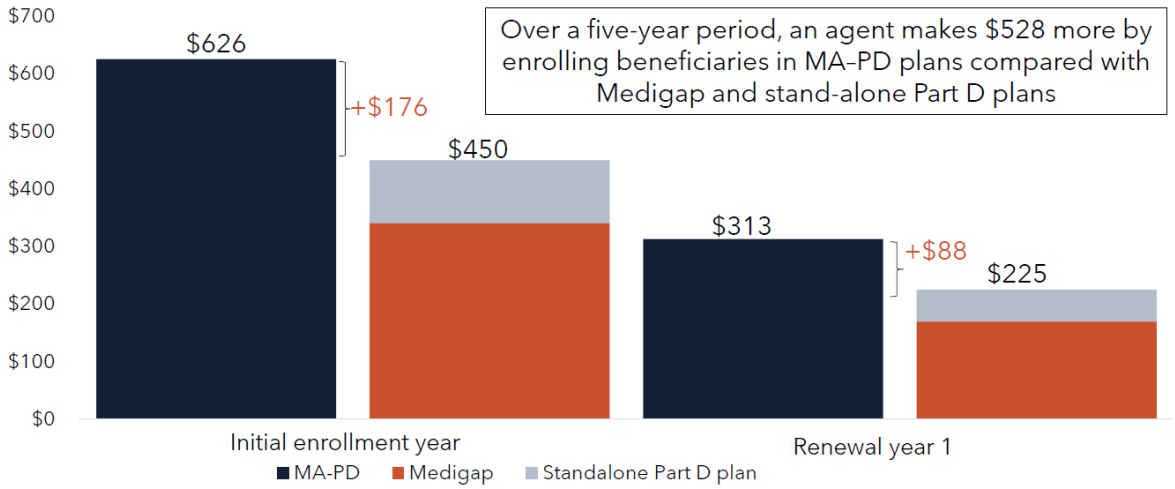
***Compensation for Under age 65 Disability & GI (Guaranteed Issue) business will be paid at a one-time flat rate of $25.

CS 014-08 TX

Notes: Figure 4 shows the commission structure for a large Medicare Supplement company. Like most companies, the exact commission amount depends on the annual insurance premium the Medicare beneficiary pays. Brokers are paid a higher percentage (20-30%) for the first 1-7, then a lower percentage in later years.

broker deception. Conversely, these facts also suggest that individuals who are more likely to need broker expertise may not be seeking their advice. Due to these competing mechanisms, whether insurance brokers reduce or increase frictions in the Medigap market remains an open empirical question.

Figure 5: Medicare Advantage (MA) versus Medigap Commissions – Arlington, VA



Note: MA-PD (Medicare Advantage Prescription Drug [plan]). In contract year 2025, CMS established maximum agent compensation for initial enrollment in an MA plan is $626 and a PDP plan is $109. The maximum renewal enrollment compensation for MA is $313 and $55 for PDP. This example uses the median annual premium for a Plan G Medigap plan ($1,704) based on Plan finder results for a 65-year-old female with no tobacco use and no household discount in ZIP code 22206 (Arlington, VA). We assume that agent compensation for Medigap is 20% of the annual premium for initial enrollment, and 10% of the annual premium for renewal enrollment. This illustrative example does not include administrative and bonus payments that insurers may pay agents.
Source: MedPAC analysis of CMS compensation amounts and Medicare.gov Plan Finder tool.

3 Experimental Design

To evaluate Medicare broker quality given the data limitations, we conduct a large-scale audit study to measure the quality of advice provided by Medicare insurance brokers. We randomly assign secret shoppers who are real senior citizens (individuals over 65 years in age) to request Medicare plan recommendation from randomly assigned insurance brokers. In this section we describe the audit study protocol, sampling strategy, standardized consumer characteristics, and main treatment arms.

3.1 Audit Protocol

Shopper Sampling We hire and train seniors from two "secret shopping" or "mystery shopping" firm with a large pool of shoppers who are senior citizens.[19] Secret shoppers are all seniors, the majority of whom are over 65 years old and Medicare-eligible. We use two firms since different firms had different limitations in contacting the brokers of interest.[20]

All seniors are randomly assigned to brokers at the individual level. The study is double-blind; callers are not told the purpose of the study. Before they are assigned insurance brokers to contact, seniors must first pass an assessment demonstrating familiarity with the call script and a basic understanding of Medicare. This ensures that the content of the calls will remain consistent, aside from the characteristics we intentionally vary. It also helps to ensure the seniors will be able to

[19] A secret shopping or mystery shopping firm is a company that hires people to pose as regular customers in order to evaluate a businesses' service quality or compliance with company policies or regulations.

[20] Specifically, one firm was able to anonymize shopper phone numbers, making them better suited to contacting call center brokers while the other firm was able to pre-schedule phone calls, making them better suited to contact brokers from a large database.

understand and accurately document broker recommendations.

The call scripts are based on several real conversations between Medicare insurance brokers and Medicare beneficiaries. Shoppers are then asked to complete a survey asking questions about the phone call within three business days after the phone call, although most shoppers complete the survey within 24 hours. The survey instrument that shoppers complete after the phone call closely mirror the script to minimize potential confusion. Both the call scripts and survey instruments were piloted with several callers of different ages and backgrounds before implementation.

While potential discrimination is not our primary treatment of interest, we also utilize the natural variation in shopper characteristics to test whether there are differences in recommendation quality. We collect information on the senior's real age, gender, race, and eduction level. We also use this characteristics in our baseline controls. Due to the individual-level random assignment of both brokers and seniors, any differences in recommendation quality can be interpreted causally.

Broker Sampling To ensure we have a broad, representative sample of Medicare brokers, we sample from two sources commonly used by seniors to find Medicare brokers: (1) two major Medicare call centers and (2) the nation's largest directory of Medicare insurance brokers. We believe these two sources well represent the experience of the average beneficiary. We stratify the sampling to ensure a mix of brokers from both sources in both the treatment and control groups, however we note that due to unforeseen changes in broker commissions, we were forced to halt data collection for the call center brokers prematurely, resulting in a smaller call center treatment group.[21]

Combined, the two call centers we sample from enrolled over 1 million seniors in Medicare plans in 2024.[22] Each call center employs over 1,000 brokers and has extensive television, mail, and internet advertising campaigns targeting seniors. The two call centers were also named in a 2025 Department of Justice lawsuit under the False Claims Act, making the brokers in this sample especially policy-relevant.[23]

The second source use to sample brokers is a large Medicare insurance broker directory which is a top online result when searching for Medicare brokers. The directory includes over 18,000 Medicare brokers as of June 2025.[24] We sampled brokers licensed in both California and Texas, the two states we assign our shoppers residency in.[25]

[21]We discuss alternative sampling strategies that were considered in Appendix .

[22]These figures are taken from the public financial records of the companies.

[23]https://www.justice.gov/opa/pr/united-states-files-false-claims-act-complaint-against-three-national-health-insurance.

[24]Source: The website of the Medicare broker directory, accessed June 2025.

[25]Since the majority of brokers are licensed in more than 1 state, we are not concerned that this sampling procedure leads to to a selected sample of brokers. 33-37% of California brokers in the large broker repository are

To understand which broker characteristics are correlated with broker quality, we match the broker to a newly constructed broker licensure database. We construct this database by combining the publicly available insurance licensure databases from 48 states. This database allows us to collect broker characteristics including broker tenure (i.e., how long the broker has had their health insurance license), firm of employment (including call-center versus non-call center status), and number of companies the broker is licensed to sell.[26]

Table 2 highlights the summary statistics for the seniors and brokers in our audit study. Table 3 highlights the differences in broker characteristics by sampling source.

Table 2: Broker and Senior Characteristics

	Obs.	Mean	SD	Q1	Q3
Broker Characteristics					
Call Center	637	0.40	0.49	0.00	1.00
Broker - Female	637	0.43	0.50	0.00	1.00
# Ins Comps Appt (Group)	624	8.42	4.30	5.00	12.00
Broker Tenure (yrs)	632	9.45	8.13	3.78	13.41
High Tenure (4+)	637	0.70	0.46	0.00	1.00
Consumer Characteristics					
Caller - Female	637	0.83	0.38	1.00	1.00
Caller - Real Age	637	71.18	6.28	67.00	74.00
Caller Race - White	637	0.81	0.39	1.00	1.00
College Degree	637	0.59	0.49	0.00	1.00

Zip Code Selection We focus our scenario on two states with large senior populations, California and Texas. We intentionally choose two states with different regulations regarding when seniors can change their Medigap plans: California has a "Birthday Rule", an increasingly common legislation that allows individuals who have a Medigap plan to change plans every year around their birthday, while Texas does not have a Birthday Rule.[27] In theory, the addition flexibility of having a Birthday Rule should make it easier to ensure the senior always has the cheapest plan – if the plan increases in price, which plans can do once a year, a broker should recommend the senior switches to a cheaper plan. In practice, however, the two states look very similar, suggesting that

also licensed in Texas, and 18-19% of Texas brokers in the large broker repository are also licensed in California, depending on the exact date the broker data was pulled.

[26]In several states insurance brokers must be appointed with a company before they can sell that company's insurance plan. Both California and Texas, the two states we target for our study, require appointments before an insurance broker can sell an insurance company's plan. These appointments go through the State Department of Insurance offices, which allows us to track current appointments. Both CA and TX also allow just-in-time appointments, meaning an broker can quickly get appointed before they sell a plan.

[27]Birthday Rules are increasingly common. As of December 2025, 10 states have birthday rules and more are planning to adopt them.

Table 3: Call Center v Non-Call Center Brokers

Broker Characteristics	All Mean (SE)	Call Center Mean (SE)	Not Call Center Mean (SE)	Difference Δ	Reg P-value (cntrl)
# States Registered In	22.33	30.53	16.83	13.70	0.00
	(0.54)	(0.77)	(0.59)		
# Insurance Comps Appointed To (Group)	8.42	12.79	5.36	7.43	0.00
	(0.17)	(0.07)	(0.15)		
# Lines of Authority	1.99	1.81	2.11	-0.30	0.00
	(0.02)	(0.03)	(0.02)		
Broker Tenure (yrs)	9.45	5.84	11.84	-6.00	0.00
	(0.32)	(0.36)	(0.44)		
High Tenure	69.86%	51.36%	82.37%	-31.01	0.00
	(1.82)	(3.12)	(1.96)		
% Broker Female	43.49%	43.19%	43.68%	-0.49	0.86
	(1.97)	(3.10)	(2.55)		
% Pay Bonus (Self-Reported)	52.90%	23.35%	72.89%	-49.55	0.00
	(1.98)	(2.64)	(2.28)		
% Pay Fixed (Self-Reported)	14.91%	31.13%	3.95%	27.18	0.00
	(1.41)	(2.89)	(1.00)		
N (Medigap Recs)	1,057	375	682		
N (Calls)	637	257	380		

plan recommendations do not change with switching legislation. We pool the results, but include state fixed effects as a control.

We also select zip codes in California and Texas that 1) are not in heavily urban areas; 2) have a reasonable amount of price dispersion (e.g. do not only offer one Medigap plan in each zip code); 3) that have demographics that do not deviate significantly from national averages (e.g. they have median household income, wealth, and education levels that are not too different from the national average). Focusing on less urban areas further reduces the case for having MA since MA plans are restricted by provider networks which are less common in more urban areas. This also means the zip codes we choose have fewer MA plans than densely populated urban area. For example, while there are only 7 Medicare Advantage plans in the zip code we choose in Shasta county during our study there are 73 MA plans in Los Angeles county.[28]

3.2 Call Overview

Each broker is asked to make two decisions, which correspond to our two outcomes of interest. The first decision asks brokers to choose between Medicare Advantage (MA) and Original Medicare plus a Medicare Supplement (Medigap) plan. The second decision asks brokers to recommend a Medigap plan for the provided zip code. We describe how these decisions correspond to our main outcomes in Section 3.3.

The calls proceed as follows. First, the senior explains that have just become Medicare

[28]We also choose zip codes that have both PPO and HMO plans and plans, however towards the end of the study two major insurance companies unexpectedly pulled out of the market in our CA zip code, leaving only 1 HMO MA plan. Since the majority of the data was collected prior to this date this does not significantly change our results.

eligible and are interested in discussing both Medicare Advantage (MA) and Medigap plans. We intentionally ask seniors to outline the two recommendation requests so the broker knows they will be expected to discuss all Medicare plan types. This reduces the possibility that brokers interpret the discussion of a different plan as a rejection of their plan recommendation. Seniors then describe their assigned characteristics and coverage preferences and ask the broker to provide a plan recommendation. Whether or not the broker recommends MA at this juncture is our first outcome of interest.[29]

We then instruct seniors to direct the conversation to the second recommendation request and ask about Medigap plans. Seniors are explicitly instructed *not* to explicitly accept or reject the recommendation before requesting a Medigap plan recommendation. Seniors solicit recommendations for the two most popular Medigap plans, Plan N and Plan G. Since the scenario provided has seniors traveling back and forth between two different states for approximately half of the year, seniors then ask about Medigap plan costs in each one of the two states in case they decide to later change their permanent residence. This design gives us up to four plan recommendations per call for brokers who are licensed in both states.

The shopper collects the insurance company name and monthly insurance premium quote provided by the broker. Using the company name, we match each plan to the Medigap search tool on Medicare.gov to determine the true premium available to the senior for the recommended plan without household or other discounts. As specified in the pre-analysis plan, we use the publicly available Medicare.gov premium to avoid comparisons where brokers improperly apply household discounts or short-term promotional pricing when quoting the premium. We compare this premium to the lowest premium available to the senior for a plan with identical coverage. This is Outcome 2, our second main outcome of interest.

To ensure that we use consistent and accurate pricing, we match the Medigap plan recommended by the broker to the price of the plan on Medicare.gov. We use a combination of the insurance company name and the premium to match.[30] If an broker only provides the Medigap premium without providing the company name, we identify the company based on the premium using the data on all available plans from the government search tool. If one broker recommends multiple different Medigap plan types, we collect these and treat them as separate recommendations since each recommendation requires brokers to conduct a different plan search. We also code

[29]As specified in the pre-analysis plan, responses where seniors select "Other" and describe the recommendation as ambiguous or explain that the broker said it was the senior's decision are coded as not recommending MA to be conservative. After reviewing the data, we found this to be appropriate since all responses where the seniors select "Other" correspond to cases where the broker initially talked about MA, but ultimately recommended Original Medicare plus Medigap.

[30]This allows us to correctly account for insurance companies who have multiple plans – for example both of these Plan G plans were offered in the Texas zip code: AARP - UnitedHealthcare Insurance Company of America (Standard) Plan G and AARP - UnitedHealthcare Insurance Company of America (Standard) Plan G.

non-standard Medigap plans as missing.[31]

One potential confound is that the Medigap plan recommendation comes *after* the initial Medicare Advantage versus Original Medicare. To mitigate this concern, we instruct all seniors to remain intentionally vague about their decision. Specifically, seniors are instructed to not say yes or no to a recommendation. Instead, they thank the broker, say they will think about it more, and move on to the next question. We also have seniors outline the topics of discussion at the beginning of the call so redirecting the conversation to Medicare Supplement is not seen as a rejection of the broker's recommendation. This may signal senior sophistication and a strong understanding the Medicare market, which may bias the broker recommendations towards better recommendations. For this and other reasons which we discuss further below, we believe our figures may represent an *underestimate* of low-quality recommendations.

3.3 Measuring Broker Quality

To best measure broker quality, we focus our audit study on a scenario where broker incentives and consumer preferences are misaligned. Our main scenario assigns seniors characteristics that are a good fit for Original Medicare in a setting where brokers are paid more for enrolling seniors in Medicare Advantage (MA). This scenario creates a conflict of interest between brokers and consumers, and is the exact scenario policymakers at the CMS and DOJ have raised concerns about.[32]

The broker recommendations in the two decisions described above correspond to our two main outcomes of interest. Outcome 1, Rec MA, is an indicator for whether the broker recommends Medicare Advantage (MA) over Original Medicare plus Medigap. To ensure Original Medicare plus Medigap is the best fit plan, we provide the callers with all the characteristics that Medicare.gov states would make someone a strong fit for Original Medicare.[33] These circumstances include travel for months at a time and a preference to be able to receive care in multiple states, not wanting to seek prior authorization for medical procedures, wanting to see specialists without a referral, and not wanting dental/vision/hearing coverage. It is also relevant to note that several surveys have found that brokers themselves prefer Original Medicare and Medigap plans for themselves and their family members.[34] However, as described above, brokers earn about $750 per MA enrollment

[31]Non-standard plans are only recommended 1.26% of the time.

[32]https://www.cms.gov/files/document/agent-broker-marketing-faqs-10-19-2022.pdf
https://www.cms.gov/newsroom/fact-sheets/cy-2023-medicare-advantage-and-part-d-final-rule-cms-4192-f
https://www.justice.gov/opa/pr/united-states-files-false-claims-act-complaint-against-three-national-health-insurance

[33]We verify these characteristics in interviews with multiple insurance brokers, the Medicare.gov government search tool, and publicly available Medicare plan choice tools such as the Fidelity Medicare plan choice tool and an AI-backed tool called Healthpilot.

[34]https://www.commonwealthfund.org/publications/2023/feb/challenges-choosing-medicare-coverage-views-insurance-brokers-agents

versus approximately $450 per Medigap enrollment (depending on the exact Medigap plan).

The second main outcome, Outcome 2, is the Medigap Markup on the recommended Plan N or Plan G. Focusing on the Medigap market, where plans are identical due to standardization and insurance companies act as a secondary payer since claims are approved by CMS, allows us to measure broker quality in precise monetary terms; as the amount the broker over-charges that senior for the plan.[35] Specifically, we measure the Medigap Markup compare the price of the plan recommended by the insurance broker to the cheapest plan available to the consumer from the publicly available Medicare plan search tool. This outcome also has an inherent conflict of interest since the majority of insurance brokers are paid a percent of the Medicare beneficiary's annual premium for enrolling beneficiaries in a Medigap plan.

For ease of comparison, we also construct an index combining Outcomes 1 and 2, which we refer to as the Low-Quality Recommendation Index. This index is an indicator which equals 1 if the broker either recommends MA or if the broker only recommends Medigap plans with a Medigap Markup of at least $240 per year.[36]

We also convert the Medigap Markup to percentage terms. This is one of our secondary measures of broker quality. We refer to this measure as the Medigap (%) Markup. Finally, to evaluate the extent to which broker recommendation quality is driven by licensing constraints, such as requirements that brokers must be licensed (or appointed) with insurance companies they sell, we create an additional outcome which we refer to as the "Medigap Broker Markup". The Medigap Broker Markup compares the price of the recommended Medigap plan to the lowest premium plan with identical coverage available to the senior *that the broker is currently licensed to sell*.[37] This outcome is coded as missing if the broker does not provide a specific Medigap plan during the call, if the broker can not be identified, and if broker appointment data is not available.[38] Our measures of broker recommendation quality are summarized in Table 4 below.

[35]Plans in the Medigap market were standardized as part of the Omnibus Budget Reconciliation Act (OBRA) of 1990. Furthermore, since the insurance company offering the Medigap plan is a secondary payer, medical claims are automatically processed and approved by the Centers for Medicare and Medicaid Services (CMS). This means that beneficiaries rarely interact with the private insurance companies offering the identical Medigap plans and there are no differences in claims denial and customer service.

[36]We choose a markup of $240 per year or $20 per month as a threshold we felt was a large enough to be economically important.

[37]This data is collected from the publicly available state department of insurance licensure databases. The two states we select, California and Texas, require the insurance broker to be appointed with the insurance company to sell that company's plan. These appointments are reported to the state Department of Insurance office. Depending on the match quality, we may match the insurance companies at the parent or subsidiary level.

[38]For example, the California Department of Insurance tracking of the appointments data does not seem as robust as Texas and often active Medicare brokers are missing appointments. Furthermore, brokers can become appointed with companies *after* they decide to make a sale, making this a more limited and secondary measure.

Table 4: Summary of Measures of Broker Quality

Variable	Description	Definition
Panel A: Primary Outcomes		
Low-Quality Rec Index	Indicator = 1 if broker recommends MA *or* only recommends Medigap plans with a markup $\geq$ \$240	$\mathbb{1}\{\text{Rec MA} \quad \vee$ Markup $\geq \$240\}$
Rec MA	Indicator = 1 if broker recommends Medicare Advantage (MA) over Original Medicare	$\mathbb{1}\{\text{Rec MA}\}$
Medigap Markup	Premium difference between broker recommended plan and the low-cost identical plan	$P_{\text{rec}} - P_{\text{min}}$
Panel B: Additional Measures of Quality		
Medigap (%) Markup	Percentage overcharge relative to the low-cost identical plan available to the consumer	$\frac{P_{\text{rec}} - P_{\text{min}}}{P_{\text{min}}}$
Broker Markup	Premium difference between recommended plan and cheapest plan from insurance company the broker is *licensed* to sell	$P_{\text{rec}} - P_{\text{min licensed}}$

Notes: This table defines the primary and secondary outcomes of interest. "Cheapest available" refers to the lowest-cost Plan G identical plan in the consumer's zip code, whereas "cheapest licensed" restricts the choice set to plans the broker is actively appointed to sell according to state licensure databases.

3.4 Treatment Arms

Arm 1 - Natural Experiment Changing Incentives To test whether broker recommendations are driven by incentives, we take advantage of a natural experiment where two large Medicare Advantage carriers stop paying commissions for enrollment into MA plans. As described above, we intentionally choose rural areas for the audit study to emphasize the limitations of having network restrictions since there are fewer large provider networks in rural areas. As a result, there are few MA plans in the zip codes we choose. In particular, when we first start the audit study, the California zip code we choose has only seven Medicare Advantage plans: four plans issued by a California-focused insurance company Called Imperial Health, two plans issued by Aetna, and one plan issued by Anthem Blue Cross Life and Health Insurance Company.

In May 2025, Anthem publicly announced that they would stop paying broker commissions on new enrollments to select Medicare Advantage plans in several states, including one of the California plans in our audit study region.[39] In recent years, this has become a common practice among insurance companies who mis-price their Medicare Advantage plans and would like to reduce enrollments until they are able to exit the market. (Due to strict regulations, providers can only pull their Medicare Advantage plans from the market at certain dates.) As a result, the Anthem Medicare Advantage plan was still available on Medicare.gov and consumers could still enroll in

[39]Anthem announced that they would stop paying broker commissions for several California plans, including their Anthem Medicare Advantage (PPO) plan in Shasta County, the geographic region we choose for our audit study.

the plan, but brokers would no longer be paid the $750 commission for the enrollment.

Similarly, in August 2025, Aetna also announced that they would no longer be paying broker commissions on new enrollments for 90 specific Medicare Advantage plans in 33 states, including the two plans in our California county of interest. Again, the plans were still available on Medicare.gov and seniors were still able to enroll in the plans, but brokers would no longer be paid commissions. Aetna planned to stop paying broker commissions for any enrollments after September 1, 2025. As a result, after September 1 2025, Medicare brokers would only receive commissions for enrolling seniors in the Imperial Health Medicare Advantage plans.

Since Imperial Health is not a major national insurance carrier, Imperial does not work with the national call centers we targeted in our study.[40] This created a natural experiment where call center brokers no longer received commissions for enrolling seniors in MA plans, despite the fact that the exact same Anthem and Aetna plans, as well as the Imperial MA plans, were still available on Medicare.gov. Both major call centers removed the non-commission MA plans from the internal search tool after September 1, making the change especially salient to call center brokers. We use this natural experiment to test whether removing an incentive to recommend MA reduces MA recommendations for call center brokers.

Holding constant the assigned consumer characteristics, we collect data under the "No Commission" natural experiment from September 2025 to February 2026. Note that Medicare.gov updated their list of plans on October 1, 2025, showing that the Anthem and Aetna plans would close and no longer accept new enrollments beginning January 1, 2026. The plans remained on the Medicare.gov website through December 31, 2025 and continued to accept new enrollments through that date, meaning it was still possible for call center brokers to enroll consumers in those plans through the end of the year. Additionally, MA plans were still available to consumers after January 1 since two of the four Imperial Health Medicare Advantage plans remained available for the entire duration of the audit study.

While we can infer that removing commissions for the Anthem and Aetna MA plans removes potential MA commissions for call center brokers, who are limited to selling insurance companies their firm is licensed with, we cannot make the same assumption for non-call center brokers. Unlike call center brokers, non-call center brokers are able to independently register with smaller insurance company such as Imperial if they so choose. Since Imperial continued to pay commissions for MA enrollments throughout the time period, we cannot identify the impact of removing MA commissions on the non-call center broker population. Instead, the natural experiment allows us to measure how recommendations change when all major national carriers leaving the MA market. We use October 1, 2026, the date Anthem and Aetna revealed they would pull their MA plans in

[40]We confirm this by checking the California Health Insurance License database, which requires companies and individuals to become appointed or licensed with any insurance carriers they sell. Neither of the two major call centers we sample from are licensed to sell Imperial insurance products.

2026, as the event date.

While the natural experiment is valuable since it allows us to observe broker behavior under different incentives and conditions, one unintended consequence is that this change prevented us from finishing data collection for the treatment arm for call centers. As a result, our treatment and control groups are not balanced on call center status.

Arm 2 - Increasing Perceived Competition To test whether broker advice is strategic, our main source of exogenous variation increases "perceived competition". We refer to this throughout the paper as the "Competition Treatment". The treatment is implemented as follows: at the beginning of the call, secret shoppers in the treatment group are instructed to convey that they will talk to multiple brokers before enrolling in a plan. Common ways the shoppers conveyed the treatment was by saying the following:

"I want to get a few quotes from different brokers before making a decision"

"I want to shop around before I choose a plan"

"I want to get a few recommendations from other brokers before I choose a plan"

Shoppers in the control group are instructed to say that they want to get a recommendation from the broker to better understand their options, or to say nothing at all. The competition treatment is applied at the beginning of the phone call to make the signal especially salient. Randomization was stratified by state and firm type (call center) to ensure balance, but is randomly assigned at the individual level for both insurance brokers and shoppers.

The treatment and control conditions are implemented in waves (at different points in time) to minimize shopper confusion and mistakes. While we originally assigned both treatment and control condition calls simultaneously, we quickly noticed problems with treatment compliance due to our senior shoppers having difficulty remembering the correct treatment condition. To ensure our results are not driven by caller experience or time trends, we add specifications which flexibly control for caller experience and time in Section 4.5.

Tables 14 and 15 show the balance of broker and caller characteristics between treatment and control by competition assignment and competition treatment, respectively. Note that the natural experiment prevented us from completing data collection for the treatment arm for call centers. As a result, we are not balanced across treatment arms on call center status and are underpowered to test for differential impacts of the competition treatment by call center status.

One concern with the competition treatment may be external validity. To test this, we include a question in our UAS survey asking whether seniors talk to multiple brokers before enrolling in a Medicare plan. The results from the survey are summarized in Table 1. While the majority

of seniors speak with only 1 broker before enrolling in a Medicare plan, our UAS survey results suggest that speaking with multiple brokers before enrolling is not unusual.

While the competition treatment does not directly increase broker supply or manipulate market factors, the treatment increases the *perceived* competitive pressures faced by the broker and signals consumer elasticity in a highly competitive market. Finding a Medicare broker is fairly low-cost; searching for a broker online yields hundreds of results and multiple 1-800 numbers that beneficiaries can call almost any time to talk to a licensed broker. Additionally, competitive pressures in this market are already heavy. In interviews with brokers multiple brokers complained about competitors stealing their clients and many Medicare beneficiaries have brokers that cold-call them to solicit their business. Our treatment simply tries to makes the low cost cost of searching for additional information salient.

Importantly, the competition treatment provides suggestive evidence as to whether low-quality, high-commission advice represents strategic broker behavior or broker confusion. An additional benefit of the competition treatment is that, if effective, it creates an easy policy recommendation for improving broker advice. For example, when shopping for a mortgage, consumers are frequently advised to "shop around" and bring multiple quotes to a broker to see if the broker will give them a better deal. Our intention with the competition treatment was to mirror this advice and to test a potentially low-cost solution to improve broker advice.

4 Audit Study Results

4.1 Baseline Quality of Broker Advice

Our audit study generates over 600 distinct phone calls calls conducted by 109 secret shoppers. We first document the baseline quality of advice provided by Medicare insurance brokers. Given the finding that many seniors call multiple brokers in our UAS survey, we pool the results in our control group (no shopping) and treatment group (shopping), which we believe best reflects the average recommendation quality seniors receive.

Recall that for the senior characteristics we assigned, (frequent travel, aversion to network restrictions and prior authorization, no income constraints), the welfare-maximizing choice is Original Medicare plus Medigap in Outcome 1 and the lowest-cost Medigap Plan N and G available in the senior's zip code for Outcome 2. Table 5 presents the summary statistics for our broker recommendation outcomes of interest.

The results reveal significant deviations from the welfare-maximizing benchmark. We find that 64.84% (SE 1.89) of brokers recommended a high-commission, low-fit plan. For Outcome 1, whether the broker recommends Medicare Advantage (MA) or Original Medicare plus Medigap,

Table 5: Baseline Broker Recommendations

Outcome Variable	**Mean**	**SE**	**Obs**
Panel A: Primary Outcomes			
% Low-Quality Rec Index	64.84%	1.89	637
% Recommend MA	28.57%	1.79	637
Medigap Markup ($ Yearly)	$ 376.38	8.64	1,057
Panel B: Secondary Outcomes			
Medigap Pct Markup (% Yearly)	28.77%	0.71	1,057
Medigap Broker Markup ($ Yearly)	$ 176.89	9.18	961
Avg Medigap Premium ($ Yearly)	$ 1,763	11.78	1,057

Notes: Table 5 shows the baseline broker recommendations in our main scenario, where the consumer is a better fit for Original Medicare plus Medigap. % Recommend MA is the percent of brokers who recommend Medicare Advantage over Original Medicare plus Medigap. The Low-Quality Recommendation Index measure combines our two main outcomes of interest, 1) whether the broker recommends MA, or 2) whether the broker only recommends Medigap plans with a markup of at least $240/year. The Medigap Markup is defined as the difference between the recommended plan premium and the lowest-cost Medigap premium available to the consumer in the zip code. The Medigap Pct Markup calculates the Medigap Markup relative to the annual premium of the cheapest identical plan. Finally, the Medigap Broker Markup measures the difference between the recommended plan and the lowest-cost identical plan the broker is licensed to sell.

we see that 28.57% (SE 1.79) of brokers steered the consumer towards a MA plan. While MA plans often have lower premiums, they impose network restrictions, require prior authorization, and are not recommended for seniors who travel often, violating the consumer's stated preferences assigned in the script. Focusing on Outcome 2, the Medigap Markup, we find that on average, brokers recommend a plan that is $376.38 per year (SE 8.64) more expensive per year than the optimal available option, representing a 28.77% markup versus the lowest-cost identical plan. Once again, this excess premium is a pure wealth transfer from the consumer to the broker (and insurance company) since brokers are often paid a percent-based commission and Medigap plans provide identical coverage.

4.2 Who Predicts Quality – Seniors versus Brokers

We then analyze whether senior or broker characteristics are more predictive of recommendation quality. Doing so allows us to better pinpoint the nature of the market failure. While we do not explicitly vary consumer characteristics to test for discrimination, seniors are randomly assigned to call the insurance brokers, allowing us to take a causal interpretation if recommendation quality is correlated certain senior characteristics. Isolating these drivers is also important for designing effective policy interventions. If certain consumer characteristics are more correlated with low-quality recommendations, this may be suggestive of discrimination and policy solutions should focus on targeted consumer protections and enhanced monitoring of predatory targeting. However,

if broker characteristics are more predictive of quality, regulatory efforts should target the supply side solutions such as enforcing strict fiduciary duties, banning differential commission structures, and increasing training or licensing requirements.

Table 6 shows the regression of senior and broker characteristics on our measures of quality. Senior (caller) characteristics are highlighted in the blue box. Broker characteristics are in the red box. Note that while the senior characteristics are rarely, if ever, statistically significant, the majority of the broker characteristics are correlated with recommendation quality.

Table 6: Predictors of Recommendation Quality

	(1) Rec Dominated (%)	(2) Rec MA (%)	(3) Medigap Markup	(4) Medigap Broker Markup	(5) Medigap % Markup
Caller - Female	4.74	-4.61	15.81	27.07	3.74
	(5.45)	(4.40)	(29.23)	(29.97)	(2.45)
Caller - Real Age	8.27	1.73	32.88	22.24	2.09
	(6.19)	(5.99)	(36.08)	(39.30)	(2.65)
Caller - Real Age^2	-0.06	-0.01	-0.24	-0.17	-0.02
	(0.04)	(0.04)	(0.27)	(0.29)	(0.02)
Caller Race - White	2.59	-6.38	33.48	31.17	2.33
	(4.07)	(5.43)	(22.53)	(26.41)	(1.75)
Caller - College Degree	-1.28	9.12*	-32.02	-24.87	-3.46*
	(3.26)	(5.41)	(22.79)	(23.05)	(1.79)
Caller Experience (# Calls)	0.04	-0.12	0.71	0.84	0.03
	(0.06)	(0.08)	(0.52)	(0.61)	(0.04)
Call Center	11.79**	26.42***	53.62**	106.33***	4.06**
	(5.55)	(5.18)	(23.60)	(24.85)	(1.98)
Broker - Female	-3.66	2.95	-36.49**	-33.45	-3.23**
	(3.75)	(3.71)	(17.50)	(23.50)	(1.35)
High # Ins Comps	-14.02***	-9.54**	-61.92***	79.07***	-4.85**
	(4.51)	(3.91)	(20.86)	(23.03)	(1.95)
High Tenure (4+ yrs)	-8.06*	-10.08**	-78.75***	-40.17*	-6.63***
	(4.15)	(4.32)	(19.41)	(23.27)	(1.55)
State/AEP FE	Yes	Yes	Yes	Yes	Yes
Observations	637	637	1,057	961	1,057
R^2	0.07	0.16	0.15	0.15	0.23

Notes: Table 6 shows the full table of recommendation quality by broker and senior covariates. Standard errors in parentheses and are clustered at the caller level. $^*p < 0.10, ^{**}p < 0.05, ^{***}p < 0.01$. Regressions include broker and senior controls and state, AEP, and call center FEs.

Having established that broker characteristics are more predictive of recommendation quality, we use our health insurance broker characteristics database to identify which broker characteristics are predictive or better or worse advice. We find that call center brokers tend to give lower-quality advice than non-call center brokers, suggesting the firm of employment is important. Brokers with higher tenure also tend to offer better advice, suggesting that poor training or lack of knowledge may be partially driving low-quality recommendations. Tables 7 and 8 highlight these two sources of broker heterogeneity.

Table 7: Main Recommendations by Call Center Status

Recommendation	All Mean (SE)	Call Center Mean (SE)	Not Call Center Mean (SE)	Difference Δ	Reg P-value (Full Cntrls)
Outcome 1: Recommend Medicare Advantage (MA)					
% Recommend MA	28.57%	40.47%	20.53%	19.94	0.00
	(1.79)	(3.07)	(2.07)		
Outcome 2: Medigap Markup					
Medigap Pct Markup (% Yearly)	28.77	29.62	28.30	1.33	0.04
	(0.71)	(1.29)	(0.84)		
Medigap Markup ($ Yearly)	$376.38	$388.96	$369.47	19.49	0.03
	(8.64)	(16.58)	(9.81)		
Medigap Broker Markup ($ Yearly)	$176.89	$284.13	$108.27	175.86	0.00
	(9.18)	(15.08)	(10.63)		
N (Medigap Recs)	1,057	375	682		
N (Calls/Original vs. MA Recs)	637	257	380		

Notes: Table 7 splits broker recommendations by call center status in our main scenario, where the consumer is a better fit for Original Medicare plus Medigap. Each column reports the mean recommendation for Call Center and Not Call Center brokers, respectively. The regression p-value includes our full set of baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We use the linear specification for caller experience. We also include state fixed effects to control for the consumer's assigned primary state of residence and plan fixed effect for the Medigap outcomes (Medigap Markup, Medigap Broker Markup, and Medigap % Markup) to control for the Medigap plan letter (N or G) of the recommendation. Finally, we include a set of controls to account for seasonal or date differences such as AEP, the removal of MA commissions, and the removal of the major carrier MA plans. Standard errors are clustered at the caller level.

Table 8: Main Recommendations by Broker Tenure

Recommendation	All Mean (SE)	High Tenure Mean (SE)	Low Tenure Mean (SE)	Difference Δ	Reg P-value (Full Cntrls)
Outcome 1: Recommend Medicare Advantage (MA)					
% Recommend MA	28.57%	22.47%	42.71%	-20.24	0.02
	(1.79)	(1.98)	(3.58)		
Outcome 2: Medigap Markup					
Medigap Pct Markup (% Yearly)	28.77	27.51	32.95	-5.44	0.00
	(0.71)	(0.78)	(1.57)		
Medigap Markup ($ Yearly)	$376.38	$361.65	$425.46	-63.81	0.00
	(8.64)	(9.49)	(19.72)		
Medigap Broker Markup ($ Yearly)	$176.89	$160.42	$229.84	-69.42	0.09
	(9.18)	(10.11)	(20.64)		
N (Medigap Recs)	1,057	813	244		
N (Calls/Original vs. MA Recs)	637	445	192		

Notes: Table 7 splits broker recommendations by the median broker tenure in our main scenario, where the consumer is a better fit for Original Medicare plus Medigap. Each column reports the mean recommendation for High Tenure and Low Tenure brokers, respectively. The regression p-value includes our full set of baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We use the linear specification for caller experience. We also include state fixed effects to control for the consumer's assigned primary state of residence and plan fixed effect for the Medigap outcomes (Medigap Markup, Medigap Broker Markup, and Medigap % Markup) to control for the Medigap plan letter (N or G) of the recommendation. Finally, we include a set of controls to account for seasonal or date differences such as AEP, the removal of MA commissions, and the removal of the major carrier MA plans. Standard errors are clustered at the caller level.

4.3 The Role of Incentives: Evidence from a Natural Experiment

To evaluate the extent to which low-quality advice is influenced by financial incentives, we exploit a natural experiment where all two national Medicare Advantage carriers stop paying broker commissions to reduce enrollment in mis-priced plans.

Given the differences in timing of when the commission change became salient for call center and non-call center brokers, we specify one post period for call center brokers and one post period for non-call center brokers. We estimate the following specification:

$$\begin{aligned} Y_{is} = \alpha + \beta_1(\text{Competition Treatment}_{is}) + \beta_2 \mathbb{1}(\text{MA Incentives Removed}_{is}) \\ + \beta_3 \mathbb{1}(\text{MA Plans Removed}_{is}) + \gamma' \mathbf{X}_{is} + \epsilon_{is} \end{aligned} \tag{1}$$

where $\mathbb{1}(\text{MA Incentives Removed}_{is})$ is an indicator which equals one after the MA commissions were removed on September 1 (for call center brokers) and $\mathbb{1}(\text{MA Plans Removed}_{is})$ is an indicator which equals one after the national carrier MA plans were removed from Medicare.gov on October 1 (for non-call center brokers). Y_{is} is the recommendation (MA or Original Medicare) and $\mathbf{X}_{is}$ is a vector of caller, broker, and seasonal and date controls. Table 9 summarizes the results.

The coefficient of the "MA Incentive Removed x Call Center" variable is the cleanest measure of the impact of incentives on recommendations. Recall that Medicare Advantage plans are still available for seniors to enroll in on Medicare.gov during this time, and that for most of the period the data was collected the exact same Aetna and Anthem Medicare Advantage plans that broker previously recommended were still available to seniors.

Table 9 shows that removing incentives to sell MA leads to a statistically significant 20.79 percentage point decrease in MA recommendations. Note that this change is almost mechanical; since call centers removed the no-commission MA plans from their internal search tool as soon as the carriers stopped paying commissions, brokers searching for MA plans using the internal tool would not see any plans and would have to look up plans on Medicare.gov to identify available MA plans. However some brokers still recommend MA plans to seniors, despite not getting paid commission for enrolling seniors in the plan and despite the poor fit. We attribute the remaining MA recommendations to a combination of poor training and noise.

While we are unable to observe a natural experiment where commissions for MA plans are completely removed for non-call center brokers, we are able to observe the impact of reducing the choice set of MA plans (and in particular, the impact of all major national insurance carriers leaving the MA market). The coefficient on "MA Major Carriers Exit x Non-Call Center" shows the impact of this policy change. Similar to the call center brokers, we see a 13.65 percentage point decrease in MA recommendations after the two national carriers, which brokers are more likely to be appointed with, stop paying commissions and signal that they plan to leave the market.

Table 9: Natural Experiment Reducing Incentives to Recommend MA

	(1) Rec MA (%)
Competition Assignment	11.29**
	(4.92)
Call Center	26.42***
	(5.18)
MA Incentive Removed x Call Center	-20.79***
	(5.82)
MA Major Carriers Exit x Non-Call Center	-13.65**
	(6.33)
Control Mean	20.22
Broker/Senior/Call Center Controls	Yes/Yes
State/AEP FE	Yes
Observations	637
R^2	0.16

Notes: Table 9 reports the coefficients for the natural experiment reducing incentives to recommend MA on the MA recommendation rate. The coefficient on "MA Incentive Removed x Call Center" shows the impact of removing incentives to recommend MA on the MA recommendation rate for call center brokers. The coefficient on "MA Major Carriers Exit x Non-Call Center" shows the impact of the major (national) insurance carriers exiting the MA market on the MA recommendation rate for non-call center brokers. All regressions include our baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We also include state fixed effects to control for the consumer's assigned primary state of residence. Standard errors are clustered at the caller level. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

One important takeaway from the natural experiment is that removing commissions does not completely eliminate the MA recommendations. In fact, a small percentage of brokers still recommend that seniors enroll in MA plans once the financial incentive is removed. This suggests that MA recommendations are partially driven by broker incentives, but also partially driven by broker confusion, mistakes, lack of training, or a genuine belief that MA makes the most sense for seniors in this scenario. The call transcripts confirm that many of these MA recommendations are driven by brokers who are only trained to recommend MA and do not know how to talk about Original Medicare and Medigap. This is in line with interviews with brokers and accusations in the Department of Justice False Claims Act Filing which allege that some brokers are only trained to recommend MA. (*United States ex rel. Shea v. eHealth, et al.,* No. 21-cv-11777)

4.4 The Causal Impact of Perceived Competition

To further test whether broker advice is strategic, we experimentally assign consumers to explicitly signal that they will "shop around" and talk to multiple brokers at the beginning of the call. The goal of the treatment is to test whether broker advice is elastic to perceived competitive pressures. This provides suggestive evidence that advice is driven by broker incentives as opposed to lack of training or broker confusion.

Our main regression specification is:

$$Y_{is} = \alpha + \beta_1 \mathbb{1}(\text{Competition Treatment}_{is}) + \beta_2 \text{Call Center}_{is} + \gamma' \mathbf{X}_{is} + \epsilon_{is} \tag{2}$$

where Y_{is} is the recommendation outcome provided by broker i to senior s. Competition Treatment$_{is}$ is an indicator variable for whether the senior s was assigned the competition line for the call with broker i. Call Center$_{is}$ is an indicator variable for broker firm (that is, whether broker i is reached through a call center phone number). Finally, $\mathbf{X}_{is}$ is a vector of controls for broker characteristics, senior characteristics, and date-specific effects. Broker characteristics we control for include broker gender, number of appointments, and tenure. Caller characteristics we control for include gender, real age, race, education, and caller experience (number of calls completed). We use the linear specification for caller experience in our primary specification and perform additional robustness checks controlling for caller experience in Section 4.5. We also include state fixed effects to control for the consumer's assigned primary state of residence and plan fixed effect for the Medigap outcomes (Medigap Markup, Medigap Broker Markup, and Medigap % Markup) to control for the Medigap plan letter (N or G) of the recommendation. We also include date controls such as an indicator for the Medicare Annual Enrollment Period (AEP) interacted with call center status, an indicator for the MA commission cuts after September 1 interacted with call center status, and an indicator for the removal of the major carrier plans after October 1, 2025 interacted with non-call center status in our baseline specification. We include an indicator for AEP interacted with call

center status to account for the large change in broker composition at call centers during AEP.[41] All standard errors are clustered at the caller level.

Our main coefficient of interest is β_1, which measures the change in broker recommendation quality in response to the perception of increased competition. Our main specification reports the Intent to Treat (ITT) using Competition Assignment in Table 10. Table 11 compares the results of the Treatment on the Treated (TOT) OLS regression with the IV regression using Competition Assignment to instrument for Competition Treatment. The results are similar in magnitude.

Table 10: Impact of Competition Assignment on Advice Quality

	(1) Rec Dominated (%)	(2) Rec MA (%)	(3) Medigap Markup	(4) Medigap Broker Markup	(5) Medigap % Markup
Competition Assignment	3.33	11.29**	-82.42***	-78.74***	-6.94***
	(4.50)	(4.92)	(19.99)	(18.04)	(1.65)
Lee Bounds			[-116, 0]	[-135, -4]	[-10, 0]
Control Mean	66.67	28.12	405.96	220.60	31.37
Broker/Senior Controls	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
State/AEP FE	Yes	Yes	Yes	Yes	Yes
Observations	637	637	1,057	961	1,057
R^2	0.07	0.16	0.15	0.15	0.23

Notes: Table 10 reports the treatment effect of competition assignment on our main measures of broker recommendation quality. All regressions include our baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We use the linear specification for caller experience. We also include state fixed effects to control for the consumer's assigned primary state of residence and plan fixed effect for the Medigap outcomes (Medigap Markup, Medigap Broker Markup, and Medigap % Markup) to control for the Medigap plan letter (N or G) of the recommendation. Finally, we include a set of controls to account for seasonal or date differences such as AEP, the removal of MA commissions, and the removal of the major carrier MA plans. Standard errors are clustered at the caller level. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

Table 10 reports the ITT analysis, where we regress Competition Assignment on the main outcomes of interest. Column (1) of Table 10 suggests that increasing perceived competition does not in fact improve advice quality. The coefficient is not statistically significant and if anything, it is positive, suggesting competition increases low-quality recommendations. Columns (2) - (5), however, point to a different story. Column (2) shows that the competition treatment *increases* the rate of Medicare Advantage (MA) recommendations, by a statistically significant 11.29 percentage points (SE 4.92), a significant change relative to the control mean. Recall that in the scenario we designed is one where the assigned caller characteristics are a better fit for Original Medicare plus Medigap, according to Medicare.gov, brokers and experts we interviewed, and several online plan

[41]Call centers tend to heavily recruit new, inexperienced brokers and hire brokers on a temporary basis to work at the call center during AEP since this is a high-volume enrollment period. We control for AEP interacted with call center status to control for this large difference in broker composition.

choice tools. However, brokers are paid more for enrolling seniors in Medicare Advantage.

This result may seem counterintuitive; we often expect competition to increase efficiency and improve consumer outcomes and one might expect the threat of external verification to lead brokers to improve their recommendation quality. The MA result seems to imply that competition leads brokers to recommend products that increase their own compensation at the expense of the consumer. However, results from the Medigap outcomes shed light on what may be driving the differences.

Columns (4) to (5) of Table 10 show that across all Medigap the ways to measure the Medigap markup, the competition treatment causes brokers to recommend lower-cost Medigap plans. Since Medigap products are standardized and homogeneous within plan letter, these recommendations save the consumer money and *improve* consumer welfare. On average, the competition treatment results in savings of approximately $82.42 a year. Note that since brokers are paid a percent-based commission, this leads to *lower* pay for the broker, the opposite of what we find in the MA outcome.

Table 11: OLS and IV Comparison

	OLS				Instrumental Variable (IV)			
	(1) Rec MA (%)	(2) Medigap Markup	(3) Medigap Broker Markup	(4) Medigap % Markup	(5) Rec MA (%)	(6) Medigap Markup	(7) Medigap Broker Markup	(8) Medigap % Markup
Panel A: OLS & IV Second Stage								
Competition Treatment	16.01***	-82.20***	-81.39***	-6.66***	15.21**	-96.70***	-92.22***	-8.14***
	(4.68)	(19.06)	(17.77)	(1.56)	(6.94)	(24.69)	(22.43)	(2.07)
Lee Bounds		[-116, 0]	[-135, -4]	[-10, 0]				
Control Mean	28.12	405.96	220.60	31.37				
Broker/Senior Controls	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Observations	637	1,057	961	1,057	637	1,057	961	1,057
R^2	0.17	0.15	0.15	0.23	0.17	0.15	0.15	0.23
Panel B: First Stage								
First Stage Coefficient					0.74***	0.85***	0.85***	0.85***
					(0.06)	(0.04)	(0.04)	(0.04)
First-Stage F-stat					*169.91*	*406.36*	*391.46*	*406.36*

Notes: Table 11 reports the treatment effect of the Competition Treatment (as opposed to Assignment). Columns (1)-(4) report the results from the OLS regression. Columns (2)-(4) report the results from the IV regression using competition assignment to instrument for competition treatment. All regressions include our baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We use the linear specification for caller experience. We also include state fixed effects to control for the consumer's assigned primary state of residence and plan fixed effect for the Medigap outcomes (Medigap Markup, Medigap Broker Markup, and Medigap % Markup) to control for the Medigap plan letter (N or G) of the recommendation. Finally, we include a set of controls to account for seasonal or date differences such as AEP, the removal of MA commissions, and the removal of the major carrier MA plans. Standard errors are clustered at the caller level. $^{*}p < 0.10,^{**} p < 0.05,^{***} p < 0.01$.

The key takeaway from the competition treatment is that in both markets, increasing perceived competitive pressures causes brokers to recommend the lower-cost plan, regardless, and often in

spite of, of consumer fit. In Decision 1, a market where products are heterogeneous, competition may lead to worse outcomes for the consumer since brokers become more likely to recommend a plan that lower in price, but more likely to be a poor fit for the consumer. Conversely, in Decision 2, a market where products are homogeneous due to regulation, the competition treatment causes brokers to recommend lower-cost plans with identical coverage, improving consumer outcomes. Furthermore, the Medigap results suggest that brokers do possess the ability to provide high quality recommendations, but often strategically withhold the information from consumers who are perceived as having high search costs to maximize their own pay.

The results highlight a striking shortcoming of competition in markets with asymmetric information and expertise. In complicated markets where consumers do not understand the products and do not understand intermediary incentives, competition may lead to *worse* consumer outcomes. The theoretical framework in Section 5 uses a simple model to highlight how, under certain circumstances, competition may actually backfire.

4.5 Robustness Check: Controlling for Learning & Time Trends

Given concern around non-compliance when data collection for the treatment and control arms were conducted at the same time, for the majority of the study we collect data in waves. To maximize compliance, we first collect data for the control arm for both California and Texas before collecting data for the treatment arm.[42] In this section, we several additional time and caller experience controls to ensure we are fully isolating the impact of the competition treatment. include additional controls

Table 12 summarizes the following regression specifications. Column (1) and (5) are the same as our baseline specification Equation (2), and include linear controls for caller experience (i.e., the linear trend of the number of calls the shopper has previously completed). Columns (2) and (6) replace the linear trend with indicators for each level of caller experience as in Equation (3)

$$Y_{is} = \alpha + \beta_1(\text{Competition Treatment}_{is}) + \beta_2 \mathbb{1}(\text{Caller Experience}_{is}) + \gamma' \mathbf{X}_{is} + \epsilon_{is} \tag{3}$$

where Y_{is} represents a recommendation outcome from broker i to shopper s and Caller Experience$_{is}$ is the number of calls the senior has completed (i.e. call number minus 1). Columns (3) and (7) keep the control for caller experience fixed effect in Regressions (2) and (6) and add an interaction between Competition Assignment with Linear Experience. This interaction allows us to isolate

[42] We conduct the control arm first given concerns that once shoppers have said the competition treatment, they may be tempted to repeat the competition sentence if they feel it makes them seem more sophisticated.

Table 12: Robustness Check: Controlling for Caller Experience & Time Trends

	Rec MA (%)				Medigap Markup ($)			
	(1) Caller Experience (Linear)	(2) Caller Experience FE	(3) + Linear Experience × Competition	(4) + Linear Time Trend	(5) Caller Experience (Linear)	(6) Caller Experience FE	(7) + Linear Experience × Competition	(8) + Linear Time Trend
Competition Assignment	11.29**	15.31***	19.31***	18.85***	-82.96***	-95.17***	-134.26***	-146.40***
	(4.92)	(5.50)	(6.66)	(6.41)	(19.87)	(25.67)	(35.82)	(38.83)
Call Center	26.42***	24.87***	24.45***	25.00***	49.35**	50.46	58.00	51.87
	(5.18)	(6.47)	(6.36)	(6.72)	(23.30)	(35.85)	(35.98)	(36.13)
Caller Experience	-0.12				0.81*			
	(0.08)				(0.48)			
Linear Experience x Competition			-0.66	-0.66			6.01	7.04
			(0.64)	(0.64)			(4.31)	(4.52)
Linear Time Trend				0.02				0.32
				(0.06)				(0.25)
Control Mean	28.12	31.82	31.82	31.82	405.96	405.71	405.71	405.71
Caller Experience FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Broker/Senior Controls	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Observations	637	532	532	532	1,057	1,045	1,045	1,045
R^2	0.16	0.16	0.16	0.16	0.15	0.25	0.25	0.26

Notes: Table 12 supplements our main specification by adding additional controls to account for caller experience and time trends. Column (1) and (5) are the same as our baseline specification Equation (2) and control linearly for caller experience. Columns (2) and (6) replace the linear trend with indicators for each level of caller experience. Columns (3) and (7) keep the control for caller experience fixed effect in Regressions (2) and (6) and add an interaction between Competition Assignment with Linear Experience. Finally, Columns (4) and (8) add both the interaction between competition assignment and linear experience and a linear time trend for the date of the call. All regressions include our baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We also include state fixed effects to control for the consumer's assigned primary state of residence. Standard errors are clustered at the caller level. $^{*}p < 0.10,^{**}p < 0.05,^{***}p < 0.01$.

the impact of competition assignment from shopper learning over time.

$$Y_{is} = \alpha + \beta_1(\text{Competition Treatment}_{is}) + \beta_2 \mathbb{1}(\text{Caller Experience}_{is}) + \beta_3(\text{Competition Treatment}_{is} \times \text{Caller Experience}_{is}) + \gamma' \mathbf{X}_{is} + \epsilon_{is} \quad (4)$$

Finally, Columns (4) and (8) add both the interaction between competition assignment and linear experience and a linear time trend for the date of the call. All regressions cluster standard errors at the caller level.

$$Y_{is} = \alpha + \beta_1(\text{Competition Treatment}_{is}) + \beta_2 \mathbb{1}(\text{Caller Experience}_{is}) + \beta_3(\text{Competition Treatment}_{is} \times \text{Caller Experience}_{is}) + \beta_4 \text{Date} + \gamma' \mathbf{X}_{is} + \epsilon_{is} \quad (5)$$

By controlling for experience (or number of previous calls completed), we interpret the coefficient on the competition treatment as the impact of competition for the *first phone call* the shopper makes. In all specifications, the competition coefficient remains significant and if anything increases in magnitude and significant as additional controls are added. The results suggest that the competition treatment has a larger impact on the first call seniors make. This makes the impact of the competition treatment especially important given our survey results that suggest many seniors only call one insurance agent.

4.6 Why does low quality advice persist?

In this section we provide suggestive evidence as to why low quality advice may persist in this market. In the presence of consumer feedback and learning, one might expect broker advice to improve over time or with competition. To test whether seniors are able to identify high and low quality advice and learn over time, we ask seniors to rate the insurance brokers on a 1 to 5 scale after each call.

Seniors are asked to provide ratings along three dimensions: 1) whether the senior would recommend the broker to a friend or family member, 2) the broker knowledge, and 3) the broker friendliness. We focus on the overall recommendation rating, which asks[43]:

> *"On a scale from **1 (definitely would not recommend)** to **5 (definitely would recommend)**, how likely are you to recommend this insurance broker to a friend or family member selecting insurance in this state?"*

We then compare the subject consumer ratings to our objective measure of quality.

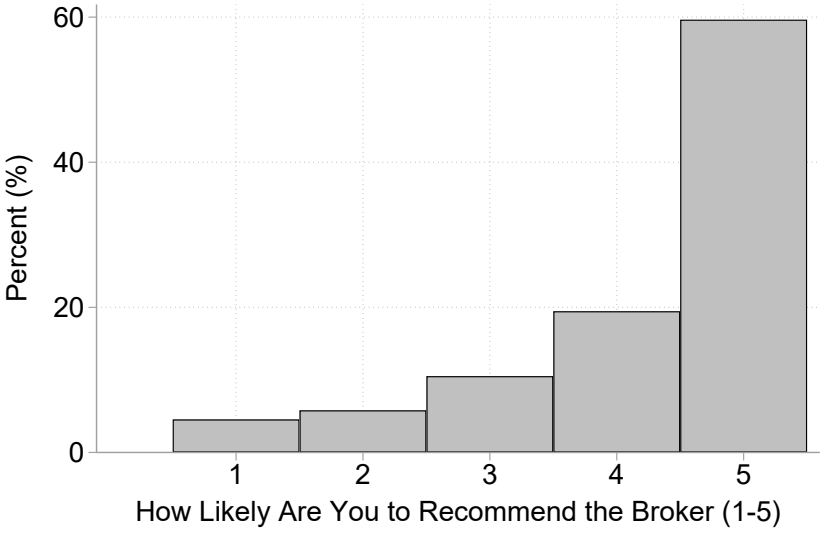
Figure 6 shows the histogram of senior responses to this question the audit study. Recall that the seniors in our audit study conduct multiple broker calls (specifically, an average of 6 calls per shopper) and must pass a multiple choice quiz demonstrating a basic understanding of the Medicare market before making any calls. Thus, we suspect that our auditors may be more sophisticated and posses more Medicare knowledge than the average senior. Despite this potential positive selection, Figure 6 shows that 79.12% of the time seniors give the broker a rating of 4 (likely to recommend) or 5 (definitely would recommend). These results suggest that even among positively selected seniors who are making multiple phone calls, the vast majority of brokers are seen as competent and are highly rated by seniors.

Table 13 highlights the disconnect between our objective measures of broker recommendation quality and the subjective consumer ratings. The table reports the relationship between our main outcomes of interest (MA and Medigap recommendations) and the senior's rating of how likely they are to recommend the Medicare broker after they finish the call. We also show the breakdown of ratings by overall rating, knowledge, and friendliness in Tables 17 and 18 in the Section 6.

Columns (1)-(4) show that all four of our recommendation quality measures are uncorrelated with high ratings, defined as a rating of 4 (Likely to recommend) or 5 (Definitely would recommend). While the objective measures of broker quality are uncorrelated with high broker ratings, we find that two measures which we associate with "building trust": the length of the call and whether the broker discloses that they receive a bonus for enrolling the senior in a plan. Since the

[43]The overall recommendation rating was added to the shopper response form at a later date. For the 20 calls where the response to the overall recommendation rating is missing, we take the average of the broker knowledge and broker friendliness ratings.

Figure 6: Broker Rating Distribution



vast majority of brokers are paid a bonus for enrolling seniors, we suspect callers interpreted this as a signal of broker honesty. Similarly, seniors may interpret the call length as a signal that the broker was willing to take more time and effort to understand the caller's needs, thus call length can also be thought of as a proxy for building trust.

Table 13: Broker Rating by Recommendation Quality and Call Characteristics

	(1) High Rating (4 or 5)	(2) High Rating (4 or 5)	(3) High Rating (4 or 5)	(4) High Rating (4 or 5)	(5) High Rating (4 or 5)	(6) High Rating (4 or 5)
Rec MA (%)	-0.00					
	(0.00)					
Medigap Markup ($)		0.00				
		(0.00)				
Medigap Broker Markup ($)			0.00			
			(0.00)			
Medigap Markup (%)				0.00		
				(0.00)		
Call Length (mins)					0.00***	
					(0.00)	
Paid Bonus - Self-Reported						0.08**
						(0.04)
CC/State/Plan/Comp/AEP	Yes	Yes	Yes	Yes	Yes	Yes
Broker/Senior Controls	Yes	Yes	Yes	Yes	Yes	Yes
Robust SE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	637	1,057	961	1,057	637	637
R^2	0.05	0.07	0.08	0.07	0.05	0.03

Notes: Table 13 shows the relationship between various call characteristics and senior rating. The rating corresponds to the senior's answer to the question "On a scale from 1 (definitely would **not** recommend) to 5 (definitely **would** recommend), how likely are you to recommend this insurance broker to a friend or family member selecting insurance in this state?" A high rating is defined as a rating of a 4 (likely to recommend) or 5 (definitely would recommend). All regressions include our baseline set of broker and caller controls. Broker controls include broker gender, number of appointments, and tenure. Caller controls include gender, real age, race, education, and caller experience (number of calls completed). We also include state fixed effects to control for the consumer's assigned primary state of residence. Standard errors are clustered at the caller level. $^{*}p < 0.10$,$^{**}p < 0.05$,$^{***}p < 0.01$.

5 Theoretical Framework: A Model of Broker Advice

In this section we present a simple model with two consumer types and two broker types to microfound the results of the competition treatment.

5.1 Consumers and Products

Consider a world with two insurance products $J \in \{L, H\}$. Low insurance product (L) offers "less insurance benefits" in that it has no "add-ons", and is offered at a lower price. High insurance product (H) offers more comprehensive coverage (i.e. includes "add-ons") and offers more insurance coverage at a higher price.

Consumer utility is maximized when product matches type: type-L consumers maximize utility when they purchase product L, and type-H consumers maximize utility when they purchase product H. When the product does not match the consumer's type, the consumer suffers a utility loss from the mismatch.

Normalizing the utility from a correct match to zero, the consumer's utility is:

$$U(j \mid \theta) = \begin{cases} 0 & \text{if } j = \theta \quad \text{(correct match)}, \\ -1 & \text{if } j = L,\ \theta = H \quad \text{(under-insurance)}, \\ -x & \text{if } j = H,\ \theta = L \quad \text{(over-insurance)}, \end{cases} \tag{6}$$

where $0 < x < 1$. The mismatch loss from under-insurance (a type-H consumer incorrectly enrolled in the basic product) is 1. The mismatch loss from over-insurance (a type-L consumer incorrectly enrolled in the add-on product) is x. The restriction $x < 1$ implies that under-insurance is costlier than over-insurance: a consumer who genuinely needs comprehensive coverage and lacks it suffers a greater welfare loss than a consumer who pays for unnecessary add-on benefits. This also reflects the context of the real-world setting, where Medicare beneficiaries with Medigap (or H, the insurance product with greater coverage) can switch to Medicare Advantage (MA) (L), but it is difficult (and sometimes impossible) for beneficiaries with MA to switch to Medigap.

Since the consumer's decision is between H and L, what matters is the *incremental* utility from choosing H over L:

$$\Delta U(H \mid \theta) \ \equiv \ U(H \mid \theta) - U(L \mid \theta) \ = \ \begin{cases} 0 - (-1) = +1 & \text{if } \theta = H, \\ (-x) - 0 = -x & \text{if } \theta = L, \end{cases} \tag{7}$$

with $\Delta U(L \mid \theta) = 0$ for all θ by construction. A type-H consumer gains $+1$ from upgrading to the correct product; a type-L consumer loses x from purchasing the wrong product.

The consumer can call each broker at cost $c \geq 0$. The cost c is consumer-specific, is drawn from some distribution $c \sim F(c)$, and applies each time a broker is called. Consumer can call more than one broker.

Assumption 1 (Consumer Confusion)**.** *Consumers do not know their true type θ and cannot learn from experience.*

This is a classic credence good assumption as in Dulleck and Kerschbamer (2006) and Dulleck et al. (2011). We assume that consumers have the following priors over their own types:

$$\Pr(\theta = H) = P, \qquad \Pr(\theta = L) = 1 - P$$

Assumption 2 (Non-Strategic Consumers)**.** *The consumer's shopping signal $s \in \{0, 1\}$ is honest and non-strategic. A consumer who reports $s = 1$ always intends to call at least 2 brokers. Whether the second call is made depends on the posterior beliefs.*

Assumption 3 (Misspecified Prior about Broker Behavior)**.** *Consumers do not understand how brokers are paid and hold a simplified, fixed model of broker reporting behavior. Specifically, consumers believe:*

(i) Strategic brokers always recommend H and report $r = H$, regardless of θ.

(ii) Broker reporting behavior does not depend on the consumer's shopping signal s.

Discussion of Assumption 3. Consumers reason that their higher premiums generate higher broker commissions, so they believe strategic brokers will always steer toward H. In reality, broker commissions may not always be higher for H than for L, but consumers do not observe the commission structure. Consumers also do not understand how their own shopping behavior changes broker incentives: they hold a fixed model of broker behavior that does not condition on s.

Assumption 3 (i) is a simplification to illustrate the logic of the model. In an extension of the model, we generalize to allow consumers to believe strategic brokers report H with probability $\sigma \in (0, 1]$ when $\theta = L$. Here, we set $\sigma = 1$, which corresponds to the strongest form of consumer suspicion, to simplify the model. The qualitative results remain the same for any $\sigma > 0$ under reasonable assumptions.

Assumption 3 (ii) prevents a logical unraveling. If consumers understood that shopping ($s = 1$) induces truth-telling for $\theta = L$, then after signaling $s = 1$ and receiving $r_1 = H$, the consumer would infer $\theta = H$ with certainty. This would drive the value of a second call to zero and cause no consumer to ever signal $s = 1$. Part (ii) rules this out by assuming that consumers do not realize the equilibrium implications of their signal. This is a form of a cursed equilibrium as in Eyster and Rabin (2005).

Assumption 4 (Consumer Inertia)**.** *Consumers exhibit forward search inertia: once a consumer moves on to broker n, they never return to call previous brokers.*

Discussion of Assumptions 4 Assumption 4 both simplifies the timing of the game and reflects common consumer behavior in this market where consumers generally purchase a product from the broker with whom they are currently interacting.

Assumption 5 (Behavioral Myopia)**.** *Consumers evaluate each broker call myopically: they compare the per-call cost c to the value of information from a single additional call, without accounting for the option value of subsequent calls.*

Discussion of Assumptions 5. Assumption 5 is thematically consistent with Assumption 3: a consumer who does not understand how their shopping signal affects broker behavior plausibly

also does not solve a dynamic programming problem when deciding whether to make a phone call.

5.2 Insurance Brokers (Intermediaries)

Brokers can be classified into two types, good (honest) or bad (strategic). Brokers observe θ, then report $r \in \{H, L\}$ to the consumer. In our two broker model, we assume that both types of brokers observe θ and choose what to report depending on their individual utility.

Honest brokers always correctly report $r = \theta$. Strategic brokers maximize utility by trading-off between maximizing their pay and dis-utility from consumer product/type mismatch. Strategic brokers have the following utility:

$$U_i(j \mid \theta) \;=\; \begin{cases} W_j - \kappa_i \, \mathbf{1}\{j \neq \theta\}, & \text{if the broker makes the sale,} \\ 0, & \text{if the consumer moves on (no sale),} \end{cases} \tag{8}$$

where $W_j > 0$ is the commission from selling product j, and $\kappa_i \sim U[0, \bar{K}]$ is a heterogeneous guilt parameter, or disutility for selling a poor fit product to the consumer. Commissions $W_H, W_L > 0$ are set exogenously by the insurance companies. For simplicity, we define $\Delta W \equiv W_H - W_L$.

Figure 7 summarizes the timing of the game.

Figure 7: Timing of the Signaling Game

1. Nature chooses the following:
   - Consumer type $\theta \in \{H, L\}$
   - Consumer prior $P = \Pr(\theta = H)$
   - Consumer search cost (cost per broker call) $c \sim F(c)$
   - Broker Type, guilt parameter κ
2. Consumer signal their shopping intent $s \in \{0, 1\}$
   - Consumers signal their shopping *intent* honestly and do not consider the equilibrium implications of their signal.
   - The signal is not binding. Consumers choose whether to make additional calls after they hear a report.
3. Brokers observe θ and the consumer's shopping signal. Brokers do not know which call they are.
4. Broker 1 chooses to report $r_1 \in \{H, L\}$
5. Consumer updates beliefs about the probability they are type H using their subjective model (Assumption 3), then buys L, buys H, or calls broker 2.
6. If the consumer decides to call additional brokers, the consumer calls a second broker and Proceeds to Call 2. Process repeats from Step 3 with broker 2.

5.3 Consumer's Strategy

Lemma 1. *Consumers who signal that they will shop have lower search costs and are less likely to accept a recommendation of H.*

Below we prove Lemma 1 by solving for the consumer's cutoff rule for buying H versus continuing to search by calling brokers at cost c.

Consumer posteriors under Assumption 3. We first establish the consumer posteriors for each broker report. Since consumer believes honest brokers (fraction Q) report truthfully and strategic brokers (fraction $1-Q$) always report H, under the consumer's model, the probability of each broker report $r \in \{L, H\}$ is:

$$\overset{C}{\Pr}(r=H \mid \theta=H) = 1, \tag{9}$$

$$\overset{C}{\Pr}(r=H \mid \theta=L) = 1-Q, \tag{10}$$

$$\overset{C}{\Pr}(r=L \mid \theta=H) = 0, \tag{11}$$

$$\overset{C}{\Pr}(r=L \mid \theta=L) = Q. \tag{12}$$

So $\Pr^C(r=H \mid \theta=L) = 1-Q$ and $\Pr^C(r=L \mid \theta=L) = Q$. Note that these posteriors do not condition on s due to Assumption 3.

Because $\Pr^C(r=L \mid \theta=H) = 0$, any L report fully reveals $\theta = L$:

$$\overset{C}{\Pr}(\theta = H \mid r_n = L) \;=\; 0 \quad \text{for any broker } n. \tag{13}$$

After an H report, Bayes' Rule gives the consumer's posterior:

$$p_1 \;\equiv\; \overset{C}{\Pr}(\theta = H \mid r_1 = H) \;=\; \frac{P}{P+(1-P)(1-Q)} \;=\; \frac{P}{1-(1-P)Q}. \tag{14}$$

Note $p_1 > P$: the H report is partially informative because it is sent by all brokers when $\theta = H$ but only by strategic brokers when $\theta = L$.

More generally, after n consecutive H reports:

$$p_n \;=\; \frac{P}{P+(1-P)(1-Q)^n}. \tag{15}$$

5.3.1 The purchase rule given beliefs

Let subscript n denote beliefs, reports, thresholds, and costs after n number of calls. Let $p_n \in [0,1]$ denote the consumer's posterior belief that $\theta = H$ at the point of purchase after n number of broker calls (that is p_0 is consumer posterior beliefs after 0 calls (or prior beliefs before any calls), p_1 is consumer posterior beliefs after call 1, etc.). We first analyze the consumer's decision to call the first broker for advice.

Without calling a broker, the customer chooses H if her prior P (the prior on the expected incremental payoff from buying H before any calls) is nonnegative. The expected incremental utility from buying H is then:

$$\begin{aligned}\mathbb{E}[\Delta U(H)|P] &= P \cdot \Delta U(H|H) + (1-P) \cdot \Delta U(H|L) \\ &= P - x(1-P)\end{aligned}$$

This implies that without calling a broker the consumer chooses H if $P - x(1-P) \geq 0$. Consumer utility with no call is then:

$$V_0 \;=\; \max\{0,\; P - x(1-P)\}$$

The consumer therefore buys H if and only if $(1+x)P - x \geq 0$, which is equivalent to

$$P \geq T_0 \equiv \frac{x}{1+x}.$$

Note that we can rewrite this to represent the benefit of purchasing H at any posterior belief p. Let $p = \Pr(\theta = H|\text{reporting history})$. Then expected incremental payoff from choosing H is:

$$\begin{aligned}\mathbb{E}[\Delta U(H)|p] &= p \cdot \Delta U(H|H) + (1-p) \cdot \Delta U(H|L) \\ &= (1+x)p - x\end{aligned}$$

So the consumer's best response cutoff rule is to buy H if $(1+x)p - x \geq 0$, or if

$$p \geq T_0 \equiv \frac{x}{1+x}.$$

We define this threshold as T_0. Conversely, the consumer buys L if $p < T_0$.

5.3.2 Posterior beliefs under the maintained off-equilibrium belief

Recall that under Assumption 3 consumers believe strategic brokers always report $r = H$. This means that consumers believe a strategic broker who observes $\theta = L$ would report H, and only an honest broker who observes $\theta = L$ would report $r = L$. Thus, $\Pr(r = L \mid \theta = H) = 0$, since both

the honest and strategic brokers would report H.

Assumption 3 therefore implies that consumers believe that a report $r = L$ can only come from an honest broker who observes that the consumer is type L. Using Bayes' Rule, this implies that a report $r = L$ reveals $\theta = L$ with probability one, or

$$\overset{C}{\Pr}(\theta = H \mid r = L) = 0, \qquad \overset{C}{\Pr}(\theta = L \mid r = L) = 1.$$

Conversely, a report $r = H$ is a noisy signal. Brokers report $r = H$ for two reasons; first, when $\theta = H$ (in which case both honest and strategic brokers report H) and second, when $\theta = L$ (in which case strategic brokers still report H). Thus, a report of H could either come from an honest broker reporting their true type, or a strategic broker who is reporting H to profit maximize.

Rewriting everything to show the impact of broker 1's report, r_1, we can see that the unconditional probability of an L report is $\Pr(r_1 = L) = (1 - P)Q$, and the probability of a report of H equals $\Pr(r_1 = H) = 1 - (1 - P)Q$. Bayes' rule then implies that the consumer's posterior belief after observing broker 1 report $r_1 = H$ is

$$p_1 \equiv \overset{C}{\Pr}(\theta = H \mid r_1 = H) = \frac{\Pr^C(\theta = H)}{\Pr^C(r_1 = H)} = \frac{P}{1 - (1 - P)Q}.$$

5.3.3 When advice is action-relevant

Broker advice is only action-relevant if the report changes the consumer's purchase decision relative to the decision which would have been made without broker advice. From Section 5.3.1, we see that the consumer buys H if posterior $p \geq T_0$ and buys L if posterior $p < T_0$. To generate a new threshold for purchasing H in terms of original prior P, we solve for the conditions when $p_1 \geq T_0$ by substituting $p_1 = P/(1 - (1 - P)Q)$ into $p_1 \geq T_0$. This yields the following inequality

$$\frac{P}{1 - (1 - P)Q} \geq \frac{x}{1 + x}.$$

Rearranging this inequality gives us

$$(1 + x)P \geq x\Big(1 - (1 - P)Q\Big) = x\Big(1 - Q + PQ\Big),$$

which is equivalent to

$$P \geq \frac{x(1 - Q)}{1 + x(1 - Q)} \equiv T_1.$$

The threshold T_1 is therefore the minimal prior under which an H report is sufficient to induce

purchase of H.

Note that two thresholds, T_0 and T_1 are quite similar except for the fact that x is multiplied by a factor of $(1-Q)$, the proportion of strategic brokers.

$$T_0 = \frac{x}{1+x} \quad ; \quad T_1 = \frac{x(1-Q)}{1+x(1-Q)}$$

Since the proportion of honest brokers is greater than 0 ($Q > 0$), $T_1 < T_0$. The interpretation is that the threshold for buying H is *lower* after 1 call versus 0 calls. In other words, the possibility of receiving an informative L report makes the consumer more willing to buy H after a H report. This also implies that each additional H report is diminishing in value.

5.3.4 Myopic Cutoff Costs

The consumer calls the first broker if and only if the value of the call V weakly exceeds the search cost c. For the moment, let us ignore search costs c and focus on the "pre-cost" value of the call n which we define as $V_n(P)$. Let $V_0(P)$ denote the baseline expected payoff when the consumer does not call a broker. Recall that if $P < T_0$, the consumer buys L and obtains $V_0(P) = 0$, and if $P \geq T_0$, the consumer buys H and obtains

$$V_0(P) = P \cdot 1 + (1-P) \cdot (-x) = P - x(1-P).$$

Then the baseline value of making 0 calls is

$$V_0 = \max\left\{0,\ P - x(1-P)\right\}.$$

Let $V_1(P)$ denote the expected payoff from calling one broker before paying the cost c. With probability $(1-P)Q$ the consumer is type $\theta = L$, observes $r_1 = L$, correctly infers $\theta = L$, stops, and buys L, which yields an incremental payoff of 0 (correct match). With probability P the consumer is type $\theta = H$, observes $r_1 = H$ (since all brokers report H when $\theta = H$), and buys H; the incremental payoff relative to buying L is $\Delta U(H \mid H) = +1$. Finally, with probability $(1-P)(1-Q)$ the consumer is type $\theta = L$ but observes $r_1 = H$ from a strategic broker, buys H incorrectly, and incurs the incremental mismatch loss $\Delta U(H \mid L) = -x$. Thus the expected payoff from the first call is:

$$\begin{aligned} V_1(P) &= (1-P)Q \cdot 0 + P \cdot 1 + (1-P)(1-Q) \cdot (-x) \\ &= P - x(1-P)(1-Q). \end{aligned}$$

The consumer then maximizes their payoff by choosing between buying L with a payoff of 0 and buying H with an expected payoff of $P - x(1-P)(1-Q)$. The myopic Value of Information (VOI) from call 1 is then the difference in the expected payoff from call 1 and call 0 (no call).

$$\begin{aligned}\text{VOI}_1 &\equiv V_1(P) - V_0(P) \\ &= \max\{0,\ P - x(1-P)(1-Q)\} - \max\{0,\ P - x(1-P)\}.\end{aligned}$$

The consumer's first call best response is to call broker 1 iff

$$c \leq c_1^* \equiv \text{VOI}_1.$$

We can now analyze the VOI (and the consumer search cost cutoff) in three economically relevant regions. These regions are defined by consumer beliefs and purchase actions after hearing a broker report.

Region 1: $P < T_1$. Since $T_1 < T_0$ in this region, the consumer's prior that they are H is low ($P < T_0$), so they would not buy H without calling a broker. The consumer prior is also below the threshold for buying H after hearing one H report. Since both $V_0 = 0$ and $V_1 = 0$, the consumer will not purchase H even after one H report. Thus, call 1 has zero value, implying that the consumer's search cost for the first call is also 0.

$$\text{VOI}_1 = c_1^* = 0.$$

Region 2: $T_1 \leq P < T_0$. In this region, the consumer would not purchase H without making a call ($V_0 = 0$), but would purchase an add-on after hearing an H report.

$$\text{VOI}_1 = c_1^* = P - x(1-P)(1-Q).$$

Region 3: $P \geq T_0$. In this region the consumer would already purchase H without calling the first broker. Calling broker 1 is only valuable if it helps the consumer learn that they are type L from an honest broker. The value of this call is then defined by the probability the consumer is a low type who gets a report L from an honest broker ($(1-P)Q$) and is saved from the loss x.

$$\text{VOI}_1 = c_1^* = x(1-P)Q.$$

The consumer calls the first broker if and only if $c \leq c_1^*(P)$, where the cutoff cost for call 1

$c_1^*(P)$ is given by:

$$c_1^*(P) = \begin{cases} 0, & \text{if } P < T_1, \\ P - x(1-P)(1-Q), & \text{if } T_1 \leq P < T_0, \\ x(1-P)Q, & \text{if } P \geq T_0. \end{cases}$$

Call 2 After the first call, the consumer must decide whether to pay cost c_2 to make a second call. The report from the first call can either be either $r_1 = L$ or $r_1 = H$. We examine the second call decision for each case.

If the first report is $r_1 = L$, the consumer believes that the L signal they received in the first call must have come from an honest broker observing their type L. The consumer now believes with probability one that her type is $\theta = L$ and chooses to purchase L. A second call would have a cost c_2 and have zero informational value since it would not change the consumer's decision. Therefore the consumer does not make a second call and ends the game. Note that this implies the broker payoff for reporting L is W_L with probability one.

If the first report is $r_1 = H$, the consumer updates their prior $p_0 = P$ to posterior p_1. The second-call decision after $r_1 = H$ then becomes identical to the first-call decision, except the posterior p_1 replaces the prior $p_o = P$. Examining the same three regions, we see that conditional on $r_1 = H$ and consumer priors p_1, the consumer calls a second broker if and only if the expected gain from doing so weakly exceeds c_2. Therefore the consumer calls broker 2 if and only if $c_2 \leq c_2^*(p_1)$, where

$$c_2^*(p_1) = \begin{cases} 0, & \text{if } p_1 < T_1, \\ p_1 - x(1-p_1)(1-Q), & \text{if } T_1 \leq p_1 < T_0, \\ x(1-p_1)Q, & \text{if } p_1 \geq T_0. \end{cases}$$

Since $p_1 = \frac{P}{1-(1-P)Q}$, we can also rewrite the cost cutoffs in terms of the original P. To do so, we introduce a new threshold, T_2, which represents the prior P required such that the second posterior (p_2) crosses T_0.

$$T_2 \equiv \frac{x(1-Q)^2}{1 + x(1-Q)^2}$$

Note that $T_2 < T_1 < T_0$. More generally, define

$$T_n \equiv \frac{x(1-Q)^n}{1 + x(1-Q)^n}, \qquad n = 0, 1, 2, \ldots \tag{16}$$

so that $T_0 = x/(1+x)$, $T_1 = x(1-Q)/(1+x(1-Q))$, and T_2 as above. The threshold T_n is the minimum prior P such that n consecutive H reports are sufficient to push the consumer's posterior above the purchase threshold T_0: one can verify that $p_n \geq T_0 \Leftrightarrow P \geq T_n$. The sequence $T_0 > T_1 > T_2 > \cdots$ is strictly decreasing to zero (for $Q > 0$), reflecting the fact that each additional H report raises the posterior and lowers the prior needed for an action-relevant update.

The cost cutoff regions for call 2 can now be defined in terms of the original prior P:

$$c_2^*(P) = \begin{cases} 0, & \text{if } P < \dfrac{x(1-Q)^2}{1+x(1-Q)^2}, \\ \dfrac{P - x(1-P)(1-Q)^2}{1-(1-P)Q}, & \text{if } \dfrac{x(1-Q)^2}{1+x(1-Q)^2} \leq P < \dfrac{x(1-Q)}{1+x(1-Q)}, \\ \dfrac{xQ(1-Q)(1-P)}{1-(1-P)Q}, & \text{if } P \geq \dfrac{x(1-Q)}{1+x(1-Q)}. \end{cases}$$

5.3.5 The shopping signal and search cost implications

For consumers in Region 3 ($P \geq T_0$), the search cost cutoff for the second call is strictly less than for the first call ($c_2^* < c_1^*$; see Lemma 2). The intuition is that information has diminishing returns: the first signal is the most informative and causes the largest belief update, while the second signal merely refines an existing belief. However, in Region 2 near $P = T_1$, this ranking can reverse ($c_2^* > c_1^*$; see Remark 1), reflecting option value that the myopic consumer ignores.

The consumer signals $s = 1$ iff they plan to call broker 2 after hearing $r_1 = H$. This requires both $c \leq c_1^*$ and $c \leq c_2^*$. Define the shopping threshold:

$$c_S^*(P) \;\equiv\; \min\Big(c_1^*(P),\; c_2^*(P)\Big). \tag{17}$$

A consumer signal to "shop around" and talk to multiple brokers then conveys two important pieces of information. First, it signals to the broker that the consumer has a lower search cost c. Second, it signals that the consumer has higher skepticism about H, and is more likely to call a second broker after hearing a report of H. The broker uses this information in deciding her best response.

We can now complete the proof of Lemma 1.

Proof of Lemma 1. We show two claims: (a) shoppers have strictly lower search costs than non-shopping callers, and (b) shoppers are less likely to accept a recommendation of H from a single broker.

Claim (a). A consumer calls broker 1 iff $c \leq c_1^*(P)$ and signals shopping ($s = 1$) iff $c \leq c_S^*(P) \equiv \min(c_1^*(P),\, c_2^*(P))$. Among consumers who call broker 1, those with $c \leq c_S^*$ signal $s = 1$

and those with $c_S^* < c \leq c_1^*$ signal $s = 0$.

In Region 3 ($P \geq T_0$): $c_2^*(P) < c_1^*(P)$ (shown formally in Lemma 2 below), so $c_S^* = c_2^* < c_1^*$. Shoppers are a strict subset of callers with strictly lower search costs.

In Region 2 ($T_1 \leq P < T_0$ near T_1): $c_1^*(P) \leq c_2^*(P)$, so $c_S^* = c_1^*$ and every caller is a shopper. In this subregion the claim holds trivially: the set of shoppers coincides with the set of callers, and both groups have costs $c \leq c_1^*(P)$.

Since Region 3 constitutes the generic case (the reversal region near T_1 is a boundary phenomenon), shoppers generically have strictly lower search costs than non-shopping callers.

Claim (b). A non-shopping caller ($s = 0$) who hears $r_1 = H$ purchases H immediately (since she does not plan to call a second broker). A shopping caller ($s = 1$) who hears $r_1 = H$ proceeds to call broker 2 before deciding, and purchases H only if $r_2 = H$ as well. Since there is a positive probability that $r_2 = L$ (at minimum from honest brokers), the shopper is strictly less likely to accept H than the non-shopper:

$$\Pr(\text{buy } H \mid s = 1, r_1 = H) = \Pr(r_2 = H) < 1 = \Pr(\text{buy } H \mid s = 0, r_1 = H).$$

□

5.3.6 Diminishing Returns to Information

Lemma 2 (Diminishing Returns in Region 3)**.** *For $P \geq T_0$: $c_2^*(P) < c_1^*(P)$. Moreover, $c_2^*/c_1^* = (1-Q)/[1-(1-P)Q] \in (1-Q,\, 1)$.*

Proof. $c_1^* = x(1-P)Q$ and $c_2^* = xQ(1-Q)(1-P)/[1-(1-P)Q]$. The ratio is $(1-Q)/[1-(1-P)Q]$. Upper bound: $1-(1-P)Q > 1-Q$ (since $PQ > 0$), so ratio < 1. Lower bound: $1-(1-P)Q < 1$, so ratio $> 1-Q$. □

In Region 3, $c_S^* = c_2^* < c_1^*$: shoppers are a strict subset of callers.

Remark 1 (Reversal in Region 2)**.** *At $P = T_1$: $c_1^*(T_1) = 0$ while $c_2^*(T_1) = xQ/(1+x) > 0$. By continuity, there exists $P^* \in (T_1, T_0)$ at which $c_1^* = c_2^*$. For $P \in [T_1, P^*)$, every caller signals $s = 1$. This reversal reflects option value ignored by behavioral myopia (Assumption 5); see Remark 3.*

Lemma 3 (Myopia Is Without Loss in Region 3)**.** *For $P \geq T_0$, the myopic cutoff $c_1^*(P) = x(1-P)Q$ equals the forward-looking cutoff.*

Proof. Let $P \geq T_0$ and consider a consumer with search cost exactly $c = c_1^*(P) = x(1-P)Q$. We show that the forward-looking value of call 1 equals the myopic value, so the two cutoffs coincide.

Step 1: Option value of call 2 is zero at the margin. After $r_1 = H$, the posterior is $p_1 = P/[1-(1-P)Q] > P \geq T_0$. In Region 3, the myopic cutoff for call 2 is $c_2^*(p_1) = x(1-p_1)Q$. Since $p_1 > P$, we have $1 - p_1 < 1 - P$, so

$$c_2^*(p_1) = x(1-p_1)Q < x(1-P)Q = c.$$

At cost c, the consumer strictly prefers not to make call 2. Thus the option value of a second call is zero for the marginal first-call consumer.

Step 2: Induction on all subsequent calls. After n consecutive H reports, the posterior $p_n = P/[P + (1-P)(1-Q)^n]$ is strictly increasing in n (for $Q > 0$), and the myopic cutoff is $c_{n+1}^* = x(1-p_n)Q$, which is strictly decreasing in n. Since $c_2^* < c$ (Step 1) and $c_{n+1}^* < c_n^*$ for all $n \geq 1$ (Lemma 4, proved below in Section 5.3.7), we have $c_{n+1}^* < c$ for all $n \geq 1$. Therefore the option value of every future call is zero at the margin.

Step 3: Equivalence. Since option value is zero at $c = c_1^*(P)$, the forward-looking cutoff, or the cost at which the total value of call 1 (including the option value of all subsequent calls) equals zero, is identical to the myopic cutoff $c_1^*(P)$. □

5.3.7 General Cost Cutoffs and Geometric Decay

The preceding analysis characterized the consumer's first two broker calls explicitly. In principle, a consumer who hears consecutive H reports could continue calling indefinitely. We now extend the cost cutoff formula to an arbitrary number of calls n and show that the value of each additional call decays geometrically. This generalization is important for two reasons.

First, it closes a gap in the proof that myopic and forward-looking search cutoffs coincide in Region 3 (Lemma 3). Lemma 2 established that the second call is worth strictly less than the first, but this alone does not rule out option value from calls 3, 4, and beyond. A forward-looking consumer evaluating her first call could, in principle, assign positive option value to a long chain of future calls even if each individual call is worth less than the previous one. The geometric decay result below shows that this cannot happen: all subsequent cutoffs c_{n+1}^* fall below the consumer's cost c at the margin of the first-call decision, so the entire option-value chain collapses to zero.

Second, the decay rate provides a quantitative justification for restricting attention to a two-broker model. In many credence-good settings, the analyst must choose how many intermediaries to model. If third and higher-order consultations were quantitatively important, a two-broker model would miss significant consumer behavior. The results below show that the fraction of consumers who ever reach broker 3 is small and shrinks exponentially, so extending the model to additional brokers would add complexity without materially changing the equilibrium predictions.

After n consecutive H reports, the consumer's posterior is $p_n = P/[P + (1-P)(1-Q)^n]$

(equation (15)). Since p_n is strictly increasing in n for $Q > 0$, the consumer becomes progressively more confident that $\theta = H$, and the residual uncertainty that makes an additional call valuable shrinks. In Region 3 ($P \geq T_0$), the myopic cutoff for call $n+1$ is:

$$c^*_{n+1}(P) \;=\; x(1-p_n)Q \;=\; \frac{xQ(1-Q)^n(1-P)}{P+(1-P)(1-Q)^n} \qquad (P \geq T_0). \tag{18}$$

Lemma 4 (Geometric Decay)**.** *For $P \geq T_0$ and $n \geq 1$:*

(i) The ratio of successive cutoffs satisfies $c^*_{n+1}/c^*_n \in (1-Q,\, 1)$.

(i) The cutoff is bounded above by a geometrically declining envelope: $c^*_{n+1}(P) \leq [xQ(1-P)/P] \cdot (1-Q)^n$.

(i) $c^*_{n+1}(P) \to 0$ as $n \to \infty$.

Proof. From (18), define $a_n \equiv P + (1-P)(1-Q)^n$. Then $c^*_{n+1} = xQ(1-Q)^n(1-P)/a_n$ and $c^*_n = xQ(1-Q)^{n-1}(1-P)/a_{n-1}$.

Part (i). The ratio is

$$\frac{c^*_{n+1}}{c^*_n} \;=\; (1-Q)\cdot\frac{a_{n-1}}{a_n}.$$

Since $a_{n-1} > a_n$ (because $(1-Q)^{n-1} > (1-Q)^n$), the ratio exceeds $1-Q$. For the upper bound, note that $a_n - (1-Q)\cdot a_{n-1} = P - (1-Q)P = PQ > 0$, so $(1-Q)\cdot a_{n-1} < a_n$, giving ratio < 1.

Part (ii). Since $a_n \geq P$ for all n,

$$c^*_{n+1} = \frac{xQ(1-Q)^n(1-P)}{a_n} \;\leq\; \frac{xQ(1-P)}{P}\cdot(1-Q)^n.$$

Part (iii). Immediate from part (ii) and $0 < 1-Q < 1$. □

Lemma 4 has a direct implication for the optimality of myopic search. Consider a consumer in Region 3 with cost exactly $c = c^*_1(P) = x(1-P)Q$. After $r_1 = H$, the second-call cutoff satisfies $c^*_2 < c$ (by Lemma 2). Since the ratio $c^*_{n+1}/c^*_n < 1$ for all $n \geq 1$, the sequence $\{c^*_n\}_{n\geq 2}$ is strictly decreasing, so $c^*_{n+1} < c^*_2 < c$ for all $n \geq 2$. At every stage of the search process, the marginal consumer's cost exceeds the value of the next call, so no future call is ever undertaken. The entire option-value chain is therefore zero at the margin of the first-call decision, which is precisely why the myopic cutoff equals the forward-looking cutoff (Lemma 3).

The geometric bound in part (ii) also shows that the share of consumers who reach broker $n+1$ is small. A consumer calls broker $n+1$ only if her cost satisfies $c \leq c^*_{n+1}(P)$. Under the geometric

envelope, this requires $c \leq [xQ(1-P)/P] \cdot (1-Q)^n$. For any cost distribution F with bounded support, the mass of consumers satisfying this condition shrinks at rate $(1-Q)^n$.

Remark 2 (Truncation)**.** *To illustrate: with $Q = 0.5$ and uniformly distributed costs, the fraction of first-call consumers who also call a second broker is at most 50%, and fewer than 6% of original callers ever reach broker 3. By broker 4, the fraction is below 1%. In practice, virtually all search activity is concentrated in the first two calls, and the equilibrium predictions of the model are driven almost entirely by the interaction between broker 1 and broker 2. This is why we restrict the equilibrium analysis to two brokers without material loss.*

Remark 3 (Below T_0)**.** *The geometric decay result applies in Region 3 ($P \geq T_0$). When $T_1 \leq P < T_0$ (Region 2), the myopic first-call value understates the true forward-looking value because the consumer ignores the option value of a second call that could tip her posterior above T_0. In this region, Assumption 5 is a substantive behavioral restriction, but it is conservative: it understates call volume and therefore understates the disciplining effect of shopping on broker behavior. In fact, relaxing myopia in Region 2 would strengthen the model's predictions about the benefits of competition.*

5.4 Broker Strategy

5.4.1 Strategic broker's best responses

Since the Honest broker type is deterministic, we focus on the best response of the Strategic broker.

Best responses when the consumer signals shopping

Case when $\theta = L$: We first examine the strategy of a strategic broker who observes $\theta = L$ and who believes that the consumer has low search costs c and therefore will call a second broker after receiving $r_1 = H$.

If the strategic broker reports $r_1 = H$, then in the equilibrium characterized below the second broker reports $r_2 = L$ whenever $\theta = L$, either because the second broker is honest or because a strategic second broker preempts in the same way. In that event the consumer observes $(r_1, r_2) = (H, L)$, purchases L, and does so from the second broker, meaning the first broker's payoff is 0.

If instead the strategic broker reports $r_1 = L$ then the consumer, believing the signal of L to be fully informative, stops searching immediately and purchases L from the first broker. In this case the first broker's payoff is W_L.

It follows that when the consumer signals that they are more likely to shop after an H report

and $\theta = L$, reporting $r = L$ strictly dominates reporting $r = H$. This dominance holds regardless of the commission ordering: even if $W_L < W_H$ or $W_L > W_H$, the relevant comparison is $W_L > 0$ versus 0, so no guilt parameter or commission differential matters.

Case when $\theta = H$: Now consider a strategic broker who observes $\theta = H$ and believes the consumer will call a second broker after $r_1 = H$. If the strategic broker reports $r_1 = H$, then by Assumption 4 the consumer moves on to broker 2, and any subsequent purchase is made through broker 2. Regardless of broker 2's report, broker 1 earns 0.

If instead the strategic broker reports $r_1 = L$, the consumer infers $\theta = L$ (under Assumption 3), stops searching, and purchases L from broker 1. The broker's payoff is then $W_L - \kappa_i$ (since $j = L \neq \theta = H$, the guilt cost applies). Therefore, reporting L dominates reporting H if and only if $W_L - \kappa_i \geq 0$, i.e., $\kappa_i \leq W_L$.

Best responses when the consumer would not shop after an H report Fix a strategic broker who believes that the consumer will not call a second broker after receiving $r_1 = H$. If the broker observes $\theta = H$, then the broker compares the payoff from reporting H (earning W_H with no guilt) to reporting L (earning $W_L - \kappa_i$, incurring guilt). The broker reports $r = H$ if and only if $W_H \geq W_L - \kappa_i$, which is equivalent to

$$\kappa_i \geq W_L - W_H = -\Delta W.$$

When $W_H \geq W_L$ (so $\Delta W \geq 0$), this condition holds for all $\kappa_i \geq 0$, and reporting H strictly dominates. When $W_H < W_L$ (so $\Delta W < 0$), reporting L dominates for brokers with $\kappa_i \leq W_L - W_H \equiv |\Delta W|$, and the fraction of strategic brokers who misreport downward (report L when $\theta = H$) is $\min\left(1, |\Delta W|/\bar{K}\right)$.

If the broker observes $\theta = L$, then the broker compares the payoff from truth-telling and lying. Truth-telling yields purchase of L and payoff $U_i(L \mid L) = W_L$, while lying yields purchase of H and payoff $U_i(H \mid L) = W_H - \kappa_i$. The broker therefore reports $r = H$ if and only if $W_H - \kappa_i \geq W_L$, which is equivalent to

$$\kappa_i \leq \Delta W \equiv W_H - W_L,$$

and reports $r = L$ otherwise. Because $\kappa_i \sim U[0, \bar{K}]$, the fraction of strategic brokers who lie when $\theta = L$ and the consumer does not shop equals

$$\Pr(r = H \mid \theta = L, \text{no shop}) = \min\left\{1, \frac{\max(0, \Delta W)}{\bar{K}}\right\}.$$

When $W_H < W_L$, this fraction is zero: no strategic broker has an incentive to misreport upward.

5.5 Equilibrium Characterization

We now assemble the preceding results into a full characterization of the equilibrium subject to consumer beliefs under Assumption 3.

Definition 1 (Equilibrium)**.** *An equilibrium in this game consists of (i) a consumer purchase rule and search strategy, (ii) a broker reporting strategy for each broker type, and (iii) posterior beliefs for the consumer, such that: every player's strategy is sequentially rational given beliefs; beliefs are updated by Bayes' Rule on the equilibrium path; and off-equilibrium beliefs satisfy Assumption 3.*

Proposition 1 (Equilibrium Strategies)**.** *The following strategy profile constitutes an equilibrium for arbitrary $W_H, W_L > 0$.*

Consumer. *The consumer purchases H if and only if her posterior $p \geq T_0 \equiv x/(1+x)$. She calls broker n if and only if $c \leq c_n^*(P)$ and signals "shopping" (intent to call ≥ 2 brokers) if and only if $c \leq c_S^*(P) \equiv \min(c_1^*(P),\, c_2^*(P))$, where the cost cutoffs are*

$$c_1^*(P) = \begin{cases} 0 & P < T_1, \\ P - x(1-P)(1-Q) & T_1 \leq P < T_0, \\ x(1-P)Q & P \geq T_0, \end{cases} \tag{19}$$

and $c_2^*(P) < c_1^*(P)$ for $P \geq T_0$, with c_2^* obtained by replacing P with $p_1 = P/[1-(1-P)Q]$ in the cutoff formula. Note that the consumer's search strategy does not depend on commission levels W_H or W_L.

Honest brokers. *Report $r = \theta$ for all θ and all consumer signals.*

Strategic brokers. *Define $\Delta W \equiv W_H - W_L$. Strategic broker reporting probabilities depend on the sign of ΔW as follows.*

State	*Shopping Signal*	$\Pr(r = H)$	$\Pr(r = L)$
Case 1: $W_H \geq W_L$ *(i.e.,* $\Delta W \geq 0$*)*			
$\theta = H$	*No*	1	0
$\theta = L$	*No*	$\min\left(1,\, \Delta W/\bar{K}\right)$	$\max\left(0,\, 1 - \Delta W/\bar{K}\right)$
Case 2: $W_H < W_L$ *(i.e.,* $\Delta W < 0$*)*			
$\theta = H$	*No*	$\max\left(0,\, 1 - \lvert\Delta W\rvert/\bar{K}\right)$	$\min\left(1,\, \lvert\Delta W\rvert/\bar{K}\right)$
$\theta = L$	*No*	0	1
Both cases (shopping regime):			
$\theta = L$	*Yes*	0	1
$\theta = H$	*Yes*	$\max\left(0,\, 1 - W_L/\bar{K}\right)$	$\min\left(1,\, W_L/\bar{K}\right)$

Consumer beliefs on the equilibrium path after Call 1.
After $r = H$*, consumer beliefs are*

$$p_1 = \frac{P}{1 - (1 - P)Q}. \tag{20}$$

After $r = L$*, consumer beliefs are* $\Pr(\theta = H \mid r = L) = 0$*.*

Proof. Sequential rationality for the consumer was established in Section 5.3. The posterior (20) follows from Bayes' Rule on the equilibrium path, and the off-path belief $\Pr(\theta = H \mid r = L) = 0$ is pinned down by Assumption 3. We verify no profitable deviations for each broker type and regime.

Honest brokers. No strategic degree of freedom; always report truthfully.

Strategic brokers, $\theta = L$*, shopping.* Deviating to $r = H$ yields payoff $0 < W_L$. Not profitable regardless of κ_i.

Strategic brokers, $\theta = L$*, no shop, Case 1 (*$\Delta W \geq 0$*).* Each broker individually optimizes at $\kappa_i = \Delta W$. Deviating from the threshold $\kappa_i = \Delta W$ is not profitable: a broker with $\kappa_i \leq \Delta W$ prefers $r = H$ (earns $W_H - \kappa_i \geq W_L$), and a broker with $\kappa_i > \Delta W$ prefers $r = L$ (earns $W_L > W_H - \kappa_i$). No profitable deviation.

Strategic brokers, $\theta = L$*, no shop, Case 2 (*$\Delta W < 0$*).* Reporting $r = H$ earns $W_H - \kappa_i < W_L$ for all $\kappa_i \geq 0$. All strategic brokers strictly prefer $r = L$.

Strategic brokers, $\theta = H$*, no shop, Case 1 (*$\Delta W \geq 0$*).* Reporting $r = H$ earns $W_H > W_L - \kappa_i$ for all $\kappa_i \geq 0$ given $\Delta W \geq 0$. All strategic brokers strictly prefer $r = H$.

Strategic brokers, $\theta = H$*, no shop, Case 2 (*$\Delta W < 0$*).* Each broker individually optimizes at $\kappa_i = |\Delta W| = W_L - W_H$. A broker with $\kappa_i \leq |\Delta W|$ prefers $r = L$ (earns $W_L - \kappa_i \geq W_H$); a broker with $\kappa_i > |\Delta W|$ prefers $r = H$. No profitable deviation.

Strategic brokers, $\theta = H$, shopping. Deviating from the preemption threshold $\kappa_i = W_L$: a broker with $\kappa_i \leq W_L$ deviating to $r = H$ earns $0 < W_L - \kappa_i$, not profitable. A broker with $\kappa_i > W_L$ deviating to $r = L$ earns $W_L - \kappa_i < 0$, not profitable. □

Note that the direction of distortion in the no-shop regime depends on the commission ordering. The strategic distortion is upward (toward H) when $W_H > W_L$, but the distortion is downward (toward L) when $W_H < W_L$. Conversely, in the shopping regime, distortion is *always downward* for $\theta = H$ consumers, regardless of commission ordering. The shopping signal thus has qualitatively different welfare implications depending on whether the no-shop distortion is upward or downward. When $W_H > W_L$, shopping reverses the direction of distortion and may be welfare-improving. When $W_H < W_L$, both regimes exhibit downward distortion, and shopping affects only the magnitude, not the direction, of the problem. The model demonstrates why traditional market-based mechanisms such as competitive pressures may fail to improve welfare in a market of credence goods with opaque incentive structures.

6 Conclusion

We study insurance broker advice in the complex Medicare market, a market which provides health insurance to over 66 million seniors and individuals with disabilities. Given the importance of the decision among an already vulnerable population, one would hope that there exists high quality advice to guide individuals who are unable to make the choice themselves.

Using an innovative audit study methodology, our study advances our understanding of the role of intermediaries in this important, but understudied market. Our results suggest there is significant heterogeneity in insurance broker advice quality. While some brokers do provide high quality recommendations, on average brokers recommend plans that are $376.38 a year more expensive than the lowest-cost identical plan available to the consumer. This corresponds to a 28.77% markup. Since Medicare plan choice is made at retirement (usually age 65) and is difficult to reverse in most states, a back of the envelope calculation suggests that this amounts to a monetary loss of over $11,000 over the beneficiary's lifetime.[44]

These estimates of broker wrongdoing are likely underestimates due to several precautions we take. First, given the basic training we provide on the Medicare market to ensure our seniors can correctly identify recommendations, we believe our senior shoppers may be more sophisticated than the average senior citizen. Second, to ensure our Medigap recommendation, which comes second, is not contaminated by the first Original Medicare versus MA recommendation, we instruct the shoppers to give an overview of the two topics of conversation (MA plans and Medigap

[44]This calculation assumes the individual lives to age 95 and that the price difference between the chosen plan and the cheapest identical plan remains constant. In reality, price dispersion often increases as the beneficiary's age increases, making this estimate a conservative lower bound.

plans). This may signal that our senior shoppers have a basic understanding of Medicare and likely increase perceptions of consumer sophistication. Finally, we do our best to avoid the special Annual Enrollment Period, when brokers are especially busy and are therefore more likely to make mistakes or be more susceptible to unconscious biases.[45]

Our two treatment arms provide evidence of the mechanisms driving broker advice. The results from the natural experiment show that when incentives to recommend the high-commission, low-fit product are removed, advice quality improves significantly, but is not eliminated. The natural experiment highlights that while the majority of low-quality recommendations are driven by incentives, they are also driven by poor training or lack of knowledge. This is in line with concerns raised by policymakers that many brokers are only trained to sell Medicare Advantage, the product that is more profitable to insurance companies, and therefore are unable to offer unbiased advice. Our results corroborate these concerns and suggest that a combination of aligning incentives and increasing broker education may be required to fully correct broker mistakes.

Finally, the results from our competition treatment provide additional evidence that low-quality advice is strategic. When brokers believe consumers will "shop around," brokers respond by reducing the rate of dominated Medigap plan recommendations. While the competition treatment does increasing the rate at which brokers recommend lower-price products, we find that this response is not always welfare-improving. In particular, welfare is increased for Outcome 2, the Medigap scenario where goods are homogeneous, but not where for Outcome 1, the Original Medicare versus MA choice.

Our results suggest that in markets with uninformed consumers, opaque, multidimensional products, and lack of verification, competition may lead to greater focus on certain product attributes at the expense of others. In particular, competition may not always improve consumer welfare in markets where consumers are unable to discern product attributes and intermediary incentives. While existing research has focused primarily on the demand side of consumer mistakes, our results suggest that a combination of better broker training, aligning incentives, and supply-side product reforms could play an important role in improving consumer welfare.

[45]AEP is also when individuals usually change MA plans, meaning MA might be more likely to be on the broker's mind, meaning incorrect MA recommendations may be more common during this time.

References

Abaluck, Jason and Jonathan Gruber, "Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program," *American Economic Review*, June 2011, *101* (4), 1180–1210.

_ **and** _ , "Evolving Choice Inconsistencies in Choice of Prescription Drug Insurance," *American Economic Review*, August 2016, *106* (8), 2145–84.

Alsan, Marcella, Owen Garrick, and Grant Graziani, "Does Diversity Matter for Health? Experimental Evidence from Oakland," *American Economic Review*, December 2019, *109* (12), 4071–4111.

Anagol, Santosh, Shawn Cole, and Shayak Sarkar, "Understanding the Advice of Commissions-Motivated Agents: Evidence from the Indian Life Insurance Market," *The Review of Economics and Statistics*, March 2017, *99* (1), 1–15.

Andries, Marianne, Maxime Bonelli, and David Alexandre Sraer, "Financial Advisors and Investors' Bias," *SSRN Electronic Journal*, 2024.

Ayres, Ian, "Fair Driving: Gender and Race Discrimination in Retail Car Negotiations," *Harvard Law Review*, February 1991, *104* (4), 817.

_ **and Peter Siegelman**, "Race and Gender Discrimination in Bargaining for a New Car," *The American Economic Review*, 1995, *85* (3), 304–321.

Bergstresser, Daniel, John M. R. Chalmers, and Peter Tufano, "Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry," *The Review of Financial Studies*, October 2009, *22* (10), 4129–4156.

Besbris, Max, Jacob William Faber, Peter Rich, and Patrick Sharkey, "Effect of neighborhood stigma on economic transactions," *Proceedings of the National Academy of Sciences*, April 2015, *112* (16), 4994–4998.

Beshears, John, James J. Choi, David Laibson, and Brigitte C. Madrian, "Chapter 3 - Behavioral Household Finance," in "Handbook of Behavioral Economics: Applications and Foundations 1," Vol. 1, Elsevier, 2018, pp. 177–276.

Bhargava, Saurabh, George Loewenstein, and Justin Sydnor, "Choose to Lose: Health Plan Choices from a Menu with Dominated Option," *The Quarterly Journal of Economics*, August 2017, *132* (3), 1319–1372.

Biniek, Jeannie Fuglesten, Alex Cottrill, Nolan Sroczynski, Meredith Freed, Tricia Neuman, Breeze Floyd, Laura Baum, and Erika Franklin Fowler Published, "How Health Insurers and Brokers Are Marketing Medicare - Report -10203," September 2023.

_ , **Nolan Sroczynski, and Tricia Neuman**, "Use of Prior Authorization in Medicare Advantage Exceeded 46 Million Requests in 2022," August 2024.

Chalmers, John and Jonathan Reuter, "Is conflicted investment advice better than no advice?," *Journal of Financial Economics*, November 2020, *138* (2), 366–387.

Das, Jishnu, Alaka Holla, Aakash Mohpal, and Karthik Muralidharan, "Quality and Accountability in Health Care Delivery: Audit-Study Evidence from Primary Care in India," *American Economic Review*, December 2016, *106* (12), 3765–3799.

Doleac, Jennifer L. and Luke C.D. Stein, "The Visible Hand: Race and Online Market Outcomes," *The Economic Journal*, November 2013, *123* (572), F469–F492.

Dulleck, Uwe and Rudolf Kerschbamer, "On Doctors, Mechanics, and Computer Specialists: The Economics of Credence Goods," *Journal of Economic Literature*, February 2006, *44* (1), 5–42.

_ , _ , **and Matthias Sutter**, "The Economics of Credence Goods: An Experiment on the Role of Liability, Verifiability, Reputation, and Competition," *American Economic Review*, April 2011, *101* (2), 526–555.

Egan, Mark, "Brokers versus Retail Investors: Conflicting Interests and Dominated Products," *The Journal of Finance*, 2019, *74* (3), 1217–1260. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/jofi.12763.

Eyster, Erik and Matthew Rabin, "Cursed Equilibrium," *Econometrica*, September 2005, *73* (5), 1623–1672.

Freed, Meredith, Alex Cottrill, Jeannie Fuglesten Biniek, and Tricia Neuman Published, "What Do People with Medicare Think About the Role of Marketing, Shopping for Medicare Options, and Their Coverage? - Report - 10202," September 2023.

Gaffney, Adam, Stephanie Woolhandler, and David U. Himmelstein, "Less Care at Higher Cost-The Medicare Advantage Paradox," *JAMA internal medicine*, August 2024, *184* (8), 865–866.

Gennaioli, Nicola, Andrei Shleifer, and Robert Vishny, "Money Doctors," *The Journal of Finance*, 2015, *70* (1), 91–114. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/jofi.12188.

Gruber, Jonathan, Benjamin R. Handel, Samuel H. Kina, and Jonathan T. Kolstad, "Managing Intelligence: Skilled Experts and AI in Markets for Complex Products," April 2020.

Gunja, Munira Z., Gretchen Jacobson, Faith Leonard, and Reginald D. Williams II, "Health Care Affordability for Older Adults: How the U.S. Compares to Other Countries," 2024.

Handel, Benjamin and Joshua Schwartzstein, "Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?," *Journal of Economic Perspectives*, February 2018, *32* (1), 155–178.

Handel, Benjamin R. and Jonathan T. Kolstad, "Health Insurance for "Humans": Information Frictions, Plan Choice, and Consumer Welfare," *American Economic Review*, August 2015, *105* (8), 2449–2500.

Ho, Kate, Joseph Hogan, and Fiona Scott Morton, "The impact of consumer inattention on insurer pricing in the Medicare Part D program," *The RAND Journal of Economics*, 2017, *48* (4), 877–905.

Hoechle, Daniel, Stefan Ruenzi, Nic Schaub, and Markus Schmid, "Financial Advice and Bank Profits," *The Review of Financial Studies*, 2018, *31* (11), 4447–4492.

Jacobson, Gretchen A. and David Blumenthal, "Medicare Advantage Enrollment Growth: Implications for the US Health Care System," *JAMA*, June 2022, *327* (24), 2393–2394.

Ketcham, Jonathan D., Claudio Lucarelli, and Christopher A. Powers, "Paying Attention or Paying Too Much in Medicare Part D," *American Economic Review*, January 2015, *105* (1), 204–33.

Leonard, Faith, Gretchen Jacobson, Lauren A. Haynes, and Sara R. Collins, "Traditional Medicare or Medicare Advantage: How Older Americans Choose and Why," 2022.

Maestas, Nicole, Mathis Schroeder, and Dana Goldman, "Price Variation in Markets with Homogeneous Goods: The Case of Medigap," Technical Report w14679, National Bureau of Economic Research, Cambridge, MA January 2009.

Mullainathan, Sendhil, Markus Nöth, and Antoinette Schoar, "The Market for Financial Advice: An Audit Study," April 2011.

Ochieng, Nancy, Gabrielle Clerveau, Juliette Cubanski, and Tricia Neuman Published, "A Snapshot of Sources of Coverage Among Medicare Beneficiaries," December 2023.

Ondrich, Jan, Stephen L. Ross, and John Yinger, "How Common is Housing Discrimination? Improving on Traditional Measures," *Journal of Urban Economics*, May 2000, *47* (3), 470–500.

_ , **Stephen Ross, and John Yinger**, "Now You See It, Now You Don't: Why Do Real Estate Agents Withhold Available Houses from Black Customers?," *Review of Economics and Statistics*, November 2003, *85* (4), 854–873.

Figures and Tables

Balance Tables

Table 14: Competition Assignment - Balance Table of Broker and Consumer Characteristics

	All Mean (SE)	Competition Assigned Mean (SE)	Not Assigned Mean (SE)	Difference Δ	Reg P-value (strata)
% Competition Treated	41.60%	89.72%	9.90%	79.83	.
	(1.95)	(1.91)	(1.53)		
Broker Characteristics					
% Call Center	40.35%	22.13%	52.34%	-30.21	0.01
	(1.95)	(2.62)	(2.55)		
# States Registered In	22.33	19.97	23.90	-3.93	0.79
	(0.54)	(0.83)	(0.70)		
# Insurance Comps Appointed To (Group)	8.42	7.03	9.31	-2.28	0.75
	(0.17)	(0.27)	(0.21)		
# Lines of Authority	1.99	2.02	1.96	0.06	0.43
	(0.02)	(0.03)	(0.03)		
Broker Tenure (yrs)	9.45	10.46	8.78	1.68	0.98
	(0.32)	(0.54)	(0.40)		
High Tenure	69.86%	75.49%	66.15%	9.35	0.75
	(1.82)	(2.71)	(2.42)		
% Broker Female	43.49%	41.90%	44.53%	-2.63	0.52
	(1.97)	(3.11)	(2.54)		
Caller Characteristics					
% Caller Female	83.05%	84.19%	82.29%	1.90	0.63
	(1.49)	(2.30)	(1.95)		
% Caller White	81.00%	86.96%	77.08%	9.87	0.26
	(1.56)	(2.12)	(2.15)		
% Caller Black	6.91%	5.93%	7.55%	-1.62	0.54
	(1.01)	(1.49)	(1.35)		
Caller - Real Age	71.18	71.51	70.97	0.54	0.95
	(0.25)	(0.42)	(0.31)		
Caller - Above Med Age	50.55%	55.34%	47.40%	7.94	0.53
	(1.98)	(3.13)	(2.55)		
Caller - College Degree	58.87%	57.71%	59.64%	-1.93	0.95
	(1.95)	(3.11)	(2.51)		
Caller - # Calls	19.96	27.81	14.78	13.03	0.10
	(1.28)	(2.43)	(1.32)		
N (Medigap Recs)	1,057	427	630		
N (Calls)	637	253	384		

Notes: Table 14 shows the balance table of broker and consumer characteristics by competition assignment.

Table 15: Competition Treatment - Balance Table of Broker and Consumer Characteristics

	All Mean (SE)	Yes Competition Mean (SE)	No Competition Mean (SE)	Difference Δ	Reg P-value (strata)
Broker Characteristics					
% Call Center	40.35%	28.30%	48.92%	-20.62	0.98
	(1.95)	(2.77)	(2.60)		
# States Registered In	22.33	21.22	23.13	-1.91	0.30
	(0.54)	(0.83)	(0.70)		
# Insurance Comps Appointed To (Group)	8.42	7.53	9.05	-1.52	0.96
	(0.17)	(0.27)	(0.22)		
# Lines of Authority	1.99	2.00	1.97	0.03	0.49
	(0.02)	(0.03)	(0.03)		
Broker Tenure (yrs)	9.45	10.00	9.06	0.94	0.87
	(0.32)	(0.51)	(0.41)		
High Tenure	69.86%	73.96%	66.94%	7.03	0.57
	(1.82)	(2.70)	(2.44)		
% Broker Female	43.49%	43.02%	43.82%	-0.80	0.82
	(1.97)	(3.05)	(2.58)		
Caller Characteristics					
% Caller Female	83.05%	82.64%	83.33%	-0.69	0.54
	(1.49)	(2.33)	(1.93)		
% Caller White	81.00%	81.51%	80.65%	0.86	0.95
	(1.56)	(2.39)	(2.05)		
% Caller Black	6.91%	6.04%	7.53%	-1.49	0.72
	(1.01)	(1.47)	(1.37)		
Caller - Real Age	71.18	71.15	71.21	-0.06	0.55
	(0.25)	(0.40)	(0.32)		
Caller - Above Med Age	50.55%	50.94%	50.27%	0.67	0.82
	(1.98)	(3.08)	(2.60)		
Caller - College Degree	58.87%	56.23%	60.75%	-4.53	0.65
	(1.95)	(3.05)	(2.54)		
Caller - # Calls	19.96	26.45	15.33	11.12	0.11
	(1.28)	(2.34)	(1.37)		
N (Medigap Recs)	1,057	428	629		
N (Calls)	637	265	372		

Notes: Table 15 shows the balance table of broker and consumer characteristics by competition treatment.

Table 16: Competition Compliers vs Non-Compliers - Broker and Senior Characteristics

	All Mean (SE)	Competition Correct Mean (SE)	Competition Incorrect Mean (SE)	Difference Δ	Reg P-value (strata)
% Competition Treated	41.60% (1.95)	39.62% (2.05)	59.38% (6.19)	-19.76	.
Broker Characteristics					
% Call Center	40.35% (1.95)	39.09% (2.04)	51.56% (6.30)	-12.47	0.18
# States Registered In	22.33 (0.54)	22.25 (0.57)	23.05 (1.69)	-0.79	0.50
# Insurance Comps Appointed To (Group)	8.42 (0.17)	8.33 (0.18)	9.22 (0.57)	-0.89	0.91
# Lines of Authority	1.99 (0.02)	1.99 (0.02)	1.91 (0.06)	0.09	0.44
Broker Tenure (yrs)	9.45 (0.32)	9.66 (0.35)	7.47 (0.72)	2.20	0.10
High Tenure	69.86% (1.82)	69.81% (1.92)	70.31% (5.76)	-0.50	0.35
% Broker Female	43.49% (1.97)	42.76% (2.07)	50.00% (6.30)	-7.24	0.35
Caller Characteristics					
% Caller Female	83.05% (1.49)	83.25% (1.56)	81.25% (4.92)	2.00	0.94
% Caller White	81.00% (1.56)	82.72% (1.58)	65.62% (5.98)	17.10	0.11
% Caller Black	6.91% (1.01)	6.81% (1.05)	7.81% (3.38)	-1.01	0.99
Caller - Real Age	71.18 (0.25)	71.42 (0.27)	69.08 (0.52)	2.34	0.17
Caller - Above Med Age	50.55% (1.98)	52.18% (2.09)	35.94% (6.05)	16.24	0.16
Caller - College Degree	58.87% (1.95)	58.99% (2.06)	57.81% (6.22)	1.18	0.92
Caller - # Calls	19.96 (1.28)	21.31 (1.40)	7.86 (1.43)	13.45	0.19
N (Medigap Recs)	1,057	982	75		
N (Calls)	637	573	64		

Notes: Table 16 shows the balance between the compliers and non-compliers on broker and senior characteristics.

Additional Results

Table 17 reports the correlation between each broker rating and our three measures of the Medigap Markup. Across each rating and markup measure, we see no statistically significant correlation between the Medigap markup and broker rating.

Table 18 reports the correlation between the rate the broker recommends MA (in percentage points) and broker ratings. The coefficients are statistically significant, suggesting a very small, but negative relationship between MA recommendation rates and ratings. Specifically, a 1 percentage point increase in probability that a broker recommends MA corresponds to a -0.0034 percentage point change in the Rec Broker score on a 1-5 scale.

Table 17: Broker Rating versus Medigap Markup

	(1) Rec Broker (1-5)	(2) Knowledge (1-5)	(3) Friendly (1-5)	(4) Rec Broker (1-5)	(5) Knowledge (1-5)	(6) Friendly (1-5)	(7) Rec Broker (1-5)	(8) Knowledge (1-5)	(9) Friendly (1-5)
Medigap Markup ($)	-0.00	0.00	-0.00						
	(0.00)	(0.00)	(0.00)						
Medigap Broker Markup ($)				-0.00	-0.00	-0.00			
				(0.00)	(0.00)	(0.00)			
Medigap Markup (%)							-0.00	0.00	0.00
							(0.00)	(0.00)	(0.00)
CC/State/Plan/Comp/AEP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Broker/Senior Controls	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
Robust SE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,057	1,057	1,057	961	961	961	1,057	1,057	1,057
R^2	0.09	0.09	0.11	0.10	0.10	0.12	0.09	0.09	0.11

Table 18: Broker Rating versus MA Recommendation and Call Length

	(1) Rec Broker (1-5)	(2) Knowledge (1-5)	(3) Friendly (1-5)
Rec MA (%)	-0.00**	-0.00***	0.00
	(0.00)	(0.00)	(0.00)
CC/State/Comp/Incentive/AEP	Yes	Yes	Yes
Broker/Senior Controls	Yes/Yes	Yes/Yes	Yes/Yes
Robust SE	Yes	Yes	Yes
Observations	637	637	637
R^2	0.07	0.10	0.09

A Appendix

A.1 Discussion of Alternative Treatment Conditions

In the section below, we discuss the alternative treatment conditions we considered and the potential problems identified with each treatment.

Referrals We initially considered a "referrals" treatment, where seniors would begin the call by We decide against this treatment since referrals are highly uncertain future income, meaning the present value of the referrals are discounted both by a referral probability and by normal discount rates. We determined that the impact of such a treatment would likely be very small and require an unrealistically large sample size to detect a treatment effect.

Senior Sophistication/Expertise We were unsure how to signal sophistication or expertise to broker (for example, by starting the call with a statement such as I was a doctor, I worked in healthcare, or I watched a ton of YouTube videos so I know a lot about the market). We also felt that Medicare is so niche and specific that having a medical background does not transfer to expertise in this area.

Senior Old Age/Confusion We were unsure, in aggregate, whether this treatment would lead to better or worse broker advice. Some brokers may become more sympathetic and exert additional effort or offer better recommendations. Some brokers may see the confusion as an opportunity to take advantage of the senior. We also felt that we could use the natural variation in senior age and how confused a senior sounds to identify differences in the recordings and transcripts.

Why we focus on seniors and not individuals with disabilities who are enrolling in Medicare Very small percent of disabled people have Medigap - 3% of ppl under 65. Limited plans for ppl with disabilities - depends state by state Some states cap premiums for disabled ppl, some states don't require that you sell disabled people a plan some states say you can make it as expensive as you want some states say you can deny disabled people many plans are not sold to disabled people

A.2 Additional Audit Study Logistics

Call Script and Survey Instruments We design a specific scenario and call script for the seniors (i.e. the Medicare-eligible secret shoppers) to follow when contacting brokers. We developed the script after interviewing multiple currently and previously licensed Medicare insurance brokers, interviewing Medicare beneficiaries about their experiences, and listening in on broker phone calls with beneficiaries discussing their Medicare plans with real Medicare insurance brokers.

The call scripts are heavily based on several real conversations between Medicare insurance brokers and beneficiaries. The survey instruments that seniors complete after the phone call mirror the script closely to minimize confusion. We piloted both the call scripts and survey instruments extensively, for example by having callers of a variety of ages and backgrounds conduct practice calls and make suggestions to have a natural flow to conversation while still asking questions clearly and concisely.

Data Collection We have surveyors fill out an information collection form within three business days of completing the call, although most shoppers fill out the form within 24 hours. If shoppers do not submit the survey instrument within 8 hours they get a message reminding them to submit the form. Data collection requires surveyors to fill out a form recounting the recommendations made on their calls and explanations or statements made by the broker during the call. We also collect a call recording, which is converted to a call transcript, when possible.

Caller Training We also provide the seniors with some basic facts about the Medicare market that many Medicare-eligible seniors may already know (for example, the definition of Original Medicare and Medicare Advantage, what a Red White and Blue card is, who is eligible for Medicare). We also have shoppers pass a comprehension check quiz to ensure they are familiar with the script.

Alternative Broker Sampling Strategies We also considered several alternate broker sampling strategies. One approach would be to sample from the set of all licensed insurance brokers, however, we believe there are several problems with this approach. First, turnover in this occupation is high, and the set of licensed brokers at a given time is likely not representative of the set of brokers who are actively enrolling seniors in Medicare plans. Additionally, in almost every state Medicare brokers do not need special licensure, and are licensed under the broader "Health" or "Accident and Health" categories. This means that many of the brokers in the health licensure database do not enroll consumers in Medicare, so sampling from the set of all licensed health insurance brokers would have a very high failure rate. We also considered sampling from Medicare insurance brokers identified through Google search results. Many of these search results directed us to the large Medicare insurance broker database that we ultimately decide to use. In a small pilot, we found that many of the remaining brokers contacted using this method either did not enroll individuals in Medicare or had a high nonresponse rate (defined as no response after three contact attempts across different workdays).

A.3 Constructing a Database of Insurance Broker Characteristics

The lack of literature on Medicare brokers is due in part to the lack of data on insurance brokers and broker compensation. As part of the audit, we also fill this gap. We build a large dataset of

health insurance broker characteristics by compiling data from the insurance licensure databases of over 40 states. This dataset allows us to provide novel summary statistics on the market for health insurance brokers, including the number of brokers registered in each state, what percent of brokers are residents of the states they work in, the average number of insurance companies an broker is licensed to work with, and trends in broker registration over time.

A.4 Examples of Insurance Broker Incentives

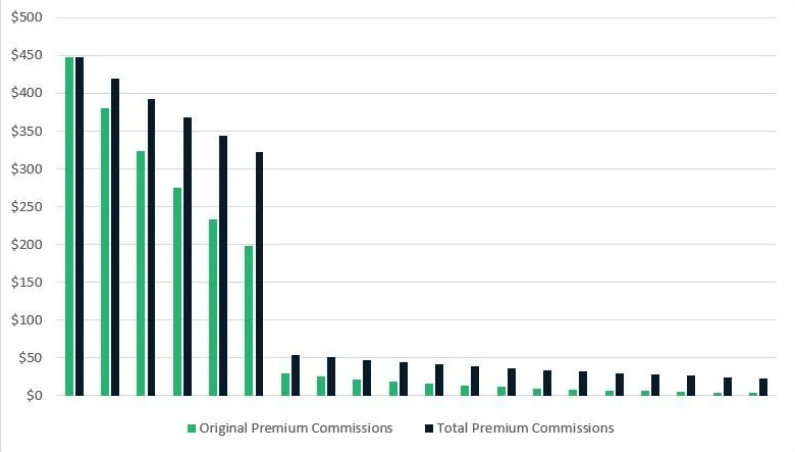


Figure A.1: Medigap Commission Over Time

Source: https://www.telosactuarial.com/blog/commission-structures-premium-comparison
Notes: Original Premium Commissions mean commissions are a percentage of the premium at the *time of sale* and do not change when consumer's premium changes. Total Premium Commissions mean commissions are calculated on the *current* premium paid by the consumer, meaning broker's commission increases with price increases.

California	Under Age 65	Ages 65 - 80				Ages 81+			
All Plans Except Plans High Deductible F & High Deductible G & Plan N	All Policy Years	Policy Years				Policy Years			
		1	2 -6	7 - 10	11+	1	2 -6	7 - 10	11+
	New Business, Internal & External Replacements **(Open Enrollment, Underwritten)**								
Commission Rate	0.0%	13.5%	13.5%	2.5%	0.0%	6.75%	6.75%	1.25%	0.0%
	Affiliate Company Replacements **(Open Enrollment, Underwritten)**								
Commission Rate	0.0%	10.125%	10.125%	1.875%	0.0%	5.0625%	5.0625%	0.9375%	0.0%
	New Business, Internal, External & Affiliate Company Replacements **(Guaranteed Issue)**								
Commission Rate	0.0%	2.5%	1.25%	0.0%	0.0%	2.5%	1.25%	0.0%	0.0%

California	Under Age 65	Ages 65 - 80				Ages 81+			
Plans High Deductible F & High Deductible G & Plan N	All Policy Years	Policy Years				Policy Years			
		1	2 -6	7 - 10	11+	1	2 -6	7 - 10	11+
	New Business, Internal & External Replacements **(Open Enrollment, Underwritten)**								
Commission Rate	0.0%	17.5%	17.5%	2.5%	0.0%	8.75%	8.75%	1.25%	0.0%
	Affiliate Company Replacements **(Open Enrollment, Underwritten)**								
Commission Rate	0.0%	13.125%	13.125%	1.875%	0.0%	6.5625%	6.5625%	0.9375%	0.0%
	New Business, Internal, External & Affiliate Company Replacements **(Guaranteed Issue)**								
Commission Rate	0.0%	2.5%	1.25%	0.0%	0.0%	2.5%	1.25%	0.0%	0.0%

Figure A.2: Example of Medigap Commissions

Company	Bonus per Issued Policy
ACE	Plan N: $200 (most states)
Aetna	Underwritten: $100, Open Enrollment: $25 $50 Bonus for Ancillary Product cross-sell
AFLAC	$150 per policy issued all Plan N & Underwritten Plans F and G $50 Bonus for Final Expense cross-sell
Cigna	All Plans Underwritten and Plan N Open Enrollment: $100 +$25 Bonus for Ancillary Products
Humana	Underwritten (All Plans) : $250
INA	Underwritten: $250, Open Enrollment: $50
LifeShield National	Underwritten: $250 Plan F,G,N, Open Enrollment: $150
Manhattan Life	TBD
Mutual of Omaha	Underwritten: $150, Open Enrollment: $30
Nassau	Underwritten: $200 Plan F,G,N
Old Surety	TBD
Physicians Mutual	Underwritten $100 : Plan F,G,N Open Enrollment or Underwritten $150 : Innovative Plan G
Wellabe	Underwritten Plan N: $200, Underwritten Plan F and G: $100 Non-Underwritten: $15
Woodmen Life	Underwritten: $150 (most states) All Underwriting Types: $40 (some states)

Figure A.3: Example of Medigap Bonuses for Q2 2025

Source: https://www.telosactuarial.com/blog/2025-q3-med-supp-broker-incentives

Individual Medicare Supplement

AR, CA, DC, ND, NH, NM, OK, RI, SD, UT, VT and WY (all marketed plans)
AL, AZ, GA, IA, KY, LA, MS, NC, NE, NJ, NV, VA and WV (all marketed plans except Plan N)
Plans are not available to Medicare beneficiaries under age 65 in AL, AZ, IA, ND, NE, NM, NV, RI, UT, WV and WY.

Open Enrollment (OE) and Underwritten (UW) Plans vary by state - see product sales kit for plan options				
	Age 65+ Policy Years		Under age 65 Policy Years	
Level	1 - 6	7+	1 - 6	7+
08	22%	2.5%	0.8%	0%

(a) Level 8 Commissions

Individual Medicare Supplement

AR, CA, DC, ND, NH, NM, OK, RI, SD, UT, VT and WY (all marketed plans)
AL, AZ, GA, IA, KY, LA, MS, NC, NE, NJ, NV, VA and WV (all marketed plans except Plan N)
Plans are not available to Medicare beneficiaries under age 65 in AL, AZ, IA, ND, NE, NM, NV, RI, UT, WV and WY.

Open Enrollment (OE) and Underwritten (UW) Plans vary by state - see product sales kit for plan options				
	Age 65+ Policy Years		Under age 65 Policy Years	
Level	1 - 6	7+	1 - 6	7+
04	18%	1.5%	0.4%	0%

(b) Level 4 Commissions

Figure A.4: Commissions by Broker "Level"

Notes: The two commission tables show how commissions may vary by Broker Level.

AGENT COMPENSATION PAY

NM, OR, UT, VA, AR, AZ, CA, CO

NM, OR, UT, VA	1	2-6	7-10	11+
B, C, F, G, Select G	$332.00	$219.00	$109.50	$43.80
N, Select N	$190.00	$190.00	$95.00	$38.00
A, K, L	$95.00	$95.00	$47.50	$19.00
AR	**1**	**2-6**	**7-10**	**11+**
B, C, F, G, Select G	$265.00	$265.00	$132.50	$53.00
N, Select N	$230.00	$230.00	$115.00	$46.00
A, K, L	$115.00	$115.00	$57.50	$23.00
AZ	**1**	**2-6**	**7-10**	**11+**
B, C, F, G, Select G	$310.00	$310.00	$40.00	$40.00
N, Select N	$250.00	$250.00	$30.00	$30.00
A, K, L	$105.00	$105.00	$15.00	$15.00
CA	**1**	**2-6**	**7-10**	**11+**
B, C, F, G	$345.00	$345.00	$172.50	$69.00
N	$300.00	$300.00	$150.00	$60.00
A, K, L	$150.00	$150.00	$75.00	$30.00
CO	**1**	**2-6**	**7-10**	**11+**
All Plans	$286.00	$196.00	$98.00	$39.20

Figure A.5: Example of Medigap Bonuses



Figure A.6: Example of Medigap Bonuses