ABSTRACT

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| Title of Dissertation: | COMPETITION AND CONSOLIDATION IN MEDICARE ADVANTAGE |
| | Sandra Chao, Doctor of Philosophy, 2021 |
| Dissertation directed by: | Dr. Eva H. DuGoff<br>Visiting Assistant Professor<br>Department of Health Policy and Management |

**Background**: Medicare Advantage (MA) serves roughly one in three (24 out of 68 million) Medicare beneficiaries and this number is expected to grow to about half (40 out of 80 million) of Medicare beneficiaries by 2030. Given this expected increase in demand for MA health plans, it is important to assess the relationship between market structure and benefit generosity to ensure that beneficiaries have equal access to high quality plans at low prices.

**Purpose**: The purpose of this research is to assess how policy changes and market structures influence Medicare Advantage plan benefit designs.

**Data and Methods**: This study uses publicly available MA data from the Centers for Medicare & Medicaid Services and the Area Health Resources File. Retrospective cross-sectional analyses examine contract consolidation and reconsolidation from 2012–2020, market competition and supplemental benefits in 2013, and market competition and maximum out-of-pocket limits in 2018.

**Key Results**: Contract consolidations have declined in recent years, likely as a result of a policy that changed the calculation method of the star ratings among consolidated contracts. During the years that contract consolidations peaked, market concentration also increased. We find that the odds of a plan in a nonconcentrated market offering a transportation supplemental benefit is 2.8 times higher than a plan operating in a highly concentrated market, when holding all other predictors constant ($p < 0.001$). Similarly, plans in nonconcentrated service areas are 2.4 times more likely to offer a hearing benefit ($p < 0.001$) and 2.3 times more likely to offer a dental benefit ($p < 0.001$) than plans in highly concentrated markets. Regarding maximum out-of-pocket limits, we find that the odds of a plan in a highly concentrated market having a higher maximum limit is 1.6 times higher than a plan with a nonconcentrated market, when holding all other predictors constant ($p = 0.049$).

**Conclusion**: MA contract consolidations have declined since 2016 but market concentration continues to increase. Market structure is important because we find that MA market concentration is associated with the offering of supplemental benefits and the level of maximum out-of-pocket limits.

# COMPETITION AND CONSOLIDATION IN MEDICARE ADVANTAGE

by

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Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
Of the requirements for the degree of
Doctor of Philosophy
2021

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# Acknowledgements

I would like to thank my advisor and dissertation chair, Eva DuGoff, for her mentorship, support, constructive feedback, and outstanding training. I would also like to thank my dissertation committee, Michel Boudreaux, Jie Chen, Dylan Roby, and Dushanka Kleinman, for their support and thoughtful feedback.

I am grateful for my husband, Daniel Chao, who has been my rock and my biggest cheerleader since the day we met. I would also like to thank my parents, Henry and Gerri Yang, for their encouragement throughout my education. Many thanks to my sister, Rena Yang, for her support and feedback on my dissertation.

I am appreciative for my friends—Vivian Le, Jennifer Kong, Laura DePooter, Yuni Gutierrez, and Jessica Preston—who have reminded me to breathe, relax, and laugh once in a while.

Many thanks to my colleagues at Mathematica, including Julia, Matt, Tomi, Rumin, Jeral, and others, for being an inspiration and for holding me accountable.

Additionally, I would like to thank my cohort for acting as a soundboard and for being my support system.

Finally, thank you Gates Millennium Scholars Program for investing in my future and for believing in the girl from Oakland.

# Table of Contents

# List of Tables

# List of Figures

# List of Abbreviations

| | |
|---|---|
| Centers for Medicare & Medicaid Services | CMS |
| Concentration ratio | CR |
| Fee-for-service | FFS |
| Health maintenance organization | HMO |
| Herfindahl-Hirschman Index | HHI |
| Hierarchical Condition Categories | HCC |
| Maximum out-of-pocket | MOOP |
| Medicare Advantage | MA |
| Preferred provider organizations | PPO |
| Private fee-for-service | PFFS |
| Structural contingency theory | SCT |
| Structure-Conduct-Performance model | SCP |

# Chapter 1: Introduction

As health care costs rose in the United States and people increasingly relied on employers for health care coverage, the need for health coverage for retirees became more apparent.[1] The Medicare program started in 1965 when President Lyndon Johnson signed it into law as the federal government's effort to provide health insurance to people ages 65 and over. Today, the Medicare program provides health insurance to more than 68 million elderly and disabled beneficiaries. Of those, 24 million beneficiaries (35 percent) are enrolled in a health plan that is managed by a private insurer.

The Medicare program evolved over time as stakeholders explored ways to decrease cost and increase quality. In 1972, health maintenance organizations entered the public Medicare space through a prepaid payment program which later changed to a prospective payment system in 1982.[2] The Balanced Budget Act of 1997 introduced the Medicare+Choice program which restructured the policies for private plans to operate in Medicare. In particular, the Balanced Budget Act of 1997 changed the method of calculating capitated payments to health plans and allowed provider sponsored organizations, private fee-for-service, preferred provider organizations, and medical savings accounts organizations to contract under Medicare+Choice.[2] In December 2003, Medicare+Choice changed its name to Medicare Advantage (MA) through the Medicare Prescription Drug, Improvement, and Modernization Act of 2003.[3] The Act also made the MA program more appealing to private insurers through the increase payment rates.

To level the playing field between traditional Medicare and MA and to foster a competitive environment for private insurers, Medicare provides capitated payments to the private plans based on the standardized spending among traditional Medicare beneficiaries within each county. However, the payment rates have fluctuated over time due to disagreements over the payment policies and regulations over the MA program.[4] Those who preferred smaller governments advocated to shift the traditional Medicare program to a managed care environment with the belief that private firms would provide higher quality plans at lower cost than traditional Medicare. Changes in payment policies and government regulations can influence entry and exit in a market because of the effect on the profitability of a plan within a market or the level of competition.

Competition is critical for managed competition to achieve its goals of providing low-cost and high-quality products. Studies show that health care markets are generally lacking competition.[5–10] While MA markets also lack competition, there are limited studies that explored the relationship between competition and plan benefit designs as a dimension of quality. The primary goal of this research is to address gaps in the literature and examine the relationship between market concentration and dimensions of plan quality. The next few chapters will address the following three specific research aims:

1. To assess trends in MA contract consolidation and reconsolidations from 2010–2020 and examine changes in star ratings among MA contracts that consolidate into other contracts.
2. To examine whether spending on MA supplemental benefits differ across different levels of market concentration and the factors that predict the offering of supplemental benefits.

3. To explore the factors that predict high or low maximum out-of-pocket limits.

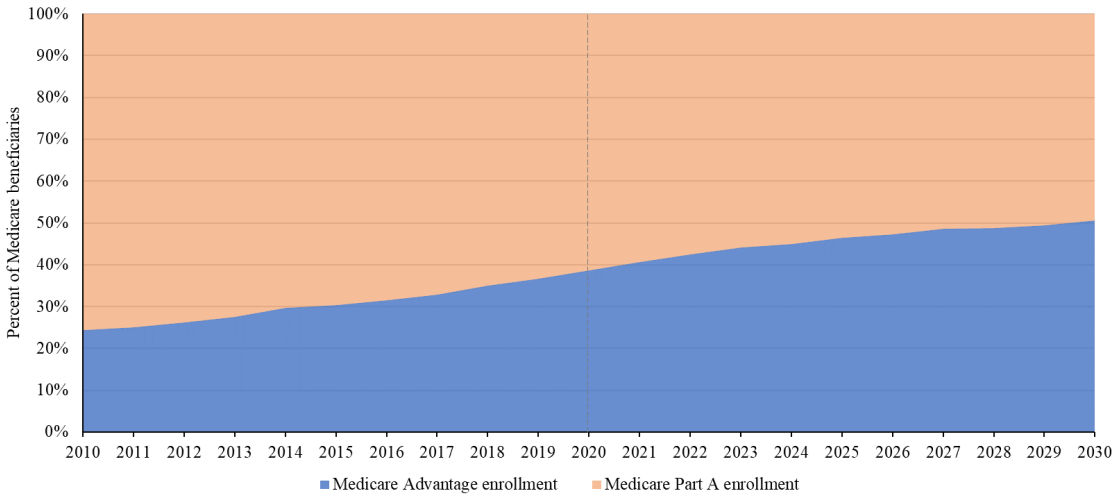
# Chapter 2: Literature Synthesis

## Background

Private insurers provide health care coverage to more than 80 million people with Medicare, Medicaid, or through the Health Insurance Marketplace as of January 2017.[11–13] These private plans, such as Medicare Advantage (MA), Medicaid managed care, and Qualified Health Plans, are regulated by the federal government.[14,15] The three markets are similar in that they are overseen and regulated by the Centers for Medicare & Medicaid Services (CMS) and all have varying levels of consumer protection standards.[14] However, the MA program is different than the other two markets because provider prices are indirectly regulated by the Medicare program; whereas in other health care markets, provider prices are negotiated between insurers and providers.[16]

MA serves roughly one in three (24 out of 68 million) Medicare beneficiaries and this number is expected to grow to about half (40 out of 80 million) of Medicare beneficiaries by 2030 (Figure 2.1).[17,18] Understanding the MA program is important because it is primarily funded by taxpayer dollars (general revenues and payroll taxes) and beneficiary premiums.[19] The inequity in Medicare spending between MA and traditional fee-for-service (FFS) has fluctuated overtime as payment rates wavered between 95 percent to over 130 percent of average fee-for-service costs.[4] More recently, MA payments are closer to FFS spending as a result of legislation changes.[20] Given this, it is critical to understand the MA insurance market and how it is related to benefit designs, such as cost-sharing and coverage features. Furthermore, the expected growth in Medicare beneficiaries enrolling in MA plans over the next decade highlights the importance of understanding the MA market.

**Figure 2.1: Projected Medicare Advantage enrollment, 2010–2030**




Source: Author's analysis of Congressional Budget Office's Medicare Baselines from 2010–2020

The concept of MA is based on the managed competition approach, which was first introduced by Alan Enthoven to address the rising health care costs in the United States.[21] The managed competition concept is believed to "provide maximum value for consumers and employers"[22] and is based on the principle that plans offered in the private sector can provide more comprehensive, high-quality care at a lower price than traditional Medicare.[23,24] The federal government levels the playing field between private insurance companies and traditional Medicare by subsidizing the premiums of MA plans based on what beneficiaries would usually cost in traditional Medicare.[25] However, the MA program would need several insurance companies operating in its markets in order to achieve a competitive marketplace and for managed competition to reach its goals of providing high-quality plans at low prices.[26]

Previous studies have found that MA markets are highly concentrated—that is a small number of firms dominate a large portion of the market—and have increased in market concentration since 2009.[24,25] Using MA payment data, Biles and colleagues found that 97 percent of county-level markets in MA are highly concentrated in 2012.[24]

Another study used MA enrollment data and found that, from 2009–2017, nearly three quarters of MA enrollees lived in highly concentrated insurer markets.[25] This trend in market concentration is consistent with the commercial insurance market.[27] Firm conduct or behavior, such as mergers and consolidations, can influence the competition within the market. For example, markets become more concentrated when there is a decrease in the number of firms or an increase in the disparity in size between firms.[28]

Based on previous studies, the highly concentrated MA markets show that MA is lacking a key ingredient to provide maximum value for plans and consumers: competition.[24,29–31] Findings also show that lower competition leads to plans with higher cost sharing and less generous benefits, which suggests that counties with higher competition would have plans with more generous benefits.[29] This literature review will provide a synthesis of the studies on contract consolidation, market concentration, and MA premiums, plan quality, and benefit generosity. This chapter discusses the theoretical frameworks used in the studies and the literature on market structure, market competition, and outcomes such as premiums, health plan quality, and benefit generosity.

## Theoretical Frameworks

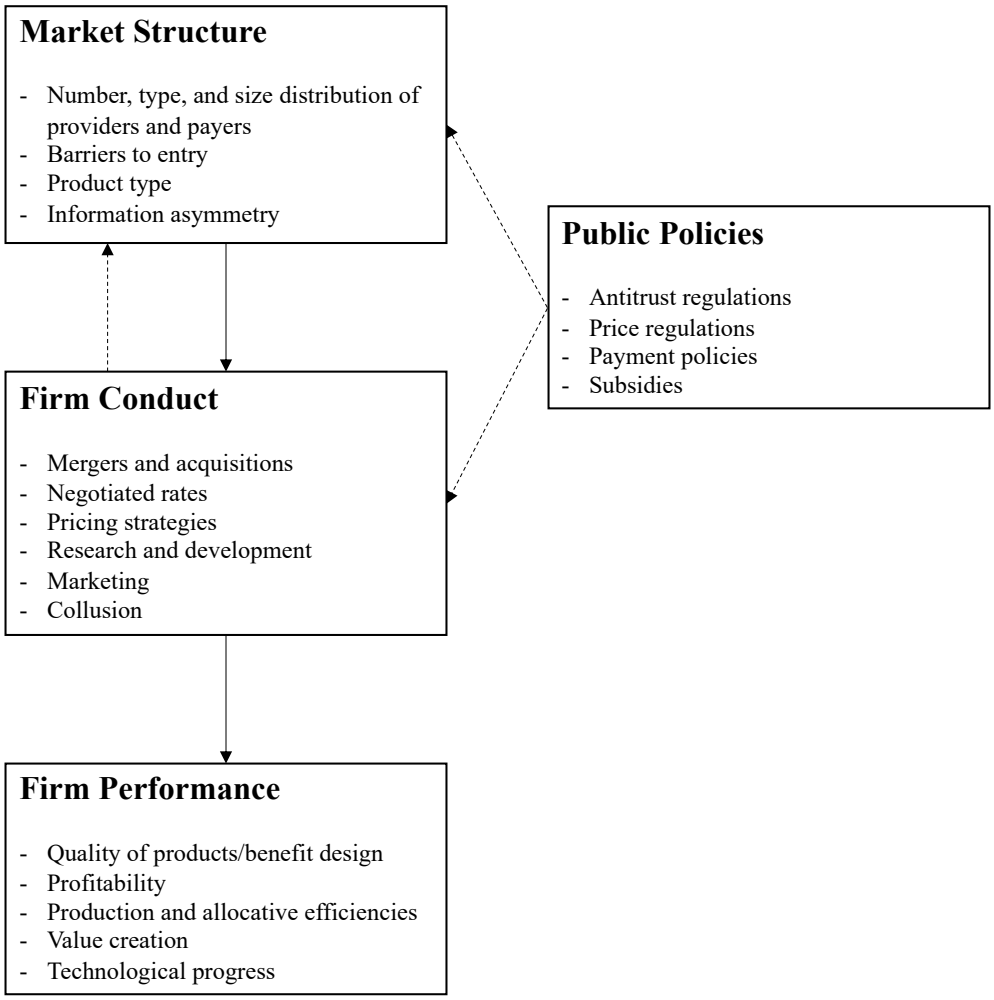
Studies have used the Structure-Conduct-Performance (SCP) specification or structural contingency theory (SCT) to understand the effects of organizational factors on various outcomes.

*Structure-Conduct-Performance*

The SCP model was developed in the industrial organization field and is comprised of three elements with hypothesized causal relationships (see Figure 2.2 for the SCP model).[32] Market **structure**, which can be described as seller concentration, degrees of

vertical integration or product differentiation, and barriers to entry and exit, is posited to cause a firm's behavior or conduct. **Conduct**, which includes pricing strategies, mergers, research and development, collusion, and advertisement, is thought to determine industry **performance**. Performance can be measured as profitability or quality of products. Public policies can influence the market structure and/or firm conduct through antitrust regulations and price regulations. In general industrial organization literature, common measures of market structure is the Hirschman-Herfindahl Index (HHI), which is the sum of the squares of market shares for all firms within a geography, and firm conduct is typically measured as price or price-cost margin.[5]

**Figure 2.2: The Structure-Conduct-Performance paradigm**




Source: Author's analysis of Santerre RE, Neun SP. Health Economics: Theory, Insights, and Industry Studies [Internet]. Cengage Learning; 2012

Most health care studies that use the SCP framework focus on market structure and firm conduct. Gaynor and Town's 2011 review of the literature on markets for health care services and health insurance showed that most health care services studies that used the SCP model only focused on the relationship between market structure and firm conduct.[5] In the context of market competition MA, we find that only a few studies examined both firm conduct (e.g., price) and firm performance (e.g., quality).[31,33,34]

A potential limitation surrounding studies that evaluate changes in market structure is the potential for reverse causality. For example, changes in prices could cause changes

in market structure, which could bias the results toward zero. However, researchers have opined that medical care cost growth is unpredictable so it would be difficult for insurers to systematically enter markets based on price.[35]

*Structural Contingency Theory*

Similar to the SCP paradigm, SCT has a structure, contingency, and performance component. SCT posits that the performance of an organization is dependent on internal and external contingencies and the organizational structure. Internal contingencies include changes that are within an organization's limits that influence its structure. External contingencies include factors that are outside of the boundaries of the organization that influences its structure. To illustrate the theory, a study that used SCT examined the relationships between two market characteristics—MA penetration and hospital competition—and technical efficiency of nursing care in intensive care units.[36] We are not aware of any other published studies that used SCT in the context of MA.

## Market Structure

*Mergers and Acquisitions*

Many studies have explored the effects of provider consolidation. Providers have consolidated through mergers and acquisitions at unprecedented rates over the past decade.[37] As a result, hospital markets are highly concentrated.[22,7,38] Evidence also suggests that provider consolidation leads to higher prices without improvements in efficiency.[39,40] For example, a study that used out-of-market acquisitions from 2000–2010 found that these mergers resulted in reduced competition and higher prices.[37] However, the findings on the effect of mergers and acquisitions on quality of care is mixed.[41,42] Similar to the provider market, the commercial and MA insurance industry also

experienced mergers. Mergers between insurers have resulted in higher premiums.[43–45] For example, researchers found the merger between Aetna and Prudential led to a 7 percent increase in premiums in 2019.[40]

*Contract Consolidation*

In addition to mergers between insurers, MA organizations are also consolidating their contracts. Contract consolidation, or contract cross-walking, occurs when insurers combine MA contracts into a single contract. Some MA organizations consolidate contracts to obtain bonus payments from contracts with a star rating of four or more.[46,47] In MA, contracts within the same insurer can consolidate to earn additional bonus payments under the Quality Bonus Program.[48,49]

The Affordable Care Act mandated that contracts with star ratings of four or more receive quality bonus payments. The purpose of the bonus payments is to incentivize insurers to improve or maintain its performance on approximately 50 quality measures.[50] While nearly all of Medicare's quality payment programs are either budget neutral or produce savings, the quality bonus payments are financed through additional program dollars and therefore is not budget neutral.[51] The Medicare Payment Advisory Commission (MedPAC) estimated that the bonus payments have increased Medicare payments by three percent.[49] In 2018, the bonus payments were estimated to exceed 6 billion dollars.[52]

These contract consolidations are costly to taxpayers and undermine quality ratings.[47–49] Consolidating contracts can increase an insurer's revenue by millions of dollars in a single year[47] and is estimated to have costed CMS as much as $1.1 billion in bonus payments.[48] For example, UnitedHealth's consolidation in 2016 resulted in an

additional $63.7 million dollars in revenue.[47] Contract consolidation of lower-rated contracts into higher-rated contracts can also increase the proportion of enrollees in high-performing plans. MedPAC has also raised concerns about MA organizations shifting low-performing contracts into high-performing contracts multiple times through reconsolidation because this allows MA organizations to perpetuate the higher star ratings.[49,53] Due to these issues, stakeholders have proposed changes to the quality bonus program.[51]

The limited number of studies on contract consolidation in MA primarily described contract consolidations over time. Specifically, consolidated contracts were more likely to be preferred provider organizations (PPOs) and for-profit compared to contracts that did not consolidate.[48] Another study found that the star ratings for for-profit plans improved considerably from 2009 to 2015.[54] A 2019 study described contract consolidation from 2006–2016 and found that over three-quarters (77.3 percent) of beneficiaries who were in a consolidated contract were consolidated from a lower-rated contract to a contract that receive bonus payments.[48]

A recent report examined plans that switched bonus statuses, in addition to plans that remained unchanged, rather than restrict the analysis to plans that consolidated. Most of the additional payments that plans received for moving from non-bonus to bonus status did not go towards extra benefits. The report showed that the plans that moved from bonus to non-bonus status reduced the cost of providing Medicare benefits.[51] The authors of the report hypothesized that the plans that lost their bonus status became more efficient; thus, reducing the cost of benefits.[51] Between 2018 and 2019, plans that moved from bonus to non-bonus status received the highest increase in rebates compared to

plans without a change in bonus status and plans that moved from non-bonus to bonus status.[51]

## Market Concentration

Market concentration describes the structure of a market and is often used to understand entries and exits in a market, consolidations, and policies related to competition. Within the U.S. health care market, policymakers have used different measures of market concentration in an effort to understand competition and its effects on consumers.[31] In general, measures of market concentration considers both the number and size distribution of the firms within a market. However, Dafny (2008) argues that previous studies on competition among insurance companies have several limitations: poor data quality, unsuitable market definitions, and imprecise measures of competition. Specifically, the measures of competition often lack exogenous variation.[10] In this section, we discuss measures of market concentration and synthesize the literature on market concentration and outcomes.

Health care markets are generally highly concentrated. The American Medical Association used enrollment data to assess market concentration in commercial health plans and exchanges, and found that a majority of the insurer markets are highly concentrated.[27] The average market concentration among the commercial health insurance markets have also increased from 2014 to 2019.[27] Gaynor and Town's 2011 literature review of competition in health care markets show that, on average, hospital and insurer markets are highly concentrated and have increased in concentration over time.[5] This increase in concentration has gained the attention of policymakers because of concerns over the potential negative effects of increased concentration on cost and quality

of health care in the United States.[55] A 2019 report from the United States Government Accountability Office found that three of the largest insurers held 80 percent of the large group, small group, and individual markets in 37 states.[56] Within MA, studies show that many MA insurer markets are highly concentrated and have also increased in market concentration since 2009.[24,25] Given the role of market concentration, it is important to assess the extent in which market concentration influences consumers.

*Measures of Market Concentration*

Two common measures of market concentration are the concentration ratio (CR) and the Herfindahl-Hirschman Index (HHI). CR is a percentage that identifies the market share of the largest firms in a market and is simpler of the two measures. CR is interpreted as a higher percentage indicates a more concentrated market. Economists often use a four-firm concentration ratio ($CR_4$), which represents the sum of market shares of the four largest firms within the market.[32] The eight-firm concentration ratio ($CR_8$) is also sometimes used.[57] A limitation of the CR measure is that it does not distinguish between markets with a few smaller firms and markets with a large number of smaller firms. Also, this measure does not account for other market conditions, such as barriers to entry.

The Herfindahl-Hirschman Index (HHI) is also commonly used to measure market concentration.[56] HHI is a positive integer that ranges from close to zero (least concentrated, or nearly perfect competition) to 10,000 (most concentrated, or a monopoly). The U.S. Department of Justice, in addition to banking and antitrust authorities, rely on the HHI to assess the effects of mergers on competition.[58]

Studies that explored market concentration in MA have often calculated the HHI. These studies largely calculate HHI at the county level because plan payment rates are set and competition for enrollees occur at the county level.[30] Because MA plan service areas often span across multiple counties, studies have also used a weighted HHI measure to determine the overall market concentration in which the plans operate. The weighted HHI can be calculated by first determining the HHI in each county using enrollment information. The county-level HHI is calculated by taking the sum of the squared market share of each plan in a county, as follows:

$$HHI_c = \sum_i^I (S_{ic})^2,$$

where $S_{ic}$ is the market share, defined by MA enrollment, for MA plan *i* in county *c*. For example, a county with four MA plans with equal market shares of 25 percent would have an HHI of 2,500 ($25^2 + 25^2 + 25^2 + 25^2 = 2{,}500$). This county would have a moderately concentrated market based on the classification outlined by the U.S. Department of Justice and the Federal Trade Commission.[28] Next, the weighted HHI for each plan's service area is calculated using the following formula:

$$HHI_i = \sum_c^C \alpha_{ic} HHI_c,$$

where $\alpha_{ic}$ is the share of plan's *i* enrollment in *c* county and $HHI_c$ is the county-level HHI.[59] For example, a plan that operates in two counties with 75 percent of the plan's enrollment in county A with county-level HHI of 2,500 and 25 percent of the plan's enrollment in county B with county-level HHI of 5,000 would have a plan service area-level HHI of 3,125 ((75 percent * 2,500) + (25 percent * 5,000) = 3,125). The plan service area-level HHI describes the overall competitive conditions faced by the plan

across the counties in which it operates.[59] Other studies also used a similar weighting methodology to calculate county-level HHI at the MA plan service area level[60] and Marketplace rating-area level.[61]

Using the Horizontal Mergers Guidelines, market concentration, $HHI_i$, is defined as:[28]

- Unconcentrated: HHI < 1,500
- Moderately concentrated: 1,500 ≤ HHI < 2,500
- Highly concentrated: HHI ≥ 2,500

Under the Horizontal Mergers Guidelines, a 200 unit increase in HHI among nonconcentrated markets is not concerning. However, a 200 unit increase in HHI among highly concentrated markets is presumed to likely to increase market power. Given the highly concentrated MA health insurance market, researchers have created another category for super concentrated markets. Super concentrated markets have HHIs higher than 5,000.[55] Markets that are nonconcentrated are more likely to be competitive, whereas a highly or super concentrated market is less likely to be competitive.

Studies have used a variety of measures to assess market concentration in Medicare Advantage. Biles et al. (2015) used 2012 payment and enrollment data to calculate the HHI within each county in the United States.[24] Other studies used enrollment data to calculate MA insurer HHI at the parent organization level.[25,29–31] In addition to calculating the HHI at the county-level, Pelech also measured competition using the number of MA firms offering a plan in a county.[29] In addition, Frank and McGuire used two-firm concentration ratios and a count of the number of insurers offering plans in a county to determine potential competition and market concentration in MA.[25]

## Market Concentration and Outcomes

Consumers and purchasers benefit from greater competition because it drives higher quality and lower prices.[5,24] The lack of competition in health care markets highlight the importance to better understand the landscape as it relates to quality and price.[5] Researchers have examined the relationship between market concentration of health insurance companies and/or providers and various outcomes, including premiums, quality, and benefit generosity. Specifically, there is a large body of studies on insurer market concentration and prices for health care services,[62–69] with some studies exploring the employer-sponsored market and marketplaces.[10,44] Studies have also examined the impact of market concentration on quality among Medicare patients and present mixed results.[70–77] There are fewer studies on outcomes related to market concentration in MA. This section synthesizes the literature on market concentration and range of outcomes in both the health care sector and within MA.

When defining market concentration in the MA program, a central question is the extent of competition between traditional Medicare and MA because both offer Parts A and B benefits, so they are potentially substitute goods. This was a central question in the Aetna-Humana case.[78] While traditional Medicare likely influences the conduct of MA firms, research findings suggest that consumer choice is largely driven by premiums, quality of care, and benefits among MA plans.[79] Furthermore, in this dissertation, I examine three outcomes—premiums, health plan quality, and benefit generosity. These outcomes represent firm structure and firm performance. These outcomes are important in MA because the indirect price regulation emphasizes these factors when determining the "winners and losers" in MA markets.[16]

*Premiums*

The extensive body of literature on the relationship between market concentration and health insurance premiums show a positive relationship between insurer concentration and premiums. Within the structure-conduct-performance paradigm, the relationship between market concentration and premiums represent the market structure-firm conduct pathway. In general industrial organization literature, price is a common measure of firm conduct.[5] In the context of health maintenance organizations (HMO), studies found a relationship between higher competition of HMO plans and lower insurance premiums.[80,81] Dafny's 2008 study used a proprietary dataset on employer insurance contracts and revealed that health insurers charge more profitable employers higher premiums, especially in geographic areas where there are fewer insurance companies in the market.[10] In another study, Dafny et al. (2012) used longitudinal data on employer-sponsored health plans to examine the effect of insurer consolidation on insurance premiums and found that increases in market concentration raise insurance premiums.[44] In these studies, market structure is endogenous given potential unobservables that are correlated with market concentration and price.[5] If the unobserved factors, such as quality of health care services, are not appropriately accounted for then the coefficients will be biased. Researchers have attempted to address this issue by using an instrumental variable approach or constructing weighted HHIs.[71]

In addition to assessing insurer competition and premiums, studies have examined how insurer and hospital market concentration relates to premiums and revealed more complex relationships. A recent study found that while less concentrated insurance markets is associated with lower premiums, the relationship is attenuated with increased

hospital market concentration.[82] Using nationally representative survey data, Trish and Herring (2015) examined the relationship between local insurer and hospital market concentration and employer-sponsored health insurance premiums. The authors found that highly concentrated insurance and/or hospital markets had higher premiums than more competitive markets.[66] With highly concentrated insurer and provider markets, insurance companies have increased bargaining power to reduce provider prices,[62–65,67,83] but studies show that very few of these benefits are passed through to consumers in the form of lower premiums.[8,44,66,84]

In MA, the process of determining premiums is complex and depends on a number of factors, including the bid amount, benchmarks, and quality ratings. Benchmarks are determined based upon the average cost of a Medicare fee-for-service beneficiary in that county. A plan's bid for the "average" enrollee is then compared to the county-level benchmark; if a plan's standard bid is above the benchmark, then the beneficiary pays a premium that is the difference between the bid and the benchmark. If a plan's standard bid is below the benchmark and the plan receives a rebate (which varies depending on the plan's star ratings), then the plan must return the rebates to the beneficiary in the form of increased supplemental benefits, lower Part B or Part D premiums, and lower cost sharing.[85] Studies have found that more concentrated MA markets led to higher bids.[86]

There is limited evidence on the relationship between MA market concentration and health insurance premiums. A 2002 study used a natural experiment and found that increased competition in Medicare+Choice plans—which was renamed to Medicare Advantage in 2003—reduced premiums.[87] Using difference-in-differences estimation, Cabral and colleagues (2014) explored the impact of implementing MA payment floors

through the 2000 Benefits Improvement and Protection Act. The authors found that more competitive MA insurer markets were more likely to pass through increased capitated payments in the form of lower consumer premiums.[88] In contrast, other studies that were not restricted to the MA market found that price reductions from increased bargaining power were generally not passed on to the consumers.[8] Even if the cost reductions from increased bargaining power were passed on to the consumer in the form of reduced premiums, there are potentially negative consequences of consolidated markets such as reduced service quality.[84]

Studies suggest that higher MA market concentration is associated with higher premiums, but this relationship is modified by plan quality and other market factors. McCarthy and Darden (2017) used a regression discontinuity design to examine the effect of MA quality ratings on premiums as it relates to market competition and found that contracts operating in more concentrated markets do not significantly increase premiums as a response to quality reporting but these effects vary by quality rating.[34] Adrion (2019) also examined the relationship between MA market concentration, health insurance premiums, and plan quality.[31] Adrion found that MA plans in more concentrated markets are more likely to have higher quality ratings.[31] Similar to the other studies in this area, Adrion found a positive relationship between insurer market concentration and health insurance premiums, regardless of the hospital market concentration; however, the strength of the relationship varied according to plan quality.[31] Premiums are only lower when both the MA insurer and hospital markets are less concentrated.[31] Another consideration is that beneficiaries are less likely to enroll in the managed care option

when premiums increase so insurers have to keep premiums below a certain level to retain beneficiaries even in the absence of competition.[89]

*Health Plan Quality*

There is a large body of literature on the effects of insurer market competition on premiums, but there are fewer studies on the relationship between insurer market concentration and health plan quality.[29] In the SCP paradigm, this is the connection between market structure and industry performance. Evidence suggests that the relationship between insurer market concentration and health plan quality is complex. In highly concentrated markets, insurers might have little incentive to improve quality because consumers have limited plan choice. However, insurers might have more leverage to incentivize providers to improve their quality of care with their market power.[31] Furthermore, increased insurer market power could lead to increased efficiency through economies of scale which would open up opportunities for the insurer to invest in quality improvement programs.

Policymakers have proposed various legislation to increase competition among health insurers as a way to improve quality. For example, the Affordable Care Act's Health Insurance Marketplace is a prime example of this type of effort. The Medicare Prescription Drug Improvement and Modernization Act is another example where provisions aimed increase competition among health insurers offering Part D benefits as a way to improve quality.[31,90] Additionally, courts often assume a causal relationship between price competition and improved quality.[91] However, a proposed rule has also sought to facilitate coordination by relaxing market competition restrictions imposed by

the Stark law, which is a federal statute that addresses health care fraud and abuse by prohibiting physician self-refferals.[92]

Findings on the relationship between insurer market concentration and quality are mixed. While there is an extensive body of literature on the relationship between hospital market concentration and hospital or patient quality, there are fewer studies on the relationship between insurer market concentration and quality.[93,94] Health plan quality ratings include many different measures, ranging from clinical processes to consumer satisfaction ratings. Scanlon et al. published two studies on health maintenance organization (HMO) plan competition and quality. In one of their studies, the authors found that competition among HMOs was associated with beneficiary satisfactory but not with clinical process quality.[95] Their later study found no association between competition among HMOs and plan quality.[96] A recent study that used Hospital Consumer Assessment of Healthcare Providers and Systems measures from Hospital Compare data to examine the effects of hospital and insurer market concentration on patient experience of care found a positive association between insurance concentration and patient satisfaction but a negative association between hospital concentration and patient satisfaction.[93] The authors suggested that insurer consolidation could lead to improvements in patient experience.[93]

Previous studies have found the association between MA market concentration and health plan quality is not consistent—it depends on the quality measure.[31] Evidence shows that the summary star rating is positively associated with MA market concentration but researchers did not detect a statistically significant relationship when using clinical process measures.[31]

While most studies rely on the star ratings[1] as indicators of quality, there are issues with the star ratings system and the metrics are often criticized.[97] The summary-level ratings also mask any potential gaming of quality ratings—where insurers in less concentrated provider markets selectively seek contracts with the providers that score higher on quality measures[16,98]—which could bias any findings that rely on the star ratings. Nevertheless, the star ratings are often used as a measure of quality in MA and a qualitative study indicated that star ratings is an important component of competition in MA markets.[98] The star ratings are visible to consumers and plans with 4 or more stars receive greater rebates so higher star ratings can translate to higher revenue.[16] Given this, the star ratings might serve as an incentive for insurers with lower quality ratings to improve health plan quality through negotiations with providers or quality improvement programs.

A cross-sectional study used the star ratings data and demonstrated that MA market concentration is statistically significantly associated with high-quality summary ratings, but not with high-quality clinical process ratings.[31] When assessing the relationship between insurer market concentration and health plan quality, it is also important to consider market concentration among providers. Insurers in more concentrated provider markets might have less negotiation power for quality improvement than insurers in less concentrated provider markets. The study also stratified the findings by provider market and found that plans in less concentrated provider and MA markets were less likely to have high ratings, but plans in highly concentrated MA markets received higher summary

[1] Star ratings range from one to five stars and are based on five domains: staying healthy: screenings, tests, and vaccines; managing chronic (long-term) conditions; member experience with health plan; member complaints and changes in the health plan's performance; and health plan customer service.

ratings.[31] As discussed, there are issues with plan quality measurement given that plan quality is a complex construct that involves many different factors outside of consumer satisfaction and clinical processes.[31]

*Benefit Generosity*

Health plan benefit generosity is one dimension of health plan quality along with the quality of customer service and a plan's network.[29] Specifically, plan benefit generosity can be defined as "the proportion of medical spending covered by the insurer and is determined by plan financial characteristics such as copays, deductibles, and covered benefits."[29] While less generous benefits can encourage more judicious use of health care services, it can also reduce access to care and increase financial strain.[99] Therefore, it is important to understand how market concentration relates benefit generosity.

Within the MA context, a dimension of benefit generosity includes supplemental benefits such as dental, vision, and hearing benefits, as well as a maximum out-of-pocket limit. Since poor oral health, vision, and hearing are directly connected with worse overall health,[100–103] it is important to examine whether supplemental benefit offerings varies by MA market concentration. Previous studies have largely focused on unmet needs and out of pocket costs using survey data.[104] The lack of coverage for dental, vision, and hearing services can translate into high out-of-pocket costs and inadequate access to routine dental, vision, and hearing screenings.[105–107] Using the data from the Oregon Health Insurance Experiment, researchers found that Medicaid coverage significantly reduced unmet dental care needs.[108] While there is evidence that insurance coverage is an important determinant of access to care,[109,110] there are limited studies on what factors encourage coverage in MA.

We found limited studies on the relationship between MA market concentration and plan benefit generosity. Pelech's 2018 study assessed the relationship between insurer competition and health plan benefit generosity by examining policy changes to private-fee-for-service plans. The findings from Pelech's study show that reductions in plans led to higher out-of-pocket costs among the least competitive counties, and little change in benefit generosity among the most competitive markets.[29] A 2002 study found that Medicare+Choice plans had a 57 percent increase in probability of offering dental benefits if another plan in the county offered dental benefits in the previous year.[87] We are not aware of any studies on MA market concentration and other dimensions of benefit generosity. For example, studies have not explored the relationship between MA market concentration and supplemental benefits or maximum out-of-pocket spending amounts. Consistent with studies on health insurance plan choice,[111,112] a study found that anticipated out-of-pocket costs is not an important factor when deciding between traditional Medicare and private fee-for-service (PFFS) or HMO/PPO plans.[79] However, less generous plans with higher maximum out-of-pocket amounts and fewer supplemental benefits can place more of a financial strain on sicker patients.

## Conclusion

In the context of the MA program, there are opportunities to expand upon the limited studies on contract consolidation to provide evidence for policymaking. Given that the relationship between insurer market concentration and plan quality is complex, it is important to understand the relationship between MA market competition and different dimensions of plan quality. We found limited studies on the relationship between MA insurer market concentration and various components of benefit generosity. Future

studies on market concentration and contract consolidation in the MA program can inform policymakers on the implications of the current highly concentrated MA market and how proposed changes to the market structure could influence plan benefits and Medicare beneficiaries.

# Chapter 3: Trends in Contract Consolidation and Changes in Star Ratings in Medicare Advantage, 2012–2020

## Introduction

The Medicare program spends nearly $6 billion a year on the Medicare Advantage (MA) quality bonus program to reward high performing contracts. However, MA organizations have used a loophole to extend the additional quality bonus payments to low-performing contracts.[51] MA organizations that administratively shifted low-performing contracts into high-performing contracts through consolidation were eligible to receive bonus payments from the Centers for Medicare and Medicaid Services (CMS) solely based on the star rating of the high-performing contract.[49] Since the consolidated contract's star ratings is based on historical performance, the lower-performing contract absorbs the higher-performing contract's star rating for two years after consolidation without having to improve performance. After two years, the consolidated contract's star rating will be based on the performance of the entire consolidated contract rather than the higher-rated contract prior to consolidation. One study estimated that this practice cost taxpayers more than $1 billion from 2012 to 2016.[48] The Medicare Payment Advisory Commission (MedPAC) has also raised concerns about contracts shifting low-performing contracts into high-performing contracts multiple times through reconsolidation because this allows contracts to perpetuate the higher star ratings.[49,53]

Congress narrowed this loophole in the Bipartisan Budget Act of 2018 by requiring that, starting in 2020, an enrollment-weighted mean star rating instead of the contract with the higher star rating is used to determine the performance score immediately

following consolidation.[113] We update previous studies by tracking changes in contract consolidation and reconsolidation since the implementation of the Affordable Care Act's quality bonus payment demonstration in 2012 and examining changes in star ratings among the consolidated contracts.

*Conceptual Framework*

Our study used the Structure-Conduct-Performance (SCP) framework to assess trends in contract consolidations.[32] The framework suggests that public policies, including payment policies and antitrust laws, can influence firm conduct. For example, the surge in hospital-physician integrations in the last decade was attributed to the lack of site-neutral payment policies for outpatient procedures under the Hospital Outpatient Prospective Payment System.[41] MedPAC argued that hospitals and physicians would have less incentive to integrate to increase profits if the payment rates for hospitals and physician offices were aligned.[41] If the payment rates were site-neutral, then hospitals and physician offices would integrate only to gain efficiencies.[41] Other policies, such as antitrust laws, were formed to foster competition and prevent firms from engaging in activities that interfere with free competition.[114] The SCP framework also suggests that firm conduct affects firm performance. Studies found that these hospital-physician integrations have led to higher facility and professional fees due to higher negotiated rates as a result of increased market power.[41,115] The higher prices translated to higher profitability for the providers. The effect of mergers on quality of care is mixed.[41,42] Using the SCP framework, our study draws on various policy changes (i.e., the creation of the quality bonus demonstration under the Affordable Care Act and changes to calculating the star ratings among consolidated contracts in the Bipartisan Budget Act of

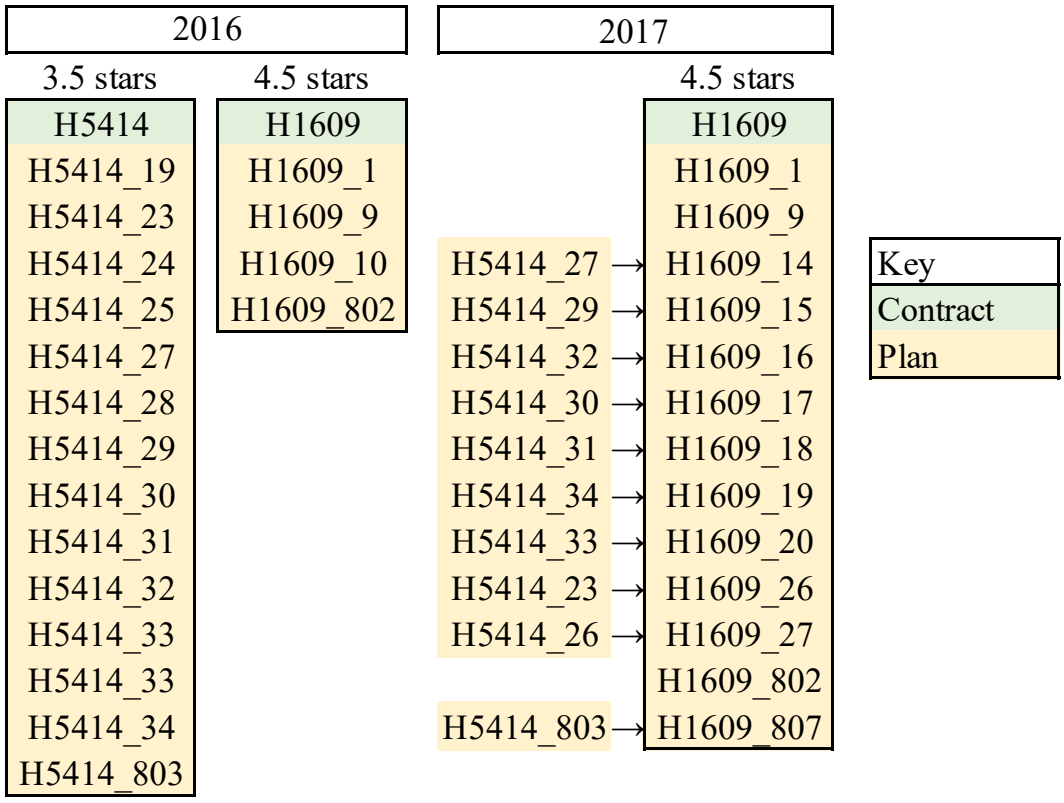
2018) and assess the trends in administrative shifting of contracts in MA. We also examine changes in quality ratings among the plans that shifted into another contract.

## Methods

*Contract Consolidations*

We define consumed plans—those that moved into a different contract—as health maintenance organizations, health maintenance organizations with a point of service option, local preferred provider organization, or private fee-for-service plans with a different contract identifier under the same MA organization compared to the previous year. Beneficiaries enrolled in plans that are part of a contract consolidation must be crosswalked—or transferred—to a plan under another contract. For example, Figure 3.1 shows that contract H1609 absorbed contract H5414 in 2017. Contract H1609 gained beneficiaries from contract H5414 and retained its 4.5 star rating after consolidation because of the reliance on the surviving contract's rating. The parent organization terminated the plans under H5414 that were not crosswalked to a plan under H1609. The MA organization crosswalked the beneficiaries under the terminated plans to the most comparable plan. New and terminated contracts and plans were excluded from the analysis. Reconsolidated plans are those that were already consumed at least once in a prior year.

**Figure 3.1: Example contract consolidation under a parent organization in 2017**




Source: Author's analysis of 2016-2017 Medicare Advantage Part C & D Display Measure and crosswalk public use files

*Data and Analyses*

We examined changes in contract consolidation and star ratings from 2012 to 2020 using publicly available data on MA enrollment, contract characteristics, star ratings, and plan crosswalks. We used the Medicare Part C & D Display Measure data to determine the contract's overall rating. Contracts receive between one and five stars, in half star increments, and the rating applies to all plans under the contract. Plans that bid below the county's benchmark receive a percentage of the difference in the form of a rebate from CMS.[116] The percentage depends on the plan's star rating (Table 3.1). Plans under contracts with 3 or fewer stars receive 50 percent of the difference; 3.5–4 stars receive 65 percent of the difference; and 4.5 or 5 stars receive 70 percent of the difference.[50] Plans

with not enough data receive 50 percent and plans that are too new to be measured receive 65 percent.[50] In addition, plans under contracts with 4 or more stars receive a 5 percent quality bonus. Plans that are too new to be measured receive a 3.5 percent quality bonus. Plans operating double bonus counties with 4 or more stars qualify for a 10 percent quality bonus.

**Table 3.1: Medicare Advantage plan rebate and quality bonus, by star rating**

| Star rating | Rebate (percent of bid–benchmark difference) | Quality bonus (percent increase in benchmark) |
|---|---|---|
| 1.0–3.0 stars | 50 percent | 0 percent |
| 3.5 stars | 65 percent | 0 percent |
| 4.0 stars | 65 percent | 5 percent* |
| 4.5–5.0 stars | 70 percent | 5 percent* |
| Too new to be measured | 65 percent | 3.5 percent for first three years |
| Lack sufficient data | 50 percent | 3.5 percent |

Source: MedPAC. Report to the Congress: Medicare and the Health Care Delivery System. 2019. Available from: http://www.medpac.gov/docs/default-source/reports/jun19_ch8_medpac_reporttocongress_sec.pdf
* The quality bonus is doubled to 10 percent in double bonus counties.

Under the profit maximization model, for-profit organizations are likely to make decisions to maximize its profit due to its obligations to its shareholders to remain profitable. Not-for-profit organizations might range from being "for-profits in disguise" to "pure altruistic" organizations.[117] Since for-profit and not-for-profit organizations might respond to the changes in the contract consolidation rules differently, we assessed the trends in contract consolidation over time by tax status (i.e., for-profit status). We also examined the proportion of consumed plans that increased in star ratings and the proportion of plans that later reconsolidated. We compared characteristics of consumed and non-consumed plans from 2012 to 2020 using $\chi^2$ and 2-tailed *t* tests with an $\alpha$ level of 0.05. All analyses were performed using R version 4.0.0.

## Results

Among 24,377 MA plans offered between 2012 and 2020, 769 (3.2 percent) plans were consolidated into another contract and 87.8 percent of those plans had less than 4 stars in the year prior to consolidation. At the contract level, MA organizations collectively consolidated 154 contracts out of a total of 4,378 contracts. When compared to plans that did not consolidate, consumed plans were significantly more likely to be for-profit, have a lower star rating in the year prior to consolidation, and have a lower proportion of low-income subsidy beneficiaries (Table 3.2). As expected, consumed plans were more likely to operate in multiple states after consolidation compared to plans that were not consumed by another contract because the service areas of the former include both the surviving and subsumed plans.

**Table 3.2: Characteristics of Medicare Advantage plans by consolidation status, 2012–2020**

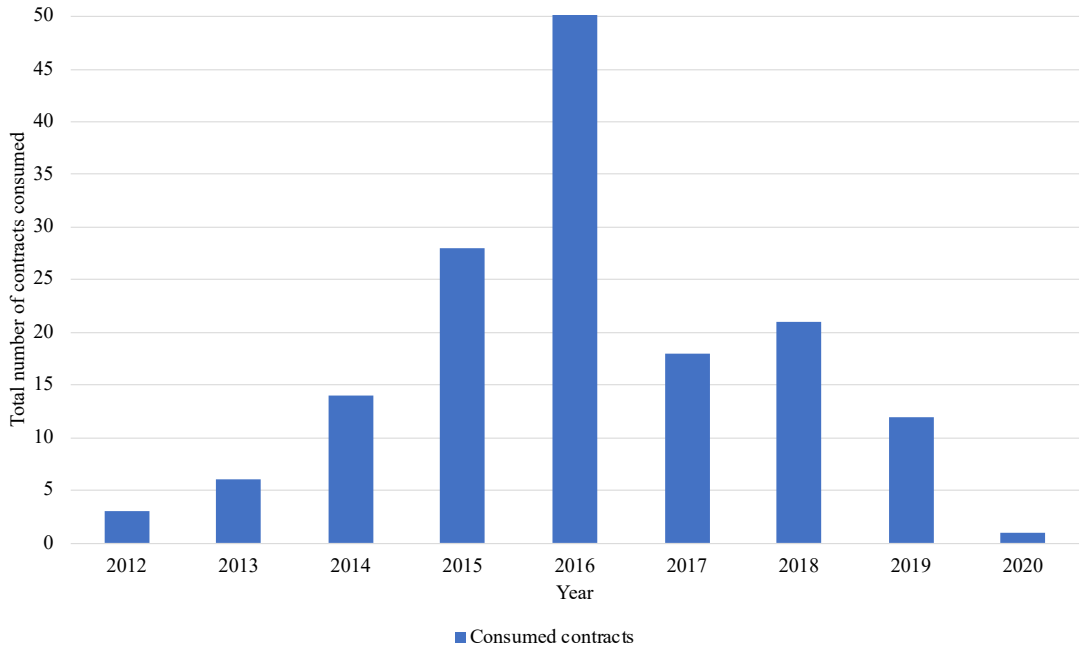
| | No. (%) | | | |
|---|---|---|---|---|
| | Overall | Not consumed | Consumed[a] | *P* Value |
| **N Plans** | **24,377** | **23,608 (96.8)** | **769 (3.2)** | |
| **N Enrollees[b]** | **115,872,373** | **112,142,881 (96.8)** | **3,729,492 (3.2)** | |
| **Plan type** | | | | |
| HMO | 15,593 (64.0) | 15,118 (64.0) | 475 (61.8) | <0.001 |
| HMOPOS | 2,113 (8.7) | 2,081 (8.8) | 32 (4.2) | |
| Local PPO | 6,095 (25.0) | 5,837 (24.7) | 258 (33.6) | |
| PFFS | 576 (2.4) | 572 (2.4) | 4 (0.5) | |
| **Star rating (prior year, pre-consolidation)** | | | | |
| 2–2.5 stars | 997 (4.1) | 975 (4.1) | 22 (2.9) | <0.001 |
| 3–3.5 stars | 9,008 (37.0) | 8,355 (35.4) | 653 (84.9) | |
| 4–5 stars | 11,295 (46.3) | 11,235 (47.6) | 60 (7.8) | |
| Unrated | 3,077 (12.6) | 3,043 (12.9) | 34 (4.4) | |
| **Star rating (current year, post-consolidation)** | | | | |
| 2–2.5 stars | 946 (3.9) | 927 (3.9) | 19 (2.5) | <0.001 |
| 3–3.5 stars | 8,841 (36.3) | 8,757 (37.1) | 84 (10.9) | |
| 4–5 stars | 12,526 (51.4) | 11,889 (50.4) | 637 (82.8) | |
| Unrated | 2,064 (8.5) | 2,035 (8.6) | 29 (3.8) | |
| **Plan size** | | | | |
| Small (0–5,000) | 17,808 (73.1) | 17,332 (73.4) | 476 (61.9) | <0.001 |
| Medium (5,000–25,000) | 5,445 (22.3) | 5,183 (22.0) | 262 (34.1) | |
| Large (>25,000) | 1,124 (4.6) | 1,093 (4.6) | 31 (4.0) | |
| **Tax status** | | | | |
| For-Profit | 18,569 (76.2) | 17,840 (75.6) | 729 (94.8) | <0.001 |
| Not-for-Profit | 5,808 (23.8) | 5,768 (24.4) | 40 (5.2) | |
| **Beneficiaries receiving low-income subsidy** | | | | |
| 0–15% | 9,634 (39.5) | 9,394 (39.8) | 240 (31.2) | <0.001 |
| 15–75% | 4,605 (18.9) | 4,369 (18.5) | 236 (30.7) | |
| 75–100% | 6,743 (27.7) | 6,597 (27.9) | 146 (19.0) | |
| Missing | 275 (1.1) | 267 (1.1) | 8 (1.0) | |
| **Mean N overall star rating (sd)** | | 3.8 (0.6) | 4.1 (0.5) | <0.001 |
| **Mean N states in plan's service area (sd)** | | 1.8 (3.1) | 5.0 (3.1) | <0.001 |
| **Mean N counties in plan's service area (sd)** | | 22.4 (52.2) | 36.2 (52.2) | <0.001 |

Source: Author's analysis of 2012–2020 Medicare Advantage plan directory, contract information, January enrollment, and crosswalk public use files, and 2011–2020 Part C & D Display Measure
HMO = health maintenance organization; HMOPOS = health maintenance organization with a point-of-service option; PFFS = private fee-for-service; PPO = preferred provider organization
[a]Consumed plans include plans that moved into another contract.
[b] Enrollment as of December of the prior year (pre-consolidation). Members could have switched plans or disenrollment in January of the following year for reasons other than contract consolidation.

Contract consolidations peaked in 2016 with 51 contracts (7.8 percent of possible plans) consumed (Figure 3.2). The number of consumed contracts dropped to 18 consumed contracts (4.0 percent of plans) the following year. Contract consolidations

slightly increased in 2018 and fell to 12 consumed contracts (3.4 percent of plans) in 2019. In 2020, only one contract consolidated into another contract.

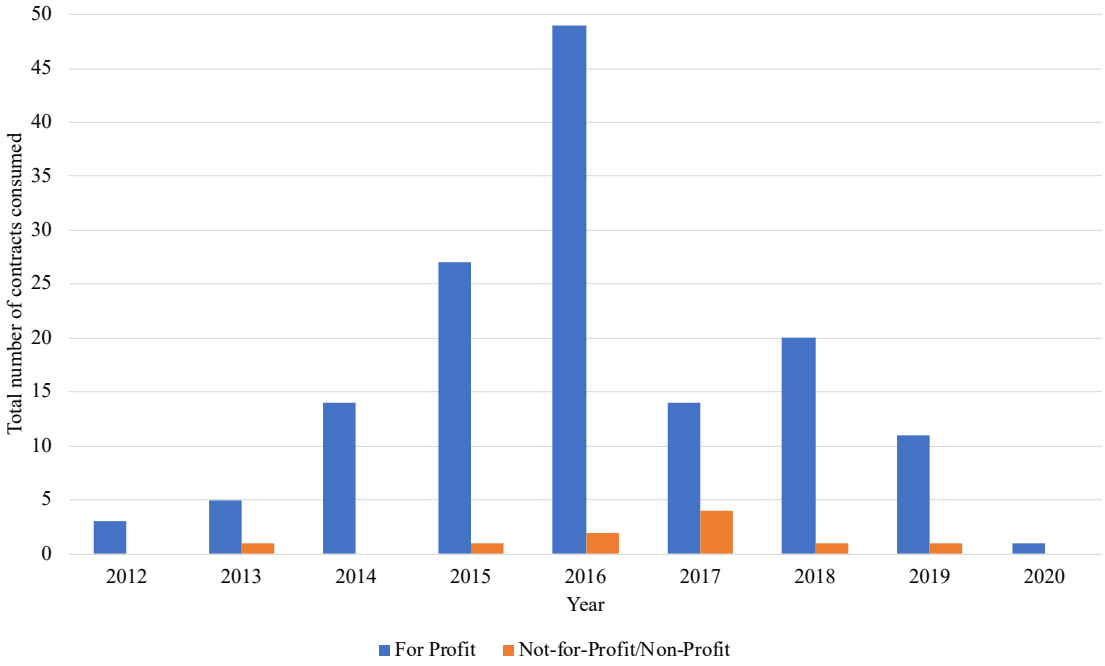
**Figure 3.2: Number of consumed contracts in Medicare Advantage, 2012–2020**




Source: Author's analysis of rate calculation and crosswalk public use files

Between 2012 and 2020, for-profit contracts were responsible for over 90 percent of MA contract consolidations (Figure 3.3). While overall contract consolidations peaked in 2016, the number of consolidations among not-for-profit contracts peaked in 2017. However, only 10 not-for-profit contracts consolidated (compared to 144 for-profit contracts) during the analysis period.

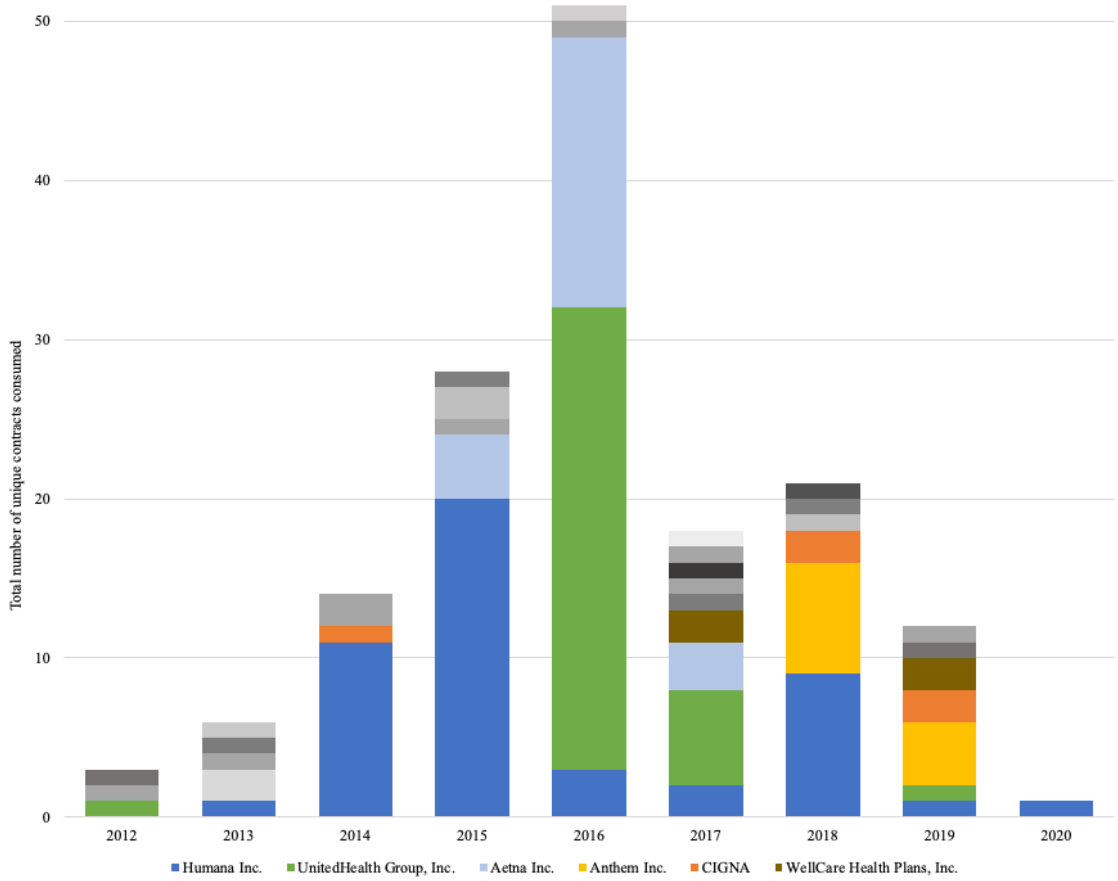
**Figure 3.3: Number of consumed Medicare Advantage contracts by tax status, 2012–2020**




Source: Author's analysis of rate calculation and crosswalk public use files

Four for-profit parent organizations (Humana [31.2 percent], UnitedHealth Group [24.0 percent], Aetna [15.6 percent], and Anthem [7.1 percent]) accounted for 77.9 percent of the consolidations (Figure 3.4). Humana accounted for a majority of the consolidations in 2014 and 2015. UnitedHealth Group and Aetna were responsible for most of the consolidations that occurred during the peak year. Anthem consolidated during more recent years (2018 and 2019).

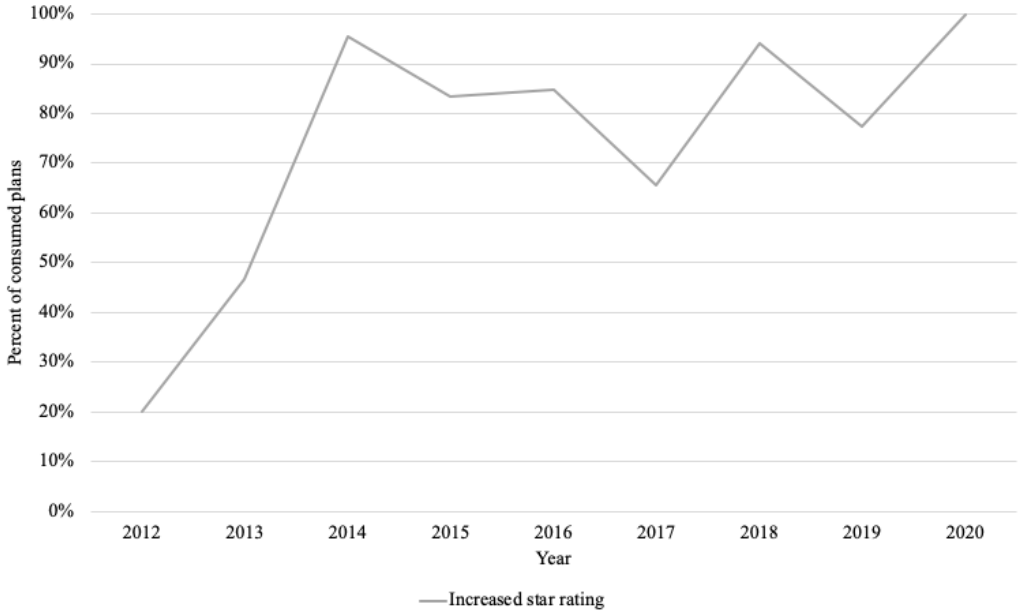
**Figure 3.4: Consumed contracts by parent organization, 2012–2020**




Source: Author's analysis of rate calculation and crosswalk public use files

Overall, 83.0 percent of consumed plans absorbed a higher star rating as a result of consolidation (Figure 3.5). In 2018, 189 out of the 201 consumed plans (94.0 percent) increased in star ratings after consolidation. Among the for-profit contracts that consolidated into another contract, 85.5 percent of plans under these contracts increased in star ratings after consolidation during the analysis period.

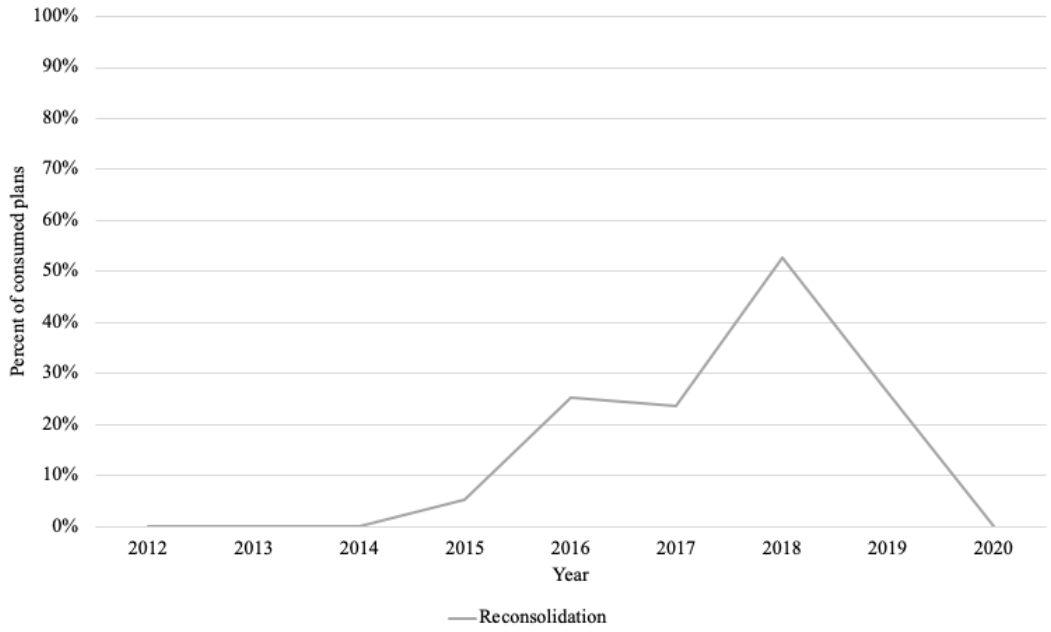
**Figure 3.5: Percent of consumed plans that increased in star ratings**




Source: Author's analysis of 2011-2020 Medicare Advantage Part C & D Display Measure, rate calculation, and crosswalk public use files

Contract reconsolidations started in 2015 (Figure 3.6). Since then, nine contracts (213 plans) that had previously consolidated were consolidated again into another contract. Contract reconsolidation peaked in 2018 with 53 percent of consumed plans (106 plans) moving into another contract after previously consolidating in 2014 or 2015. At the same time, 94 percent of the consumed plans (201 plans) received a higher star rating after consolidation. The number of contract reconsolidations dropped the following year and none of the MA organizations reconsolidated their previously consolidated contracts in 2020.

**Figure 3.6: Percent of consumed plans that reconsolidated, 2012–2020**




Source: Author's analysis of rate calculation and crosswalk public use files

## Discussion

We find that MA contract consolidations peaked in 2016 and reconsolidations peaked two years later in 2018. During the peaks, a majority of the consolidated plans received higher star ratings post-consolidation without having to change the quality of the consumed plan. Plans with higher quality ratings can receive additional payments from CMS compared to lower-rated plans in two ways. First, MA organizations that submit plan bid amounts that is lower than the county's benchmark receive a percentage of the difference in the form of a rebate. Plans under contracts with higher quality ratings receive a larger percentage of the rebate compared to plans under contracts with lower quality ratings. Second, plans under contracts with higher quality ratings are paid on the basis of a higher benchmark, meaning that the plan's bid is compared to a county benchmark that is 5–10 percent higher than the standard county benchmark. Given the MA rebate policy under the Affordable Care Act, the consumed plans that increased from

3 or 4 stars through absorbing the higher rating likely benefited from an increased percentage of rebate payments.

The Bipartisan Budget Act of 2018 changed the methodology of calculating the star ratings for consolidated contracts. Effective January 1, 2020, consolidated contracts receive an enrollment-weighted average of the star ratings for both contracts rather than the star rating of the surviving contract.[39] Under the new methodology, the consolidated contract receives a star rating based on the enrollment-weighted measure scores of the contracts in the consolidation in the first year following consolidation. However, the periods used for calculating the averages vary by the type of measure (see Table 3.3 for an example of the month[s] of enrollment used to calculate the 2020 star ratings for consolidated contracts). In the second year following consolidation, all measures except the Consumer Assessment of Healthcare Providers and Systems, call center, Health Outcomes Survey, and Healthcare Effectiveness Data and Information Set measures use an enrollment weighted average.

**Table 3.3: Enrollment used for the star rating calculation for the first year following a consolidation, by measure type**

| Measure type | Rule for which month of enrollment is used | Month(s) of enrollment used for 2020 star ratings |
|---|---|---|
| CAHPS | Enrollment at the time survey sample is pulled | |
| Call Center | Average enrollment during the study period | February 2019 – June 2019 |
| HOS | Enrollment at the time survey sample is pulled | January 2016 |
| HEDIS/HOS | Enrollment at the time survey sample is pulled | January 2016 |
| All other measures | Enrollment in July of measurement period | July 2018 |

Source: Centers for Medicare & Medicaid Services Medicare 2020 Part C & D Star Ratings Technical Notes
CAHPS = Consumer Assessment of Healthcare Providers and Systems; HEDIS = Healthcare Effectiveness Data and Information Set; HOS = Health Outcomes Survey

The enrollment-weighted average methodology does not fully eliminate the opportunities for MA organizations to gain bonus payments after consolidating lower rated and higher rated contracts. Since the new methodology relies on an enrollment-

weighted average, MA organizations could continue to combine lower-rated contracts with high-rated contracts and boost the overall rating of the consumed contract while retaining the bonus status of the surviving contract through consolidations. Table 3.4 shows an example enrollment-weighted average calculation of two contracts for a measure included in a domain of the star ratings.

**Table 3.4: Example enrollment-weighted measure score calculation**

| Contract ID | Surviving or consumed contract | Measure | Enrollment | Measure score | Enrollment-weighted average measure score |
|---|---|---|---|---|---|
| H1234 | Surviving | Measure 1 | 50,000 | 100 | 91.67 |
| H5678 | Consumed | Measure 1 | 10,000 | 50 | |

Source: Centers for Medicare & Medicaid Services Medicare 2020 Part C & D Star Ratings Technical Notes
Note: The calculation for the enrollment-weighted average value is as follows: (50,000*100+10,000*50)/(50,000+10,000).

In 2020, both consolidations and reconsolidations dropped below 2012 levels. One reason for this decline in contract consolidations may be that the Bipartisan Budget Act of 2018 has effectively disincentivized insurers from consolidating contracts to artificially inflate star ratings by reducing the opportunities to enhance the ratings of low-performing contracts. Contract consolidations could also have slowed in recent years because most MA organizations that would have wanted to consolidate had already consolidated. The larger parent organizations with multiple contracts would have more opportunities to consolidate its contracts compared to smaller parent organizations with fewer contracts. The four for-profit parent organizations that contributed to a 77.9 percent of the consolidations (Humana, UnitedHealth Group, Aetna, and Anthem) also served about 69 percent of all MA beneficiaries in 2019.[118] Not-for-profit contracts may have had fewer consolidations than for-profit contracts because market structure and profit maximization has a smaller influence on the firms' conduct.[32]

Contract consolidations have undermined the utility of the quality ratings at the local level. Specifically, plan consolidation across a wide geographic area threatens the validity of the MA quality system.[119] The quality bonus payments have received criticism for the lack of reliability of star ratings as an indicator of quality, especially because contracts can span across wide geographical areas.[20,51] With contract consolidation, the service areas of the consolidated contracts can continue to widen.

The Bipartisan Budget Act of 2018 has reduced the opportunities for MA plans to receive additional payments for shifting lower-performing contracts into higher-performing contracts. However, the averaging methodology for contract consolidations under the Bipartisan Budget Act of 2018 will not fully eliminate the loophole. Thus, MA organizations will continue to have opportunities to use contract consolidations in the future to obtain higher ratings. Policymakers should continue to monitor contract consolidation and reconsolidation to preserve the integrity of the star ratings system.

# Chapter 4: Competition in Medicare Advantage and Offering of Supplemental Benefits

## Background

In 2020, Medicare Advantage (MA) served roughly one in three (24 out of 68 million) Medicare beneficiaries and this number is expected to grow to half (40 out of 80 million) of Medicare beneficiaries by 2030.[18] MA is based on the managed competition concept, which was first introduced by Alan Enthoven to address the rising health care costs in the United States[21] and is founded on the principle that plans offered in the private sector can provide more comprehensive, high-quality care at a lower price than traditional Medicare.[23] However, several MA competitors must operate in a county in order for managed competition to reach its goals.[26] Given the evidence that poor oral health, vision loss, hearing loss, and lack of social support services such as transportation contribute to poor health outcomes, lower quality of life, and increased health care costs,[104,120,121] we examine supplemental benefit offerings—including transportation, dental, vision, and hearing coverage—as it relates to MA market concentration.

Similar to the overall health care market, studies have found that MA markets are highly concentrated and have increased in market concentration since 2009.[5,25] In particular, Biles and colleagues found that 97 percent of county-level markets in MA are highly concentrated (Hirschman-Herfindahl Index [HHI] greater than 2,500) in 2012 .[24] Markets become more concentrated when there is a decrease in the number of firms or an increase in the disparity in size between firms.[28] Previous work show that MA markets are highly concentrated and lack a key ingredient—competition—to provide maximum value for plans and consumers.[24,26,29,30] In particular, studies show that lower competition

leads to higher cost sharing and less generous benefits, which suggests that counties with higher competition would have more generous benefits.[29] Even with the expected increase in demand for MA plans due to the aging population and higher projected MA penetration, it is likely that the increase in supply will exceed the increase in demand. Also, when multiple plans participate in a market, MA organizations might consider features of production differentiation to attract beneficiaries with different levels of health needs. In this paper, we explore the relationship between market competition and benefit generosity with respect to preventive and routine dental and vision services, transportation benefits, and hearing benefits. We focus on supplemental benefits—a dimension of health plan quality—because these services not covered under traditional Medicare and are associated with improved health outcomes.[105–107] There is limited evidence on the differences in supplemental benefits across plan types according to market concentration due to the lack of publicly available data on supplemental benefit spending. We overcome this limitation by using the 2015 bid pricing data that was publicly released in November 2019.

There are few studies on supplemental benefits in MA. Previous studies have largely focused on unmet needs and out-of-pocket costs using survey data.[104] A 2002 study explored competition and payment rates using a natural experiment design and found that the presence of another Medicare+Choice plan offering dental benefits in the prior benefit year within a county increased the probability of the plan including dental benefits by 57 percent.[87] We are not aware of any other studies examining the offering of these services in MA. In this study, we will explore factors that predict the offering of supplemental benefits. We will also explore the differences in risk-adjusted per member,

per month spending on MA supplemental benefits between plans in nonconcentrated, moderately concentrated, and highly concentrated markets using MA bid data. This will provide further information on the differences in benefit generosity according to the level of MA market competition and whether there are greater differences in certain supplemental benefits compared to others. This study can also inform future policies regarding supplemental benefits. In particular, the recent efforts to expand supplemental benefits under MA and the projected growth in enrollment highlights the urgency to understand the factors that contribute to an insurer's decision to provide supplemental benefits, and to ensure that the lack of competition is not contributing to disparities in access to coverage.

*Conceptual Framework*

This objective of this study was to assess the relationship between market concentration and the offering of supplemental benefits. Our research is based on the Structure-Conduct-Performance model with the assumption that benefit generosity, which is a dimension of plan quality and an indicator of firm performance, is the result of firm conduct, and firm conduct is determined by the overall market environment. In other words, the market structure indirectly affects the quality of the plans through firm conduct. According to microeconomic theory, firms that are driven by profits benefit society by allocating scarce resources in an efficient manner when there is sufficient market competition.[32] The societal resources are misallocated when competition is lacking or absent.[32] Since insurers compete for enrollment, the lack of competition could be related to less generous benefits because there are fewer incentives to offer more

attractive plans if the enrollees do not have the option of another plan with better benefits. Instead, the insurer could divert its resources to further maximize profits.

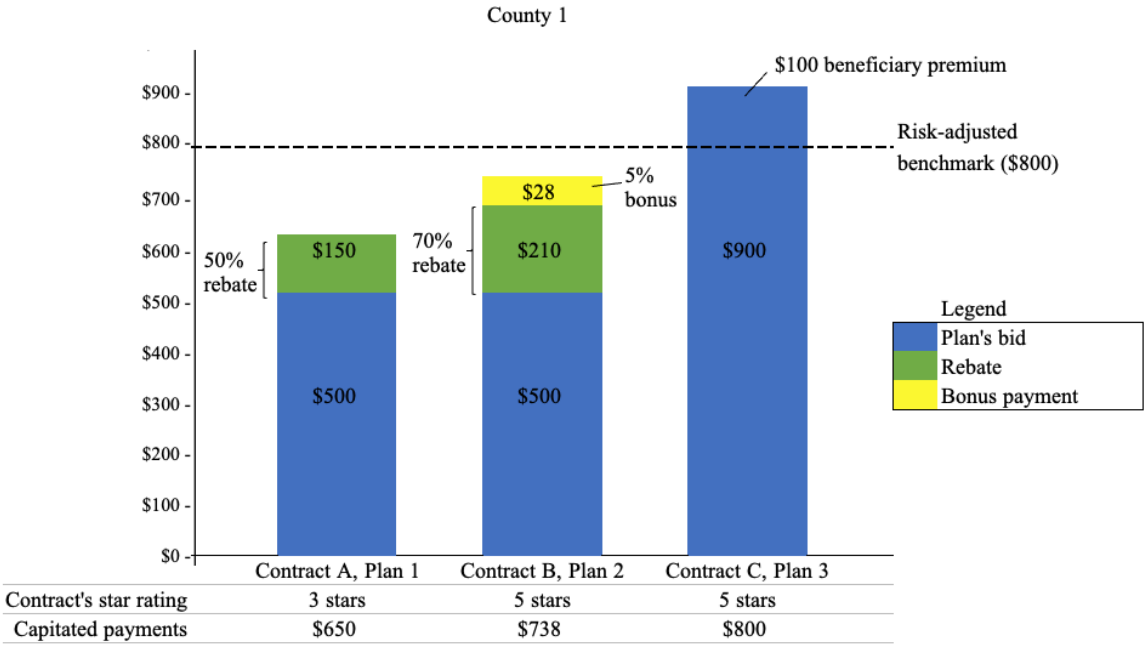
Insurance firms have two main choices for MA participation. First, a firm chooses whether to contract with CMS to participate in the MA program and, if so, the firm chooses which counties to include in each plan's service area. Under the profit maximization model, the level of profitability will determine whether the firm participates in the MA program and its choice of the plan service area. The profitability depends on factors outside of the insurer's control, such as traditional Medicare fee-for-service spending, provider markets, and expected utilization, and factors related to the firm's conduct, such as negotiated rates and overhead costs. We assume that the MA organizations' choice of plan service areas is driven by profit rather than the supplemental benefit designs of other plans within the counties.

## Methods

Each year, MA organizations must submit plan-level bids to CMS, which are based on Parts A and B spending (including medical expenditures, administrative costs, and a predetermined profit rate) per average, or standard, beneficiary under the plan, in order to offer MA plans the following year.[60] While MA organizations have some flexibility in designing their plan benefit packages, they are required to cover services in 11 categories (including inpatient facility, skilled nursing facility, professional, ambulance, and other services) and have the option to offer supplemental benefits. As part of the payment system, CMS compares the plan's bid to the county's benchmark (as shown in Figure 4.1). If the plan's service area spans across multiple counties, then the plan's bid is compared to a composite benchmark. The composite benchmark is calculated using a

weighted average of the projected plan enrollment in each county and the county-level benchmarks. When the plan's bid is below the benchmark, the plan receives a fixed percentage of the difference, which depends on the plan's quality rating, from CMS in the form of a rebate. The rebate must be returned to the beneficiaries in the form of supplemental benefit coverage or lower premiums.[122] Plans that bid above the benchmark have the option to provide supplemental benefits but the beneficiaries would have to pay for these benefits through higher premiums and/or cost-sharing.[123]

**Figure 4.1: Medicare Advantage payment system**




Source: Author's analysis of the Medicare Advantage payment policy[39]
Note: Plans that bid below the county's risk-adjusted benchmark receive a percentage of the difference in the form of a rebate from CMS. The percentage depends on the plan's star rating. Plans under contracts with 3 or fewer stars receive 50 percent of the difference; 3.5–4 stars receive 65 percent of the difference; and 4.5 or 5 stars receive 70 percent of the difference. Plans with not enough data receive 50 percent and plans that are too new to be measured receive 65 percent of the difference. In addition, plans under contracts with 4 or more stars receive a 5 percent quality bonus. Plans that are too new to be measured receive a 3.5 percent quality bonus. Plans operating double bonus counties with 4 or more stars qualify for a 10 percent quality bonus.

A resource on MA costs are the bids that MA organizations submit to the Centers for Medicare and Medicaid Services (CMS). The most recent comprehensive bid data that

CMS released to the public was for the 2015 bids, which includes a breakdown of each plan's expected costs for supplemental benefits using actual spending in 2013 as the baseline. Although these data are not audited for accuracy, each plan attests to the accuracy of its information and any errors could result in criminal or civil penalties.

For our analysis, we used January 2013 MA enrollment data to find the number of enrollees per contract at the county-level. We used the 2013 Geographic Variation Public Use File to obtain Medicare fee-for-service (FFS) spending and percent of members who are dually eligible for Medicare and Medicaid. The Medicare FFS spending is important in the context of MA because the bidding target—the benchmark—is based on the county's average Medicare FFS spending per beneficiary.[122] In addition, we used the Area Health Resources File to assess county-level demographics among residents ages 65 and over and the number of hospitals within each county as a sensitivity analysis (see Appendix).

To obtain the 2013 plan spending on supplemental benefits, we used the MA bid data submitted to CMS in 2014 to support plan bids for the 2015 calendar year. In this file, plans report their 2013 baseline experience on actual per member per month spending—including Parts A and B covered services and supplemental benefits—to project the plan's 2015 spending. We compared the supplemental benefits spending in the bid data with the 2013 Plan Benefit Packages data to confirm whether plans offered supplemental benefits in 2013. We also used the bid data to obtain the plan's risk score[2] to account for the plan's demographic characteristics.

[2] A beneficiary's risk score estimates how his or her FFS spending will compare to the overall average for the entire Medicare population. The plan's risk score is based on enrollees' age, gender, eligibility for

*Calculation of HHI*

The Herfindahl-Hirschman Index (HHI) is a common summary measure of market concentration. The HHI ranges from close to zero (least concentrated, or nearly perfect competition) to 10,000 (most concentrated, or a monopoly). The U.S. Department of Justice, in addition to banking and antitrust authorities, rely on the HHI to assess the effects of mergers on competition.[58] In health care, the market share for hospitals is generally measured using hospital admissions or discharges whereas the market share for health plans is measured using enrollment numbers.[66]

While MA markets are defined at the county-level, MA plan service areas can span across multiple noncontiguous counties. Under limited circumstances, a MA plan service area can include partial counties. Each plan, regardless of whether it is offered at a single or multiple counties, must offer uniform premium and cost-sharing benefits to all beneficiaries living within its service area.[124] Prior to 2019, each plan's supplemental benefits must also be offered uniformly to all beneficiaries within its service area. In recent years, CMS allowed plans to offer supplemental benefits targeted to chronically ill beneficiaries to address social determinants of health.[125] The plan service area-level HHI is an important measure of market concentration when assessing plan benefit designs because it represents the overall market concentration of the combined counties in which the plan operates.

We calculated the plan service area-level HHI in two steps. First, we determined the HHI in each county using the state and county codes found in the MA enrollment data.

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Medicaid, and health status. Health plans with scores greater than the average—which is set at 1.0—are expected to have higher than average spending.

The county-level HHI ($HHI_c$) is calculated by taking the sum of the squared market share of each MA plan in a county, as follows:

$$HHI_c = \sum_i^I (S_{ic})^2,$$

where $S_{ic}$ is the market share, defined by MA enrollment, for MA plan $i$ in county $c$. For example, a county with four MA plans with equal market shares of 25 percent would have an HHI of 2,500 ($25^2 + 25^2 + 25^2 + 25^2 = 2{,}500$). This county would have a moderately concentrated market based on the classification outlined by the Department of Justice Horizontal Mergers Guidelines.[28]

Next, we calculated weighted HHIs for each MA plan based upon its service area using county-level plan enrollment data to determine the plan's market concentration. We calculated the HHI for each plan's service area ($HHI_i$) using the following formula:

$$HHI_i = \sum_c^C \alpha_{ic} HHI_c,$$

where $\alpha_{ic}$ is the share of plan's $i$ enrollment in $c$ county and $HHI_c$ is the county-level HHI.[59] For example, a plan that operates in two counties with 75 percent of the plan's enrollment in county A with county-level HHI of 2,500 and 25 percent of the plan's enrollment in county B with county-level HHI of 5,000 would have a plan service area-level HHI of 3,125 ((75 percent * 2,500) + (25 percent * 5,000) = 3,125). The plan service area-level HHI describes the overall competitive conditions faced by the plan across the counties in which it operates. Other studies used a similar weighting methodology to calculate county-level HHI at the MA plan service area level[60] and

Marketplace rating-area level.[61] Consistent with the Department of Justice Horizontal Mergers Guidelines, we define the level of market concentration, $HHI_i$, as: [3]

- Nonconcentrated: HHI < 1,500;
- Moderately concentrated: 1,500 ≤ HHI < 2,500;
- Highly concentrated: HHI ≥ 2,500.[28]

Markets that are not nonconcentrated are more likely to be competitive, whereas a highly concentrated market is less likely to benefit from competition.

*Analysis*

Using multivariate logistic regression models, we examined the relationship between market concentration and the odds of offering each major supplemental benefit. The covariates for the models include the plan's risk score—which accounts for demographic characteristics and documented health conditions—from the bid data, percent of dual-eligible, and level of FFS spending. The major MA bid data-defined categories for supplemental benefits are: transportation, dental, vision, and hearing services. The main explanatory variable, market concentration, has highly concentrated markets as the reference group. The other predictors are categorized as high or low, with high as the reference group. We also conducted a sensitivity analysis using weighted county-level demographic factors from the 2018–2019 Area Health Resources File instead of the plan's risk score from the bid data. We used chi-square test of the deviance to examine goodness of fit. We excluded MA employer group health plans, Medicare-Medicaid

[3] We converted HHI to a categorical variable because a unit change each of these categories have different implications. Under the Horizontal Mergers Guidelines, a 200 unit increase in HHI among nonconcentrated markets is not concerning. However, a 200 unit increase in HHI among highly concentrated markets is presumed to likely to increase market power.

plans, national PACE, and Special Needs Plans because these plans are not available to all Medicare beneficiaries. We also excluded MA plans in US territories only, regional PPO plans,[4] and MA plans that did not have baseline experience in 2013. Lastly, we excluded contracts with multiple segments.[5] To protect patient privacy, CMS does not publish enrollment information for contracts with 10 or fewer enrollees. Thus, we imputed these enrollment values with five members which could bias the market concentration measure to indicate more competitive markets. However, choosing a different value (e.g., one instead of five) would not make a meaningful difference in the results given the range of the HHI categories. We did not include state fixed effects in our model because plans can include enrollment from more than one state.

We then conducted one-way analysis of variances for each of the major supplemental benefits to compare the average risk-adjusted per member, per month spending among plans offering the benefit between market concentrations. Next, we conducted post-hoc Tukey honest significance difference (HSD) tests to determine which spending averages are statistically different. We used the TukeyHSD function in R to obtain the difference in means for the HSD tests. For each of the supplemental benefit

[4] Regional PPO plans have different payment incentives and a different calculation for the benchmark compared to other plans included in our analysis (e.g., local PPOs, HMOs, and HMOPOS plans).

[5] Plans with multiple segments were excluded from our analysis because premiums and cost-sharing can vary between segments within a plan. Starting in 2019, CMS reinterpreted the regulations and allowed plans with multiple segments to also offer different supplemental benefits across segments within a plan.[126] In addition, the enrollment data are at the plan level rather than segment level so we cannot determine the segment-level HHI.

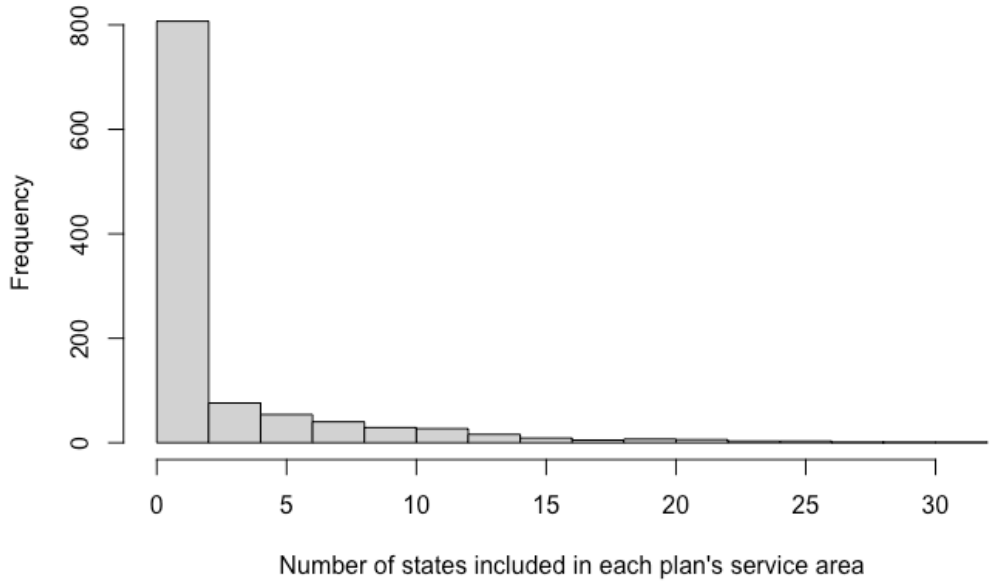
categories, we only included plans that offered the benefit in 2013.[6] All analyses were performed using R version 4.0.3.

## Results

A total of 1,085 plans were included in our analysis. About 65 percent of the included plans included beneficiaries from a single state and 3.7 percent of plans were offered in only one county (Figure 4.2 and Figure 4.3). Nearly three quarters of the plans (71.3 percent) were health maintenance organizations (HMO) or HMO with a point of service option and over half of the included plans (52.9 percent) were zero-premium plans. The zero-premium plans bid below the benchmark and receive rebates that can go towards supplemental benefits. Plans that require a premium can finance supplemental benefits through premiums or cost-sharing.

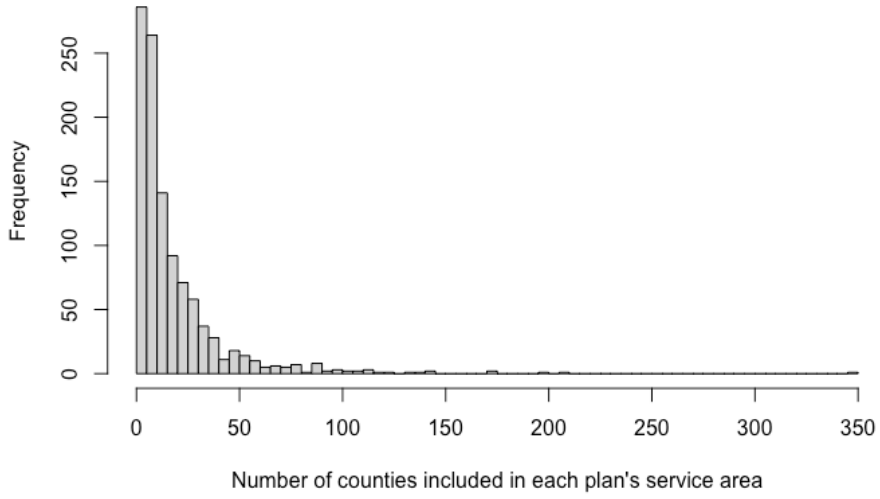
[6] Less than 3 percent of plans included in our analysis had supplemental benefit spending even though the plan did not offer the benefit.

**Figure 4.2: Number of states in each plan service area, 2013**




Source: Authors' analysis January 2013 MA enrollment data

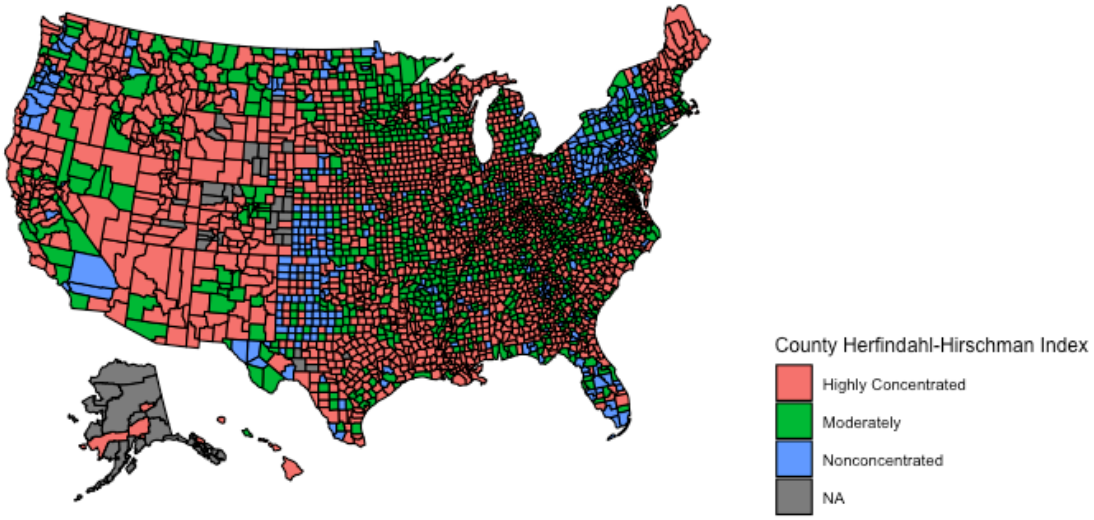
**Figure 4.3: Number of counties in each plan service area, 2013**




Source: Authors' analysis January 2013 MA enrollment data

The first step of the HHI calculation includes determining the level of MA market concentration at the county-level using MA enrollment data. Figure 4.4 shows that most counties in the United States have highly concentrated MA markets and a few western, southern, and northeastern states have counties that are nonconcentrated.

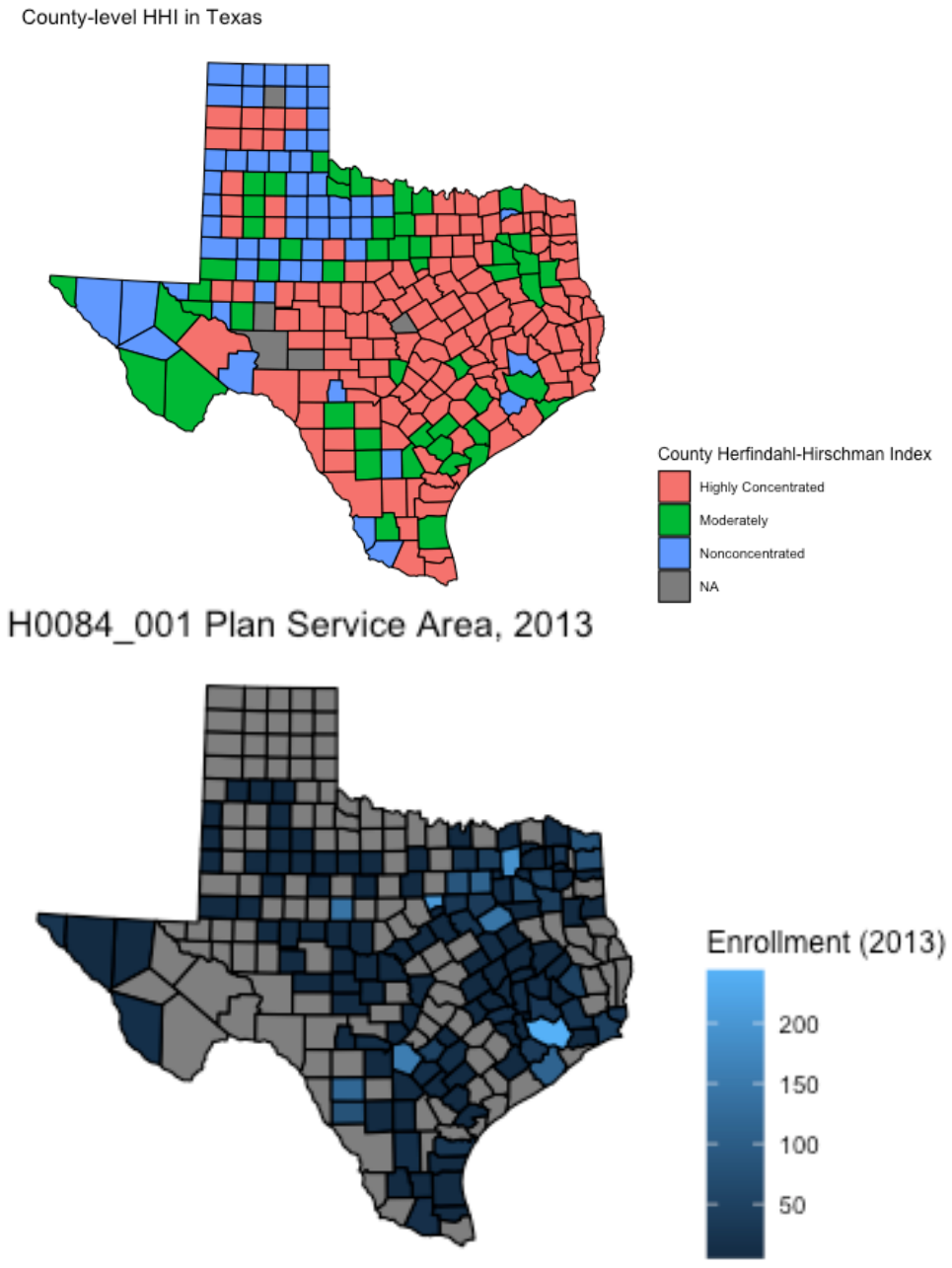
**Figure 4.4: Medicare Advantage county-level market concentration, 2013**




Source: Authors' analysis January 2013 MA enrollment data

At the plan service area-level, plans can operate in a combination of nonconcentrated and highly concentrated markets, so the distribution of market concentration is different from the county-level HHI. For example, Figure 4.5 shows that a UnitedHealth Group PPO plan (H0084_001) included beneficiaries living in nonconcentrated MA markets in western and northern counties in Texas, in addition to highly concentrated counties in eastern Texas.

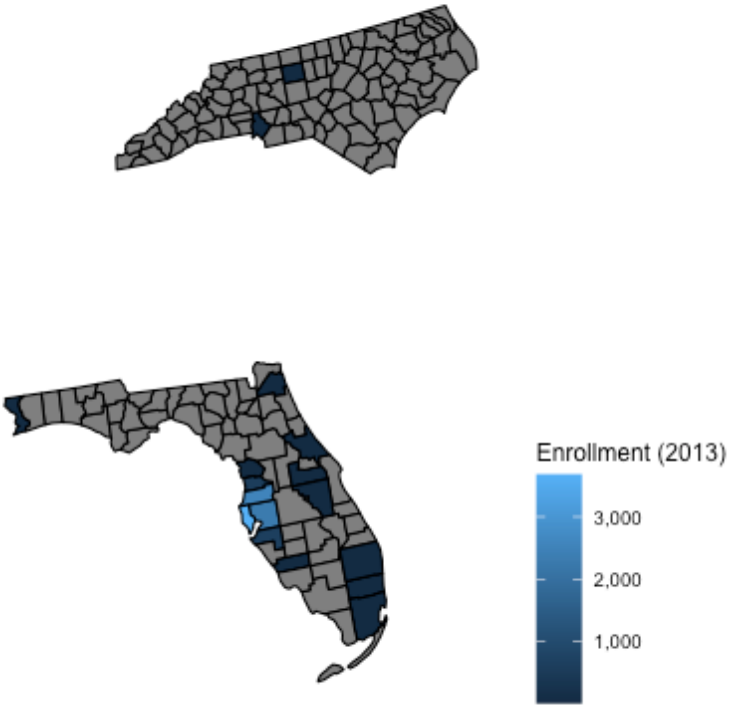
**Figure 4.5: Texas county-level market concentration (top) and H0084_001 plan service area and enrollment (bottom), 2013**




Source: Author's analysis of January 2013 Medicare Advantage enrollment data

Plan service areas can also include beneficiaries living in different states. In 2013, Humana had a MA contract with CMS—H1036—that included 53 counties across four states (Florida, Mississippi, North Carolina, and Oregon). An HMO plan offered under the contract—H1036_141—included beneficiaries living in 17 counties across Florida and North Carolina. Figure 4.6 shows that the level of enrollment varied across the counties, with most of the beneficiaries living in the Tampa region in Florida.

**Figure 4.6: Plan service area and level of enrollment for plan H1036_141, 2013**




Source: Author's analysis of January 2013 Medicare Advantage enrollment data

Of the 1,085 plans included in our analysis, 404 plans operated in service areas that were highly concentrated, 455 were moderately concentrated, and 226 were nonconcentrated (Table 4.1). The range of HHI scores were 839 to 9,366, with an average of 2,417. The nonconcentrated MA plan service areas operate in regions with lower average FFS spending and higher risk scores compared to moderately concentrated areas. As a sensitivity analysis, the 2010 Census data in the Area Health Resources File shows

that there were more women and whites enrolled in MA than traditional Medicare (see Appendix, Table A.1). However, it is important to note that the most recent county-level population characteristics data on residents 65 and over from the Area Health Resources File is from the 2010 Census and the gender and race/ethnicity data shown in Table 5.1 represents the Medicare FFS population in 2013. Table A.1 in the Appendix also shows that nonconcentrated markets had a larger number of hospitals compared to highly concentrated markets.

**Table 4.1: Medicare fee-for-service population characteristics and Medicare Advantage plan risk score, by plan service area-level market concentration**

| | Overall (N = 1,085) | Highly Concentrated (N = 404) | Moderately Concentrated (N = 455) | Nonconcentrated (N = 226) |
|---|---|---|---|---|
| Age | 70.9 | 70.8 | 70.9 | 71.0 |
| Female (%) | 54.5 | 54.4 | 54.5 | 54.8 |
| Race/ethnicity (%) | | | | |
| Non-Hispanic white | 74.4 | 72.3 | 75.4 | 76.2 |
| African American | 8.2 | 8.2 | 8.6 | 7.4 |
| Hispanic | 7.0 | 6.3 | 6.1 | 9.9 |
| Other | 4.8 | 5.3 | 4.3 | 5.2 |
| Eligible for Medicaid (%) | 22.4 | 21.7 | 21.0 | 26.5 |
| Plan's risk score | 1.00 | 0.98 | 1.00 | 1.05 |
| Average FFS spending | 709.1 | 708.1 | 715.0 | 699.0 |

Source: Authors' analysis of 2015 MA bid, January 2013 MA enrollment, and 2013 Geographic Variation Public Use File data
Note: These descriptive characteristics are weighted at the county-level prior to calculating the averages so the percentages do not add to up to 100 percent.
FFS = fee-for-service

Table 4.2 shows the odds of offering each benefit controlling for the plan's market concentration level, plan's risk score, percent of dual-eligible beneficiaries, and level of Medicare FFS spending. We find that the odds of a plan in a nonconcentrated market offering a transportation supplemental benefit is 2.8 times higher than a plan operating in a highly concentrated market, when holding all other predictors constant ($p < 0.001$).

Similarly, plans in nonconcentrated service areas are 2.4 times more likely to offer a hearing benefit ($p < 0.001$) and 2.3 times more likely to offer a dental benefit ($p < 0.001$) than plans in highly concentrated markets, when holding all other predictors constant. The result for the vision benefits also shows that the odds of offering the benefit is 2.3 times higher among plans in nonconcentrated markets compared to highly concentrated markets ($p = 0.019$).

When comparing plans in moderately and highly concentrated markets, the relationship was not statistically significant at the 0.05 alpha level for dental and vision benefits. Nevertheless, for all four supplemental benefits, the odds of offering any of the supplemental benefits is higher for plans in moderately concentrated markets compared to plans in highly concentrated markets.

We used the likelihood ratio test to assess the improvement over the intercept-only model and find that the test is statistically significant for all outcomes, meaning that there is significantly less error of prediction in the model with the covariates than the null model (transportation $\chi^2 = 35.5$; $p < 0.001$; dental $\chi^2 = 5.7$; $p = 0.017$; vision $\chi^2 = 42.7$; $p < 0.001$; hearing $\chi^2 = 11.4$; $p = 0.001$). A sensitivity analysis using the most recent publicly available Geographic Variation Public Use File and 2018 enrollment data shows similar results (see Appendix, Table A.2.). However, the offering dental benefits is no longer statistically significant at the 0.05 alpha level. This is difference is likely explained by the fact that more plans offered dental benefits in 2018 compared to 2013 (79 vs. 59 percent, respectively) so there is less variation by HHI. Furthermore, my findings did not change when using robust standard errors to account for plan-level clustering.

**Table 4.2: Odds of plans with nonconcentrated or moderately concentrated markets offering supplemental benefits, 2013**

| | Transportation | | Dental | | Vision | | Hearing | |
|---|---|---|---|---|---|---|---|---|
| | *Odds Ratios* | *P-value* | *Odds Ratios* | *P-value* | *Odds Ratios* | *P-value* | *Odds Ratios* | *P-value* |
| Moderately concentrated (ref: highly) | 1.6 (1.04,2.37) | **0.033** | 1.3 (0.99,1.82) | 0.057 | 1.0 (0.69,1.57) | 0.855 | 1.3 (0.99,1.72) | 0.064 |
| Nonconcentrated (ref: highly) | 2.8 (1.76,4.39) | **<0.001** | 2.3 (1.63,3.33) | **<0.001** | 2.2 (1.18,4.48) | **0.019** | 2.4 (1.68,3.45) | **<0.001** |
| Plan's risk score (ref: high) | 0.5 (0.33,0.65) | **<0.001** | 0.6 (0.45,0.77) | **<0.001** | 0.5 (0.36,0.82) | **0.004** | 0.7 (0.52,0.87) | **0.003** |
| Dual-eligible (ref: high) | 0.7 (0.50,1.02) | 0.059 | 0.9 (0.68,1.19) | 0.442 | 1.0 (0.66,1.53) | 0.967 | 0.6 (0.46,0.79) | **<0.001** |
| FFS spending (ref: high) | 0.6 (0.40,0.83) | **0.004** | 0.7 (0.54,0.95) | **0.019** | 2.1 (1.41,3.26) | **<0.001** | 1.0 (0.75,1.28) | 0.867 |
| Number of hospitals | 1.02 (1.01,1.03) | **<0.001** | 1.00 (0.99,1.01) | 0.786 | 1.01 (0.99,1.03) | 0.262 | 1.02 (1.01,1.03) | **0.003** |
| Observations | 1,085 | | 1,085 | | 1,085 | | 1,085 | |

Source: Authors' analysis of 2015 MA bid, January 2013 MA enrollment, 2013 Geographic Variation Public Use File, and 2018–2019 Area Health Resources File data
Note: Covariates include plan's risk score, dually eligible beneficiaries, and Medicare FFS spending. The plan's risk score is calculated using the enrolled beneficiaries' demographic and health status, such as age and prior health conditions.
CI = confidence interval; FFS = fee-for-service; HHI = Herfindahl-Hirschman Index

To examine the relationship between MA market concentration and actual spending on supplemental benefits in 2013, I ran a one-way analysis of variance for each of the four major supplemental benefit categories. Table 4.3 shows that the average spending on supplemental benefits was inversely related to plan-level market concentration. That is, spending in nonconcentrated markets was higher than that in the highly and moderately concentrated markets. This trend also applies to the total per member, per month spending. Furthermore, the average spending on dental and hearing services was 1.5 times greater in moderately concentrated markets than that in the highly concentrated markets.

**Table 4.3**: **Average per member, per month actual spending for supplemental benefits among highly, moderately, and nonconcentrated plans, 2013**

| | Overall | Highly concentrated | Moderately concentrated | Nonconcentrated |
|---|---|---|---|---|
| N | 1,085 | 404 | 455 | 226 |
| Transportation | $2.18 | $2.10 | $1.42 | $3.33 |
| Dental | $3.28 | $2.25 | $3.41 | $4.64 |
| Vision | $2.67 | $2.37 | $2.56 | $3.38 |
| Hearing | $0.31 | $0.19 | $0.29 | $0.50 |
| PMPM Total | $778.73 | $776.16 | $769.19 | $802.50 |

Source: Authors' analysis of 2015 MA bid data, January 2013 MA enrollment data, and 2013 Plan Benefit Package data
PMPM = per member, per month
Note: We used a one-way analysis of variance to compare market concentration on supplemental benefits. All tests were statistically significant at the 0.05 alpha level.

Post-hoc Tukey HSD tests indicate that the mean spending for dental ($d$ = 2.38), vision ($d$ = 1.00), and hearing ($d$ = 0.31) benefits among plans with highly concentrated markets were significantly different than the mean spending among plans in nonconcentrated markets. This also holds for the differences between moderately concentrated and nonconcentrated markets for vision ($d$ = 0.82) and hearing ($d$ = 0.21) benefits. For transportation benefits, the only statistically significant difference was between the mean spending for plans in moderately concentrated markets compared to the mean spending for plans in nonconcentrated markets ($d$ = 1.91). The mean spending among plans in highly concentrated markets did not differ significantly from the mean spending in moderately concentrated markets for all four benefits.

## Discussion

We find that beneficiaries living in competitive marketplaces are more likely to have access to plans that offer transportation, dental, vision, and hearing benefits than beneficiaries in noncompetitive marketplaces. We also find that MA plans in

nonconcentrated markets have higher per member, per month spending on supplemental benefits than in moderately and highly concentrated markets. This suggests that consumers have more access to supplemental benefits in competitive markets. Since plans can use savings to provide supplemental benefits to attract enrollees, it is consistent with our hypothesis that plans that operate in service areas with little to no competition would be less likely to offer supplemental benefits than plans that operate in service areas with high competition.

With the growing list of services that qualify as supplemental benefits, we must understand how market concentration relates to the offering of these benefits to assess potential disparities. CMS issued guidance that expanded the definition of supplemental benefits starting in 2019.[17] Under this guidance, plans can now offer new types of supplemental benefits to enrollees, including home-based palliative care, non-skilled in-home support and services, and non-opioid pain management. In addition, the Creating High-Quality Results and Outcomes Necessary to Improve Chronic Care Act of 2017 provided MA plans with greater flexibility to target supplemental benefits, such as meal delivery and personal care services, to address social determinants of health among chronically ill beneficiaries.[125] In 2021, the Medicare Advantage Value-Based Insurance Design Model will also provide participating plans with the flexibility to cover novel technologies and Food and Drug Administration-approved medical devices to beneficiaries based on chronic condition and/or socioeconomic status.[127] Our study underscores the importance of market concentration to ensure that beneficiaries living in currently highly concentrated markets also benefit from the option of expanding coverage.

Other studies have found that large geographic variations in plans offering the new supplemental benefits, but it is not clear why these differences exist.[128] One explanation is linked to rebates. Plans receive a rebate from Medicare if their bid is below the benchmark and the exact amount depends on the plan's star ratings. Once the rebate amount is determined, the plans are obligated to pass the rebates on to their beneficiaries, either through supplemental benefits or lower premiums.[116] Since rebates are a key source of financing for MA supplemental benefits, a potential explanation for these differences is due to the differences in the rebate dollars that plans receive.[60] This study suggests that another potential factor that is associated with disparities in the offering of supplemental benefits is related to market competition.

It is important to note that there are likely other factors that influence whether plans offer supplemental benefits. For example, HMOs are more likely to offer supplemental benefits than PPOs.[128] Furthermore, transitional Medicare spending influences the ability for MA plans to offer supplemental benefits. Plans operating in relatively high FFS spending counties will have the capacity to offer more generous benefit packages at costs below average traditional Medicare spending.[129]

This study is subject to limitations. First, we were unable to analyze supplemental benefit spending at the county level and averaging the HHI across plan service areas might mask important differences at the county-level. However, our findings are consistent with other studies that found that few plans operate in nonconcentrated markets.[24] Second, there are limitations of using HHI as a measure of market concentration. The HHI was based on only MA enrollment, but a plan's market power is

derived from all lines of business, including the individual market, Marketplaces, the employer-sponsored market, and Medicaid managed care.

As federal policy makers expand the definition of supplemental benefits in MA, our findings suggest that plan service area concentration may be playing an important role in providing beneficiaries with access to these benefits. The impact of plan service area concentration on those with lower socioeconomic status or poorer health warrants further research. In order for MA to reach its goals of providing additional value to plans and consumers over traditional Medicare, it is important to further explore the MA bidding process and whether MA policies are fostering a highly competitive MA market.

# Chapter 5: Competition and In-Network Maximum Out-of-Pocket Limits in Medicare Advantage

## Introduction

Medicare managed care—a private option to traditional Medicare also known as Medicare Advantage (MA)—is appealing to some beneficiaries because MA plans feature an annual limit on out-of-pocket spending for in-network services.[130] The maximum out-of-pocket amount (MOOP) is the most that beneficiaries will pay for covered health care services during a benefit year. In 2011, the Centers for Medicare & Medicaid Services (CMS) mandated that the annual MOOP limit for MA plans must not exceed $6,700 for in-network services.[131] At that time, nearly a third of MA beneficiaries were enrolled in a plan that did not have a MOOP limit.[132] Another third of MA beneficiaries were enrolled in a plan that voluntarily set the MOOP to $3,400 or lower. The plans within the voluntary MOOP limits received additional flexibilities in establishing cost-sharing levels for Parts A and B services.[132] Since then, MA plans are required to have a MOOP amount that does not exceed the mandatory $6,700 limit for in-network services and those within the voluntary MOOP range continue to receive the cost-sharing flexibilities. This benefit feature is attractive to some beneficiaries because lower MOOPs provide sicker beneficiaries with greater financial protections compared to traditional Medicare.

Traditional Medicare does not have an annual limit on the amount that beneficiaries pay out-of-pocket for Parts A and B services so those with multiple chronic conditions and without supplemental coverage are especially vulnerable to financial strain due to medical care. Traditional Medicare beneficiaries spent an average of $5,374 in out-of-pocket costs in 2016, compared to $2,472 among MA beneficiaries.[133] High-need

traditional Medicare beneficiaries with low income and no supplemental coverage had an average out-of-pocket spending of more than $7,000 in 2016.[133] This average exceeds the mandatory $6,700 MOOP limit in MA. MA plans with lower MOOP limits have the potential to provide additional financial protections to high-need beneficiaries but some beneficiaries may have limited access to these MA plans.

The MA program is designed to rely on market competition to promote efficient levels of premiums, cost-sharing, and supplemental benefits.[29] However, similar to the health care market, MA markets are highly concentrated and have increased in market concentration over time.[5,24,25,119] Consolidations in MA and increases in provider market concentration may have contributed to the increase in MA market concentration.[8,134] Plan generosity, which includes premiums, deductibles, MOOP limits, may vary depending on the level of competition in the market.[29,88] For example, studies have found a positive relationship between market concentration and premiums.[44,66] MA plans that operated in more concentrated counties were associated with higher premiums, with high-quality plans in highly concentrated markets having premiums as much as twice the amount of lower-quality plans.[31 31,88,135] We are not aware of any studies that explored the relationship between market concentration and MOOP limits. This study addresses the gap in the literature and explores the relationship between in-network MOOP limits and market concentration. We expect that higher levels of market concentration are associated with higher in-network MOOP limits.

*Conceptual Framework*

Under the Structure-Conduct-Performance framework, market structure indirectly influences firm performance.[32] One measure of firm performance is the quality of the

firm's products. In the MA program, benefit generosity, which includes supplemental benefits and MOOP limits, is a dimension of plan quality. A study found that difference in MOOPs did not significantly affect the demand of health care.[136] Firms operating in competitive markets might choose to lower its MOOPs limits to differentiate itself from competitors because, unlike coinsurance and deductibles,[136] it will not lead to significantly increased utilization. Increased utilization would lower the plan's profit because the plans are funded through capitated payments from CMS and sometimes premiums from beneficiaries. MA plans can also differentiate itself from traditional Medicare through their MOOP limits since traditional Medicare does not have out-of-pocket limits. We hypothesize that market concentration—a feature of market structure—is related to the plan's MOOP limits.

## Methods

This study used a number of publicly available administrative data from CMS, including monthly-level MA enrollment, service area, and contract information data, and the CMS MA Landscape Source files to obtain the in-network MOOP. We also used the Medicare Geographic Variation Public Use File to obtain traditional Medicare population characteristics on fee-for-service (FFS) spending, risk score,[7] and percent of members who are dually eligible for Medicare and Medicaid and the 2018-2019 Area Health Resources file for county-level demographic characteristics among residents ages 65 and

[7] A beneficiary's risk score estimates how his or her FFS spending will compare to the overall average for the entire Medicare population. Beneficiaries with scores greater than the average—which is set at 1.0—are expected to have higher than average spending. CMS uses Medicare FFS claims to calculate risk scores to estimate payments for MA.

over. We included non-segmented local preferred provider organization and local health maintenance organization plans that offered Parts A and B services in 2018. We also limited our analysis to zero-premium plans—plans that do not require a premium on top of the Part B premium—to exclude plans that may have offset the expense of a lower out-of-pocket limit by increasing premiums. In recent years, about half of the MA plans with prescription drug coverage are zero-premium plans and 93 percent of beneficiaries have access to these plans.[137]

*Measures*

The primary outcome of interest was the plan's in-network MOOP limit. The MOOP limit represents the maximum amount that a beneficiary pays for in-network services, excluding premiums and prescription medications, during a benefit year. MA plans are allowed to set the MOOP limit as high as $6,700, which is based on the 95$^{th}$ percentile of projected out-of-pocket spending among traditional Medicare beneficiaries.[138] Similarly, the voluntary MOOP limit is based on the 85$^{th}$ percentile of projected out-of-pocket spending.[138] Across all plans, the MOOP limit ranged from $0–$6,700 and generally increased in $50–$100 increments. The MOOP limit was categorized as 1) meeting the voluntary threshold ($0–$3,400) or 2) meeting the mandatory threshold ($3,401–$6,700). The voluntary threshold is more generous than the mandatory threshold.

The predictor of interest was market concentration, as measured by a common summary measure of market concentration—the Herfindahl-Hirschman Index (HHI). The HHI ranges from close to zero (least concentrated, or nearly perfect competition) to 10,000 (most concentrated, or a monopoly). The U.S. Department of Justice, in addition to banking and antitrust authorities, rely on the HHI to assess the effects of mergers on

competition.[58] In health care, the market share for hospitals is generally measured using hospital admissions or discharges whereas the market share for health plans is measured using enrollment numbers.[66]

While MA markets are defined at the county-level, MA plan service areas often span across multiple counties. The plan service area-level HHI is an important measure of market concentration when assessing plan benefit designs because it represents the overall market concentration of the combined counties in which the plan operates.

We calculated the plan service area-level HHI in two steps. First, we determined the HHI in each county using the state and county codes found in the MA enrollment data. The county-level HHI ($HHI_c$) is calculated by taking the sum of the squared market share of each MA plan in a county, as follows:

$$HHI_c = \sum_i^I (S_{ic})^2,$$

where $S_{ic}$ is the market share, defined by MA enrollment, for MA plan $i$ in county $c$. For example, a county with four MA plans with equal market shares of 25 percent would have an HHI of 2,500 ($25^2 + 25^2 + 25^2 + 25^2 = 2{,}500$). This county would have a moderately concentrated market based on the classification outlined by the Department of Justice Horizontal Mergers Guidelines.[28]

Next, we calculated weighted HHIs for each MA plan based upon its service area using county-level plan enrollment data to determine the plan's market concentration. We calculated the HHI for each plan's service area ($HHI_i$) using the following formula:

$$HHI_i = \sum_c^C \alpha_{ic} HHI_c,$$

where $\alpha_{ic}$ is the share of plan's *i* enrollment in *c* county and $HHI_c$ is the county-level HHI.[59] For example, a plan that operates in two counties with 75 percent of the plan's enrollment in county A with county-level HHI of 2,500 and 25 percent of the plan's enrollment in county B with county-level HHI of 5,000 would have a plan service area-level HHI of 3,125 ((75 percent * 2,500) + (25 percent * 5,000) = 3,125). The plan service area-level HHI describes the overall competitive conditions faced by the plan across the counties in which it operates. Other studies used a similar weighting methodology to calculate county-level HHI at the MA plan service area level[60] and Marketplace rating-area level.[61] Consistent with the Department of Justice Horizontal Mergers Guidelines, we define the level of market concentration, $HHI_i$, as: [8]

- Nonconcentrated: HHI < 1,500;
- Moderately concentrated: 1,500 ≤ HHI < 2,500;
- Highly concentrated: HHI ≥ 2,500.[28]

Markets that are not nonconcentrated are more likely to be competitive, whereas a highly concentrated market is less likely to benefit from competition.

*Analysis*

We used descriptive analytic methods to assess Medicare population characteristics across different levels of plan service area market concentration. A logistic regression model was estimated with the binary dependent variable, MOOP, representing the odds

[8] We converted HHI to a categorical variable because a unit change each of these categories have different implications. Under the Horizontal Mergers Guidelines, a 200 unit increase in HHI among nonconcentrated markets is not concerning. However, a 200 unit increase in HHI among highly concentrated markets is presumed to likely to increase market power.

of plan *p* having an in-network MOOP limit within the mandatory range—that is a less generous benefit. The regression model was specified as follows:

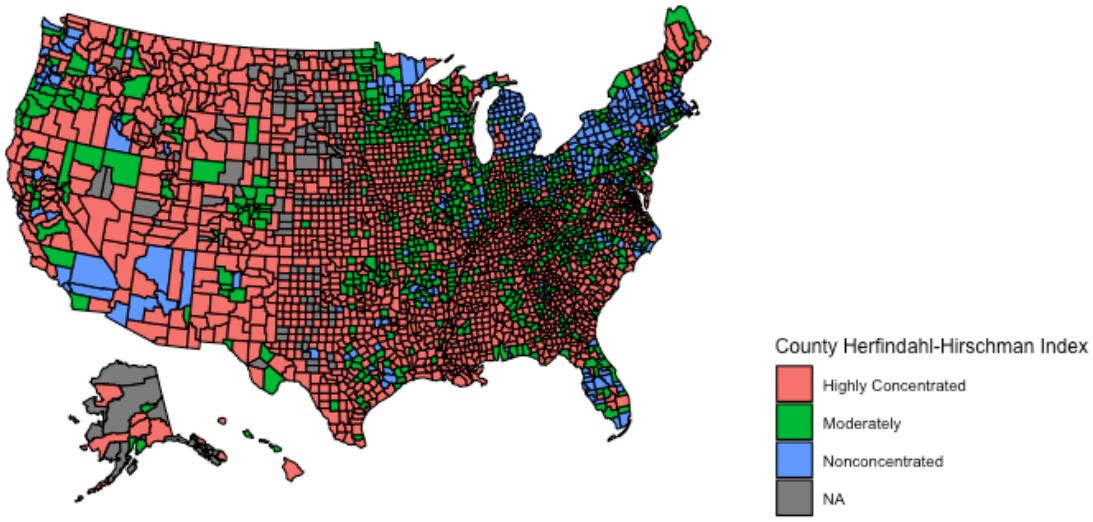
$$\text{logit}(\widehat{\text{P}}(\text{Y}_{pi} = 1) = \hat{\beta}_0 + \hat{\beta}_1 \text{HHI}_{pi} + \hat{\beta}_2 \text{Controls},$$

where $\text{Y}_{pi}$ is the plan's maximum out-of-pocket amount in plan service area *i*. The key independent variable, $\text{HHI}_{pi}$, is a categorical variable (nonconcentrated, moderately concentrated, and highly concentrated) that describes the level of market concentration at the plan service area level. The reference category is nonconcentrated HHIs. The control variables included county-level FFS risk score, plan type, percent of dual-eligible, and FFS spending (low and high). All analyses were performed using R version 4.0.3.

## Results

Most counties have highly concentrated MA insurer markets, with the exception of counties in Michigan and Florida, and in the northeastern and western regions of the United States (Figure 5.1). A number of states only have counties with highly concentrated or moderately concentrated MA markets.

**Figure 5.1: Medicare Advantage county-level market concentration, 2018**




Source: Authors' analysis January 2018 MA enrollment data

A total of 768 plans (240 contracts) were included in the analysis. Of these plans, 196 plans operated in service areas that were highly concentrated, 308 were moderately concentrated, and 264 were nonconcentrated (Table 5.1). The range of HHI scores were 786–6,519, with an average of 2,038. The highly concentrated MA plan service areas operated in regions with a higher proportion of dually eligible beneficiaries, Hispanic beneficiaries, and had higher average FFS spending.

**Table 5.1: Medicare fee-for-service population characteristics, by plan service area-level market concentration**

| | Overall (N = 768) | Highly Concentrated (N = 264) | Moderately Concentrated (N = 196) | Nonconcentrated (N = 308) |
|---|---|---|---|---|
| Age | 71.7 | 72.0 | 71.5 | 71.7 |
| Female (%) | 56.9 | 57.0 | 56.5 | 56.9 |
| Race/ethnicity (%) | | | | |
| White | 84.8 | 83.9 | 85.2 | 85.3 |
| African American | 8.7 | 8.2 | 9.3 | 8.7 |
| American Indian | 0.4 | 0.3 | 0.4 | 0.5 |
| Asian/Pacific Islander | 3.2 | 4.2 | 2.4 | 2.8 |
| Other | 2.9 | 3.3 | 2.7 | 2.7 |
| Hispanic (%) | 10.2 | 12.4 | 10.5 | 8.1 |
| Number of hospitals | 13.6 | 20.5 | 9.3 | 10.5 |
| Eligible for Medicaid (%) | 20.0 | 22.5 | 19.6 | 18.1 |
| HCC score | 1.03 | 1.07 | 1.01 | 1.01 |
| Average FFS spending | 812.9 | 816.0 | 818.5 | 806.7 |

Source: Author's analysis of 2018–2019 Area Health Resources File, January 2018 MA enrollment, and 2018 Geographic Variation Public Use File data
Note: These descriptive characteristics are weighted at the county-level prior to calculating the averages so the percentages do not add to up to 100 percent.
FFS = fee-for-service; HCC = Hierarchical Condition Categories

The average MOOP limit was $5,249 and 23.2 percent of plans had MOOP limits within the voluntary range ($0–$3,400) and 76.8 percent in the mandatory range ($3,401–$6,700). Table 5.2 shows the odds of plans having a MOOP limit within the mandatory range controlling for the plan's market concentration level, plan's county-level Medicare FFS risk score, percent of dual-eligible, and level of Medicare FFS spending. We find that the odds of a plan in a highly concentrated market having a MOOP limit within the mandatory range is 1.6 times higher than a plan operating in a nonconcentrated market, when holding all other predictors constant ($p = 0.049$). Similarly, plans in moderately concentrated service areas are 1.7 times more likely to have a MOOP limit within the mandatory range ($p = 0.019$) than plans in nonconcentrated markets, when holding all other predictors constant.

**Table 5.2: Odds of plans with highly or moderately concentrated markets offering a mandatory maximum out-of-pocket limit, 2018**

| | Odds Ratios | 95% CI | *P* value |
|---|---|---|---|
| **Market concentration (ref: nonconcentrated)** | | | |
| Highly concentrated | 1.6 | 1.0–2.6 | 0.049 |
| Moderately concentrated | 1.7 | 1.1–2.5 | 0.019 |
| HCC score (ref: low) | 0.3 | 0.2–0.4 | <0.001 |
| Dual-eligible (ref: low) | 1.1 | 0.7–1.7 | 0.616 |
| FFS spending (ref: low) | 1.1 | 0.8–1.7 | 0.534 |
| Observations | 768 | | |

Source: Author's analysis of January 2018 MA enrollment and Geographic Variation Public Use File data
Note: Covariates include weighted risk score, dually eligible beneficiaries, and Medicare FFS spending.

We used the likelihood ratio test to assess the improvement over the intercept-only model and find that the test is statistically significant, meaning that there is significantly less error of prediction in the model with the covariates than the null model ($\chi^2 = 33.3$; $p < 0.001$). My findings did not change when using robust standard errors to account for plan-level clustering.

## Discussion

The results of this study support prior findings that noncompetitive MA markets have less generous benefits than more competitive markets.[29,88] Specifically, we find that zero-premium MA plans operating in highly and moderately concentrated service areas have higher MOOP limits than plans operating in nonconcentrated service areas. High-need and low-income beneficiaries residing in areas with less competitive markets may be at greater risk of financial strain from health care costs because they do not have access to a competitive MA marketplace.

This study adds to the literature on the importance of market competition. Previous studies have found that plan generosity, as measured by the proportion of medical spending covered by the health plan, declines as markets are more concentrated.[29]

Another study found a 57 percent increase in the probability of offering supplemental dental benefits if another plan in the market offered supplemental dental benefits in the previous year.[87] By focusing on the MA marketplace, a highly regulated insurance market, we are able to better understand the role of competition on benefit generosity.

Our study has several limitations. First, the zero-premium feature is unique to the MA program so the results may not be generalizable to other health care sectors. Second, there are limitations our measure of market concentration. The HHI was based on MA enrollment, but a plan's market power is related to the other lines of business, such as the individual market, Affordable Care Act Marketplaces, the employer-sponsored market, and Medicaid managed care. There is also a question of whether traditional Medicare is a competitor of MA because both offer Parts A and B benefits. Including the other lines of businesses and traditional Medicare in the market concentration calculation could change the range and distribution of HHI scores. Lastly, MOOP is one of many dimensions of plan generosity. This study does not account for other measures of benefit generosity, such as copayments and deductibles.

Plans may offset the low MOOP by increasing other cost-sharing requirements so a low MOOP limit does not directly translate to low out-of-pocket spending. For example, Keohane and colleagues (2015) explored the effects of setting the $6,700 MOOP limit on MA members' expected out-of-pocket costs and found that the zero-premium plan members who previously did not have a MOOP limit had higher average expected costs for inpatient skilled nursing facility care after the mandate.[131] Studies also show that premiums is one of the most important factors in beneficiary choice of MA plans and beneficiaries struggle to find a plan that reduces their out-of-pocket expense.[111,139]

Therefore, beneficiaries might not choose the plans that result in the lowest out-of-pocket expenses. Network size is also another important factor when considering in-network MOOP limits because beneficiaries enrolled in plans with smaller network sizes might have less options for in-network providers and their spending on out-of-network providers will not count towards the in-network MOOP limit.

The MA program was designed to rely on market competition to provide affordable, high-quality benefit packages. However, the MA market is highly concentrated and continue to increase in market concentration. An inefficient MA system is costly to taxpayers and can expose beneficiaries to financial risk. Even with an efficient system, policymakers should assess potential socioeconomic disparities that might be exacerbated by the variation in the availability of different types of benefit packages.[140] Greater attention must be paid on access to generous plan benefits and the lack of MA market competition.

# Chapter 6: Conclusion

The purpose of this dissertation was to assess how policy changes and market structure influence Medicare Advantage plan benefit designs. This chapter presents the summary of findings, policy implications, and priorities for future research.

## Summary of Findings

***Aim 1: To assess trends in MA contract consolidation and reconsolidations from 2010–2020 and examine changes in star ratings among MA contracts that consolidate into other contracts.***

Results from this analysis shows that contract consolidations peaked in 2016 and reconsolidations peaked in 2018. By 2020, contract consolidations dropped below the 2012 levels. Overall, 83.0 percent of consumed plans absorbed a higher star rating as a result of consolidation. Four for-profit parent organizations accounted for 77.9 percent of the consolidations.

***Aim 2: To examine whether spending on MA supplemental benefits differ across different levels of market concentration and the factors that predict the offering of supplemental benefits.***

The results from this cross-sectional analysis shows that the odds of a plan in a nonconcentrated market offering a transportation, hearing, dental, or vision supplemental benefit is higher than a plan operating in a highly concentrated market, when holding all other predictors constant. In addition, the average spending on supplemental benefits was higher in nonconcentrated markets than highly and moderately concentrated markets.

***Aim 3: To explore the factors that predict high or low maximum out-of-pocket limits.***

This cross-sectional analysis showed that the odds of a plan in a highly concentrated market having a maximum out-of-pocket limit within the mandatory range is 1.6 times higher than a plan operating in a nonconcentrated market, when holding all other predictors constant. Plans in moderately concentrated service areas are 1.7 times more likely to have a MOOP limit within the mandatory range than plans in nonconcentrated markets.

## Policy Implications

This research highlights a few important policy implications. Since 2012, some of the larger for-profit MA organizations financially benefited from administratively shifting lower-rated contracts into higher-rated contracts. The Bipartisan Budget Act of 2018 narrowed the loophole so there's less opportunities for MA organizations to financially benefit from consolidating contracts. However, CMS should continue to closely monitor consolidation, reconsolidation, and deconsolidation activity since MA organizations continue to have opportunities to obtain unwarranted bonus payments through administratively shifting contracts.

As the next Administration seeks to improve the Medicare program for all beneficiaries, Medicare regulators should consider the role of market concentration in improving access to more generous MA plans. For example, CMS could consider revising the benchmarks to make highly concentrated markets more financially attractive to health plans. The current policy which provides a higher proportion of rebates based on a plan's star rating does not consider market structure, which may be contributing to

the unequal distribution of federal dollars. CMS could also consider reducing or eliminating the bonus payments to counties that qualify as a double-bonus county. These bonus payments awarded to counties with a MA penetration rate of at least 25 percent and lower than average Medicare fee-for-service spending,[141] and instead create a double bonus county payment to counties with highly concentrated markets.

The Biden-Harris campaign have also elevated health equity as important to its health policy platform. When assessing zero-premium plans, this research finds that dual eligible beneficiaries and Hispanics are more likely to be living in concentrated MA markets. While dual eligible beneficiaries are protected against high out-of-pocket costs through Medicaid, dual eligibility serves as a proxy for income, which suggests that lower income individuals and Hispanic older adults are less likely to have access to a generous MA plan. For the beneficiaries who are not covered under Medicaid, studies found that less generous plans—those with high MOOP limits along with high deductibles—places the burden of health care costs on high utilizers and can reduce their access to health care services.[142] Ensuring equitable health insurance coverage—and financial protection—through the Medicare program is an important component of health equity.

## Priorities for Future Research

This research addresses a few important questions surrounding contract consolidations and market concentration in MA. However, there are additional questions that this thesis did not address. Future studies could assess the longer term effects of contract consolidations. For example, an important consideration is the effect of contract consolidations on quality ratings. These consolidations have resulted in contracts that

cover large geographical service areas which could undermine the accuracy of the star ratings at the local level.

While Chapter 4 assesses the factors that predict the offering of supplemental benefits, this only examines the whether the plan covers any dental, vision, hearing, or transportation benefits. Further studies are needed to assess the detailed benefits of each supplemental category and potential variation across levels of market concentration. Additionally, with the growing list of services that qualify as supplemental benefits, an important issue to consider is how market concentration and the offering of these benefits relates to disparities, especially when the major supplemental benefit categories and the new supplemental benefits are of greater value for sicker and poorer beneficiaries than healthier beneficiaries.[143] Furthermore, as the Value-Based Insurance Design Model is evaluated, it would be interesting to assess the impact of market concentration on the plan's decision to use the model's flexibility to cover novel technologies and Food and Drug Administration-approved medical devices to beneficiaries based on chronic condition and/or socioeconomic status.

Finally, an important question to consider is how MA organizations choose to participate in a market and choose plan characteristics. This thesis assumes that MA organizations follow the profit maximization model but some MA organizations, in particular not-for-profit organizations, could have other considerations when making decisions on participation in a market and plan benefit designs.

# Appendices

**Table A.1: Population characteristics among residents 65+, by plan service area-level market concentration**

| | Overall (N = 1,085) | Highly Concentrated (N = 404) | Moderately Concentrated (N = 455) | Nonconcentrated (N = 226) |
|---|---|---|---|---|
| Age | 70.9 | 70.8 | 70.9 | 71.0 |
| Female (%) | 56.8 | 56.5 | 56.8 | 57.4 |
| Race/ethnicity (%) | | | | |
| White | 85.9 | 85.5 | 86.3 | 85.9 |
| African American | 7.3 | 7.1 | 7.7 | 6.9 |
| American Indian | 0.5 | 0.6 | 0.4 | 0.3 |
| Asian/Pacific Islander | 3.6 | 4.1 | 3.1 | 3.7 |
| Other | 2.7 | 2.7 | 2.6 | 3.1 |
| Hispanic (%) | 7.3 | 6.4 | 6.5 | 10.8 |
| Number of hospitals | 11.0 | 8.0 | 13.0 | 14.0 |
| Eligible for Medicaid (%) | 22.4 | 21.7 | 21.0 | 26.5 |
| Plan's risk score | 1.00 | 0.98 | 1.00 | 1.05 |
| Average FFS spending | 709.1 | 708.1 | 715.0 | 699.0 |

Source: Authors' analysis of 2018–2019 Area Health Resources File, 2013 MA bid, January 2013 MA enrollment, and 2013 Geographic Variation Public Use File data
Note: These descriptive characteristics are weighted at the county-level prior to calculating the averages so the percentages do not add to up to 100 percent.
FFS = fee-for-service

**Table A.2: Odds of plans with nonconcentrated or moderately concentrated markets offering supplemental benefits, 2018**

| | Transportation | | Dental | | Vision | | Hearing | |
|---|---|---|---|---|---|---|---|---|
| | *Odds Ratios* | *P-value* | *Odds Ratios* | *P-value* | *Odds Ratios* | *P-value* | *Odds Ratios* | *P-value* |
| Moderately concentrated (ref: highly) | 0.9 (0.7,1.2) | 0.533 | 1.2 (0.9,1.6) | 0.165 | 1.4 (0.8,2.2) | 0.209 | 1.9 (1.4,2.6) | **<0.001** |
| Nonconcentrated (ref: highly) | 1.6 (1.2,2.2) | **0.001** | 1.0 (0.7,1.3) | 0.698 | 1.9 (1.1,3.5) | **0.024** | 1.8 (1.3,2.5) | **<0.001** |
| HCC score (ref: high) | 0.5 (0.4,0.7) | **<0.001** | 0.9 (0.7,1.2) | 0.404 | 0.7 (0.4,1.1) | 0.087 | 0.6 (0.5,0.8) | **0.002** |
| Dual-eligible (ref: high) | 0.8 (0.6,1.0) | **0.032** | 0.9 (0.7,1.2) | 0.457 | 0.7 (0.4,1.1) | 0.106 | 0.8 (0.6,1.0) | 0.068 |
| FFS spending (ref: high) | 0.7 (0.5,0.8) | **0.001** | 0.5 (0.4,0.6) | **<0.001** | 0.5 (0.3,0.7) | **0.002** | 0.9 (0.7,1.2) | 0.460 |
| Observations | 1,985 | | 1,985 | | 1,985 | | 1,985 | |

Source: Authors' analysis of January 2018 MA enrollment and 2018 Geographic Variation Public Use File data

Note: Covariates include weighted county-level CMS-HCC score, dually eligible beneficiaries, and Medicare FFS spending. We used an enrollment-weighted CMS-HCC score because the 2018 plan-level HCC scores used in the Medicare Advantage bid pricing tool are not publicly available.

CI = confidence interval; FFS = fee-for-service; HCC = Hierarchical Condition Categories; HHI = Herfindahl-Hirschman Index

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