

The Evolution of Healthcare and Corporate Finance

Mitch Towner*
Eller School of Management
University of Arizona

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I give a brief summary of the institutional details of the U.S. healthcare sector with a special emphasis on healthcare finance. In addition to its large size, U.S. healthcare has four unique features that can be used to help answer corporate finance questions: segmented markets, variation in corporate type, extensive data requirements and recent consolidation. I explain how changes over the last 100 years have led to each of these features. Next, I delve deeper into bargaining between insurance companies and hospitals, Medicare pricing, and hospital capital structure decisions during 2008-2012. Finally, I conclude with a brief discussion on how the Affordable Care Act has contributed to these factors.

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1 Introduction

The U.S. healthcare sector is large and growing with spending of \$3.1 trillion in 2014 (17.1% of GDP) and estimates of over \$5 trillion by 2022.¹ This makes the U.S. healthcare sector the fifth-largest economy in the world in 2014 at \$3.1 trillion, lagging only behind the U.S., China, Japan and Germany.² This is partly due to the size of the U.S. economy, but the size of the healthcare sector relative to GDP is also by far the largest of any OECD country. Figure 1 shows that U.S. spending as a percentage of GDP has been increasing relative to other countries since 1980 and today it is almost double the average of the other OECD countries.

A lot of this spending comes from the high price of insurance, which in many cases is passed through employer-based insurance, to workers reducing total consumer surplus. In addition, this industry is worth studying because of its direct implications on well-being and length and quality of life. For these reasons and many more, this industry has been a source of focus for policymakers, academics, and the general public alike. Furthermore, I argue healthcare provides an opportunity to provide insight on corporate finance questions because of four unique institutional features.

First, healthcare provision is segmented geographically for a number of reasons, including bilateral negotiations between local hospitals and insurance companies, patient travel costs and the referral system by which general physicians will recommend local specialists. This is beneficial for an econometrician because there is substantial cross-sectional variation due to local market forces and government regulation over time. There are 388 metropolitan statistical areas (MSAs) and 541 micropolitan statistical areas, which enables the researcher to find similar areas with one-off differences to help isolate a causal relationship of interest.³

Second, there are nonprofit, for-profit and government hospitals in almost every area of the country. This is useful in studying the differences between each corporate classification with an appropriate counterfactual in the same area. In particular, nonprofits are a huge part of the

¹Centers for Medicare and Medicaid research on national health expenditures <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/downloads/proj2012.pdf>

²World GDP figures taken from <http://knoema.com/nwnfkne/world-gdp-ranking-2015-data-and-charts>.

³There is no consensus in terms of the proper level of segmentation. Researchers at the Dartmouth atlas have classified 306 hospital referral regions (HRRs) as an alternative.

U.S. economy that are understudied by academics because of the lack of data availability and comparison firms. Nonprofit firms have no equity holders and do not pay taxes, which has important implications on how they raise capital and their capital structure. These features can also be used to help disentangle alternative theories.

Third, government regulation and subsidies have forced extensive data requirements for hospitals that recently have gotten even more stringent as part of the Affordable Care Act. This data includes balance sheet information, quality measures, prices and utilization figures. The availability of such detailed panel data for thousands of hospitals can help answer corporate finance questions.

Finally, there has been substantial consolidation among hospitals and insurance companies since 1980. With minimal intervention from the Federal Trade Commission (FTC), both groups have continued to merge for efficiency reasons and to consolidate their bargaining power. This creates substantial time-series and cross-sectional variation in market competition measures that can be used for identification. Figure 2 shows that the average hospital Herfindahl-Hirschman Index (HHI) has increased from 1,500 in 1990 to 2,800 in 2012, as well as the number of mergers each year.

In section 2, I describe the basic U.S. healthcare framework and how it has evolved over time. In section 3, I delve deeper into the institutional details for my sample period, 2008-2012. Section 4 concludes with a brief discussion on the Affordable Care Act.

2 History

In this section, I first describe the major agents involved in healthcare and then the evolution of U.S. hospitals and health insurance programs, including Medicare. The majority of the historical section relies on research from “In Sickness and In Wealth: Hospitals in the 20th Century”, written by Rosemary Stevens.

2.1 Major Players in U.S. Hospitals

Approximately 100 years ago, healthcare was a fairly standard market in which consumers (patients) paid providers directly for their services. One major caveat was that prices were not posted, so patients did not know the cost in advance. Starting in the 1930s with Blue Cross, local insurance programs began to help assure that the poor and middle class had access to care by spreading the risk over the entire population.⁴ At this point, healthcare could have been classified as a market with limited regulation and relatively straightforward bargaining between providers and insurance companies. Over time, the U.S. government has become more involved in regulating and funding healthcare so that broadly speaking, the same four groups, patients, care providers, insurers, and regulators dominate the market today. More precisely, each of these groups contains multiple different players, and the additional interactions add complexity to the healthcare system.

Over time, patients have consistently increased demand for healthcare, while often being shielded from the rising costs. In addition, access to care has been historically uneven, with limited access for the poor and indigent. Attempting to resolve these two issues has resulted in more governmental intervention over time. Healthcare providers range from doctors and therapists to laboratories and hospitals. I focus on hospitals in this paper because of data availability and their large influence on healthcare finance.

Generally, there are three different corporate types of hospitals in the U.S.: nonprofit, government and for-profit hospitals. The majority of hospitals are nonprofits (approximately 65%), which are historically community-based. Providing some subsidized care for the poor, they do not pay state or federal taxes, and rely on endowments and debt to raise capital because they have no equity holders. Government hospitals receive the majority of their funding from state, local and federal governments, and provide a disproportionately high amount of uncompensated care. For-profit hospitals are investor-owned hospitals that pay taxes and often provide relatively little uncompensated care. Regardless of organization type, many hospitals are now jointly-owned, operated or managed in what is known as a hospital system. Belonging to a hospital system generates

⁴Blue Cross, at the time a tax-exempt program, was the solution as it targeted large local employers, framing itself as a community scheme as opposed to a welfare scheme, excluding unemployed, elderly and part-time workers.

a number of benefits for a hospital, including lower fixed costs and consolidated bargaining power. I further discuss these differences and their implications in the subsequent sections.

The health insurance industry also contains a variety of organizational forms, including private, employer and government-sponsored, with some individuals covered by multiple programs. Historically, care was reimbursed as either a percentage of costs or as a fee for service. Fee-for-service programs give patients more flexibility in the care they receive with greater cost sharing, and hospitals are reimbursed for each procedure performed. Over the last 30 years, there have been multiple attempts to control costs and quality of care through managed care organizations (MCOs), such as preferred provider organizations (PPOs), or health-maintenance organizations (HMOs). Managed care organizations try to limit unnecessary care and spending with more preventative care and physician incentives to provide less-costly service through a hybrid of fee-for-service, per diem and percent-of-charges contracts. Government-sponsored programs include subsidized insurance for the poor (Medicaid) and programs for the elderly and disabled (Medicare).

The U.S. government's role in healthcare goes beyond government hospitals and government-backed insurance through a number of regulatory channels, including anti-trust regulation and quality assurance. The government has also been instrumental in the expansion of the U.S. health-care system both on the supply and demand side through a variety of bills and legislation. All the above changes arose due to a lack of care for indigent individuals, rising costs and an effort to improve the quality of care provided. In the next section, I describe how access to care has expanded over time.

2.2 Access To Care

Over the last 100 years, healthcare finance has incrementally evolved from a relatively simple system of payment between patient and provider to an incredibly complex system that is difficult for anyone to understand. Prior to 1940, two groups of people had an especially difficult time obtaining healthcare: the poor and those living in rural areas. Charity care was provided by government and some religious-based groups on a limited basis in urban areas. However, more

than 50% of U.S. counties had no hospitals, and typically few providers. With smaller populations, it was difficult to fund the buildings and incentivize doctors to live and provide care in these areas.

At the start of World War II, the federal government sponsored expansion of the hospital infrastructure in the name national defense under the Lanham Act. This was the largest government support to date, and helped set the precedent for subsidized expansion in rural areas (Hill-Burton Act) in 1945. The Hill-Burton Act required all states to survey hospital availability and plan expansion on a regional basis providing \$1 in federal support for every \$2 local groups provided. There was additional support for poor states, ultimately leading to 4,678 projects, mostly in rural areas. This was the first time the U.S. had a nationally defined, regionally organized framework for healthcare. However, issues remained with many Americans lacking insurance and no obvious way to distribute the newest treatments from academic centers to smaller regional hospitals. With the U.S. facing deflation, high unemployment and anti-communism sentiment in 1949, there was no chance for government health insurance.

The Hill-Burton act helped spur increases in total hospital assets, rising from \$2.7 billion to \$5.2 billion between 1947 and 1955, and then doubling again by the early 1960s. This was the first large expansion in hospital assets, and was primarily driven by government and nonprofit hospitals. Table 1 shows total hospital assets by corporate type from 1947 until 1977. For-profit hospital assets were stagnant around the Hill-Burton Act, and their increase in assets would not begin until after Medicare was passed. Similar conclusions can be drawn by looking at the number of hospitals of each type over time, as seen in Table 2. That being said, there was still substantial regional variation, with more for-profit hospitals remaining in the South and West.

The post-World War II era was also the one that saw a huge increase in employer-based health insurance with government subsidies and a favorable tax treatment. Table 3 shows that insurance coverage went from 9% in 1940 to 50% in 1950 and then close to 70% by 1960. Furthermore, Table 3 shows the expansion of these employer-based health insurance programs, as the market is no longer completely dominated by Blue Cross. Despite the asset expansion, there were still limited hospital resources, and nonprofit hospitals were directing these resources to more expensive procedures and patients, for which they were more likely to receive reimbursements. This tended to be individuals

who were covered by third-party payers, because in 1960, hospitals were only getting reimbursed at 57.66% of third-payer rates from the government. The expanding prevalence of third-party insurance also contributed to hospitals expansion. As they were reimbursed for more procedures, extra charges were passed on to patients via higher insurance premiums, and the feedback loop continued. In addition to expanding the number of individuals, total health insurance benefits skyrocketed from \$772 million to \$8.7 billion between 1948 and 1964.

Insurance expansion was largely based on employment, so the elderly and poor remained largely uninsured. Medicare was established in 1966 as a government-subsidized insurance for the elderly, and Medicaid was created as a government-backed insurance program for the poor. Medicare payments were paid for by the government and organized by intermediaries as the government tried to stay away from directly influencing providers, with 90 percent of hospitals initially choosing Blue Cross.

Hospitals were reimbursed for reported costs, and the government assumed the hospitals would only increase costs as necessary. Medicare spending was underestimated from Day 1 as there was more utilization than expected, rising inflation, and hospitals were using the government payments to expand their profits. For-profit hospitals were allowed to receive “a reasonable return on equity capital” as part of Medicare reimbursements. Nonprofit hospitals could max their income by including costs of borrowing money, which led them to start to use lots of long-term debt instead of private contributions. Table 4 shows the breakdown of funding sources from 1968 until 1981, when the use of debt went from 38% to 69%, while private contributions were cut by more than 80%. The prevailing wisdom in the 1970s was that proprietary competition led to more efficient markets. Nonprofit hospitals were now praised for making money, as this was a sign they were operating efficiently even renaming their status as nonprofit as opposed to not for profit.

After 1970, the vast majority of Americans had some sort of insurance and there were incentives for hospitals to increase volume as patients were paying little out of pocket at the time of care. These incentives existed for both nonprofit and for-profit hospitals, with the only real difference being their tax status, which opened the nonprofit hospitals up for more scrutiny as the costs and spending increased substantially.

Congress was concerned that hospitals and Blue Cross were gaining as much from the government subsidies as the beneficiaries. In 1970, Nixon suggested a health maintenance strategy as a way to restructure, decentralize, privatize and make healthcare provision more competitive. This was the same time that hospitals began to consolidate with nonprofit systems and church systems and that for-profit chains were growing. For example, in 1975 Hospital Corporations of America (HCA) was receiving 30 percent of its revenue from Medicare.

Consolidation continued as a means for hospitals to pay down debt on buildings and as a way to increase bargaining power. By 1982, one-third of all hospitals and 36 percent of beds belonged to a hospital system. This consolidation would accelerate in the 1990s and 2000s, as can be seen in Figure 2 and Table 5. In 2014, 57% of all U.S. acute-care hospitals were part of a hospital system, defined as two or more hospitals that are either jointly-owned, sponsored, or managed by a central organization.⁵ These systems tend to be located within close proximity to one another and provide a number of benefits for the hospitals. These include minimizing fixed costs and increasing their market share, which provides greater market power during negotiations over reimbursement rates.

Hospital costs continued to rise rapidly and in the face of predictions that the Medicare reserve funds would be exhausted, significant reform was executed in 1982. Hospital reimbursements were modified from a cost-based, fee-for-service system to fixed reimbursements for episodes of care called Diagnostic Related Groups (DRGs). Most treatment in a hospital could be grouped into 1 of 467 DRGs. Now hospitals had an incentive to control costs, as they were only paid a base rate regardless of how much it cost the hospital. This was later expanded on January 1, 1992, when Medicare introduced the Medicare Fee For Service (FFS) with reimbursement rates for 7,000 services. There are base prices determined by a group of 29 specialist physicians and then adjusted for cost of living by geographic area.⁶ FFS Medicare patients are responsible for co-payments for all services, and therefore are subject to potentially unlimited out-of-pocket risk. Consequently, most individuals will purchase supplemental insurance known as Medigap to cover the majority of co-payments.

⁵<http://www.aha.org/research/rc/stat-studies/fast-facts.shtml>

⁶There are outlier payments made in addition to hospitals that have patients that are particularly expensive in the care they require.

Medicare parts A and B had its own set of problems with incentives for hospitals to diagnosis patients to maximize reimbursement rates and discharge patients quickly, as any extra resources spent would not be reimbursed. Specifically, the federal government accused many hospitals of shifting the DRGs to yield a higher reimbursement rate from the Medicare system. One example was a case brought by federal investigators against HCA in 1997. Silverman and Skinner (2003) find that both nonprofit and for-profit hospitals were "upcoding" by looking at the frequency in which the most generous DRG for respiratory infections changed from 1989 to 1996. There were also concerns that this lowered the average level of care to these patients.

One solution to these issues was the advent of Medicare part C, which started with the passage of the Balanced Budget Act of 1997. Originally these were called Medicare+Choice, and as of the Medicare modernization act of 1993, they were rebranded Medicare Advantage. Those who are covered do not give up any rights to Medicare, but they must use select providers in surrounding areas. Part C plans are usually HMOs, and patients are required to have a primary care physician. However, they reduce the out-of-pocket expenses for the patient by minimizing co-payments and deductibles. Part C plans have to offer coverage that meets or exceeds standards set by Fee For Service Medicare, but they do not have to cover every benefit the same way. A 2003 law changed the payment formula to overcompensate Part C plans by 12% relative to Fee For Service Medicare to encourage more plans for individuals in rural areas struggling to get the care they need. Traditionally, most Medicare enrollees choose FFS (75% in 2013), but the number of individuals choosing Medicare Advantage has gone up substantially, from 5.4 million to 15.7 million in the last 10 years.⁷

In addition, the insurer market continued to evolve with even more employer-sponsored plans and the advent of managed-care organizations.⁸ These organizations are frequently able to bargain discounts because they limit their patients to certain hospitals providing these hospitals with a steady stream of patients, whereas traditional insurance does not restrict patients, and so they

⁷<http://kff.org/medicare/issue-brief/medicare-advantage-2014-spotlight-enrollment-market-update>

⁸HMO plans rely on more cost sharing with patients through co-payments, while PPO plans generally rely on a large deductible and co-insurance. These programs are significantly cheaper because the patient pays for the majority of the "first dollars". These features are very similar to the differences between traditional FFS Medicare and Medicare Advantage.

choose doctors and hospitals freely. Put differently, hospitals were forced to become more competitive with their prices to ensure MCO membership, otherwise they would face a large reduction in patient volume. This new system of financing has also led to consolidation in the health insurance market, resulting in 67% of the metropolitan areas and 31 states having an insurer with a market share greater than 50% by November 2012.⁹

3 Modern Salient Institutional Details

In this section, I emphasize institutional details since 2008. In particular, I describe the bargaining process between hospitals and insurance companies, Medicare pricing and the differences by corporate type, including the factors that determine a hospital's capital structure.

3.1 Bargaining Between Insurance Companies and Hospitals

The negotiation process between hospitals and insurance companies is extremely complicated, both initially and upon renegotiation.¹⁰ Negotiation between hospitals and insurance companies is typically done within the local geographic hospital system level, though the reimbursement rates may vary hospital by hospital within a system. For example, HCA has regional offices that will negotiate with local insurers over the reimbursement rates for all hospitals in the area, but would not bargain for the entire country. There are exceptions, though, as some mergers have overcome antitrust concerns by agreeing to bargain separately from the rest of the hospital system.¹¹

The primary determinant of bargaining outcomes is the relative size of the hospital and insurer. Consistent with standard bargaining theory, hospitals and insurers with greater market shares are able to demand higher and lower reimbursement rates, respectively.¹² Although size is a major

⁹2012 edition of AMA's Competition in Health Insurance: A Comprehensive Study of U.S. Markets

¹⁰In addition to the papers cited below, this section benefited from multiple conversations with executives at Intermountain Health Care and Hospital Corporations of America.

¹¹Balan and Brand (2014)

¹²Studies in healthcare that draw these conclusions include Melnick et al. (1992), Brooks et al. (1997), and Halberasma et al. (2011), among others.

determinant, there are a number of other factors, including negotiation skill, quality of care, case mix, solvency, hospital capacity, frequency in which claims are denied and organizational status. Lewis and Pflum (2014) argue that requisite negotiation skill is one of the leading reasons for the substantial variation in reimbursement rates across hospitals. Pauly (1998) and Sorensen (2003) find that even small MCOs are frequently able to negotiate substantial discounts from hospitals because of their ability to channel patients to specific hospitals.

The final contracts are typically hundreds of pages with specific reimbursement agreements for thousands of procedures. These agreements may come in the form of fee-for-service, per diem, percentages of costs or some combination of these. Gaynor, Ho and Town (2015) note that the bargaining power of the hospital is an important factor in the contract form, with hospitals preferring lower-powered incentives and insurers preferring higher-powered incentives. Negotiation usually occurs annually unless there is a significant change in the hospital's organization such as a merger or a change in system affiliation.

3.2 Medicare Pricing

Medicare enrollees can choose either traditional Fee For Service (FFS) Medicare or Medicare Advantage.¹³ FFS permits beneficiaries more flexibility in care, with greater cost sharing through higher deductibles and co-payments. Most FFS members mitigate the potential unlimited out-of-pocket expense by purchasing supplemental insurance known as Medigap policies. FFS Medicare has a provider fee schedule for more than 7,000 services with reimbursement rates adjusted for geographic differences in cost of living.¹⁴ ¹⁵

Medicare benefits are typically less generous than the typical large employer. Most part B people pay an insurance premium of \$100/month. Since 2007, they have added an income-based premium for wealthy individuals. Forty percent receive supplemental insurance from a former

¹³Approximately 75% of enrollees choose traditional FFS Medicare and 25% enroll in Medicare Advantage

¹⁴The fee schedule is priced on a Resource Based Relative Value Scale (RBRVS) or more simply the resources required for the procedure. RBRVS is based on three Relative Value Units: physician work (52%), practice expense (44%) and malpractice expense (4%).

¹⁵Hospitals can also receive supplemental payments for extreme costs known as outlier payments.

employer, 30% get plan C, and most of the rest get private supplemental Medigap insurance. Policy forbids people from having both Medigap and Part C coverage.

Hospitals have the option to decline FFS Medicare, accept the fee schedule after geographic adjustment, or request additional reimbursements.¹⁶ In the last case, the supplemental reimbursement amounts are bargained over by Medigap insurers as part of their entire negotiation process. Bargaining variation for FFS patients is limited to the supplemental payments because the base rate is set and paid for by the U.S. government. Medicare Advantage patients are enrolled in MCOs, and the MCOs bargain with hospitals over the entire reimbursement amount independent of the FFS price. With a larger scope for negotiation, these prices tend to have greater variation across hospitals.

3.3 Nonprofit versus for profit

Hospital balance sheet data is complicated by variation in corporate type and the existence of hospital systems. There is quite a bit of research that focuses on the differences between nonprofit and for-profit hospitals. Nonprofits have no equity holders, and so receive financing from revenue, debt, philanthropy, government subsidies and internal funds. Meanwhile, for-profit hospitals can issue both debt and equity. In addition, nonprofit hospitals do not pay state or federal taxes, so they do not receive a traditional debt-tax shield. This is offset by the fact that nonprofits can borrow more cheaply because any debt they issue provides abatement at the personal level.

Nonprofit hospitals' reliance on philanthropy was significantly reduced after Medicare was passed because hospitals could issue debt and pass on the costs to the government. By 1983, only 0.4% and 1% of funding came from philanthropy for nonprofit and government hospitals, respectively.¹⁷ In addition, Sloan et al (1990) find that the increased third party insurance coverage crowded out donations. Typically, nonprofits are subject to a "project financing rule," which requires these hospitals to issue debt only when they have the capital earmarked for a specific investment. That being said, there are nonprofit hospitals that manipulate their balance sheet

¹⁶Virtually all general acute care hospitals accept Medicare, so it is unlikely this would bias my sample in any way.

¹⁷Institute of Medicare For Profit Enterprise in Health Care (1986) published by the National Academy Press)

to try and take advantage of their tax exempt status. For example, the University of Pittsburgh Medical Center was famous for a tax arbitrage scheme in which it was borrowing short-term and investing long-term in order to capture the interest-rate spread. This eventually backfired during the financial crisis as short-term borrowing costs shot up.

There is extensive literature that suggests that nonprofit hospitals act similarly to for-profit hospitals along a number of dimensions. After controlling for size and patient type, Wedig (1988) finds no difference in capital structure by corporate type. Bowman (2002) finds nonprofit hospitals borrow more when they receive endowments, consistent with optimizing leverage as if they follow the trade-off theory of capital structure. Similarly, Wedig et al (1996) model and find evidence that nonprofit hospitals issue debt until the point that benefits are offset by agency and bankruptcy risk. Lastly, Duggan (2002) uses responses to changes in regulation and finds nonprofit hospitals respond similarly to for-profit hospitals. It is also worth noting that nonprofits are legally required to provide free care to some patients, and thus are forced to bargain aggressively with insured patients to ensure they make up for lost resources and remain a going concern.¹⁸

Another complicating factor, especially with respect to balance sheet data, is that each hospital has to report its financials to the Centers for Medicare, but many hospitals are jointly-owned. This means that some systems will issue debt at the parent level and then transfer assets or liabilities between subsidiaries. That being said, hospital systems tend to leave autonomy at the subsidiary level, and a researcher can always value weight or equal weight and combine measures to the system level.

Summary stats for my sample in 2012 by corporate type can be found in Table 6. There are a total of 2,197 hospitals, of which 20% are for-profit, 65% are nonprofit, and 15% are government hospitals. Missing observations for HHI_Insurer are because the hospital is located outside of an MSA. Government hospitals have the greatest proportion of these missing, and have both the highest HHI_Insurer and HHI_Hospital among the corporate types confirming they are more likely to be found in rural areas or areas that have insufficient facilities. They are also significantly less likely to be part of a system, and are less profitable.

¹⁸This argument was made during an interview I had with an executive for a nonprofit hospital.

For-profit hospitals are the smallest, have less-volatile earnings, are more likely to be a part of the system, and use little long-term debt. In addition to being greatest in frequency, nonprofits on average are the largest, and have the highest leverage. Table 7 shows similar summary statistics split on whether or not a hospital is part of a system. In 2012, 68% of hospitals were part of a system. Stand-alone hospitals were smaller, had higher leverage, and were less likely to be part of a teaching hospital.

4 Conclusion

The U.S. healthcare system is a massive economy that has undergone a series of changes for the last 100 years, eventually leading to the complex industry it is today. The size of the economy alone warrants academic study, but unique institutional features also provide an opportunity to provide insight into corporate finance questions. First, healthcare provision is segmented geographically, creating cross-sectional variation by metropolitan area. Second, there are nonprofit, for-profit and government hospitals in most markets, enabling comparisons by corporate type. Third, government influence and intervention has led to substantial data requirements for hospitals. Finally, the entire industry has undergone consolidation for the last 30 years, creating time-series variation in market competition measures.

There are broadly four main groups involved in U.S. healthcare: patients, care providers, insurers and regulators. The role of insurers and regulators in the economy has gradually increased over time to help ensure everyone had access to care, with a special focus on individuals who are poor or live in rural areas. The government's role has also changed with concerns over the rising costs over time.

Medicare reimbursements have evolved in line with other insurers. At times, reimbursements have been a percentage of costs or a fixed amount per procedure, and have evolved to what is now a more complex contract that uses a combination of per diem, fee-for-service and a percentage of costs to align the incentives of cheaper costs and quality care. These contracts have also altered

the financing in hospitals, in particular in nonprofit hospitals that now rely less on donations and more on debt.

On March 23, 2010, President Barack Obama signed the Affordable Care Act (ACA) into law. The goal of the policy was to increase the number of individuals that were uninsured by mandating that all individuals purchase health insurance, eliminating the adverse selection that arises in insurance markets. The effect would be that younger, healthy individuals can then help subsidize individuals with pre-existing conditions. It is also hoped that this will reduce the total cost of the U.S. healthcare sector, because previously uncovered individuals who relied on more-expensive emergency care will now use more preventative care with regular physician visits.

The law was supposed to allow individuals to purchase cheaper policies on state-run exchanges in 2014, but many states refused to operate these exchanges for political reasons. The Obama administration, coupled with the states that created exchanges, have now set up a national exchange, which ensures individuals can purchase insurance and also limits how much insurers can raise their rates. Since the passing of the ACA, the number of big U.S. health insurers, covering approximately one-third of the market, has decreased from five to three (Anthem/Cigna, Aetna/Humana and United). This consolidation is believed to be a response to smaller profit margins and higher compliance costs. Similar consolidation is in process by hospital systems in an effort to increase their bargaining power. It will be interesting to see how far this consolidation goes and how it affects the pricing of services.

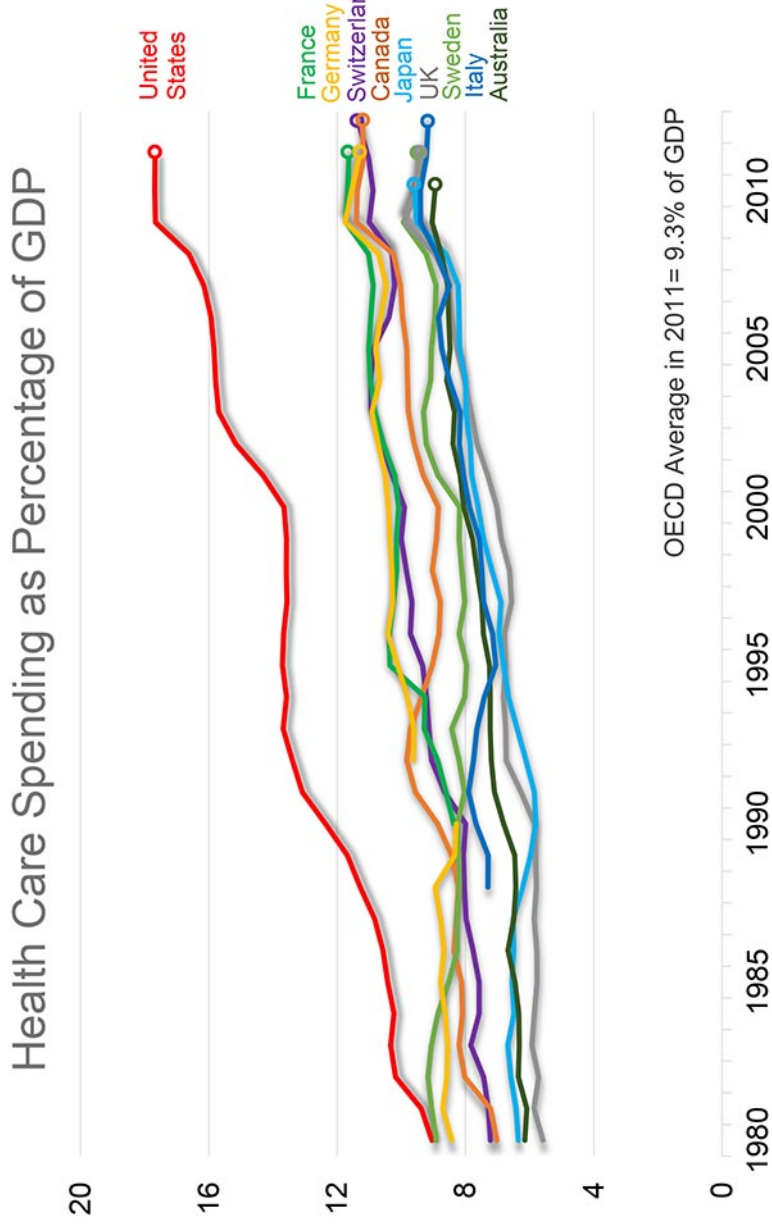
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Figure 1: Healthcare as Percent of GDP for OECD Countries

Spending on healthcare as percent of GDP for OECD countries 1980-2012. Produced by Veronique de Rugy. <http://mercatus.org/publication/us-health-care-spending-more-twice-average-developed-countries>

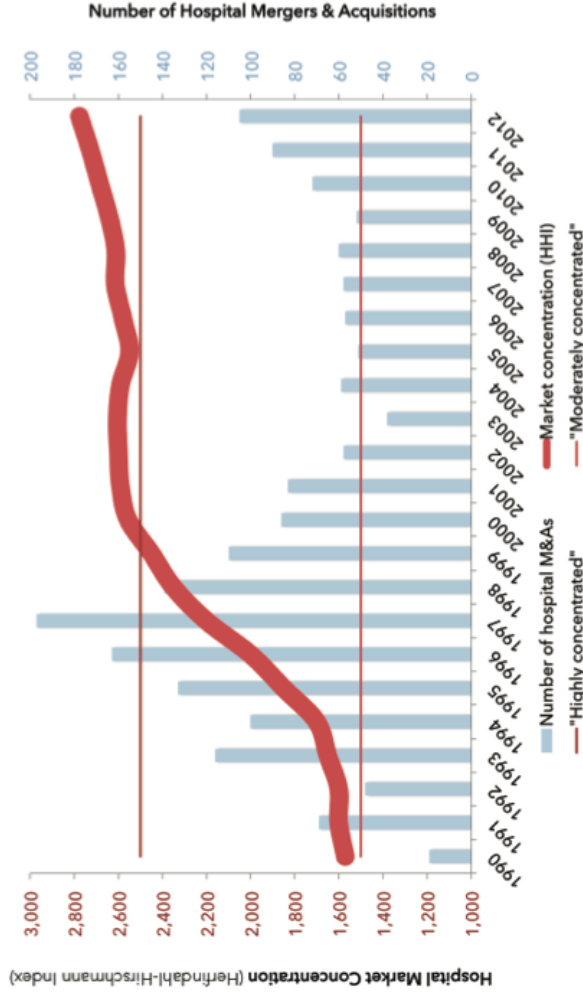


Source: OECD Health Data 2013.
Produced by Veronique de Rugy, Mercatus Center at George Mason University.

Figure 2: M&A Activity in U.S. Hospitals

M&A activity at hospitals since 1990 from Forbes by Avik Roy. <http://www.forbes.com/sites/theapothecary/2015/01/12/what-60-minutes-didnt-tell-you-obamacare-will-drive-up-the-cost-of-hospital-care>

Figure 18. Impact of Mergers and Acquisitions on Hospital Market Concentration, 1990-2012



A new wave of hospital mergers is driving market concentration higher. The blue bars denote the number of hospital merger and acquisition transactions in a given year, in the 1990s, penetration of managed-care insurers, with a mandate for more aggressive cost control, led hospitals to merge in response, strengthening their market power over the insurers. The Federal Trade Commission and the U.S. Department of Justice normally consider markets with HHI above 1,500 as "moderately concentrated" and markets with HHI above 2,500 as "highly concentrated," triggering antitrust litigation. However, consolidated hospital markets have largely avoided antitrust litigation. Today, more than half of the hospital markets in the United States have an HHI above 2,500, meaning that the DOJ and FTC would consider them to be "highly concentrated." (Source: A. Roy analysis, Robert Wood Johnson Foundation, Martin Gaynor, Irving Levin Associates, HHS ASPE)

Table 1: Hospital Assets

This table contains the total hospital assets in the U.S. by corporate type from 1947 until 1977.

Year	Nonprofit	Government	For profit	Total
1947	2697	612	129	3439
1950	3350	861	138	4349
1955	5223	1614	148	6985
1960	8422	2193	243	10858
1965	12476	3474	414	16364
1970	20502	5301	871	26674
1975	35827	8890	2538	47256
1977	46686	10953	3494	61133

Table 2: Hospitals by Corporate Type

This table contains the total number of hospitals and corresponding percentage by corporate type from 1946 until 2009 in the U.S..

Year	Total	Nonprofit	For Profit	Government	% Nonprofit	% Profit	% Govt
1946	4445	2584	1076	785	58.13%	24.21%	17.66%
1950	5031	2871	1218	942	57.07%	24.21%	18.72%
1955	5237	3097	1020	1120	59.14%	19.48%	21.39%
1960	5407	3291	856	1260	60.87%	15.83%	23.30%
1965	5736	3426	857	1453	59.73%	14.94%	25.33%
1975	5875	3339	775	1761	56.83%	13.19%	29.97%
1980	5830	3322	730	1778	56.98%	12.52%	30.50%
1990	5834	3191	749	1444	54.70%	12.84%	24.75%
1995	5194	3092	752	1350	59.53%	14.48%	25.99%
2000	4915	3003	749	1163	61.10%	15.24%	23.66%
2009	5008	2918	998	1092	58.27%	19.93%	21.81%

Table 3: Insurance Coverage

This table contains the U.S. population, percent covered by insurance, and percent covered by Blue Cross by year from 1940 until 1986.

Year	Population	% Insurance	% BC
1940	132.5	9	50.3
1945	133.4	24	58.9
1950	152.3	50.3	50.7
1955	165.9	61.1	50
1960	180.7	67.8	47.4
1965	194.3	71.4	45.7
1970	205.1	77.5	47.2
1975	216	82.5	48.5
1980	227.8	82.3	46.3
1986	241.6	74.4	43.4

Table 4: Funding Source

This table shows the funding source for nonprofit hospitals between 1968 and 1981.

Funding Source	1968	1973	1978	1981
Philanthropy	21	10	6	4
Govt	23	21	16	12
Internal Reserves	16	15	17	15
Debt	38	54	61	69

Table 5: System vs Independent Hospitals

This shows the number of independent and system-based hospitals between 1999 and 2010 as reported in the Dixon Hughes Goodman 2013 Winter Healthcare report.

Year	Independent Hospitals	System Hospitals
1999	2432	2524
2000	2373	2542
2001	2328	2580
2002	2321	2606
2003	2269	2626
2004	2251	2668
2005	2220	2716
2006	2172	2755
2007	2167	2730
2008	2142	2868
2009	2087	2921
2010	2044	2941

Table 6: Summary Stats by Corporate Type 2012

This table contains the summary statistics for the relevant variables at the MSA level. Panel A contains summary statistics from 2008, B from 2010, and C from 2012. *PctProfit* is equal to the percentage of all hospitals that are for-profit hospitals, *PctNonprofit* is equal to the percent of hospitals that are nonprofit, and *PctGovt* is the percent of hospitals that are government hospitals. *MedianPay* is the median reimbursement rate that hospitals receive in the MSA. *MedianCost* is the median cost that hospitals pay for colonoscopies in the MSA. *MedianLev* is the median leverage of each hospital in the respective MSA. *HHI_Insurer* is the Herfindahl-Hirschman Index for both HMO and PPO insurance participation published by the American Medical Association.

A: Profit	count	mean	p50	sd	p10	p90
Leverage	437	0.113	0.032	0.605	-1.009	0.892
HHI_Insurer	313	0.300	0.266	0.121	0.198	0.433
CapEx	437	7.415	2.444	34.311	-7.290	32.992
Total Staffed Beds	437	179.201	139.000	154.447	39.000	373.000
MktShare	437	0.273	0.150	0.315	0.010	1.000
NetIncomeVol	437	6.983	3.819	9.025	0.947	15.358
Teaching	437	0.160	0.000	0.367	0.000	1.000
HHI_Hospital	437	0.320	0.228	0.296	0.045	1.000
NoSystem	437	0.142	0.000	0.349	0.000	1.000
NetIncomeAssets	437	0.088	0.091	0.858	-0.095	0.440
B: Nonprofit	count	mean	p50	sd	p10	p90
Leverage	1432	0.320	0.299	0.273	0.004	0.652
HHI_Insurer	1070	0.287	0.262	0.096	0.194	0.396
CapEx	1432	14.945	5.101	42.576	-12.811	57.529
Total Staffed Beds	1432	262.622	196.500	229.924	60.000	543.000
MktShare	1432	0.328	0.203	0.331	0.011	1.000
NetIncomeVol	1432	13.285	6.750	16.103	1.630	35.211
Teaching	1432	0.326	0.000	0.469	0.000	1.000
HHI_Hospital	1432	0.330	0.218	0.311	0.045	1.000
NoSystem	1432	0.290	0.000	0.454	0.000	1.000
NetIncomeAssets	1432	1535.525	0.045	58103.693	-0.046	0.146
C: Government	count	mean	p50	sd	p10	p90
Leverage	328	0.282	0.257	0.228	0.003	0.604
HHI_Insurer	178	0.315	0.264	0.147	0.194	0.470
CapEx	328	17.370	2.925	47.519	-5.347	81.254
Total Staffed Beds	328	233.259	153.000	229.974	47.000	572.000
MktShare	328	0.419	0.284	0.398	0.002	1.000
NetIncomeVol	328	10.750	3.574	16.294	0.816	30.296
Teaching	328	0.241	0.000	0.428	0.000	1.000
HHI_Hospital	328	0.428	0.296	0.367	0.004	1.000
NoSystem	328	0.668	1.000	0.472	0.000	1.000
NetIncomeAssets	328	0.025	0.023	0.098	-0.047	0.097

Table 7: Summary Stats by System 2012

This table contains the summary statistics for the relevant variables at the system level. Panel A contains summary statistics from stand-alone hospitals and B for hospitals part of a system. All variable definitions can be found in 2.1

A: Stand-alone	count	mean	p50	sd	p10	p90
Leverage	696	0.327	0.310	0.218	0.057	0.610
HHI_Insurer	390	0.303	0.266	0.117	0.201	0.445
CapEx	696	9.737	2.540	27.809	-6.901	32.199
Total Staffed Beds	696	183.167	133.000	158.349	44.000	414.000
MktShare	696	0.341	0.101	0.398	0.002	1.000
NetIncomeVol	696	8.022	3.403	12.053	0.835	21.859
Teaching	696	0.185	0.000	0.389	0.000	1.000
HHI_Hospital	696	0.402	0.272	0.359	0.004	1.000
NetIncomeAssets	696	0.033	0.029	0.177	-0.047	0.111
B: System	count	mean	p50	sd	p10	p90
Leverage	1501	0.248	0.245	0.418	0.000	0.722
HHI_Insurer	1171	0.290	0.262	0.105	0.194	0.410
CapEx	1501	15.697	5.163	47.012	-13.028	63.609
Total Staffed Beds	1501	268.761	197.000	237.755	61.000	561.000
MktShare	1501	0.326	0.214	0.312	0.024	0.958
NetIncomeVol	1501	13.337	6.876	16.178	1.760	35.450
Teaching	1501	0.324	0.000	0.468	0.000	1.000
HHI_Hospital	1501	0.315	0.216	0.295	0.045	0.919
NetIncomeAssets	1501	1464.953	0.054	56752.487	-0.060	0.228