The Political Economy of Medicaid:
Partisanship, Eligibility, and the Unintended Consequences of Cost-Saving Measures

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Abstract

We quantify the linkages between government partisanship in U.S. states and geographic variation in Medicaid program design and operations. Medicaid eligibility criteria tend to be more generous in liberal states. Simultaneously, fee-for-service reimbursement rates for physician services have been notably lower in liberal states. These two patterns lead to the following questions: to what extent does the partisan composition of the government drive eligibility and reimbursement over time? If cost-saving measures accompany eligibility expansion, then what are their consequences for resource allocation? We explore *long-run* linkages among the government's partisan composition, eligibility, cost-saving measures, and expenditures for the Medicaid expansion from the mid-1990s to 2010.

Our analysis consists of four steps. First, we quantify how strongly the partisan composition of the state government is associated with eligibility expansion. Second, we document the tradeoff between breadth of eligibility and fee-for-service reimbursement rates. Third, we investigate driving forces behind the shift of the delivery systems, i.e., Medicaid managed care diffusion. Fourth, we analyze the resulting patterns of per-enrollee spending.

We find that the Democratic seat share of the lower chamber of the state legislature is a strong predictor of eligibility expansion and reduction of fee-for-service reimbursement rates, especially in the late stage of eligibility expansion. HMO penetration in the private insurance market and decrease in fee-for-service reimbursements are strongly associated with managed care diffusion. Finally, Medicaid per-enrollee spending increased substantially over time despite the adoption of cost-saving measures. This unintended consequence was due to the systematic changes in HMO practices.

Keywords: Medicaid, Partisanship, Eligibility, Reimbursement, Managed Care

JEL Classification: I13, I18, I3, H75

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1 Introduction

Healthcare is one of the largest industries in the United States, constituting 17.7 percent of the GDP as of 2018 (Center for Medicare and Medicaid Services (2020)). Medicare and Medicaid are the primary channels through which the federal and state governments interact with the healthcare industry to improve the welfare of the elderly and indigent population. In this paper, we investigate the role of politics in the Medicaid program variation. Medicaid is a state-operated government health insurance program for the indigent population with over 500 billion dollars of yearly expenditures and 70 million enrollees. Since its creation in 1965, Medicaid experienced three significant waves of expansion – in the late 1980s, late 1990s, and the 2010s.

The purpose of this study is to investigate *long-run* linkages between the partisan composition of the U.S. state governments and the geographic variation in the Medicaid program design and operation by focusing on the period from the mid-1990s to 2010. It is the time of the Medicaid expansion due to the Children's Health Insurance Program (CHIP) legislated in 1997. When eligibility expansion occurs, there is often a need to adjust other parts of the Medicaid operation to address the increased burden on the budget. States may respond to such needs by reducing reimbursement rates and changing delivery systems. These, in turn, have long-term consequences on Medicaid expenditures. We establish quantitative linkages between the following dimensions: (1) partisan composition of the state government and eligibility expansion; (2) eligibility expansion and fee-for-service (FFS) reimbursement rates; (3) eligibility expansion and the Medicaid managed care (MMC) diffusion; and (4) the consequences of cost-saving measures – reimbursement rate reduction and managed care diffusion – on the expenditures.

Figure 1 shows Medicaid income eligibility limits for parents of Medicaid-eligible children as a percentage of the federal poverty level (FPL) as of 2008, which is the last year before the legislative process for the Patient Protection and Affordable Care Act (ACA). The figure shows a clear geographic pattern. States in the Northeast region, as well as liberal states in the Midwest, tend to have significantly higher income criteria. This tendency suggests a potential influence of liberal ideology on generous eligibility criteria. Figure 2 shows Medicaid/CHIP upper income eligibility limits[1] for children in 2008, with a similar geographic pattern.

The level of reimbursements to healthcare providers tends to have the opposite pattern. Figure 3 shows the Medicaid FFS reimbursement rates for primary care physicians, relative to their Medicare counterparts. On average, Medicaid pays approximately 70 percent of what Medicare pays. In liberal states, the rates tend to be especially low, with New York and Rhode Island paying only

[1]The CHIP can be operated as a separate program from Medicaid or can be integrated as a part of the existing Medicaid program. Income eligibility limits differ across children's age. For the upper income eligibility limits, we use the highest income eligibility limits across children's age.

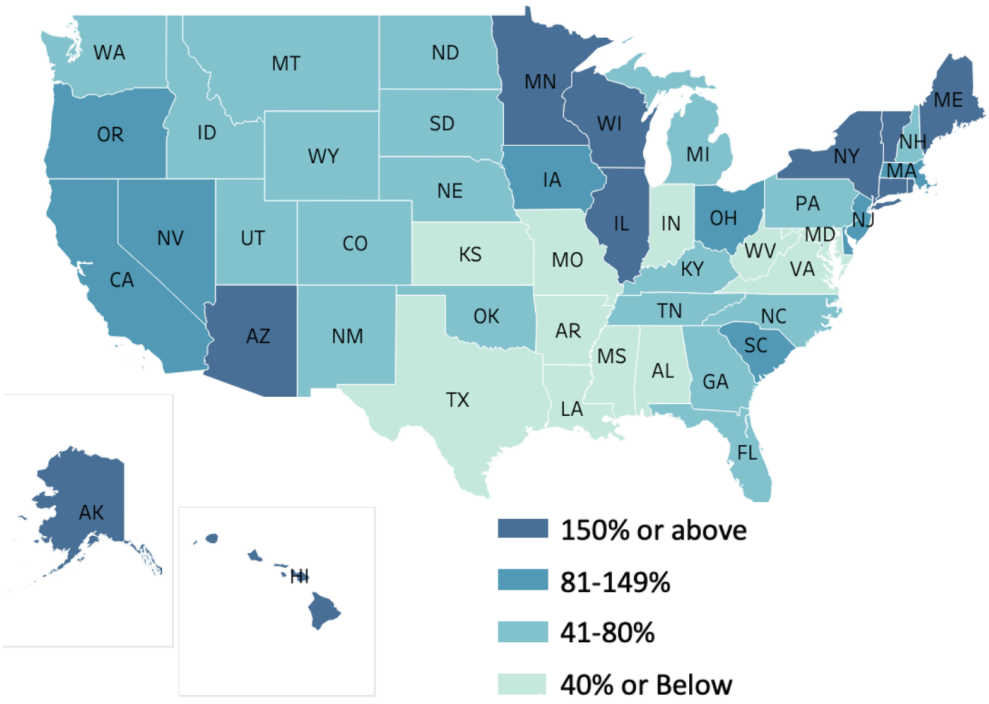


Figure 1: Medicaid Income Eligibility Limits for Parents (percent of FPL), 2008

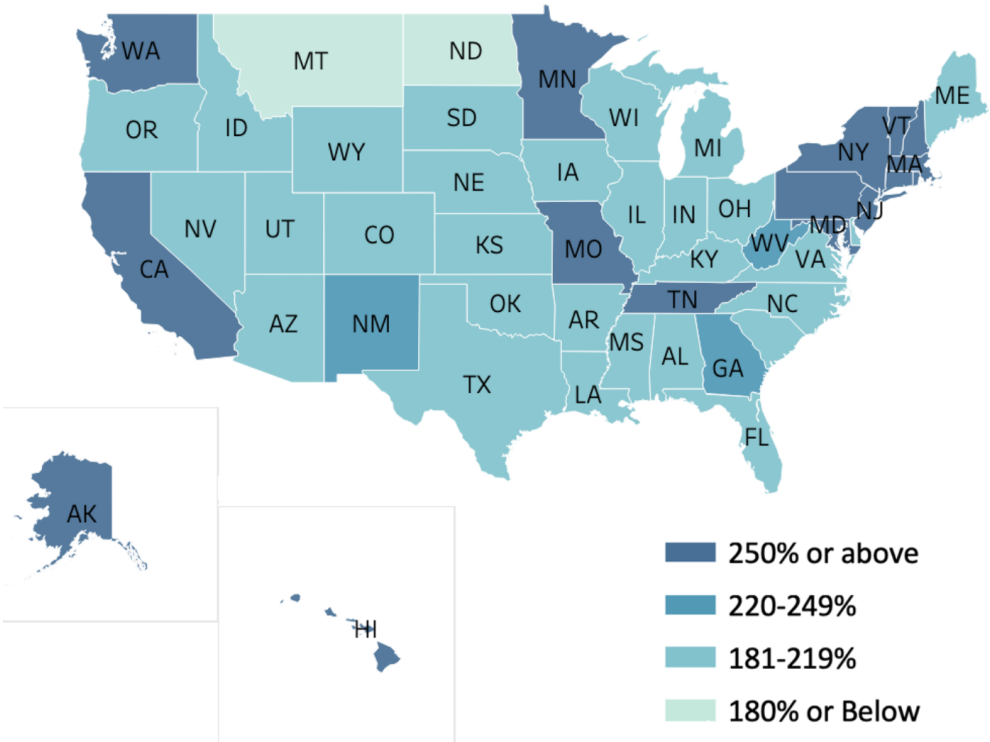


Figure 2: Medicaid Upper Income Eligibility Limits for Children (percent of FPL), 2008

36 percent and New Jersey paying only 41 percent.[2]

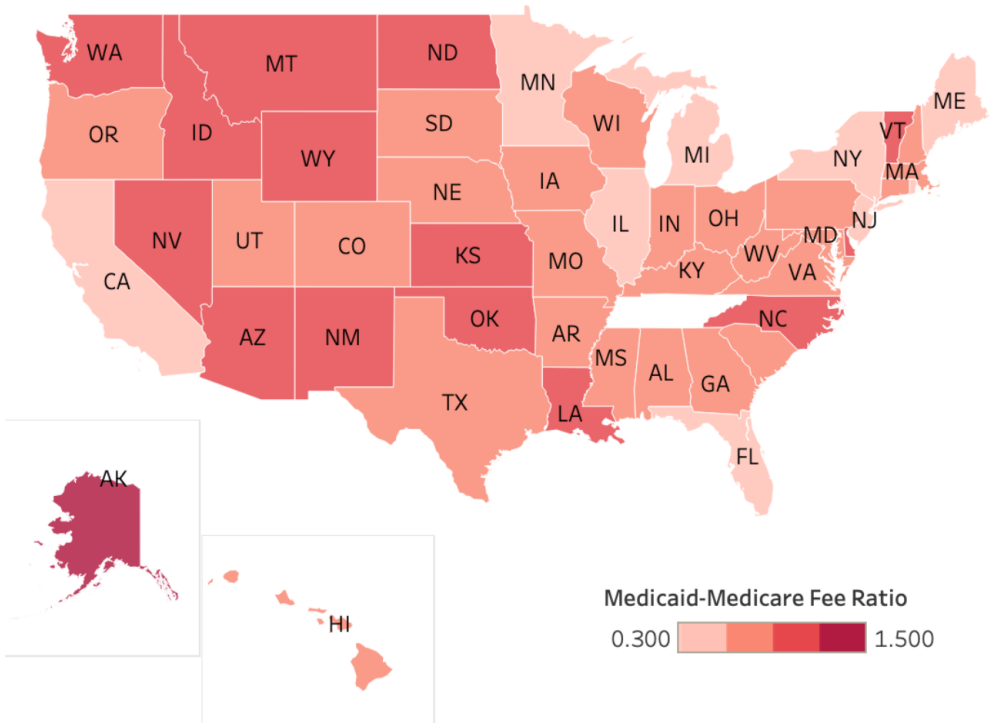


Figure 3: Medicaid Fee-for-service Reimbursement for Primary Care: Medicaid/Medicare Ratio, 2008

There are institutional and political reasons why this combination of generous eligibility criteria and stringent reimbursement in liberal states can be an equilibrium. The institutional reason pertains to the budget constraint. As enrollment increases due to the expansion, per-enrollee spending needs to decrease if the government wants to keep the Medicaid budget constant. It can be a severe constraint, especially if state governments carry out eligibility expansion that deviates from the guidelines set out by the federal government. In such a situation, states are often required to apply for a waiver and get approval from the Center for Medicare and Medicaid Services (CMS), a federal agency. As a part of this process, the state government needs to demonstrate budget neutrality of its plan. That is, the new plan must not cost the federal government more than the existing plan's expenditure.

However, this budget neutrality requirement applies only to a small subset of expansion decisions.[3] The nature of the political process involved provides a more compelling yet complementary

[2]Medicare reimbursement rates are centrally determined considering the cost factors (the intensity and effort of physicians' work, the practice expense, and professional liability insurance) and their geographic variations (Dickstein and Chan (2019)). Moreover, Medicare rates significantly influence private insurance reimbursement rates (Clemens and Gottlieb (2017)). Therefore, comparison to the Medicare rates reflects the overall cost variations in healthcare markets.

[3]States' eligibility expansion decisions usually follow systematic changes that the federal government initiates.

explanation. The decisions on eligibility expansion and reimbursement rates differ markedly in the nature of the political actors involved and voter information. Career politicians who run for office (governor and state legislators) decide eligibility criteria. In contrast, bureaucrats who do not run for office (Medicaid directors and their agencies) decide reimbursement rates. Moreover, while it is straightforward for the voters to obtain information on eligibility criteria, reimbursement rates are composed of a long list of prices that are difficult to acquire information on or comprehend. Therefore, career politicians would carry out eligibility expansion decisions, popular with liberal voters. And, bureaucrats reduce reimbursement rates, which may be unpopular but not easily visible to voters.

A serious empirical investigation into the chain of the relationship among governments' partisanship, eligibility expansion, and reimbursement rates is significantly more complex than the simple tradeoff suggested by Figures 1-3 for three reasons. The first complexity pertains to disentangling the role of many confounding factors. The most apparent one is the market condition for and political organizations of healthcare providers. Different states have varying strengths of hospital concentration (Vogt and Town (2006)) and political organizations of healthcare providers (Gray et al. (2007)). The rate of the federal contribution to the Medicaid program also varies across states. All these factors can influence reimbursement rates in a way that one may not control for straightforwardly.

The second complexity is due to the multi-dimensionality of Medicaid operation. On average, FFS payments for physician services constitute less than 10 percent of Medicaid spending (Duggan and Hayford (2013)), which renders only a partial picture of the resource allocation in Medicaid. Moreover, reimbursement rates are set for thousands of procedures. These, in turn, interact with utilization by patients to generate variation in expenditures. This multi-dimensionality of the Medicaid operation poses a severe challenge in understanding systematic changes in spending.

The third complexity is due to the variation in delivery systems, i.e., managed care diffusion in Medicaid. It is also a part of the high-dimensionality of Medicaid operation mentioned above. During the period of our study, the Medicaid program experienced a significant change in the delivery systems. In 1991, only 10.6 percent of Medicaid enrollees were in managed care. This share reached 47.5 percent in 1997, the time of the CHIP legislation. Then, it reached 77 percent in 2014 (Center for Medicare and Medicaid Services (2014)). Variation in MMC diffusion poses three analytical challenges. First, MMC tends to select a relatively healthy subgroup of the Medicaid enrollees, causing adverse selection on the health conditions of the enrollees left in the FFS arrangements. Second, MMC influences expenditures, which may have feedback on FFS reim-

Therefore, they often do not require an application for waivers or justification for budget neutrality. For example, states conducted Medicaid expansions following the ACA, typically without seeking CMS waivers. Also, the Government Accountability Office raised concerns for the violation of budget neutrality requirement (Government Accountability Office (2008, 2013, 2015).)

bursement rates through budget constraints. Third, the MMC may affect resource allocation across different categories of enrollees or healthcare providers.

We proceed in four stages. First, we focus on the cross-time variation in the partisan composition of the state government and quantify its association with the eligibility expansion. Second, we document the cross-time patterns of the reimbursement rates while the eligibility expansion took place. We quantify the relationship between cross-time variation in the partisan composition of the state government and FFS reimbursement rates. Third, we investigate critical determinants of the managed care diffusion, focusing on the two dimensions: health maintenance organization (HMO) penetration in the private insurance market and the level of FFS reimbursement rates. HMO penetration in the private insurance market may have spillover into the government insurance program. The presence and active operation of HMOs may make it easier for the government to make arrangements for the Medicaid managed care. There can also be economies of scale for the HMOs in enrolling a new, large group of Medicaid enrollees, once they have set up the infrastructure in an area. The FFS reimbursement rates can also influence managed care diffusion because higher FFS reimbursement rates make it more likely for the MMC to reduce expenditures (Duggan and Hayford (2013)). Finally, we investigate the influence of cost-saving measures on spending.

We obtain the following four results. First, we find that the partisan composition (Democratic seat share) of the lower chamber of the state legislature (henceforth, state house) played a critical role in the relatively late stage of the eligibility expansion. The partisanship of the state governor or the state senate has no predictive power for the eligibility expansion. This result is ex-ante unobvious, given that governors sometimes take a strong position. Yet this is ex-post intuitive, given that the state house is typically where the appropriation bill originates. Given the budgetary impact of the eligibility expansion, the state house would play an important role. This result also suggests that the partisan composition of the state house *per se* plays a role, not only the underlying voter preferences. If the voters' characteristic or ideology drives the entire relationship between the partisan composition and the eligibility expansion, such an impact would also be reflected in the state senate or governorship.

Second, there is a strong cross-time relationship between the eligibility expansion and the reduction of the FFS reimbursement rates. Around the time of CHIP legislation, FFS reimbursement rates in liberal states were similar to those in conservative states. In contrast, around 2010, the rates in liberal states were as low as 60% of those in the conservative states. The partisan composition of the state house in the later stage of the expansion also has strong predictive power for the FFS reimbursement rates. These findings suggest that the negative cross-sectional relationship between the FFS reimbursement rates and states' liberalness in the late 2000s is the consequence of the eligibility expansion rather than confounding factors.

Third, the county-level HMO penetration in the private insurance market is a strong predictor

of the MMC diffusion, both for spatial and cross-time variations. The diffusion is associated with the FFS reimbursement rate reduction. These two results are very useful for understanding the unintended consequences of cost-saving measures on the expenditures, which we will discuss below. The strong linkage between the private insurance HMO penetration and the MMC adoption implies that the MMC made Medicaid susceptible to the spillover effect of systematic changes in the private insurance HMOs. Moreover, the concurrence of the FFS reimbursement rate reduction and the MMC penetration implies that the local MMC implementation took place primarily in the times and areas where it would not be very effective for cost-saving.

Finally, the Medicaid per-enrollee spending increased steadily during the eligibility expansion, despite the reimbursement rate reduction and the MMC adoption. In Figure 4, the left panel shows enrollments in total, for children, and MMC. The right panel shows Medicaid per-enrollee spending for non-elderly, non-disabled adults and children. This unintuitive phenomenon was primarily

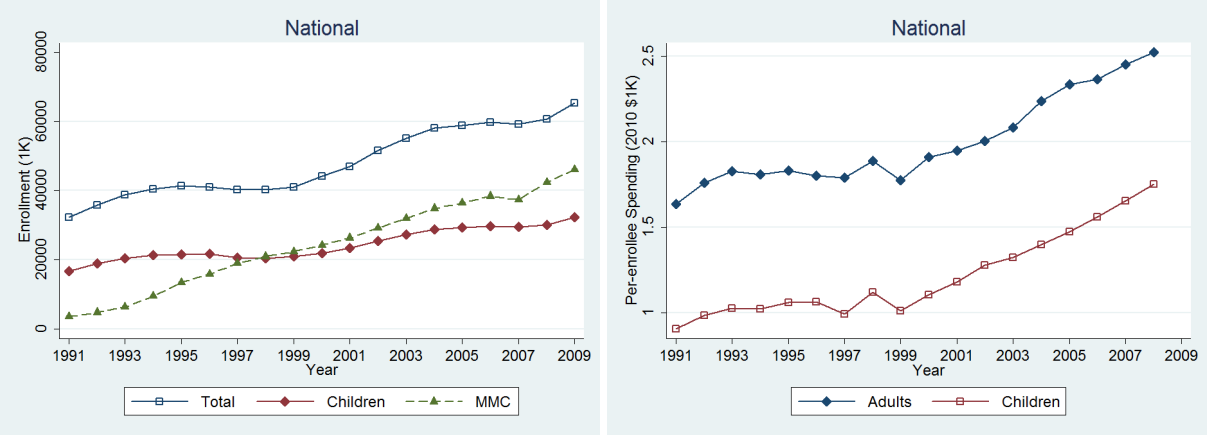


Figure 4: Medicaid Enrollments and Per-Enrollee Spending Over Time

due to the systematic changes in the HMO practices that coincided with the eligibility expansion. From the mid-1990s, a wave of state-level managed care regulations discouraged HMOs' cost-containment practices. Such regulation increased hospital spending in the areas with high HMO penetration (Pinkovskiy (2020)). Our result shows its spillover effect on Medicaid spending through MMC diffusion. This spillover effect is intuitive, considering that the MMC diffusion pattern closely followed the HMO penetration in the private insurance market. The increase in Medicaid per-enrollee spending is also partially because the MMC was implemented where it was not going to be highly effective for cost-saving.

Our study can improve the understanding of a broader scope of Medicaid expansions, not limited to the CHIP. When a large-scale Medicaid eligibility expansion occurs, there are two opposing forces on the Medicaid reimbursement rates. One is a downward pressure due to the budget constraint. The other is an upward pressure. Since the eligibility expansion increases the demand for healthcare to the Medicaid patients, the reimbursement rates need to be raised to induce more

provision of services. For the ACA, Medicaid reimbursement for physician services was bumped up to the Medicare level in 2013 and 2014. The federal government funded 100 percent of the increase relative to the rate states paid as of 2009. The financing for the continued bump after 2014 is now up to the state. Among more than thirty states that adopted the ACA eligibility expansion, only seven states fully continued the fee bump after 2014 (Zuckerman et al. (2017)). As this example illustrates, the evaluation of the long-run effect of the Medicaid expansion requires knowledge of how eligibility, delivery systems, and reimbursement evolve together in a broader politico-economic environment. Such knowledge is what this study aims to provide.

The rest of this paper is organized as follows. Section 2 introduces the institutional background and related literature. Section 3 describes our data. Section 4 describe measurements and econometric specifications. Section 5 presents our results. Section 6 concludes.

2 Institutional Background and Related Literature

2.1 Institutional Background

2.1.1 Overview

Medicaid was created by the Social Security Amendments of 1965. It is one of the most extensive government programs in the U.S. Total Medicaid expenditure in the fiscal year 2018 was 597.4 billion dollars, which was 16% of the total national health expenditures. States spend more on Medicaid than on any other budget item, with Medicaid constituting 29 percent of states' budget on average (National Association of State Budget Officers (2019)).

The federal government sets up the basic framework for the main program design. Within the federal framework, each state has broad discretion in setting details. As a result, there exists a sizable cross-state variation in the program design. Historically, the federal government led large-scale regime changes, such as the CHIP in 1997 and the ACA of 2010. At the state level, the state legislature and the governor decide substantial changes with significant budgetary impacts. For operational details, the Medicaid director and his agency are in charge. The state Medicaid agency needs to seek authorization and appropriation from the state legislature for any significant increases in expenditures. If a state decides to make a systematic change, it needs to submit a proposal for a Medicaid state plan amendment to seek approval from the CMS.

Before the ACA, five groups were eligible – children, parents, pregnant women, disabled, and elderly. Individual states determine income criteria for each category within the federal framework. It causes a significant variation across states. For instance, for parents in 2013, 215% and 23% of the FPL were the income limits to be eligible in Minnesota and Alabama, respectively.

FFS reimbursement rates are typically set by each state's Medicaid directors and their agency.

The federal government sometimes exercises a direct influence on reimbursement rates, as in the ACA Medicaid fee bump in 2013-2014. They reflect costs, market conditions of each specialty, inputs from professional associations of providers, as well as reimbursement rates from other insurance programs such as Medicare.

Delivery systems (FFS vs. MMC) also vary significantly.[4] The MMC existed since the 1970s. It was negligible until the early 1990s, with its penetration rate being only 10.6% in 1991. After the welfare reform in 1996, the MMC became the delivery system for a majority of enrollees. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) ended unemployment being a necessary condition for Medicaid eligibility. When uninsured, low-wage workers became qualified for Medicaid, many states enrolled them in MMC. Moreover, the Balanced Budget Act (BBA) of 1997 expanded the states' authority to use the MMC mandate. Initially, states had to obtain waivers from the federal government to implement an MMC mandate, a requirement that the BBA lifted. States implemented the MMC diffusion using local mandates, which require beneficiaries in the selected localities and subgroups to enroll in the MMC. In 1991, only 5.9 percent of the Medicaid population resided in counties with MMC mandates. This share grew rapidly over the 1990s and reached above 40 percent by 2000.

Finally, benefit coverage also varies across states. The federal government determines mandatory benefits. They include physician services, inpatient and outpatient hospital services, Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) services for individuals under age 21, etc. Optional benefits include dental and vision care, physical therapy, occupational therapy, etc. (MACPAC (2020a)). We abstract from the variation in optional benefits. Since the EPSDT services are mandatory, states' discretion in benefit coverage is small for children.

2.1.2 Medicaid Eligibility Expansion

Since its creation, Medicaid had three significant waves of eligibility expansion (Kaiser Familly Foundation (2011)). The first was in the late 1980s. The Omnibus Budget Reconciliation Act (OBRA) of 1989 required states to provide coverage to pregnant women and children up to age 6 with family incomes at or below 133% of the FPL. The OBRA of 1990 mandated coverage of children at ages 6–18 in families with income below 100% of the FPL. The second wave was with the creation of the CHIP in 1997. The PRWORA of 1996 also allowed states to expand eligibility to adults and children by decoupling Medicaid and welfare eligibility. This second wave was directly associated with an increasing role of MMC from the late 1990s. The third wave was with the ACA of 2010. It initially required states to allow people with income up to 133% of the FPL to qualify for coverage, including adults without children. After the U.S. Supreme Court ruling that gave states options not to expand Medicaid, 37 states have chosen to expand Medicaid as of 2020

[4] Duggan and Hayford (2013) provide a comprehensive overview of the MMC diffusion we summarize here.

(Kaiser Familly Foundation (2020)).

The major waves of the eligibility expansion had a standard structure. The federal government legislated mandatory coverage of a new population group and gave states options to expand further. Liberal states took the lead to implement the expansion, often adopting the broadest eligibility criteria allowed under the new federal guidelines. The federal government provided generous funding. One example is the enhanced federal matching rate for the CHIP, described below. Another example is the federal government's full funding for the newly eligible enrollees from 2014 to 2016 under the ACA, phasing down to 90% in 2020.

2.1.3 Medicaid Financing and Delivery Systems

Federal Contribution The federal and state governments jointly fund Medicaid. Federal Medical Assistance Percentage (FMAP), the percentage of the total Medicaid expenditure that the federal government pays, ranges from 50% to 74% with an average of around 57%, as a function of states' per capita income (Kaiser Familly Foundation (2012)). For the CHIP, the *enhanced* FMAP, which is approximately 15% higher than the FMAP, determines the federal contribution.[5]

Principles and Waivers The federal government imposes various principles and requirements on the states' program. The fundamental principles can be summarized as follows (MACPAC (2020b)). (1) *Comparability*. A Medicaid-covered benefit generally must be provided in the same amount, duration, and scope to all enrollees. (2) *Freedom of choice*. All beneficiaries must be permitted to choose from any healthcare providers participating in Medicaid. (3) *Statewideness*. A state Medicaid program cannot exclude enrollees or providers because of their location.

To deviate from these principles, a state government typically applies for one of the following waivers. (1) *Section 1115 Waiver*. The US Health and Human Services Secretary can waive almost any state plan requirement, to the extent necessary for a demonstration project. It is a typical waiver that states apply for when expanding the Medicaid program. (Kaiser Familly Foundation (2019)) (2) *Section 1915(b) Waiver*. It provides states with the flexibility to modify their delivery systems, e.g., implement MMC. (3) *Section 1915(c) Waiver*. It allows states to obtain waivers of comparability requirements, to offer home and community-based services to limited groups of enrollees.

[5] Specifically, FMAP is determined by the following formula:

$$\text{FMAP} = 1 - 0.45 \times [\text{State Per Capita Income}^2 / \text{U.S.Per Capita Income}^2].$$

The enhanced FMAP for CHIP is calculated by reducing the state share under the regular FMAP by 30 percent and adding 23 percentage points.

2.1.4 Medicaid Managed Care

Managed care is an insurance arrangement based on healthcare providers' networks. HMO is its most strict form concerning the primary care physician (PCP)'s control over treatment options. A PCP is assigned to each patient and is paid capitation payments for it. The PCP takes responsibility for making referrals to specialists in the network and is held responsible for unnecessary treatments through high-powered incentives schemes. A majority of the states that adopted the MMC predominantly used HMOs.[6] Medicaid HMOs typically cover primary, acute, and specialty medical care services. They may also include behavioral health and long-term care services.

Another common form of MMC is Primary Care Case Management (PCCM). In the PCCM, a PCP receives a fixed periodical payment for each patient for monitoring of care and referral, and providers are reimbursed for services as in the FFS arrangement otherwise. This method is based on the premise that the consistency of care by a PCP generates long-run cost reduction (Newhouse et al. (1985), Pauly et al. (1990)). There also exist MMC plan types with limited benefits such as Prepaid ambulatory or inpatient Health Plans (PHP) and Program for All-inclusive Care for the Elderly (PACE).[7]

2.2 Related Literature

Medicaid Expansion and Physician Reimbursement The first related literature is on Medicaid expansion. Grogan (1994) and Lukens (2014) investigate the influence of partisan politics and political organizations on Medicaid expansion for the period of 1979-1989 and 1996-2005, respectively. Both studies argue that state governments' partisan composition is a critical determinant of the variation in Medicaid eligibility criteria. There also exist earlier studies that focus on relationships between partisanship and Medicaid spending, e.g., Barrilleaux and Miller (1988), Camobrecco (1996), and Kousser (2002). Our study differs significantly from these studies in two respects. First, the studies above focus on the cross-sectional differences in partisan composition rather than cross-time variations. Second, we link the eligibility expansion directly to the FFS reimbursement rates, delivery systems, and expenditures. It is an important contribution because the tradeoff between eligibility criteria and other dimensions of the Medicaid program can have important welfare and distributive implications.

[6] In the private insurance market, other common forms of managed care are the Preferred Provider Organization (PPO) and Point-of-Service (POS). PPO is a plan that has contracts with a network of "preferred" providers. An assignment of a PCP is not necessary, and a patient does not need a referral to see a specialist. Patients receive discounts on charges if they choose providers in the network. POS is a combination of the HMO and the PPO. POS plans have a system that functions like the HMO network. Patients are assigned a PCP, who coordinates treatments. Unlike HMOs, POS plans allow patients to choose providers outside the network.

[7] The PHP covers a limited set of benefits, such as behavioral health, long-term care, dental, or transportation benefits. The PACE provides prepaid, capitated comprehensive medical and social services in an adult day health center, supplemented by in-home and referral services according to a participant's needs.

There also exists a distinct stream of research on Medicaid expansion that focuses on reimbursement rates for and access to providers (e.g., Currie and Gruber (1996), Currie et al. (1995), Garthwaite (2012), Chen (2013)). Currie and Gruber (1996) analyze Medicaid eligibility expansion for pregnant women from 1979 to 1992. They show that a 30 percentage point increase in Medicaid eligibility for 15-44-year-old women was associated with an 8.5 percent decrease in infant mortality. Currie et al. (1995) analyze variations in Medicaid physician fees for the same period and find that a 10% increase in Medicaid fee decreases infant mortality by 0.5-0.9 percent. Garthwaite (2012) analyzes the period following the CHIP implementation. He finds that physicians decreased the number of hours spent with patients due to shorter office visits, but increased their participation in the expanded program. Chen (2013) investigates physician response to Medicaid fee changes for the period of 1998-2007. She finds that a 10% increase in Medicaid reimbursement rates is associated with 0.6% more physicians participating in Medicaid and 1.2% more physicians accepting all new Medicaid patients. She also finds that it causes more than an offsetting decrease in services to the uninsured.

There are also studies that investigate a randomized allocation of Medicaid eligibility in Oregon in 2008, focusing on utilization, welfare, and labor market activity. Finkelstein et al. (2012) find that Medicaid eligibility significantly increases use of medical care, decreases out-of-pocket medical expenditures and medical debt, and improves self-reported health. Baicker et al. (2014) report no significant effect of Medicaid on employment or earnings. Taubman et al. (2014) find that Medicaid eligibility increases usage of emergency care.

Medicaid Managed Care (MMC) Another closely related literature is on the MMC. Sparer (2012) provides a thorough overview of research on the effect of the MMC on healthcare access, quality, and expenditures. Duggan (2004) and Duggan and Hayford (2013) investigate the influence of the MMC enrollments on costs in California and all U.S. states, respectively. Both studies show that the MMC is not useful for cost reduction on average. The latter also finds that the MMC tends to be more effective for cost saving in the states with relatively high FFS reimbursement rates. In contrast, Perez (2014) demonstrates the effectiveness of the MMC for reducing expenditures, using non-Medicaid fiscal shocks, political sentiment, and electoral turnover as instruments for the MMC enrollments for the period of 1997 to 2008. Our study enriches this literature by investigating the political economy forces associated with MMC adoption. It contributes to understanding the mechanisms behind the ineffectiveness of the MMC for cost-saving.

Overall, existing research on Medicaid mostly focuses on estimating the effect of exogenous program variations on the provision of care, utilization, spending, and health outcomes. Our study differs by focusing on the political economy forces behind the program variations.

3 Data

Now we describe our data, composed of five parts. The first dataset is on state politics (Klarner (2013); Klarner et al. (2013); Erikson et al. (2015)). The data consists of the seat share of the Democratic and Republican parties in each chamber of the state legislature and the governor's party affiliation for every state and year.

The second dataset is on Medicaid eligibility criteria and enrollments. Kaiser Family Foundation website provides the income criteria for each eligible category for the period since 2003 (Kaiser Family Foundation (n.d.)). Kosali Simon (Gruber and Simon (2008)) provided eligibility criteria before 2003. We apply eligibility criteria to the Survey of Income and Program Participation (SIPP) data from the Census Bureau to obtain simulated eligibility for children in each state and year. Simulated eligibility, which we introduce in Section 4.1, captures the variation in the state-level share of Medicaid eligible population driven by eligibility criteria. The CMS provides state-level Medicaid enrollment data.

The third dataset is on the FFS reimbursement rates from the American Academy of Pediatrics. The data contains approximately 140 Current Procedural Terminology (CPT) codes for the years of 1998, 2001, 2004, 2007, and 2010. We derive the weighted average of reimbursement rates by weighting each CPT code with its Medicaid expenditures in the Medical Expenditure Panel Survey (MEPS). We hold the weights constant across states and years.

There are discrepancies in the set of CPT codes available across states and years. To attain consistency, we selected 25 most significant CPT codes, based on the rates weighted by the expenditures. These 25 CPT codes include a variety of procedures ranging from simple skin tests that cost 5-10 dollars to relatively complicated procedures for reconstructing fractured body parts, which cost a thousand dollars. To ensure that a small number of codes with a substantial variation does not drive our analysis, we conducted a broad range of robustness checks for the key features of our aggregated measure.

The fourth dataset is on the MMC. The MMC enrollment data is from the CMS. It consists of detailed state-year level information on enrollments for each MMC plan. We complement this with county-level data on MMC mandates (years 1990-2001 from Garrett and Zuckerman (2005), Garrett et al. (2003), and years 2002-2003 from Duggan and Hayford (2013)). We also use county-level panel data on the private insurance HMO penetration (market share) for the years 1990-2003 from Baker and Phibbs (2002).

The fifth dataset is on the state-level Medicaid and CHIP expenditures from the CMS, specifically CMS-64 and CMS-21 files. The CMS-64 consists of Medicaid expenditures on individual categories, including hospital, physician, long-term care, and managed care. The CMS-21 consists of the same information on the CHIP program.

Table 1 presents summary statistics. Panel A presents the state governments' partisan composition nationwide and for the two most liberal and the two most conservative states. Panels B and C present statistics of simulated eligibility and fee-for-service reimbursement rates, respectively, nationwide and for two states with the highest values and two states with the lowest values. All four states had significant within-state variations over time. Panel D presents the variables related to the MMC – indicator for the county-level mandate, state population share under the mandate, and state-year-level total enrollments. Panel E presents expenditures in total and by category. We will discuss essential statistics in Section 5 along with regression results.

4 Measurements and Econometric Specifications

4.1 Politics and Eligibility Expansion

Eligibility Expansion The most straightforward way to measure variations in eligibility criteria is to use the state's share of the eligible population or enrollments. However, regressing the eligible (or enrolled) population share on the governments' partisan composition is susceptible to confounding factors. Specifically, states' population composition and economy affect the eligible (or enrolled) population share and partisan composition, generating a correlation even without changes in eligibility criteria. To address this issue, we instead construct simulated eligibility (à la Currie and Gruber (1996)) by applying the state-level eligibility criteria to the national SIPP data. It captures the variation in the eligible population share primarily driven by the eligibility criteria. Thus, it is particularly adequate for capturing the consequence of governments' legislative actions.

Partisan Composition Eligibility expansion during the period of this study had two important features. First, once the eligibility expansion took place, it was not reversed later even when the partisan composition turned conservative. Second, the eligibility expansion took place over multiple rounds. Initially, most states chose the expansion, including the most conservative states. It is in later years that liberal states took additional steps to expand eligibility further. Because of these two features, a simplistic specification without stage-dependence is not suitable for capturing the complexity of the politics behind the expansion. Thus, we interact the partisan composition with the stages of the eligibility expansion a state is in, captured by dummy variables of how many

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Panel A: Partisan Composition of the State Governments					
House Democratic Seat Share – Nationwide	0.52	0.15	0.13	0.92	735
Massachusetts	0.85	0.03	0.78	0.89	15
Rhode Island	0.85	0.04	0.80	0.92	15
Wyoming	0.27	0.03	0.22	0.32	15
Idaho	0.20	0.05	0.13	0.27	15
Senate Democratic Seat Share – Nationwide	0.51	0.16	0.09	0.92	735
Hawaii	0.87	0.06	0.80	0.92	15
Rhode Island	0.85	0.02	0.80	0.88	15
Kansas	0.27	0.04	0.22	0.32	15
Idaho	0.17	0.05	0.09	0.23	15
Indicator for the Democratic Governor	0.45	0.5	0	1	735
Panel B: Simulated Eligibility for Children					
Nationwide	0.50	0.12	0.27	0.83	735
Minnesota	0.78	0.04	0.66	0.82	15
Montana	0.75	0.16	0.32	0.83	15
South Carolina	0.40	0.06	0.30	0.53	15
North Dakota	0.36	0.05	0.28	0.46	15
Panel C: Fee-for-Service Reimbursement Rates (2010 $)					
Nationwide	157.41	48.70	53.91	355.58	624
Alaska	309.59	22.54	279.91	355.58	13
Nevada	236.38	47.62	154.35	308.19	13
New Jersey	82.08	30.86	53.91	164.94	13
New York	74.25	9.40	56.81	92.48	13
Panel D: Medicaid Managed Care					
Indicator for the County-level Mandate	0.14	0.34	0	1	43,156
State Population Share under the Mandate	0.53	0.44	0	1	650
Total Enrollments (1,000)	487.01	727.06	0	5,832.40	950
Panel E: Expenditure (2010 $million)					
Total Expenditure	4,690.96	6,473.10	156.83	48,687.75	650
by Category - MMC	502.84	977.66	-606.78	6,975.03	650
by Category - Hospital	1228.32	1,947.38	19.34	12,343.19	650
by Category - Rx	335.33	473.80	-1.00	3,977.43	650
by Category - Physician	342.04	464.10	0	2,842.63	650
by Category - LTC	1,189.82	1,650.63	15.42	11,624.94	650
by Category - Home Health	287.38	451.01	0.05	4,770.73	650
by Category - Other	277.08	609.33	-129.75	5,063.40	650

Note 1: The data period varies across variables, primarily due to data availability. Panels A and B, it is 1996-2010. For Panel C, it is 1998-2010. For Panel D, it is 1990-2003 for the county-level mandate, 1991-2003 for state population share under the mandate, and 1991-2009 for total enrollments. For Panel E, it is 1991-2003.

years of the expansion it previously had after the CHIP legislation. We estimate equation (1):

$$\begin{aligned} SimulatedEligibility_{it} &= \beta_0 + \beta_1 DemShareSenate_{it} + \beta_2 1\{1.Exp\}_{it} \cdot DemShareSenate_{it} \\ &+ \beta_3 1\{2.Exp\}_{it} \cdot DemShareSenate_{it} + \beta_4 1\{3.Exp\}_{it} \cdot DemShareSenate_{it} \\ &+ \beta_5 DemShareHouse_{it} + \beta_6 1\{1.Exp\}_{it} \cdot DemShareHouse_{it} \\ &+ \beta_7 1\{2.Exp\}_{it} \cdot DemShareHouse_{it} + \beta_8 1\{3.Exp\}_{it} \cdot DemShareHouse_{it} \\ &+ \beta_9 DemGov_{it} + \beta_{10} 1\{1.Exp\}_{it} \cdot DemGov_{it} + \beta_{11} 1\{2.Exp\}_{it} \cdot DemGov_{it} \\ &+ \beta_{12} 1\{3.Exp\}_{it} \cdot DemGov_{it} + \beta_{13} 1\{1.Exp\}_{it} + \beta_{14} 1\{2.Exp\}_{it} \\ &+ \beta_{15} 1\{3.Exp\}_{it} + \gamma x_{it} + \alpha_i + \delta_t + \varepsilon_{it}. \end{aligned} \quad (1)$$

$1\{1.\text{Exp}\}$ and $1\{2.\text{Exp}\}$ are dummy variables for having one and two years of expansion, respectively. $1\{3.\text{Exp}\}$ is for having at least three years of expansion.[8] *DemShareSenate* is the Democratic seat share in the state senate, *DemShareHouse* is the Democratic seat share in the state house, and *DemGov* is the dummy variable for a Democratic governor. x_{it} are states' observable characteristics. α_i and δ_t are state and year fixed effects, respectively. ε_{it} is an idiosyncratic shock.

4.2 Fee-for-Service Reimbursement Rates

We use an index for the FFS reimbursement rates, a weighted average of 25 most essential CPT codes. We aim to capture the linkage between the partisan composition and the within-state, cross-time variation in the reimbursement rates. We regress the index on the partisan composition of the state governments, incorporating stage-dependence as in equation (1). It captures whether the political driving force behind the eligibility expansion is also strongly associated with reimbursement rates.

$$\begin{aligned} ReimbursementRates_{it} &= \beta_0 + \beta_1 DemShareSenate_{it} + \beta_2 1\{1.Exp\}_{it} \cdot DemShareSenate_{it} \\ &+ \beta_3 1\{2.Exp\}_{it} \cdot DemShareSenate_{it} + \beta_4 1\{3.Exp\}_{it} \cdot DemShareSenate_{it} \\ &+ \beta_5 DemShareHouse_{it} + \beta_6 1\{1.Exp\}_{it} \cdot DemShareHouse_{it} \\ &+ \beta_7 1\{2.Exp\}_{it} \cdot DemShareHouse_{it} + \beta_8 1\{3.Exp\}_{it} \cdot DemShareHouse_{it} \\ &+ \beta_9 DemGov_{it} + \beta_{10} 1\{1.Exp\}_{it} \cdot DemGov_{it} + \beta_{11} 1\{2.Exp\}_{it} \cdot DemGov_{it} \\ &+ \beta_{12} 1\{3.Exp\}_{it} \cdot DemGov_{it} + \beta_{13} 1\{1.Exp\}_{it} + \beta_{14} 1\{2.Exp\}_{it} \\ &+ \beta_{15} 1\{3.Exp\}_{it} + \gamma x_{it} + \alpha_i + \delta_t + \varepsilon_{it} \end{aligned} \quad (2)$$

[8] Adding more dummy variables to capture later stages separately did not make a significant difference to the results.

4.3 Medicaid Managed Care

For the MMC penetration, states used the local MMC mandates as a crucial policy instrument. Duggan and Hayford (2013) argue that the rate of growth in the Medicaid enrollments or expenditures were not driving forces behind the MMC mandate diffusion. They also conclude that the MMC was most useful for reducing costs where the FFS reimbursement rates were relatively high. These observations lead to the following two questions: (1) what was the critical predictor behind the state's implementation of the local MMC mandates? (2) what is the linkage between the FFS reimbursement rates and the decision to adopt the MMC mandates?

We first investigate predictors of the county-level mandate adoption, focusing on the HMO penetration in the private insurance market. We estimate a linear probability model,

$$\begin{aligned} MMC\ Mandate_{jt} &= \beta_0 + \beta_1 HMO\ Share_{jt} + \beta_2 HMO\ Share_{jt} \cdot 1\{Expansion\}_{jt} \\ &\quad + \beta_3 1\{Expansion\}_{jt} + \gamma x_{jt} + \alpha_j + \delta_t + \varepsilon_{jt} \end{aligned} \tag{3}$$

where $MMC\ Mandate_{jt}$ is the dummy variable for the MMC mandate adoption by county j in year t, $HMO\ Share_{jt}$ is the market share of HMOs in county j in year t, $1\{Expansion\}_{jt}$ is the dummy variable that indicates the period after the first eligibility expansion decision, x_{jt} is the set of time-varying county-level demographic control variables. α_j and δ_t are county and year fixed effect, respectively. ε_{jt} is a county-level idiosyncratic shock. Equation (3) quantifies the strength of the linkage between the private insurance market HMO and the MMC penetration, which will be useful in understanding the unintuitive patterns of the expenditures. It is intended to capture a spillover effect of the private insurance market HMO on the MMC, in the absence of a county-level unobservable shock that simultaneously affects both.

Now, let us consider the linkage between the FFS reimbursement rates and the MMC mandate adoption. Since states set the FFS reimbursement rates, we measure the MMC diffusion by the share of the state population living in the counties with the MMC mandate. We estimate the following regression equation:

$$\begin{aligned} MMC\ Share_{it} &= \beta_0 + \beta_1 ReimbursementRates_{it} + \beta_2 ReimbursementRates_{it} \cdot 1\{Expansion\}_{jt} \\ &\quad + \beta_3 1\{Expansion\}_{it} + \gamma x_{jt} + \alpha_i + \delta_t + \varepsilon_{it} \end{aligned} \tag{4}$$

$MMC\ Share_{it}$ is the share of the state population living in the counties with the MMC mandate. We interact the FFS reimbursement rates with $1\{Expansion\}_{jt}$ to address the possibility that the coefficient capturing the relationship between the FFS reimbursement rates and $MMC\ Share_{it}$ differs by the progress of the CHIP expansion. Equation (4) quantifies the association, not a causality. Nevertheless, the estimate of β_1 in equation (4) can convey valuable information on the adoption

patterns of the cost-saving measures. A strong negative relationship would imply that states use the two cost-saving measures – FFS reimbursement rate reduction and the MMC mandate – concurrently. Likewise, a strong positive relationship would imply that states adopt the MMC mandate when the FFS reimbursement rates are high, which renders a condition for substantial cost saving.

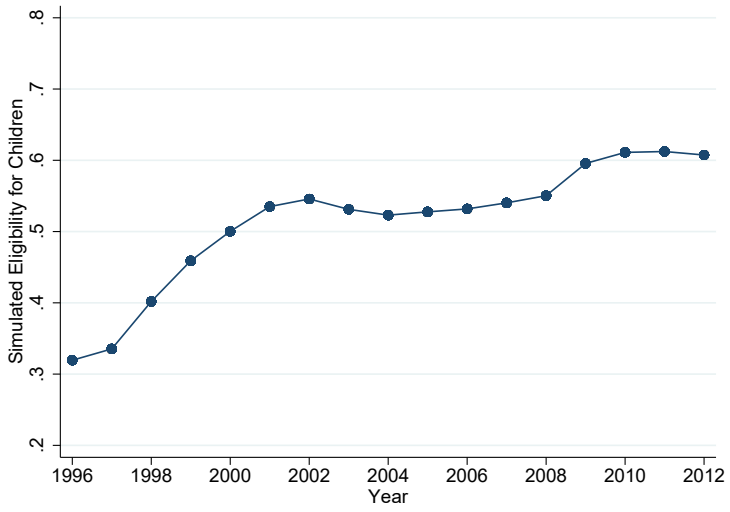
5 Results

We present the key results in the following order: (1) partisan composition and simulated eligibility, (2) partisan composition and the FFS reimbursement rates, (3) patterns of the MMC adoption, and (4) the linkages between the two cost-saving measures – the FFS reimbursement rate reduction and the MMC – and per-enrollee spending.

5.1 Partisan Composition and Medicaid Expansion

Figure 5 shows the national trend of the simulated eligibility, our measure of the breadth of eligibility criteria, for children. There are two notable periods of increase. The first is 1997–2002, the first five years after the CHIP legislation. The second is due to the CHIP Reauthorization Act of 2009, which infused more than 30 billion dollars of additional funding.

Figure 6 shows state-level patterns of simulated eligibility for two examples of liberal states, New Jersey and New York, and two examples of conservative states, South Carolina and Utah. New Jersey had three consecutive years of a steep increase right after the CHIP legislation; then,



Note: The national-level measure of simulated eligibility is obtained by taking the annual average of state-level simulated eligibilities weighted by state population.
Source: Authors' calculation using the program provided by Kosali Simon.

Figure 5: Simulated Eligibility for Children, Nationwide

it stayed around 70%. New York had two straight years of steep increase right after the CHIP legislation. It had another year of a steep increase in 2009; then it stayed around 80%.[9] In contrast, both South Carolina and Utah had two consecutive years of a relatively small-scale expansion. Although South Carolina had one more expansion in 2009, both states maintained a low level.

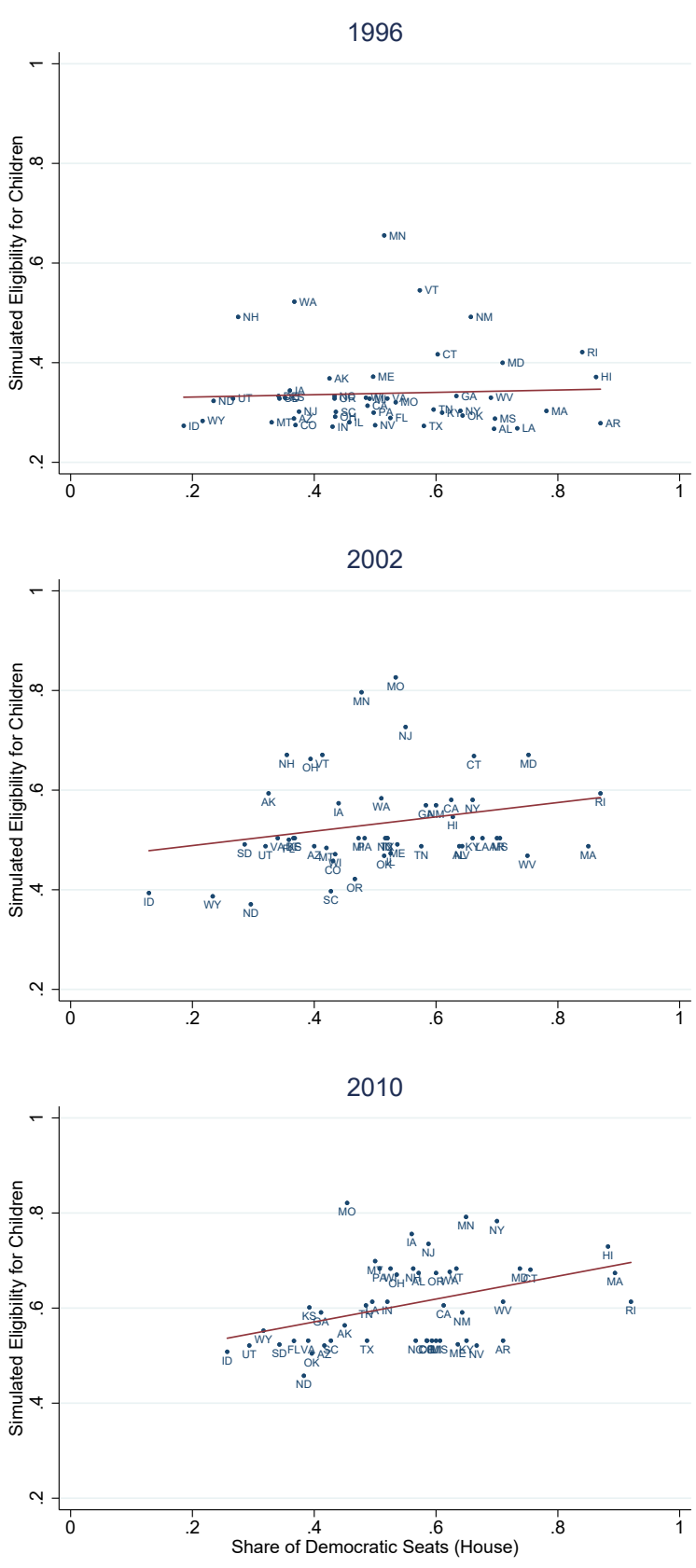
Source: Authors' calculation using the program provided by Kosali Simon

Figure 6: Simulated Eligibility for Children, State Examples

Figure 7 shows three snapshots over time: the years of 1996, 2002, and 2010. In each panel, the horizontal axis is the Democratic seat share in the state house. In 1996, before the legislation of the CHIP, most states had low levels of simulated eligibility. Moreover, there was no relationship between partisan composition and simulated eligibility. By 2002, all the states had increased simulated eligibility. Also, there was a clear relationship between partisan composition and simulated eligibility. In 2010, the simulated eligibility overall was even higher than in 2002, and there was a stronger relationship between partisan composition and simulated eligibility.

In sum, Figures 6 and 7 show several essential features of the eligibility expansion during this

[9]These numbers, 70-80% simulated eligibility, may seem very high as a share of the eligible population. The income eligibility limits for CHIP in New Jersey and New York are indeed very high. They are currently 355% and 405% of the FPL. For a family of five, 405% of the FPL is above 130,000 dollars.



Source: (a) Share of Democratic Seats (House): original data from Dataverse, updated version provided by Carl Klarner (b) Simulated Eligibility: authors' calculation using the program provided by Kosali Simon

Figure 7: Simulated Eligibility for Children, Snapshots

period. First, in the early stage of the expansion, both conservative and liberal states expanded their eligibility to take advantage of the federal government's new funding. Second, Democratic dominance tends to be associated with a broader eligibility expansion, especially in later years. Third, there is clear path-dependence in that eligibility tends only to increase.

Table 2 captures these features well. The regressions are based on equation (1) on page 16 and its variants. In Columns (1)-(3), we regress the simulated eligibility in period $t+1$ on partisan composition in period t. In Columns (4)-(6), we use the simulated eligibility in period $t+2$. The results clearly show that the partisan composition, specifically the Democratic seat share in the state house, is a strong predictor for eligibility expansion in post-initial stages. One standard deviation (15 percentage points) increase in the Democratic seat share in the state house is associated with an approximately 5.3 percentage point increase in the simulated eligibility. Additionally, the estimates using the simulate eligibility in period $t+2$ are not larger than for period $t+1$, suggesting a rapid implementation of the eligibility expansion.[10]

In principle, these estimates do not entirely rule out the influence of voter preferences. However, there are two reasons why these estimates primarily suggest the influence of partisan composition *per se* rather than voter preferences. First, we control for the Democratic vote share in the presidential election to filter out voters' partisan preferences. Second, voter preferences would be reflected in the coefficients for all three branches, not only the state house. The statistical significance of *only* the coefficients for the state house, where the appropriation bill originates from, suggests an independent effect of the partisan composition.

There also exists an approach to identify a narrow causal effect of partisanship that excludes reflection of voter preferences – an RDD using the Democratic party majority of the state house as treatment. We abstract from such an approach for two reasons. First, the focus of our study is primarily on the tradeoffs between different dimensions of the program design rather than mechanisms of political representation.[11] Second, an RDD using the Democratic majority as treatment did not yield interesting results for various reasons. As Table 2 shows, the relationship critically de-

[10] We also tried several alternative specifications not presented here. First, a specification with three 5-year periods instead of stage-dependence renders a significant estimate for the third period. We summarize and discuss the results in the appendix. Second, a specification with no interactions between the partisan compositions and the number of prior expansions resulted in insignificant estimates when we included state fixed effects. Third, a specification using interactions between the partisan compositions and year dummies (instead of stage-dependence) also rendered insignificant estimates. Fourth, we used dummy variables of unified Democratic governments and unified Republican governments instead of seat shares as measures of partisan composition. It rendered a statistically significant but small (two percentage points) relationship between unified Republican governments and a lower level of simulated eligibility.

[11] Existing studies that used RDDs on political contexts focus on different types of research questions. For example, Lee et al. (2004) study whether voters select representatives on their ideology or incentivize them, a question that arose in the literature comparing Downsian and citizen-candidate models. Ferreira and Gyourko (2009) study whether political parties at the city level are as polarized as in broader geographic units and investigate the determinants of partisan differences. Although such questions are of significant importance, they are distinct from our focus.

Table 2: Partisan Composition and Simulated Eligibility for Children

Dependent Variable: Medicaid/CHIP Eligibility

	(1)	(2)	(3)	(4)	(5)	(6)
		$t+1$			$t+2$	
DemShareSenate	-0.075	0.015	-0.097	-0.084	-0.022	-0.069
	(0.101)	(0.202)	(0.103)	(0.098)	(0.191)	(0.101)
1.*Exp* · *DemShareSenate*	-0.062	0.004	-0.027	-0.014	0.053	0.014
	(0.083)	(0.147)	(0.084)	(0.076)	(0.148)	(0.081)
2.*Exp* · *DemShareSenate*	-0.040	-0.163	-0.012	-0.031	-0.113	-0.004
	(0.145)	(0.207)	(0.116)	(0.130)	(0.202)	(0.105)
3.*Exp* · *DemShareSenate*	-0.227*	-0.381	-0.263*	-0.212*	-0.326	-0.264**
	(0.126)	(0.258)	(0.134)	(0.118)	(0.265)	(0.128)
DemShareHouse	0.063	0.034	0.012	0.068	0.089	0.012
	(0.079)	(0.122)	(0.090)	(0.080)	(0.120)	(0.088)
1.*Exp* · *DemShareHouse*	0.167**	0.029	0.074	0.115	-0.032	0.022
	(0.075)	(0.110)	(0.074)	(0.072)	(0.109)	(0.076)
2.*Exp* · *DemShareHouse*	0.209*	0.206	0.131	0.208**	0.131	0.110
	(0.106)	(0.143)	(0.092)	(0.100)	(0.148)	(0.088)
3.*Exp* · *DemShareHouse*	0.440***	0.481**	0.355**	0.451***	0.430*	0.361**
	(0.159)	(0.219)	(0.149)	(0.139)	(0.226)	(0.140)
DemGov	0.013	0.036	0.000	0.020	0.043	0.008
	(0.016)	(0.025)	(0.017)	(0.018)	(0.029)	(0.018)
1.*Exp* · *DemGov*	-0.012	-0.038*	0.006	-0.015	-0.044*	-0.002
	(0.017)	(0.021)	(0.018)	(0.018)	(0.024)	(0.018)
2.*Exp* · *DemGov*	-0.010	-0.033	-0.002	-0.002	-0.034	0.003
	(0.028)	(0.030)	(0.023)	(0.029)	(0.033)	(0.026)
3.*Exp* · *DemGov*	-0.032	-0.023	0.015	-0.023	-0.035	0.015
	(0.028)	(0.038)	(0.029)	(0.028)	(0.038)	(0.030)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes
State FE	Yes	No	Yes	Yes	No	Yes
Observations	735	735	735	735	735	735
R-squared	0.825	0.570	0.866	0.812	0.530	0.855

Note 1: Robust standard errors, clustered by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, FMAP rate, log per-capita real tax revenue (2010 $), poverty rate, percent of single-parent households, percent of union workers, and democratic vote share in presidential elections. The observations cover all states and DC except Nebraska for years between 1996 and 2010. $i.Exp$ is a dummy variable such that $i.Exp = 1$ if the cumulative number of expansions is i for $i = 0, 1,$ or 2. In addition, $3.Exp = 1$ if the cumulative number of expansions is 3 or greater. $0.Exp$ is used as a reference category. The coefficients for $i.Exp$ are included in the specification but omitted in this table for brevity.

pends on the individual states' stage of expansion. A standard RDD that does not incorporate such a feature yields insignificant estimates. Alternatively, an RDD incorporating the stage-dependence suffers from the smallness of observations around the treatment threshold. Also, the Democratic majority does not function as a drastic treatment as close elections do. Although party affiliation is correlated with positions on healthcare, there often exist representatives who deviate from their party's position. Thus, the Democratic majority did not yield a discontinuous increase in the probability of eligibility expansion.

We also conducted robustness checks using alternative measures of partisanship. The meaning of Democratic vs. Republican parties in many Southern state legislatures was different from that in the national politics in the 1990s. Therefore, we used the share of Democrats from election exit polls from Larcinese et al. (2013). We present three snapshots of simulated eligibility and the Democratic share from exit polls in the Appendix Figure A1.[12] It also shows the stage-dependency, similarly to Figure 7.

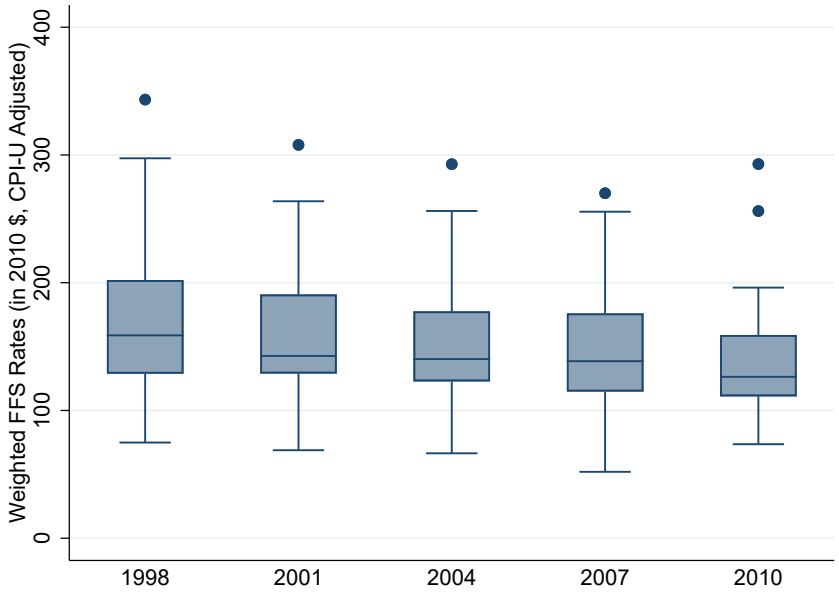
5.2 Fee-for-Service Reimbursement Rates

To understand cost-saving measures that accompany the eligibility expansion, we first analyze the FFS reimbursement rates. Figure 8 shows a gradual decrease in the weighted average FFS reimbursement rates of the 25 most significant CPT codes. In Figure 9, we plot the weighted average reimbursement rates against the Democratic seat share in the state house. In 1998, there was no relationship between the two. In contrast, later years show a notable negative relationship, driven by the rate reduction in liberal states. Between 1998 and 2010, the rates in the most liberal states fell from approximately 170 to 120 dollars. It is also noteworthy that the negative relationship began in the early stage of eligibility expansion around 2001 and remained throughout the later stage. This contrasts with the relationship between partisan composition and eligibility depicted in Figure 7, which got stronger gradually.

The regression results capture this feature. Table 3 shows the result of regressing the weighted average FFS reimbursement rates (logged) on the partisan composition of the state governments, interacted with the number of prior expansions. Column (3) shows that a negative relationship is formed in the first stage of the eligibility expansion. A one standard deviation increase in the Democratic seat share ($\approx$ 15 percentage point) is associated with a 5.6 percentage decrease in reimbursement rates in the early stage.

The results from Tables 2 and 3 imply an intriguing pattern in the evolution of Medicaid programs. In the early stage of the eligibility expansion, liberal states actively reduced reimbursement rates. After the initial stage, liberal states kept expanding the eligibility but did not significantly

[12] Since the exit poll data from Larcinese et al. (2013) cover a shorter period than Table 2, we present a graphical representation instead of running a regression model.



Note: Each box shows the distribution of average FFS reimbursement rates of the 25 most significant CPT codes in a given year, weighted by the codes' Medicaid expenditures from the Medical Expenditure Panel Survey (MEPS).
Source: Authors' calculation using the FFS reimbursement rates from the periodic reports by the American Academy of Pediatrics

Figure 8: Weighted Average of the FFS Reimbursement Rates

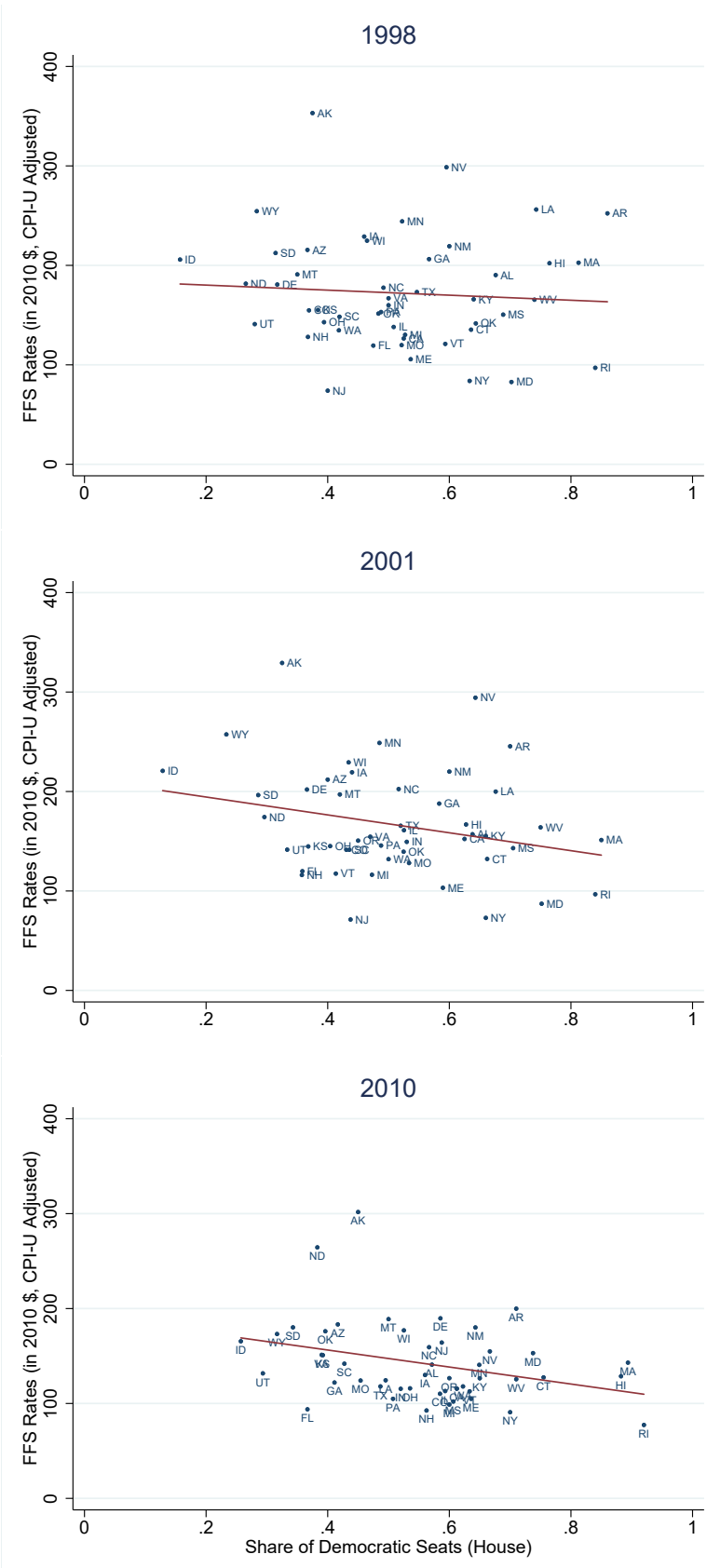
reduce the reimbursement rates.

These patterns lead to the following question: to what extent do the states with more generous eligibility have lower reimbursement rates? To address this question, we estimate the association between FFS reimbursement rates and Medicaid enrollment (or spending) as follows:

$$\log(ReimbursementRates_{it+1}) \quad = \quad \beta_0 + \beta_1 \log(X_{it}) + \alpha_i + \delta_t + \varepsilon_{it} \tag{5}$$

X_{it} denotes the key independent variable whose association with the reimbursement rates is estimated. We use three variables for X_{it}: children's Medicaid enrollment, total Medicaid enrollment, and total Medicaid spending. β_1 is the coefficient of interest, which measures the percentage change in reimbursement rates in year $t+1$ associated with a percentage increase in the independent variable in year t.

Figure 10 shows the estimates of β_1 and corresponding 95% confidence intervals from the regression given by equation (5) and its variants. The FFS reimbursement rates are negatively associated with each of the three independent variables in all specifications. A ten percent increase in enrollment or spending is associated with a one to four percentage decrease in FFS reimbursement rates.



Source: (a) Share of Democratic Seats (House): original data from Dataverse, updated version provided by Carl Klarner (b) FFS Rate: authors' calculation using the FFS reimbursement rates from the periodic reports by the American Academy of Pediatrics

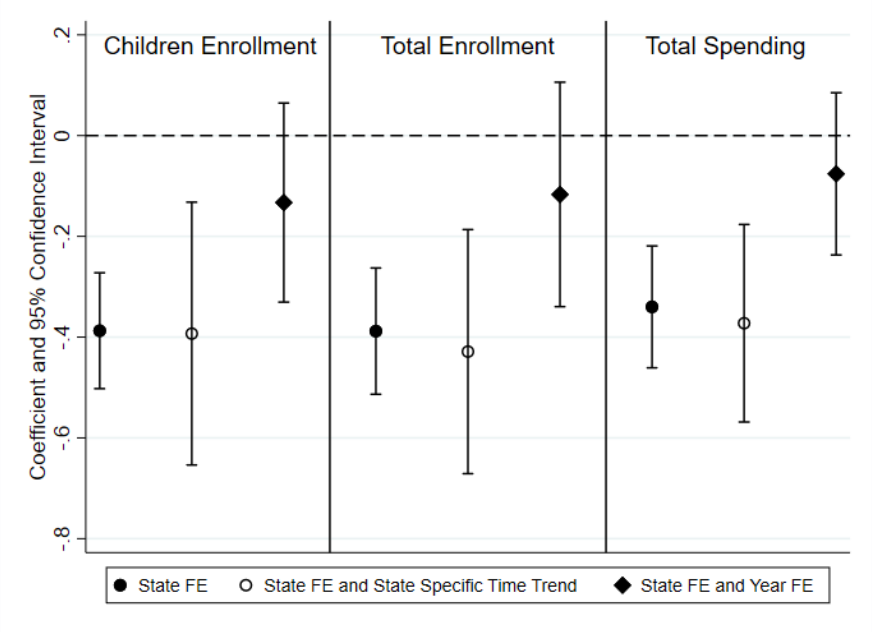
Figure 9: FFS Reimbursement Rates (2010 $) and the Democratic Seat Share in the State House

Table 3: Regression of log (FFS Rate) on the Partisan Composition

Dependent Variable: log(FFS Rate)						
	(1)	(2)	(3)	(4)	(5)	(6)
		$t+1$			$t+2$	
DemShareSenate	-0.192	0.949**	-0.403	-0.070	0.883**	-0.161
	(0.259)	(0.408)	(0.253)	(0.202)	(0.374)	(0.177)
1.*Exp* · *DemShareSenate*	0.125	-0.150	0.197	0.213	0.002	0.212
	(0.142)	(0.290)	(0.144)	(0.140)	(0.275)	(0.139)
2.*Exp* · *DemShareSenate*	0.165	0.382	0.319	0.178	0.425	0.221
	(0.319)	(0.408)	(0.365)	(0.320)	(0.393)	(0.342)
3.*Exp* · *DemShareSenate*	0.259	-0.549	0.528	0.253	0.778	0.176
	(0.696)	(0.828)	(0.751)	(1.590)	(1.538)	(1.626)
DemShareHouse	0.197	-0.397	0.254	0.086	-0.310	0.109
	(0.316)	(0.359)	(0.332)	(0.245)	(0.349)	(0.265)
1.*Exp* · *DemShareHouse*	-0.358**	-0.089	-0.378**	-0.484***	-0.240	-0.406**
	(0.142)	(0.276)	(0.157)	(0.145)	(0.286)	(0.153)
2.*Exp* · *DemShareHouse*	-0.373	-0.524	-0.431	-0.258	-0.584	-0.209
	(0.360)	(0.384)	(0.441)	(0.353)	(0.362)	(0.429)
3.*Exp* · *DemShareHouse*	0.508	0.619	0.334	0.728	-0.365	0.951
	(0.819)	(0.853)	(0.858)	(1.760)	(1.528)	(1.761)
DemGov	-0.048	-0.073	-0.032	-0.042	-0.066	-0.027
	(0.038)	(0.058)	(0.037)	(0.035)	(0.056)	(0.036)
1.*Exp* · *DemGov*	0.049	0.078	0.037	0.063*	0.088*	0.048
	(0.036)	(0.052)	(0.036)	(0.035)	(0.048)	(0.035)
2.*Exp* · *DemGov*	0.097*	0.135	0.069	0.052	0.110	0.035
	(0.055)	(0.104)	(0.056)	(0.044)	(0.088)	(0.046)
3.*Exp* · *DemGov*	-0.053	0.119	-0.049	-0.214	-0.178	-0.228
	(0.123)	(0.133)	(0.126)	(0.155)	(0.189)	(0.155)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes
State FE	Yes	No	Yes	Yes	No	Yes
Observations	624	624	624	624	624	624
R-squared	0.883	0.630	0.897	0.885	0.626	0.895

Note 1: Robust standard errors, clustered by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, FMAP rate, log per-capita real tax revenue (2010 $), poverty rate, percent of single-parent households, percent of union workers, and democratic vote share in presidential elections. The observations cover all states and DC except Nebraska for years between 1996 and 2009. $Exp = i$ if the cumulative number of expansions is i for $i = 0, 1$, and 2. $Exp = 3$ if the cumulative number of expansions is 3 or greater. 0.*Exp* is used as a reference category. The coefficients for *i.Exp* are omitted for brevity.



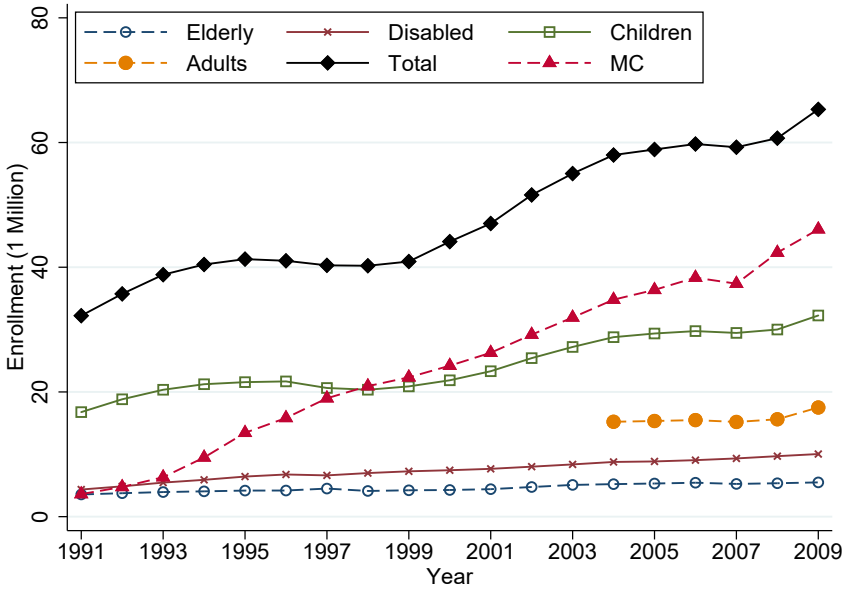
Note: This figure shows the estimates and 95% confidence intervals of β_1 from equation (5) and its variants.

Figure 10: FFS Reimbursement Rate and Medicaid Enrollment/Spending

5.3 Medicaid Managed Care

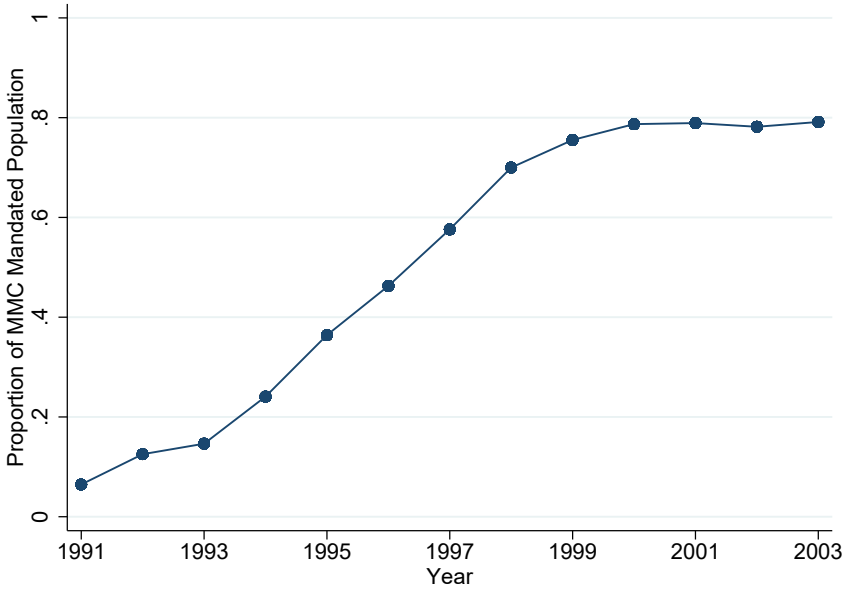
Now we turn to the investigation of the second cost-saving measure – the MMC diffusion. Our objective here is to understand the linkage among the eligibility expansion, MMC penetration, and the increase in the per-enrollee spending from the late 1990s. A large part of the MMC penetration in the 1990s was due to the state governments' implementation of county-level MMC mandates (Garrett and Zuckerman (2005), Duggan (2004), Duggan and Hayford (2013)). Figure 11 presents Medicaid enrollments by category – elderly ("65up"), disabled ("BD"), children, non-elderly non-disabled adults ("adults"), total, and the MMC. Figure 12 presents the proportion of the population living in the counties with the MMC mandate. The steep increase in the MMC enrollments concurred with that in the share of the population living in the counties with the MMC mandates until around 2000.

Given the role of the MMC mandate behind the MMC enrollments, examining the key predictors of the MMC mandate adoption is essential to understanding the linkage among the eligibility expansion, MMC, and spending. We consider two factors – HMO penetration in the private insurance market and the FFS reimbursement rates. The HMO penetration in the private insurance market can serve as a good predictor for two reasons. Demographic characteristics (e.g., population density, income level) or healthcare industry organization that led to the success of the private insurance HMOs may also make the Medicaid HMOs appealing. Also, a high penetration rate of the HMOs in a local private insurance market can reduce the transaction costs for the Medicaid



Source: Duggan and Hayford (2013)

Figure 11: Enrollment by Category, Nationwide



Source: Medicaid Managed Care Survey Implementation (MMCCI) Survey by the Urban Institute Health Policy Center (2001)

Figure 12: Proportion of the Population Living in the Counties with MMC Mandates, Nationwide

program contracting with HMOs.

Table 4 presents a linear probability model, where we regress a dummy variable of the county-level MMC mandate adoption on the HMO market share in private insurance and key demographic variables. We also interact the HMO market share with a dummy variable for the period after the eligibility expansion began. The results show that the HMO market share is a strong predictor of the county-level MMC mandate adoption, including the specification with county fixed effects and time-varying demographic controls. A one standard deviation increase in the private insurance HMO penetration ($\approx$ 10 percentage points) is associated with a 7-17 percentage point increase in the probability of the MMC mandate adoption. This strong linkage between the private insurance HMO penetration and the MMC mandate adoption suggests that a structural change in the private insurance market can easily spill over to the MMC. This implication will be useful for understanding patterns of per-enrollee spending over time. We will return to this discussion in Section 5.4.[13]

Table 4: Linear Probability Model of MMC Mandate Adoption, County-Level

Dependent Variable: County-level MMC Mandate Adoption

	(1)	(2)	(3)	(4)	(5)	(6)
HMOShare	1.157***	1.875***	1.479***	0.559***	1.059***	0.728***
	(0.093)	(0.131)	(0.134)	(0.077)	(0.127)	(0.133)
Expansion				-0.089***	0.016	-0.090***
				(0.023)	(0.011)	(0.017)
Expansion · HMOShare				1.291***	0.876***	0.964***
				(0.087)	(0.088)	(0.089)
Constant	0.008	1.681**	-0.333	0.012	-0.106	-0.385
	(0.178)	(0.662)	(0.825)	(0.175)	(0.610)	(0.765)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes
County FE	Yes	No	Yes	Yes	No	Yes
Observations	35,804	35,804	35,804	35,804	35,804	35,804
R-squared	0.254	0.580	0.593	0.281	0.597	0.604

Note 1: Robust standard errors, clustered by county, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Expansion is a dummy variable for the period after state-level CHIP eligibility expansion. Control variables include log total population (in 1,000), percent of population aged 0-19 years, percent of population aged 65 and older, log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, and percent of bachelor's degree or higher. The observations cover all states and DC for years between 1990 and 2001.

As for the FFS reimbursement rates, its relationship to the MMC mandate is more theoretically ambiguous. On the one hand, the MMC tends to be more useful for cost reduction in the states

[13] We also tried alternative specifications with state-by-year fixed effects or state-specific time trends instead of year fixed effects. The results, which we summarize in the Appendix Table A3, show robustness.

Table 5: MMC Mandates and FFS Reimbursement Rates

Dependent Variable: Proportion of State Population in Counties with MMC Mandates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expansion	-5.042***	-0.802	-4.951***	-0.704	-1.292	-0.495	-1.345	-0.516
	(1.333)	(0.729)	(1.378)	(0.688)	(1.390)	(0.906)	(1.271)	(1.031)
log(FFS Rate)	-1.130***	-0.458**	-1.103***	-0.437*	-0.168	-0.256	-0.183	-0.252
	(0.260)	(0.180)	(0.272)	(0.234)	(0.259)	(0.221)	(0.240)	(0.231)
Expansion · log(FFS Rate)	0.947***	0.149	0.920***	0.120	0.215	0.083	0.213	0.078
	(0.250)	(0.137)	(0.259)	(0.130)	(0.270)	(0.169)	(0.246)	(0.191)
Constant	6.729***	3.244***	6.577***	3.132**	17.207**	-2.842	22.941***	-0.150
	(1.369)	(0.943)	(1.433)	(1.215)	(7.425)	(11.246)	(7.486)	(10.128)
Controls	No	No	No	No	Yes	Yes	Yes	Yes
State FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	294	294	294	294	294	294	294	294
R-squared	0.054	0.901	0.060	0.907	0.383	0.914	0.400	0.918

Note 1: Robust standard errors, clustered by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Expansion is a dummy variable for the the period after state-level CHIP eligibility expansion. Control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, FMAP rate, log per-capita real tax revenue (2010 $), poverty rate, percent of single-parent households, percent of union workers, and democratic vote share in presidential elections. The observations cover all states except TN for years between 1998 and 2003. The number of observations in this table is smaller than in other tables because the MMC mandate variable is available until 2003 while the FFS reimbursement rates available from 1998.

where FFS reimbursement rates are high (Duggan and Hayford, 2013). Thus, the consideration of the effectiveness for cost reduction may lead to a more active MMC mandate adoption where FFS reimbursement rates are high, causing a positive correlation between the two. On the other hand, a liberal government aimed at cost reduction may reduce FFS rates and simultaneously adopt the MMC mandate, causing a negative correlation between them.[14]

Table 5 quantifies the linkage between the FFS reimbursement rates and the MMC mandate adoption. Since the FFS reimbursement rates vary by state and year, we measure the MMC mandate adoption at the state-year level by the proportion of state population living in the counties with MMC mandates. Column (4) with state and year fixed effects shows a 2:1 relationship between FFS reimbursement rate reduction and the MMC mandate penetration. A comparison of the coefficient estimates across specification also shows that the association between low FFS reimbursement rates and high MMC mandate penetration holds not only across years but also across states.[15] This pattern implies that the MMC was more actively adopted in states where reimbursement rates are relatively low hence the MMC was less likely to be effective. This implication helps us to understand why the MMC adoption overall did not lead to consistent cost savings.

It is worth noting that our discussion above of the two cost-saving measures suggests lower per-enrollee spending to be associated with the Medicaid expansion. This prediction does not square well with the steady increase in per-enrollee expenditures since the late 1990s. Thus, we turn to the analysis of spending patterns and their linkages to the regime changes in the HMO practices.

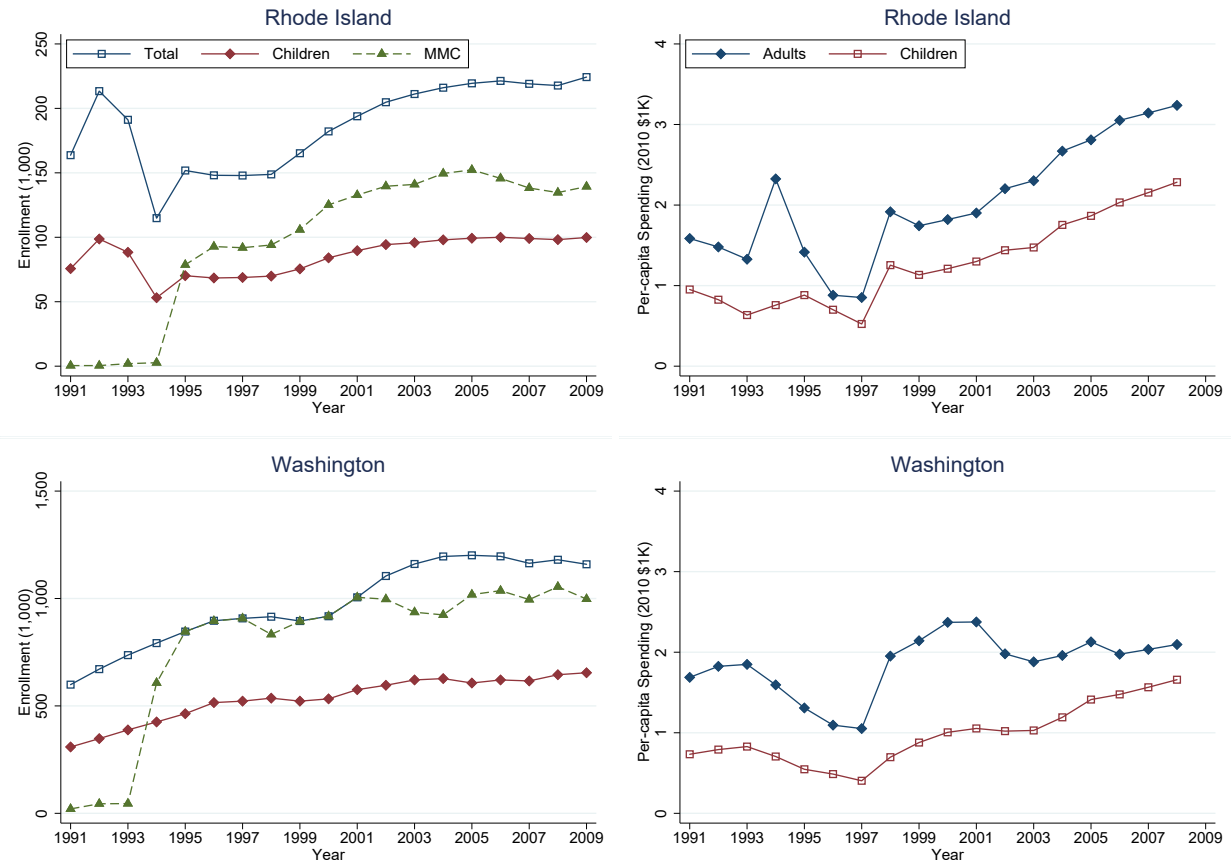
5.4 Expenditures

Our aim in this section is to investigate the causes behind the steady increase in Medicaid per-enrollee spending from the late 1990s and the consequences of the two cost-saving measures – the FFS rate reduction and the MMC penetration. Figure 13 shows enrollments (left panel) and per-enrollee spending (right panel) for non-elderly, non-disabled adults and children in two examples of states – Rhode Island and Washington.

Rhode Island had two consecutive years of decrease in per-enrollee spending from 1995 to 1997, which concurred with a steep increase in the MMC enrollment. However, from 1997, the per-enrollee spending rose rapidly along with the MMC penetration. Likewise, Washington had four years of decrease in per-enrollee spending from 1993, which concurred with a steep increase

[14] Another potential mechanism for a negative relationship is the shape of the healthcare industry. The competitiveness of the hospital industry would reduce the price level of healthcare services, helping the state government to set the FFS reimbursement rates at a low level. Simultaneously, it renders a stronger bargaining power of HMOs, making the managed care a financially attractive delivery system.

[15] The specifications with control variables lose statistical significance, but the negative relationship between the FFS rates and MMC mandate penetration remains. We find that among the control variables we use, population variables (total population, percent of 19 years or younger, and percent of 65 years or older) and education variables (percent of bachelor's degree or higher and percent of high school degree or higher) have the largest influence on the results.



(a) Enrollment (b) Per-Enrollee Spending

Sources: (a) Enrollment: Duggan and Hayford (2013) (b) Per-enrollee spending: authors' calculation using data from Duggan and Hayford (2013) and Medicaid Statistical Information System (MSIS) tables.

Figure 13: Enrollments and Per-Enrollee Spending Over Time – Rhose Island and Washington

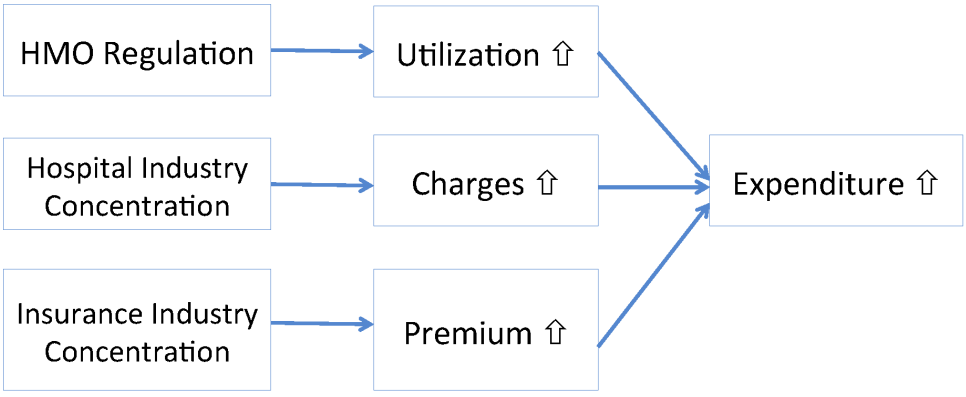


Figure 14: Potential Factors

in the MMC enrollment. However, from 1997, the per-enrollee spending on children increased rapidly. These patterns raise a question as to what factors caused the steady increase in per-enrollee spending. We consider three factors: managed care regulation, hospital industry concentration, and insurance industry concentration. Figure 14 illustrates the potential influence of these three elements.

First, starting from the mid-1990s, there was a wave of state-level regulations against HMOs' cost-containment practices (Pinkovskiy (2020)). Its primary aim was to limit private insurance HMOs' restrictions on patients' access to specialists and costly treatment options. Such regulations can easily have a spillover effect on MMC plans through the providers' practice patterns (Baker (2003)). This spillover, in turn, would increase MMC enrollees' healthcare utilization.

Second, around that period, there was also a large wave of hospital consolidation. The increased market power of hospitals can drive up their charges to insurers, which leads to an increase in per-enrollee spending. Lastly, the insurance market concentration can also influence expenditures. The direction of its effect is theoretically ambiguous. On the one hand, an increase in the market power of insurance firms may easily increase premiums if we hold charges from healthcare providers fixed. On the other hand, an increase in the market power of insurance firms can decrease charges from the healthcare providers.[16]

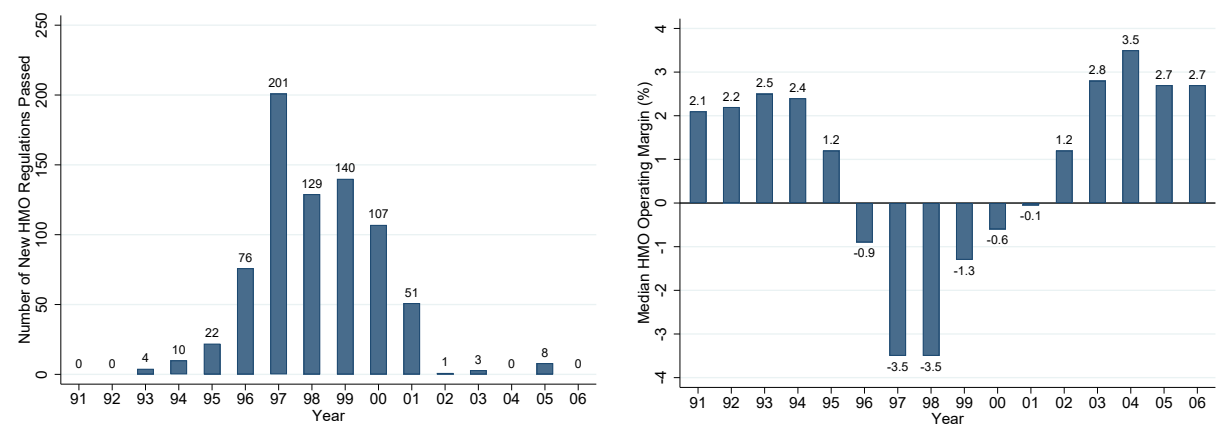
Now, we discuss the three forces in greater detail. Figure 15 (a) shows the number of state-level legislation for the regulation of HMOs' cost-containment practices, collected by the National Conference of State Legislatures. This wave of legislation began in the mid-1990s and was in full-swing throughout the late 1990s. Figure 15 (b) shows the median operating margin of the HMOs for the same period, from InterStudy (Decision Resources Group). These two figures together suggest a strong influence of the legislation on the HMOs' operation.[17]

There was also a wave of hospital concentration. The average metropolitan statistical area (MSA)-level HHI increased from 1,576 to 2,323 between 1990 and 2003 (Vogt and Town (2006)). The wave of hospital mergers and acquisitions that peaked around 1996 was a main factor behind the hospital concentration.

Existing studies also document a steady concentration of the health insurance industry during the period of our study. Dafny et al. (2012) studied the large-group health insurance market concentration in 139 geographic markets. They find that the average HHI at the market level increased from 2,286 to 2,984 between 1998 to 2006. Dafny (2015) also shows that the four largest private insurers' total market share at the national level increased from 74% to 83% between 2006 and 2014.

[16] Dafny et al. (2012) found that the former force prevailed in the merger of two industry giants, Aetna and Prudential Healthcare, in 1999.

[17] The recovery of the HMO operating margin in the early 2000s concurred with the insurance industry consolidation illustrated in Figure 15 (b).



(a) Regulation Over Time

(b) Operating Margin (Source: Interstudy, AHA)

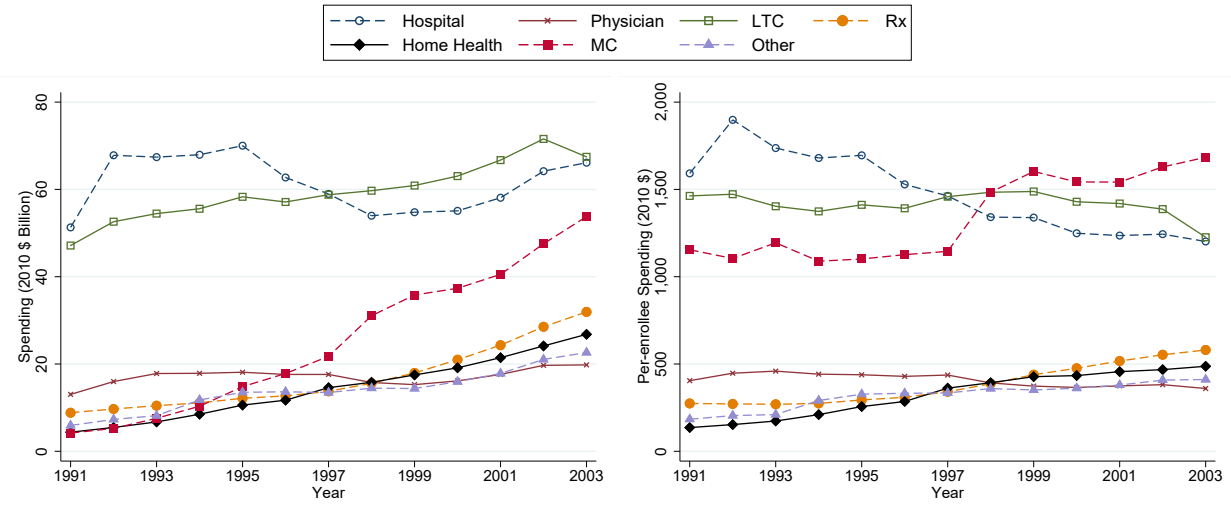
Figure 15: HMO Regulation and Operating Margin

Overall, the HMO regulation and the hospital industry consolidation were mostly concurrent phenomena. They were both responses to strong HMO penetration in the private insurance market in the early 1990s. In contrast, the health insurance industry concentration was a relatively later phenomenon, which may have been a response to the hospital industry concentration.

To investigate these factors further, we now analyze Medicaid spending patterns by provider category. Figure 16 (a) shows the total Medicaid spending (in 2010 dollars) for each type of provider. Two trends are noteworthy. First, total Medicaid spending on hospitals shows a notable decrease from 1995 to 1998, accompanied by a steep increase in the total MMC spending. Second, from 1998, the Medicaid spending on both hospitals and the MMC had steady growth. The increase in the MMC spending was significantly larger, however. While the MMC spending has increased by almost two folds from approximately 30 billion to 55 billion dollars for 1998-2003, the expenditure on hospitals has risen by approximately 20 percent, from 55 billion to 65 billion dollars. These patterns are consistent with that the Medicaid expansion for this period enrolled new beneficiaries mostly into the MMC. In sum, the first-order force behind the Medicaid spending in the late 1990s is the MMC spending.

Figure 16 (b) shows the *per-enrollee* Medicaid spending (in 2010 dollars) for each type of providers. For the per-enrollee MMC spending, we use the total MMC spending divided by the MMC enrollments. For all the other categories, we use the Medicaid spending for the given category divided by the total Medicaid enrollments. Unlike other categories, the per-enrollee MMC spending shows a notable increase from 1997 and onward. It is also noteworthy that the per-enrollee spending on hospitals did not increase for the period of our interest.

Table 6 shows the result of regressing the MMC per-enrollee spending (logged) on the cumulative number (logged) of legislation for HMO regulation at the state-year level. We control for the share of Primary Care Case Management (PCCM) plan enrollees to account for the variation in



(a) Total Spending

(b) Per-Enrollee Spending

Sources: Duggan and Hayford (2013)

Figure 16: Medicaid Spending by Category Over Time, Nationwide

Table 6: HMO Regulation and MMC Per-enrollee Spending

Log(MMC Per-enrollee Spending)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(Cum. Number of HMO Regulations +1)	0.429***	0.441*	0.510***	0.721**	0.337**	0.248	0.782***	0.642**
	(0.122)	(0.254)	(0.146)	(0.343)	(0.126)	(0.287)	(0.240)	(0.306)
Share of PCCM enrollees	-3.953***	-3.959***	-3.099***	-3.169***	-2.965***	-2.923***	-3.058***	-3.098***
	(0.392)	(0.390)	(0.970)	(0.980)	(0.438)	(0.447)	(0.990)	(0.985)
Constant	6.707***	7.030***	7.405***	7.786***	73.109**	73.607*	476.273	517.402
	(0.258)	(0.413)	(0.799)	(0.905)	(35.996)	(36.656)	(355.284)	(372.566)
Controls	No	No	No	No	Yes	Yes	Yes	Yes
State FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	623	623	623	623	623	623	623	623
R-squared	0.524	0.532	0.667	0.674	0.582	0.597	0.695	0.703

Note 1: Robust standard errors, clusteredy by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Share of PCCM enrollees refers to the share of Medicaid beneficiaries enrolled in Primary Care Case Management (PCCM) plans. Additional control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, and hospital system Herfindhal Hirschman Index. The observations cover all states except AK for years between 1993 and 2006.

per-enrollee spending by plan type.[18]

The result shows that a one percent increase in the cumulative number of HMO regulations is associated with 0.6% increase in MMC per-enrollee spending. It also shows that a larger share of PCCM enrollees is associated with lower MMC per-enrollee spending, which is intuitive given that PCCM plans focus on primary care services. This overall pattern provides suggestive evidence that the wave of HMO regulations had a spillover effect on Medicaid spending through the MMC.

6 Conclusion

Government insurance programs are the primary channel of government interaction with the health-care industry. This study analyzed the influence of state political environments on critical dimensions of Medicaid program design and operation. It has four key findings. First, for eligibility expansion, the partisan composition of the state house is a crucial predictor, especially in the later stage of the development. Second, fee-for-service reimbursement rates decreased substantially over time in liberal states as eligibility expansion took place. Third, the MMC diffused along with the fee-for-service reimbursement rate reduction, primarily in the places with high HMO penetration in private insurance. Fourth, despite the aggressive adoption of cost-saving measures that accompanied eligibility expansion, Medicaid per-enrollee spending had a steady increase since 1997. The HMO regulation and its spillover effect through the MMC explain the steady increase in Medicaid per-enrollee spending.

Although this study provides a valuable understanding of the political forces behind Medicaid expansion and other dimensions of the Medicaid program design, there are significant remaining issues to investigate further. Major developments in health insurance and the hospital industry can have a considerable influence on Medicaid spending. A large body of the existing research on Medicaid spending has focused primarily on institutional changes led by governments' actions. The influence of the private insurance and healthcare providers' industry on the Medicaid program is an area that needs further exploration.

Large-scale Medicaid expansions induce reallocation of resources across critical dimensions of the Medicaid program as well as sub-groups of the eligible population. Understanding the key patterns of such reallocation can have far-reaching implications for understanding not only the historical evolution but also the current operation of the Medicaid program.

[18] PCCM plans are one of the major types of MMC plans, which specialize in providing primary care services. The traditional FFS scheme is used for health care services other than primary care for PCCM enrollees.

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7 Appendix Tables and Figures

Table A1: Alternative Specification: Partisan Composition and Simulated Eligibility for Children

Medicaid/CHIP Eligibility	(1)	(2)	(3)	(4)	(5)	(6)
		t+1			**t+2**	
DemShare Senate	-0.066	0.054	-0.089	-0.046	0.030	-0.044
	(0.120)	(0.168)	(0.093)	(0.097)	(0.156)	(0.085)
2.Period × DemShare Senate	-0.057	-0.058	-0.042	-0.003	-0.000	0.005
	(0.076)	(0.111)	(0.060)	(0.064)	(0.116)	(0.055)
3.Period × DemShare Senate	-0.105	-0.170	-0.093	-0.138	-0.131	-0.117
	(0.113)	(0.155)	(0.089)	(0.106)	(0.152)	(0.090)
DemShare House	0.152	0.030	0.023	0.107	0.070	0.006
	(0.093)	(0.118)	(0.091)	(0.080)	(0.111)	(0.082)
2.Period × DemShare House	0.089	0.064	0.065	0.043	0.001	0.019
	(0.068)	(0.097)	(0.058)	(0.061)	(0.101)	(0.058)
3.Period × DemShare House	0.155	0.206	0.170**	0.212*	0.151	0.184**
	(0.106)	(0.135)	(0.084)	(0.109)	(0.132)	(0.090)
DemGov	0.003	0.037	-0.000	0.010	0.043	0.007
	(0.015)	(0.025)	(0.014)	(0.014)	(0.027)	(0.014)
2.Period × DemGov	-0.000	-0.035*	0.008	-0.009	-0.044**	-0.003
	(0.014)	(0.019)	(0.013)	(0.014)	(0.020)	(0.013)
3.Period × DemGov	-0.002	-0.056*	0.005	0.005	-0.056	0.007
	(0.023)	(0.032)	(0.020)	(0.023)	(0.034)	(0.022)
2.Period	-0.042	0.159***	0.227***	-0.052	0.112**	0.178***
	(0.035)	(0.053)	(0.039)	(0.033)	(0.052)	(0.038)
3.Period	-0.060	0.272***	0.405***	-0.060	0.217***	0.329***
	(0.053)	(0.072)	(0.065)	(0.048)	(0.070)	(0.073)
Constant	3.401	-4.466	6.199	-0.709	-5.102	1.598
	(10.289)	(3.186)	(7.645)	(10.157)	(3.252)	(8.404)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes
State FE	Yes	No	Yes	Yes	No	Yes
Observations	735	735	735	735	735	735
R-squared	0.799	0.571	0.858	0.808	0.531	0.850

Note 1: Robust standard errors, clustered by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1
Note 2: Control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, FMAP rate, log per-capita real tax revenue (2010 $), poverty rate, percent of single-parent households, percent of union workers, and democratic vote share in presidential elections. The observations cover all states and DC except Nebraska for years between 1996 and 2010. Period = 1 if 1996 $\leq$ Year $\leq$ 2000, Period = 2 if 2001 $\leq$ Year $\leq$ 2005, and Period = 3 if 2006 $\leq$ Year $\leq$ 2010. 1.Period is used as a reference category.

Table A2: Alternative Specification: Regression of log (FFS Rate) on the Partisan Composition

Log (FFS Rate)	(1)	(2)	(3)	(4)	(5)	(6)
	t+1			**t+2**		
DemShare Senate	-0.270	0.825**	-0.333	-0.088	0.833**	-0.092
	(0.225)	(0.381)	(0.228)	(0.170)	(0.357)	(0.163)
2.Period × DemShare Senate	0.301**	0.239	0.280*	0.304**	0.305	0.279*
	(0.143)	(0.220)	(0.165)	(0.141)	(0.214)	(0.153)
3.Period × DemShare Senate	0.219	0.021	0.204	0.025	-0.027	-0.009
	(0.258)	(0.336)	(0.277)	(0.273)	(0.370)	(0.295)
DemShare House	0.207	-0.397	0.212	0.040	-0.381	0.114
	(0.286)	(0.354)	(0.310)	(0.259)	(0.345)	(0.268)
2.Period × DemShare House	-0.462**	-0.405*	-0.433**	-0.438**	-0.469*	-0.411**
	(0.173)	(0.239)	(0.203)	(0.172)	(0.242)	(0.196)
3.Period × DemShare House	-0.482	-0.039	-0.447	-0.167	0.054	-0.157
	(0.331)	(0.352)	(0.384)	(0.317)	(0.389)	(0.366)
DemGov	-0.049	-0.054	-0.044	-0.028	-0.042	-0.025
	(0.035)	(0.052)	(0.035)	(0.033)	(0.051)	(0.035)
2.Period × DemGov	0.054	0.068	0.051	0.042	0.064	0.037
	(0.038)	(0.049)	(0.037)	(0.030)	(0.048)	(0.031)
3.Period × DemGov	0.077	0.108	0.077	0.058	0.091	0.053
	(0.049)	(0.067)	(0.049)	(0.050)	(0.064)	(0.052)
2.Period	-0.061	-0.047	-0.304***	-0.073	-0.050	-0.312**
	(0.050)	(0.127)	(0.106)	(0.053)	(0.136)	(0.118)
3.Period	-0.007	-0.101	-0.344	-0.062	-0.212	-0.357*
	(0.096)	(0.163)	(0.205)	(0.096)	(0.152)	(0.187)
Constant	50.755	1.651	51.682	27.556	2.834	30.295
	(34.043)	(7.771)	(37.111)	(34.319)	(7.642)	(35.498)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes
State FE	Yes	No	Yes	Yes	No	Yes
Observations	624	624	624	624	624	624
R-squared	0.883	0.626	0.891	0.883	0.622	0.889

Note 1: Robust standard errors, clustered by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1
Note 2: Control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, FMAP rate, log per-capita real tax revenue (2010 $), poverty rate, percent of single-parent households, percent of union workers, and democratic vote share in presidential elections. The observations cover all states and DC except Nebraska for years between 1996 and 2009.Period = 1 if 1996 $\leq$ Year $\leq$ 2000, Period = 2 if 2001 $\leq$ Year $\leq$ 2005, and Period = 3 if 2006 $\leq$ Year $\leq$ 2010. 1.Period is used as a reference category.

Table A3: Alternative Specifications: Linear Probability Model of MMC Mandate Adoption, County-Level

MMC Mandate	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HMO Share	0.699***	1.102***	0.625***	0.723***	0.383***	0.674***	0.205***	0.119
	(0.058)	(0.116)	(0.057)	(0.114)	(0.051)	(0.117)	(0.050)	(0.119)
Expansion					-0.008	-0.003	0.017	-0.019
					(0.009)	(0.009)	(0.024)	(0.012)
Expansion × HMO Share					0.783***	0.724***	1.033***	0.988***
					(0.076)	(0.078)	(0.092)	(0.093)
Constant	0.169	-63.117***	-0.261**	0.905	9.271***	-48.199***	-0.203*	0.933
	(1.787)	(4.050)	(0.108)	(0.673)	(2.440)	(4.058)	(0.108)	(0.631)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE	No	Yes	No	Yes	No	Yes	No	Yes
State-Specific Time Trend	Yes	Yes	No	No	Yes	Yes	No	No
State-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	35,804	35,804	35,804	35,804	35,804	35,804	35,804	35,804
R-squared	0.572	0.694	0.655	0.776	0.583	0.702	0.664	0.783

Note 1: Robust standard errors, clustered by county, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Expansion is a dummy variable for year 1997 or after, in which the Balanced Budget Act was passed. Control variables include log total population (in 1,000), percent of population aged 0-19 years, percent of population aged 65 and older, log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, and percent of bachelor's degree or higher. The observations cover all states and DC for years between 1990 and 2001.

Table A4: HMO Regulation Subcategories and MMC Per-enrollee Spending

Log(MMC Per-enrollee Spending)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(Cumulative Count of Access Regs +1)	0.690**	0.507	0.671**	0.537	0.520*	0.457	0.441*	0.382
	(0.325)	(0.452)	(0.307)	(0.497)	(0.287)	(0.411)	(0.246)	(0.452)
Log(Cumulative Count of Appeals Regs +1)	-0.565**	-0.821	-0.589**	-0.746	-0.530*	-0.600	-0.499	-0.622
	(0.252)	(0.624)	(0.286)	(0.704)	(0.304)	(0.658)	(0.337)	(0.689)
Log(Cumulative Count of Mandates Regs +1)	-0.153	1.048*	-0.214	1.005*	0.114	1.144**	0.053	1.014*
	(0.332)	(0.552)	(0.344)	(0.580)	(0.366)	(0.552)	(0.391)	(0.590)
Log(Cumulative Count of Provider Regs +1)	0.423	0.175	0.453	0.267	0.214	0.527	0.077	0.433
	(0.332)	(0.412)	(0.418)	(0.640)	(0.297)	(0.427)	(0.396)	(0.553)
Share of PCCM enrollees	-3.936***	-2.886***	-3.938***	-2.954***	-2.995***	-2.830***	-2.958***	-2.877***
	(0.360)	(0.866)	(0.357)	(0.878)	(0.420)	(0.860)	(0.419)	(0.853)
Constant	6.671***	7.226***	7.050***	7.561***	51.370	557.848	54.473	594.281
	(0.255)	(0.834)	(0.406)	(0.942)	(38.728)	(364.800)	(38.118)	(373.256)
Controls	No	No	No	No	Yes	Yes	Yes	Yes
State FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	623	623	623	623	623	623	623	623
R-squared	0.539	0.678	0.547	0.683	0.591	0.707	0.605	0.712

Note 1: Robust standard errors, clusteredy by state, in parentheses. *** p<0.01; ** p<0.05; * p<0.1

Note 2: Share of PCCM enrollees refers to the share of Medicaid beneficiaries enrolled in Primary Care Case Management (PCCM) plans. Additional control variables include log total population (in 100K), percent of population aged 0-19 years, percent of population aged 65 and older, log land area (in squared miles), log per-capita median income (2010 $), unemployment rate, percent of females, percent of black population, percent of white population, percent of hispanic population, percent of urban population, percent of high school graduates or higher, percent of bachelor's degree or higher, and hospital system Herfindhal Hirschman Index. The observations cover all states except AK for years between 1993 and 2006.

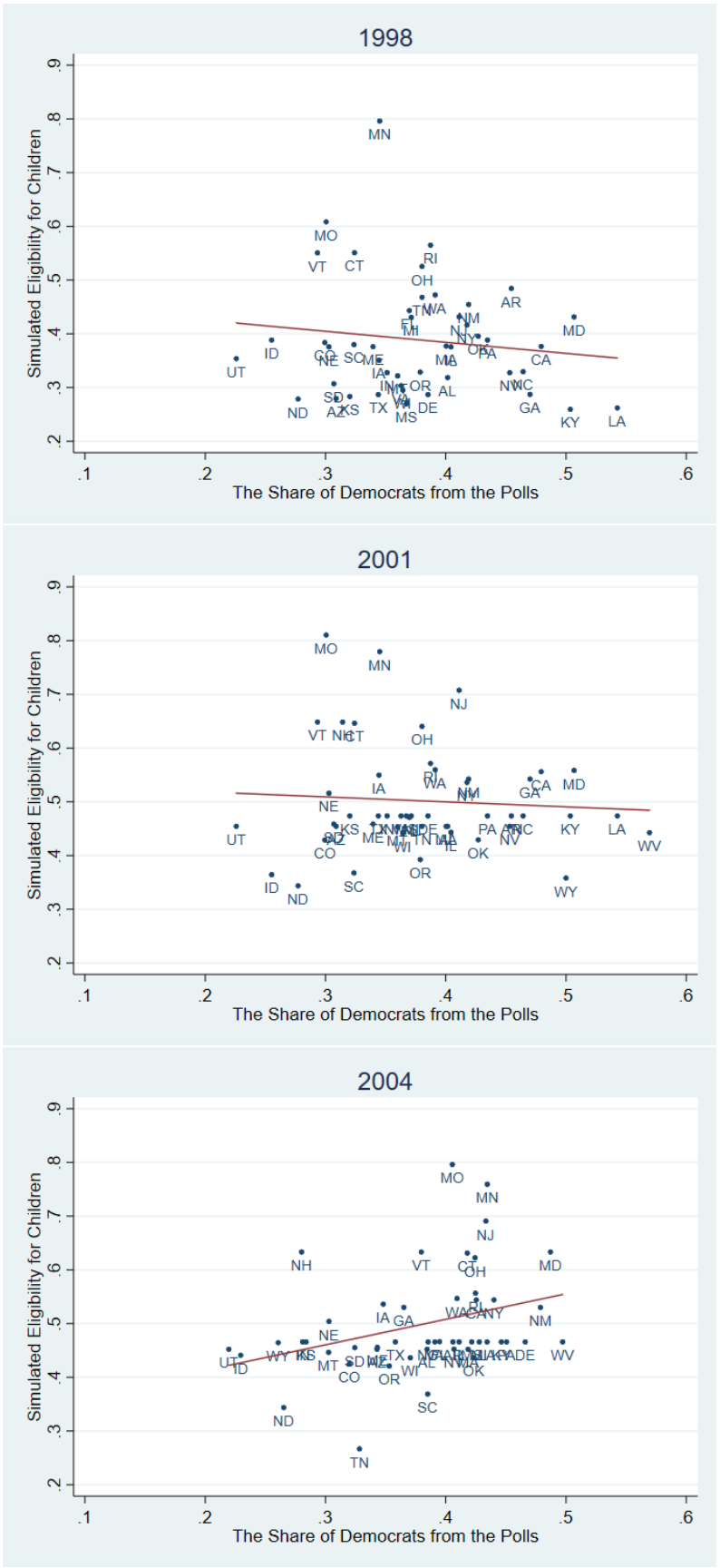

Figure A1: Simulated Eligibility for Children and the Share of Democrats from Exit-polls