

The Impact of Privatizing Public Health Insurance: Evidence from California's Medicaid Program

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Background on the Medicaid Program

Health insurance for those with low income and assets

- Means-tested program with a diverse set of recipients
- 93 million enrolled in 2023 (vs. 63 million in 2013 & 31 million in 1998)
- Total 2023 spending of \$860 billion (vs. \$566 billion in 2013 in 2023 \$)
- Real \$ per recipient rose by just 3% from \$9.0k to \$9.3k from 2013-23

Administered by state governments

- Eligibility criteria, provider payments, and services covered all vary
- Jointly financed by federal and state governments, federal % varies
- Expanded by ACA (Obamacare) – 41 states have now expanded

Diverse set of recipients

- 41% of births, 62% of nursing home residents, many in between
- High enrollment churn among children and non-disabled adults
- Elderly and disabled: 1-in-5 recipients but account for 2/3 of spending

Background on Medicaid Managed Care (MMC)

States face “make or buy” decision in administration

- Direct provision through fee-for-service contracting
- Or outsource with fixed PMPM capitation payments to MCOs
- Primary goals - to control cost and improve care coordination

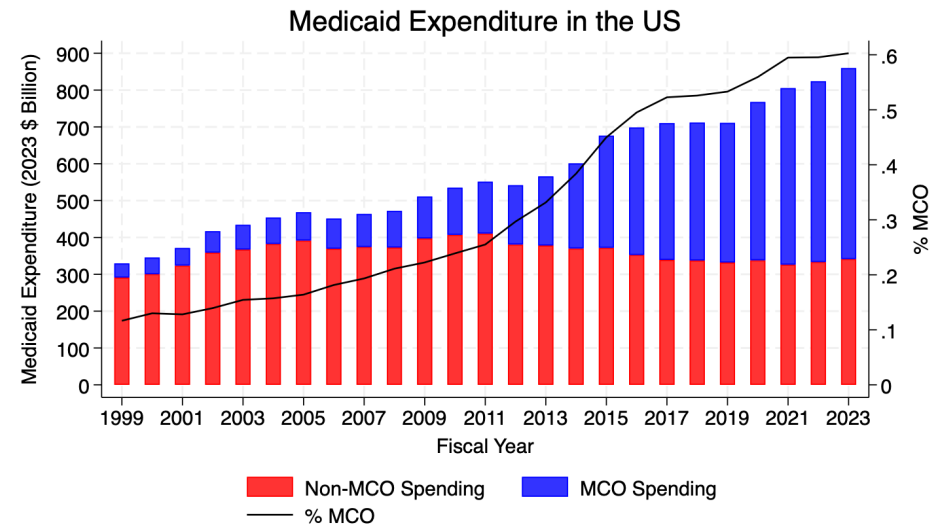
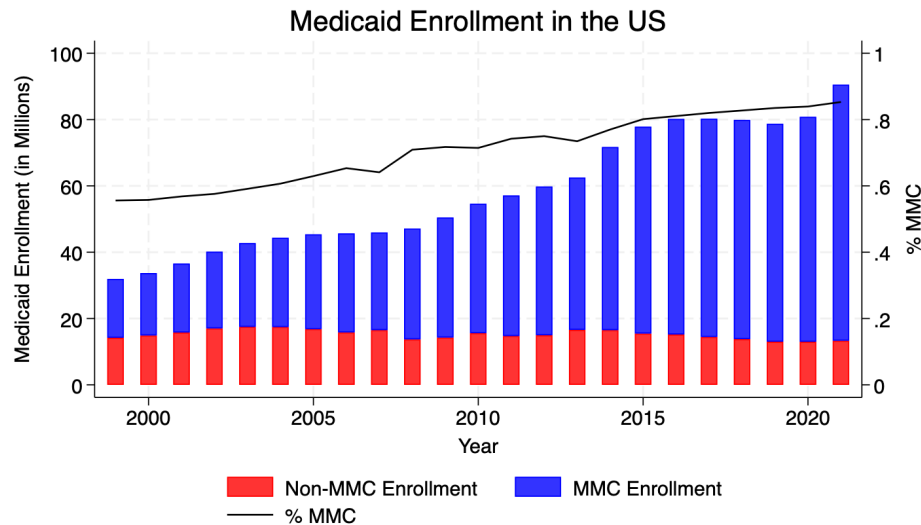
Use of MMC varies substantially across and within states

- Type of MMC: comprehensive (75%) or partial (11%)
- Type of org: for-profit versus NFP versus quasi-public
- Variation in how many plans available, auto-enrollment, etc.

Rising share of Medicaid recipients in MMC

- 85% of Medicaid recipients in some form of MMC in 2021
- Most of increase driven by state and local MMC mandates
- CT backtracked - in 2012 shifted back to FFS (OK too but...)

Rising % of Medicaid Recipients and Spending in MMC



- Until early-mid 2010s, MMC mandates mainly affected low-income children and non-disabled adults
- Recent reforms shifting disabled, elderly, and even “dual eligibles” into MMC – among the most complicated patients
- Little evidence regarding MMC’s effect on these groups

Welfare Effects of MMC are Ambiguous

MMC can lower spending and/or improve quality

- Reduce use of inefficient services or providers
- Financial incentive to keep enrollees healthy
- Gains from competition and choice b/w multiple plans

MMC can raise spending and/or lower quality

- Higher administrative costs including plan profits
- Incentive to shirk on care for unprofitable patients
- Narrower provider networks than fee-for-service

Tradeoffs with fee-for-service versus managed care

- Impact may be more consequential for more severe patients
- Effects on safety-net providers ambiguous

Previous Literature on Contracting Out and MMC

- Theory of incomplete contracts
 - Gov't control may be preferred if service complicated and stakes are high
 - Hart, Shleifer, Vishny, 1998; Levin and Tadelis, 2010
- Medicare Advantage and Medicare Part D
 - All commercial, all voluntary (in contrast to Medicaid)
- Growing literature on MMC (very incomplete list)
 - Spending (Duggan 2004; Duggan & Hayford 2013; Macambira et al 2023)
 - Medicaid coverage (Currie & Fahr 2005; Lee & Vabson, 2024)
 - Impact when bundled with another reform (Layton et al 2022)
- Our contribution (still-in-progress) on California MMC
 - Focus on most vulnerable (and highest cost) Medicaid recipients
 - Use plausibly exogenous policy-induced variation in MMC enrollment
 - Administrative data with universe of discharges and ER visits
 - Public versus private provision of MMC plans – implications beyond CA
- MMC (and Medicaid generally) details vary lots across states

This Study: Estimate Impact of MMC in CA

Focus on **individuals with disabilities**, for whom evidence on MMC impacts have been scarce

Exploit implementation of MMC mandate for seniors and persons w/disabilities of “Bridge to Reform” waiver in **CA**

- Staggered implementation by birth month in 2011–2012 in 16 counties (see next figure)
- Exempt groups included Medicare-Medicaid dual-eligibles, Medicaid recipients in LTC, and a few others

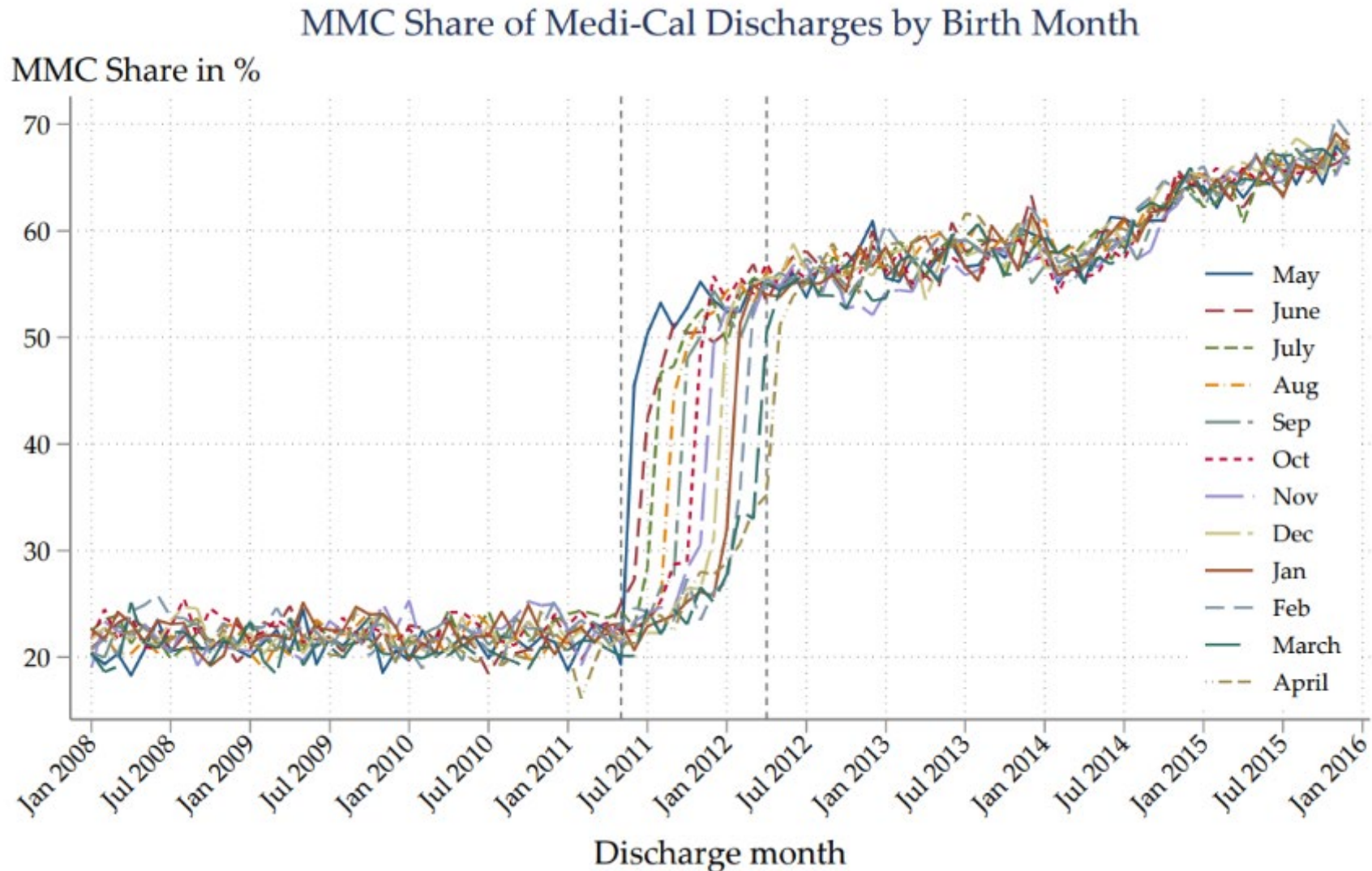
Evaluate impact on health care utilization and mortality

- Utilize data for universe of (non-federal) hospital admissions and ER visits from 2008 through 2015

Explore heterogeneity by baseline health and type of plan

- MMC model different in L.A. vs. Orange vs. San Diego, etc.

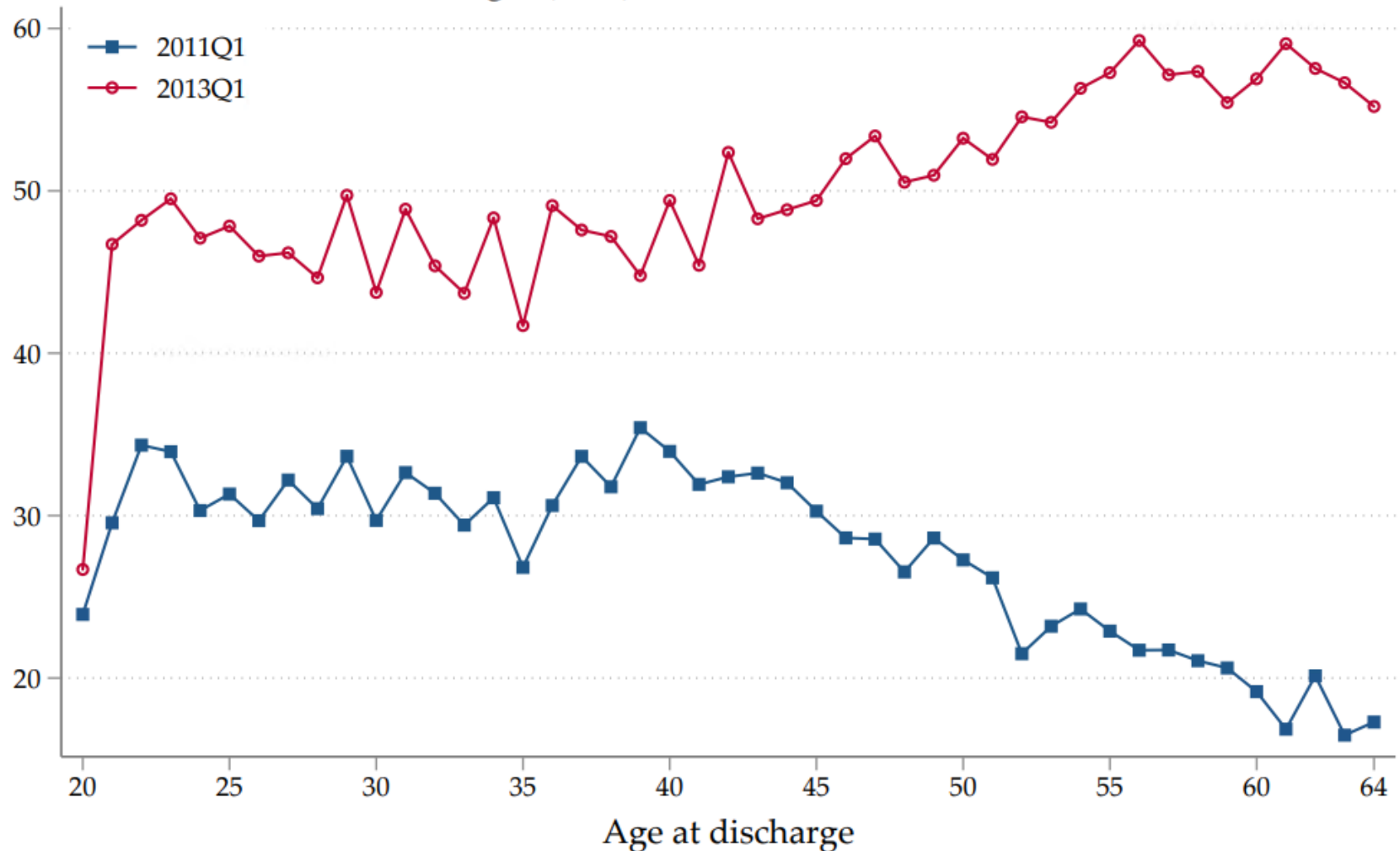
Staggered Implementation of CA MMC Mandate



Notes: Graph includes all non-birth/non-pregnancy related hospital discharges for individuals born between **1950 and 1969** and residing in one of the **reform counties**. Figure plots MMC discharges as share of total Medicaid discharges in each month.

MMC Mandate Differentially Affected Older Adults

MMC share of Medicaid discharges (in %)



Notes: Figure plots the MMC share of Medicaid hospital discharges, by the age at discharge. Sample includes all discharges in CA (all counties) in the first quarter of 2011 and 2013 that are not pregnancy- or birth-related.

Medicaid Managed Care in California

Medicaid in California known as Medi-Cal

- 2023 expenditures = \$123 billion
 - Federal share: \$80.5 billion (66%)
- 2021 Medi-Cal enrollment 14.2 million, 11.7 million in MMC

MMC models in California – varies by county

- County-organized health system – (county) government plan
- Geographic managed care – several commercial plans
- Two Plan: a hybrid with one government and one commercial

Model	# of Counties	# of Enrollees	Plan Types
County Organized Health System (COHS)	34	3,134,192	1 county plan
Single Plan	3	906,570	1 county plan + Kaiser Permanente
Two Plan	14	8,746,226	1 county plan + 1 commercial plan
Geographic Managed Care (GMC)	2	1,662,726	>2 commercial plans
Regional	5	47,014	2 commercial plans

MMC Plan Enrollment in one 2-Plan, COHS, & GMC County

County	Plan Type	Plan Name	Enrollment	
			Jan 2010	Jan 2013
Los Angeles	<i>Local Initiative</i>	LA Care	790,822	1,001,726
	<i>Commercial</i>	Health Net	440,416	492,875
Orange	<i>COHS</i>	CalOptima	344,843	409,884
San Diego	<i>Commercial</i>	CareFirst	10,272	30,270
	<i>Nonprofit</i>	Community Health Group	90,898	146,988
	<i>Commercial</i>	Health Net	30,931	33,989
	<i>Commercial</i>	Kaiser	13,416	24,404
	<i>Commercial</i>	Molina Healthcare	57,647	86,513

Reform and COHS Counties

Reform counties

Two plan

- Alameda
- Contra Costa
- Fresno
- Kern
- Kings
- Los Angeles
- Madera
- Riverside
- San Bernardino
- San Francisco
- Sao Joaquin
- Santa Clara
- Stanislaus
- Tulare

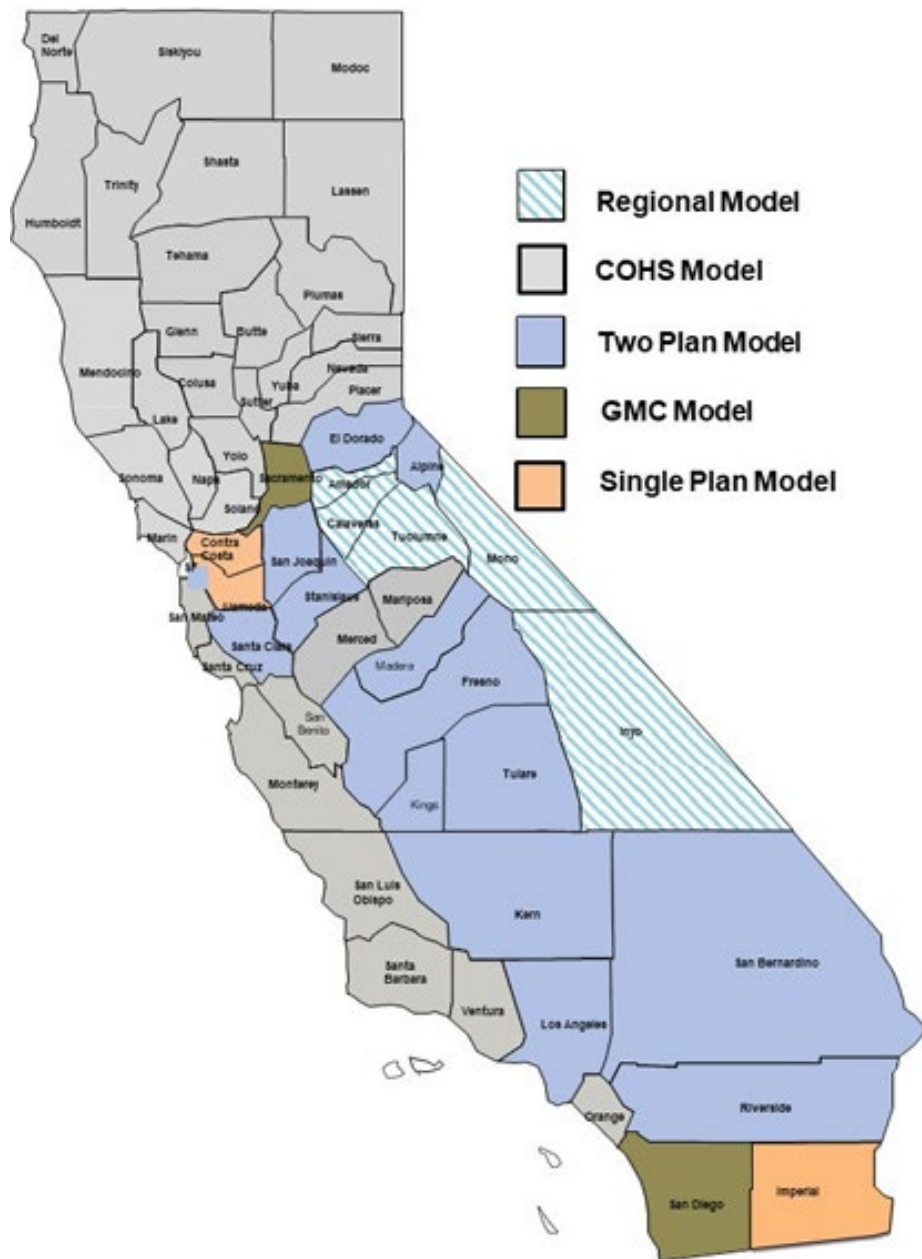
GMC

- Sacramento
- San Diego

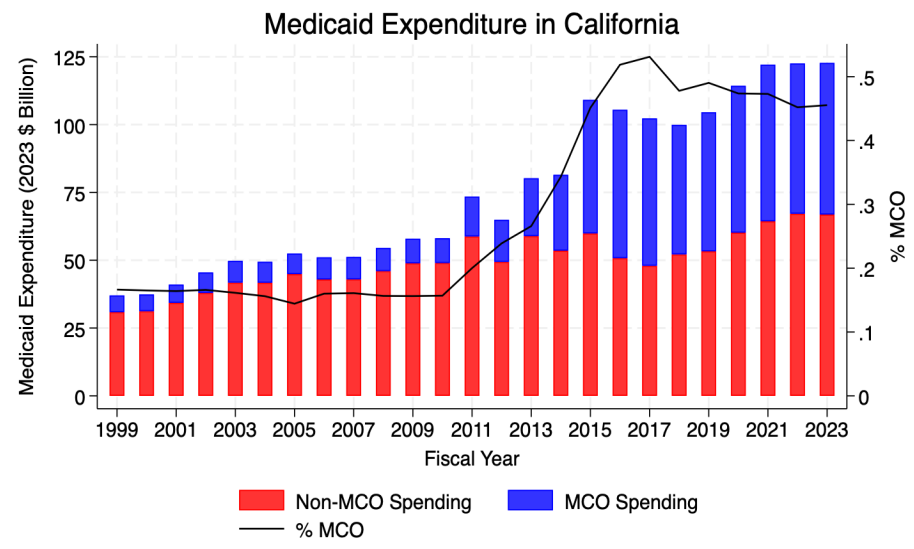
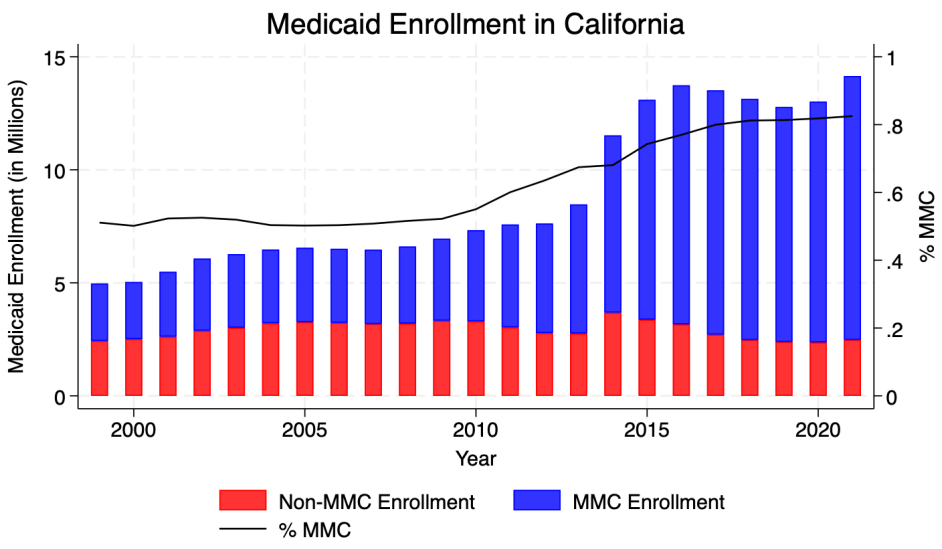
COHS counties (controls)

- Monterey
- Napa
- Orange
- Sant Luis Obispo
- San Mateo
- Santa Barbara
- Santa Cruz
- Solano
- Yolo

California MMC Plan Model Map as of January 2024



Rising % of Medi-Cal Recipients and Medi-Cal \$ in MMC



Medicaid enrollment: 7.6 million in 2012 to 13.1 million in 2015 due to ACA

High and rising share of CA Medicaid beneficiaries enrolled in MMC

MMC \$ share steady but large increase after MMC mandate in 2011

California Discharge, ER, and Mortality Data

Hospital Patient Discharge Data (PDD) for 2008-15

- All hospital discharges in California (~ 3.8 million / yr)
- Detailed info on demographics, diagnoses, procedures, charges, insurer, length of stay, admission and disposition routes
- Individual ID (record linkage # / RLN) based on encrypted SSN

Emergency Department Data (ED) for 2008-15

- All ER visits in CA, not including those in PDD (~ 10 million/yr)
- Detailed info mostly comparable to PDD, except info on charges and MMC enrollment (only know Medicaid not MMC)
- Linkable with PDD via RLN

CA Death Records

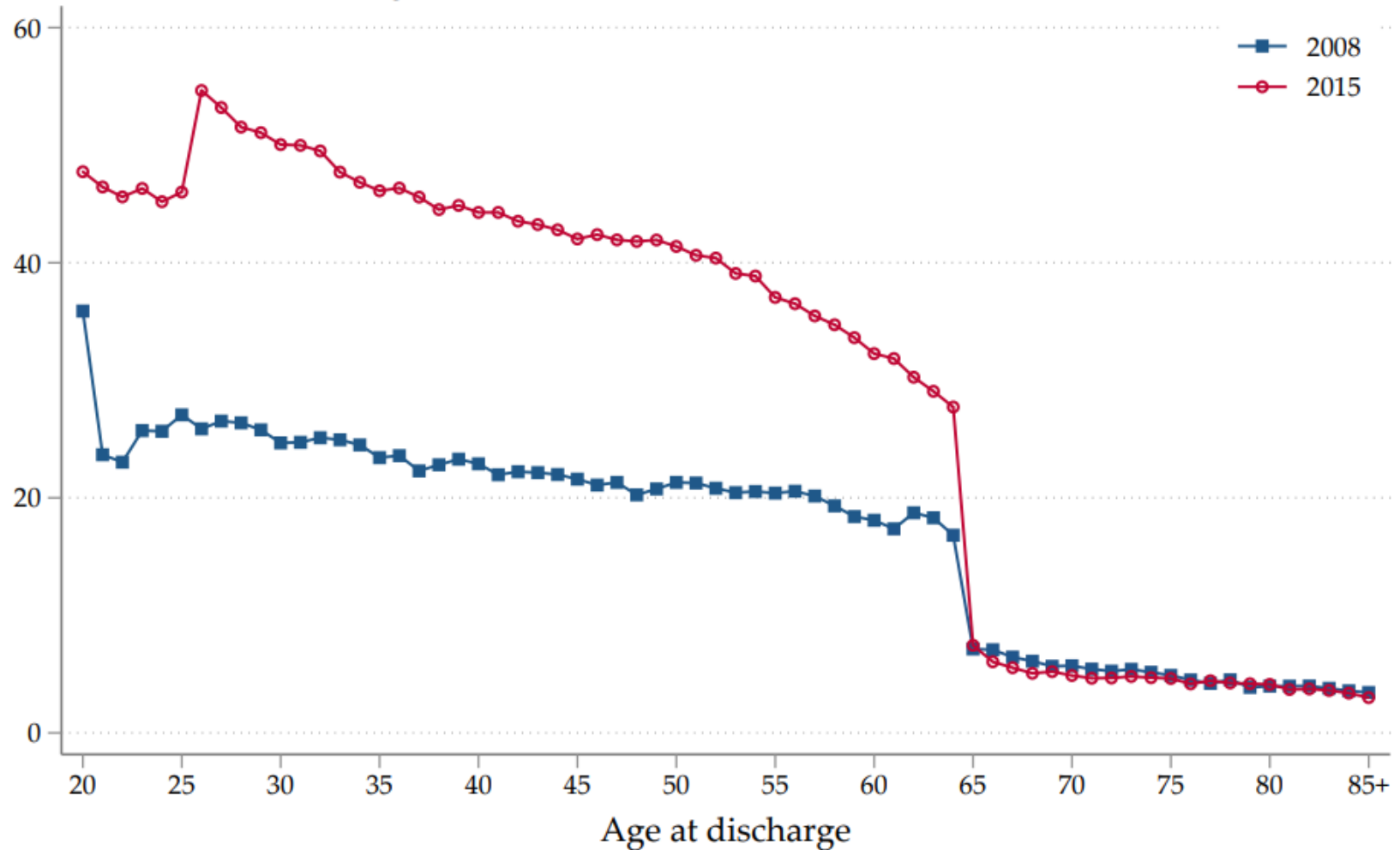
- For those with hospital discharge in 2009–13 (*updating to 14-16*)

Caveat: Encounter data only

- Only observe individuals who are admitted or have ER visit
- Will not observe those who never had inpatient care or ER visit

Substantial Increase in CA Medi-Cal Enrollment During Study Period

Medicaid share of discharges (in %)



Notes: Figure plots the share of hospital discharges that are Medicaid discharges, by the age at discharge. Sample includes all discharges in CA (all counties) in 2008 and 2015 that are not pregnancy- or birth-related.

Construction of Analysis Sample

Keep those with valid individual ID and with at least 1 Medicaid-insured hospitalization or ER visit in 2008

- Allows us to observe 2+ years prior to beginning of mandate implementation (in 2011q2)
- Born between 1950 and 1969 and who have not turned 65 yet (most affected by the mandate)
- Reside in a reform or control (COHS) county in 2008
- Reform counties (e.g. L.A. and San Diego): covered by mandate and with no concurrent policy changes
- Control counties (e.g. Orange): already with MMC mandate by 2008

Merge PDD and ER data and collapse non-birth / non-pregnancy observations to person-quarter level

Issues to consider

- Some in sample no longer on Medicaid by 2011-12 mandate
- Some not on Medicaid in 2008 will be on Medicaid in 2011-12

Empirical Strategy to Estimate Impact of MMC

Main analysis exploits staggered introduction of SPD mandate

- Construct mandate var(s) based on yr-quarter and birth month
- Two issues for interpreting estimated effect of mandate on MMC:
 - Some no longer on Medicaid by 2011-12
 - Many in sample and still on Medicaid unaffected by mandate
- First set of results uses reform counties only: those with different birth months as control group
- Second set of results uses reform + control counties: to control for other factors changing in CA Medi-Cal generally
- Key assumption: timing of mandate (driven by month-of-birth) orthogonal to changes in other factors that influence outcomes

Heterogeneity by baseline characteristics and plan types

- Baseline utilization and health status
- Two-Plan (public and commercial) vs. GMC (all commercial)

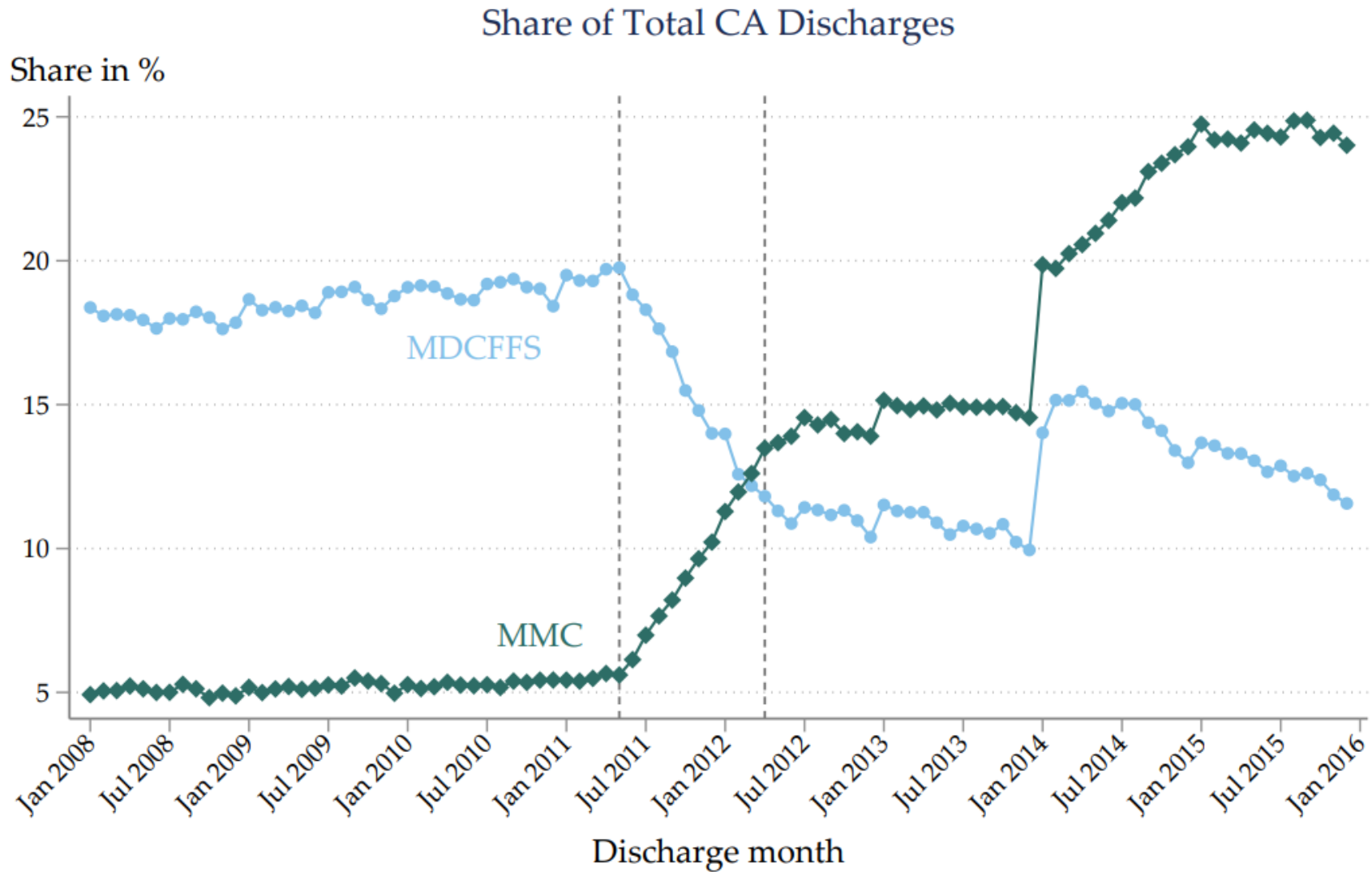
Empirical Strategy – Baseline Specification

Main Specification 1 – Difference in Difference

$$y_{it} = \beta_0 + \beta_1 \text{mandate}_{it} + \gamma_t + \alpha_i + \varepsilon_{it}$$

- Consider an individual born in August
 - $\text{mandate} = 0$ in 2009Q1–2011Q2, $\text{mandate} = 1$ in and after 2011Q3 in the treatment group
 - $\text{mandate} = 0$ for all observations of the control group
- Controls for time FE and individual FE in service utilization analysis
- Controls for time FE, county FE, age, and gender in mortality analysis
- β_1 estimates effect of mandate on outcome variable y_{it}

Medicaid FFS and MMC Share in CA Patient Discharge Data



Notes: Graph includes all non-birth/non-pregnancy related hospital discharges in reform counties in CA of individuals born between 1950 and 1969. Figure plots Medicaid discharges as share of total discharges in each month separately for Managed Care and FFS. Policy implementation period is from 2011q2 to 2012q2.

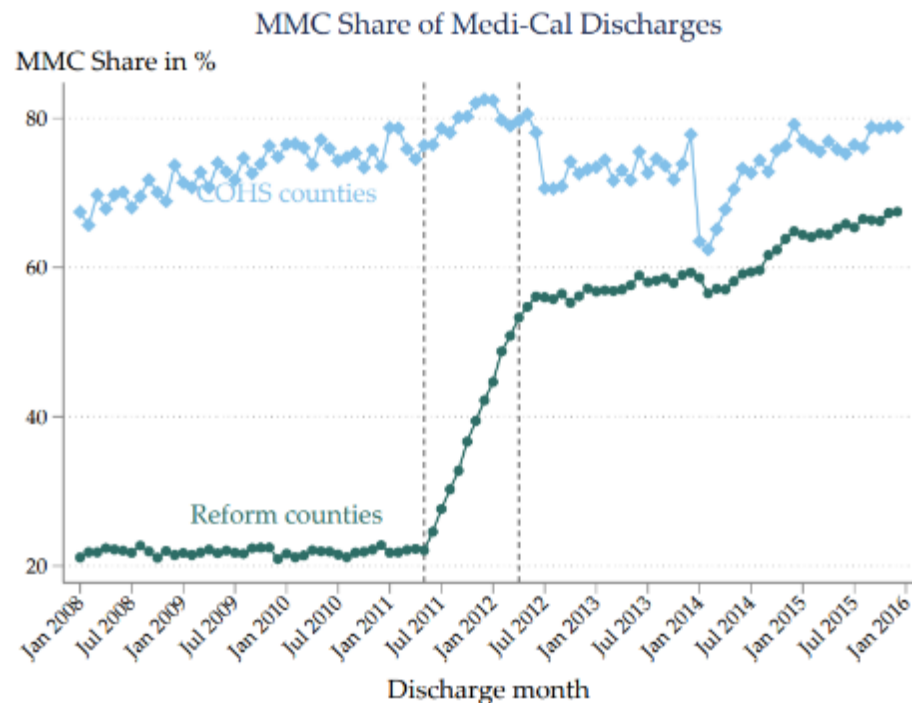
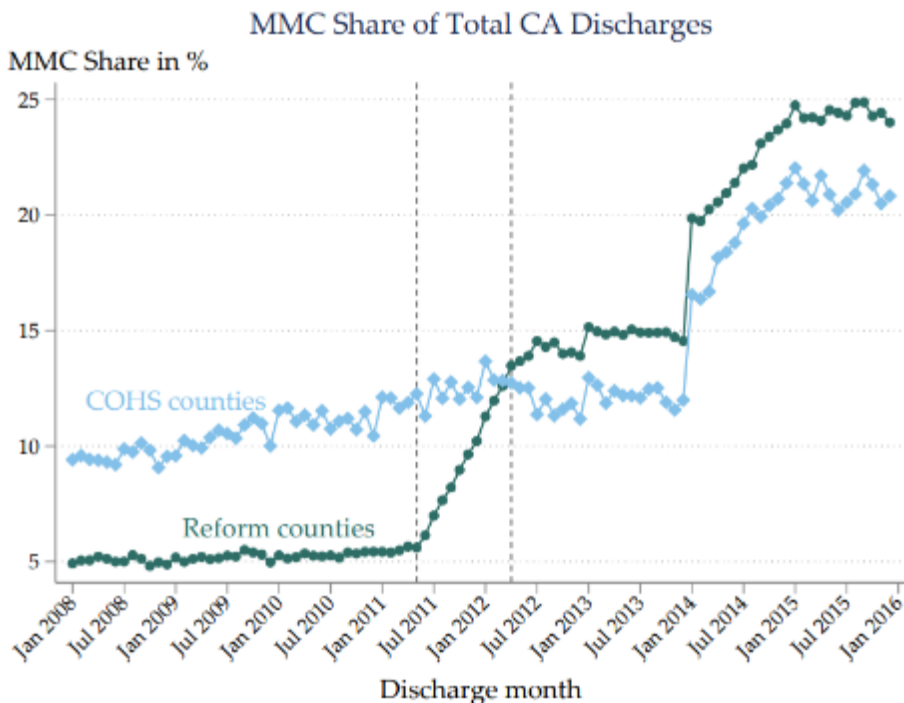
Explore Timing of Effects to Test Pre-Trends, etc.

Main Specification 2 – Dynamic Event Study

$$y_{it} = \sum_{r=-8}^{12} \theta_r \mathbb{I}(t = \text{mandate quarter}_{it} + r) + \gamma_t + \alpha_i + \epsilon_{it}$$

- Includes indicators for # of quarters relative to implementation
- Includes 2 years of pre-mandate data for everyone and 3 years of post-mandate data
- Controls for time FE and individual FE in service utilization analysis
- Controls for time FE, county FE, age, and gender in mortality analysis

MMC Share in Treatment and Control Counties



Notes: Figures include all non-birth/non-pregnancy related hospital discharges of individuals born between 1950 and 1969.

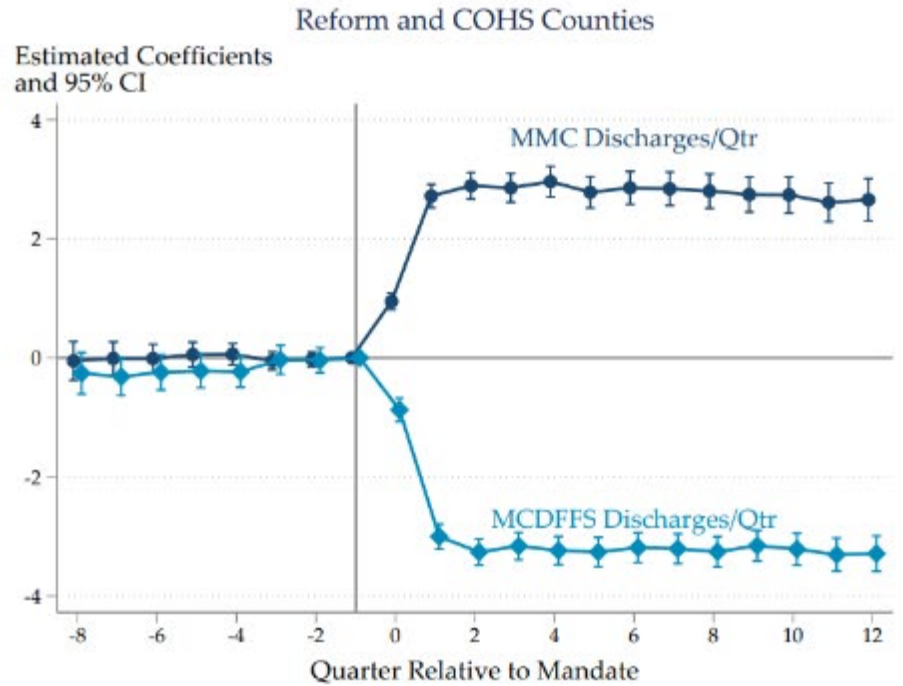
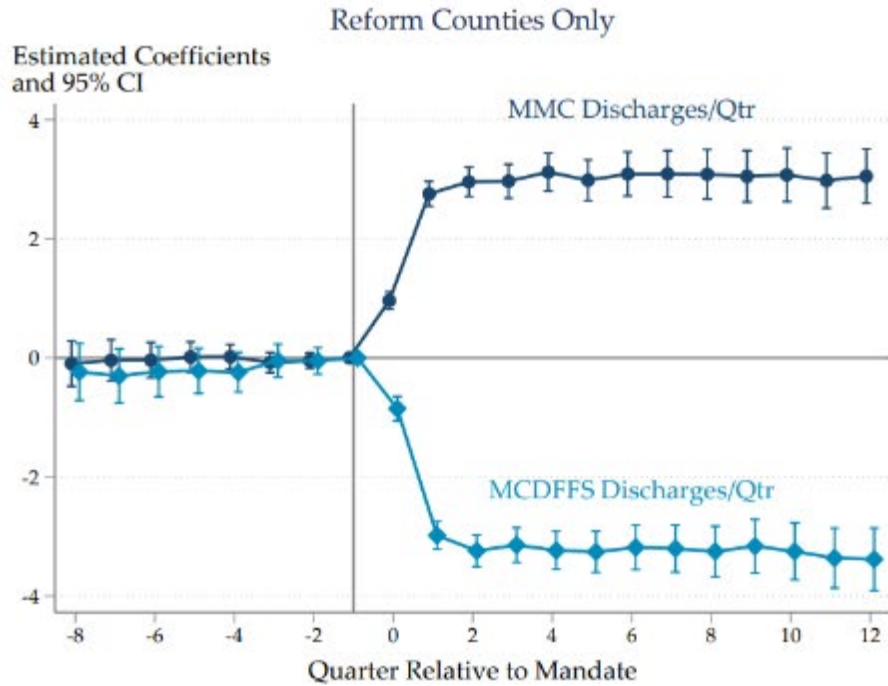
- MMC share increased steadily during implementation period in treatment counties
- MMC share remained relatively stable for control counties

First Stage – Mandate Induces Shift away from FFS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A:	Inpatient Medicaid	Inpatient Medicaid	Inpatient	Inpatient	Emergency Room	Emergency Room	Emergency Room
Only reform counties	Managed Care	Fee for Service	Private	Medicare	Medicaid	Private	Medicare
Mandate	1.580 (0.078)	-1.661 (0.104)	0.135 (0.029)	0.050 (0.052)	-0.551 (0.297)	1.078 (0.094)	0.137 (0.088)
Time FE	Y	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	2.230	7.468	0.436	0.879	27.261	2.478	1.498
Observations	3,880,174	3,880,174	3,880,174	3,880,174	3,880,174	3,880,174	3,880,174
Panel B:	Inpatient Medicaid	Inpatient Medicaid	Inpatient	Inpatient	Emergency Room	Emergency Room	Emergency Room
COHS Control Group	Managed Care	Fee for Service	Private	Medicare	Medicaid	Private	Medicare
Mandate	2.687 (0.076)	-2.972 (0.066)	0.105 (0.020)	0.047 (0.043)	0.601 (0.293)	1.660 (0.108)	-0.268 (0.101)
Time FE	Y	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	3.241	8.119	0.472	0.608	32.476	2.840	1.071
Observations	5,057,944	5,057,944	5,057,944	5,057,944	5,057,944	5,057,944	5,057,944

- Mandate effectively shifts Medi-Cal beneficiaries from FFS to MMC
- Note some MMC ED visits are likely coded as “private” in the ED data

First Stage



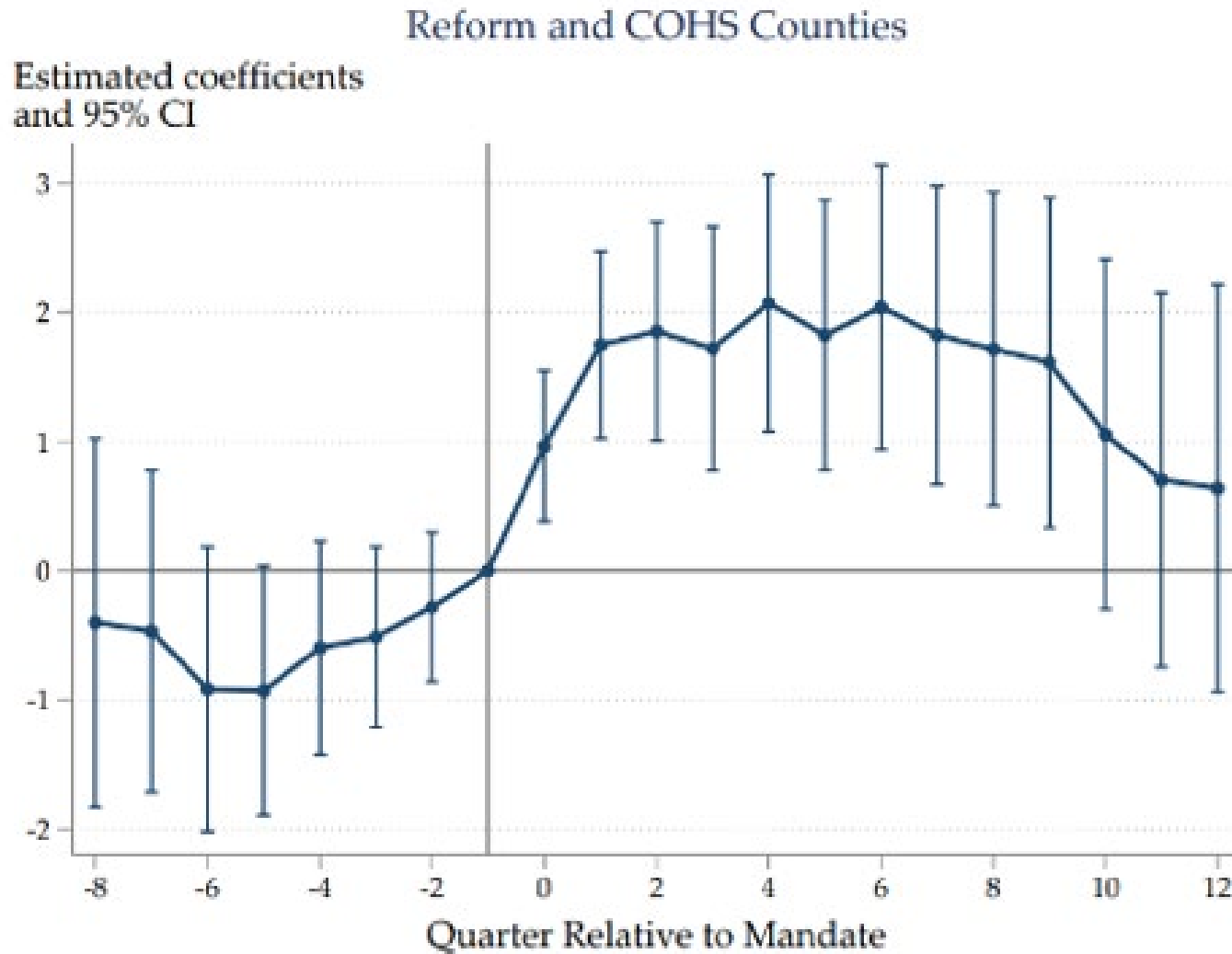
- Mandate effectively shifts Medi-Cal beneficiaries from FFS to MMC

Main Sample Results – Utilization

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Only reform counties	ER visit	Discharge	Non-ER Transfer	Non-ER Non-transfer	Admitted from Own ER	Scheduled
Mandate	1.083 (0.348)	0.083 (0.142)	0.046 (0.025)	-0.070 (0.058)	0.106 (0.117)	-0.022 (0.037)
Time FE	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	36.359	11.843	0.471	2.696	8.676	1.234
Observations	3,880,174	3,880,174	3,880,174	3,880,174	3,880,174	3,880,174
Panel B: COHS Control Group	ER visit	Discharge	Non-ER Transfer	Non-ER Non-transfer	Admitted from Own ER	Scheduled
Mandate	2.117 (0.363)	0.051 (0.109)	0.035 (0.020)	-0.098 (0.041)	0.113 (0.089)	0.005 (0.026)
Time FE	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	36.927	11.559	0.472	2.640	8.446	1.228
Observations	4,393,644	4,393,644	4,393,644	4,393,644	4,393,644	4,393,644

- No large effects on the overall inpatient hospitalizations
- Significant increase in ER visits and non-ER transfer inpatient hospitalizations

Event Study – Persistent Increase in ER Visits



- Significant and persistent increase in ER visits

Main Results – Heterogeneity by Baseline Utilization

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Only Reform Counties	ER visit		Discharge		Non-ER Transfer		Non-ER Non-Transfer		Admitted from Own ER		Scheduled	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Mandate	2.105 (0.617)	-0.048 (0.263)	0.162 (0.237)	-0.003 (0.144)	0.048 (0.042)	0.044 (0.026)	-0.063 (0.096)	-0.079 (0.059)	0.174 (0.194)	0.031 (0.119)	-0.016 (0.059)	-0.029 (0.044)
Difference	2.152 (0.671)		0.165 (0.278)		0.004 (0.050)		0.016 (0.112)		0.143 (0.228)		0.014 (0.074)	
Time FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	54.046	16.185	17.552	5.330	0.698	0.212	3.878	1.347	12.977	3.770	1.654	0.755
Observations	2,041,760	1,838,414	2,041,760	1,838,414	2,041,760	1,838,414	2,041,760	1,838,414	2,041,760	1,838,414	2,041,760	1,838,414
Panel B: COHS Control Group	ER visit		Discharge		Non-ER Transfer		Non-ER Non-Transfer		Admitted from Own ER		Scheduled	
	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low
Mandate	3.451 (0.640)	0.272 (0.237)	-0.028 (0.179)	0.084 (0.109)	0.049 (0.032)	0.024 (0.020)	-0.176 (0.068)	-0.038 (0.042)	0.098 (0.146)	0.098 (0.089)	-0.013 (0.040)	0.019 (0.031)
Difference	3.179 (0.682)		-0.112 (0.209)		0.024 (0.038)		-0.138 (0.080)		0.000 (0.171)		-0.032 (0.051)	
Time FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	54.729	16.333	17.049	5.208	0.696	0.214	3.777	1.325	12.576	3.669	1.641	0.752
Observations	2,327,910	2,065,734	2,327,910	2,065,734	2,327,910	2,065,734	2,327,910	2,065,734	2,327,910	2,065,734	2,327,910	2,065,734

- Effects mostly driven by baseline heavy utilizers

Heterogeneity by Type of MMC Model

- GMC – multiple commercial plans competing
 - Sacramento and San Diego
- Two-plan – in most of our reform counties
 - LA, Riverside, San Bernardino, Santa Clara, Alameda, Tulare, Contra Costa, Kern, San Francisco, San Joaquin, Stanislaus, Fresno, Madera, Kings
 - One “local initiative plan” that tends to have most enrollment and may subcontract with one or more commercial plans
 - One commercial plan similar with those in GMC counties
- Estimates of differences at county level
 - Effect of having MMC plan run by a government owned plan compared to a privately owned plan
 - May expect more utilization impact from in GMC counties

Main Results – Utilization by Type of MMC Model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A:	ER visit		Discharge		Non-ER Transfer		Non-ER Non-Transfer		Admitted from Own ER		Scheduled	
Only Reform Counties	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan
Mandate	0.963 (1.165)	1.106 (0.352)	-0.057 (0.360)	0.108 (0.155)	0.013 (0.066)	0.052 (0.028)	-0.065 (0.146)	-0.072 (0.063)	-0.006 (0.294)	0.126 (0.127)	-0.086 (0.096)	-0.011 (0.041)
Time FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	35.683	36.482	11.484	11.908	0.509	0.464	2.415	2.747	8.559	8.697	1.098	1.259
Observations	599,902	3,280,272	599,902	3,280,272	599,902	3,280,272	599,902	3,280,272	599,902	3,280,272	599,902	3,280,272
Panel B:	ER visit		Discharge		Non-ER Transfer		Non-ER Non-Transfer		Admitted from Own ER		Scheduled	
COHS Control Group	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan	GMC	Two-Plan
Mandate	3.764 (0.625)	2.060 (0.382)	0.080 (0.191)	0.051 (0.114)	-0.034 (0.034)	0.044 (0.020)	-0.182 (0.067)	-0.092 (0.044)	0.296 (0.157)	0.097 (0.094)	-0.022 (0.041)	0.016 (0.027)
Time FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pre-Reform Mean (<i>y</i>)	38.239	37.123	10.528	11.571	0.497	0.466	2.324	2.675	7.706	8.428	1.138	1.249
Observations	1,113,372	3,793,742	1,113,372	3,793,742	1,113,372	3,793,742	1,113,372	3,793,742	1,113,372	3,793,742	1,113,372	3,793,742

- Enrollees in GMC counties had a much greater increase in ER visits
- Otherwise, little (significant) difference in the effect by MMC type

(Preliminary) Conclusions and Next Steps

Very large shift of Medicaid recipients from FFS to MMC

- Differentially affected near-elderly Medicaid recipients

Heterogeneity in the effects of MMC

- Sickest patients experience larger effects on (ER) utilization
- Estimates for mortality awaiting updated data for 2014-16
- Similar effects of MMC in GMC and Two-Plan counties
- Limited evidence of overall reduction in use of hospital services

Effects of insurance extend beyond extensive margin

- Change in form of Medicaid can affect utilization and outcomes

Many questions remain including but not limited to:

- Effects on Medicaid spending, attrition, providers, and more
- Selection into public versus private MMC plans
- Implications for other states?