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STATE FISCAL BURDENS DURING COVID-19

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An Unfunded Mandate? Medicaid Continuous Coverage Requirements and State Fiscal Burdens
During COVID-19

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ABSTRACT

At the COVID-19 pandemic's onset, the federal government enacted substantial changes impacting both the revenues and expenditures connected to states' Medicaid programs through a pair of provisions in the March 2020 Families First Coronavirus Response Act. These included a 6.2 percentage point increase in states' Federal Medical Assistance Percentages (FMAP), which raised states' revenues, contingent on adherence to a continuous coverage requirement. The latter provision raised expenditures by preventing the disenrollment of individuals whose eligibility would otherwise have lapsed due to changes in income or other eligibility-relevant circumstances. While these provisions were ex-ante expected to result in expenditures and costs of similar magnitudes, the ex-post realizations remain unquantified. Nationwide, we estimate that states' share of the continuous coverage provision's costs was \$139.2 billion, which is roughly \$11.0 billion less than the revenues states received, in aggregate, through increased FMAPs. Revenues and costs varied substantially across states, however, with costs exceeding revenues by as much as \$594 per capita, and revenues exceeding costs by as much as \$838 per capita. The baseline parameters governing the federal government's share of states' Medicaid expenditures emerge as a key driver of the extent to which the continuous coverage requirement can be viewed as an unfunded federal mandate.

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1 Introduction

A persistent tension pervades intergovernmental relations within the American system of fiscal federalism—federal mandates may advance national objectives, but impinge on the autonomy of state and local governments. When federal funding falls short of what is required to satisfy a mandate’s requirements, the mandate is “unfunded” or “underfunded.” Such mandates directly impinge on the fiscal capacity of state and local governments by leaving these lower levels of government responsible to finance the difference.

Prior to the mid-1990s, a substantial share of state spending growth occurred in health, education, and welfare programs, in a context shaped by federal funding incentives and federally imposed policy requirements (Baicker, Clemens, and Singhal 2012). Concerns regarding the downsides of federal mandates led, in 1995, to the passage of the Unfunded Mandates Reform Act (UMRA), which required Congress to account for mandate costs—as projected by the Congressional Budget Office (CBO)—during the legislative process, and established procedural limits on costs exceeding specified thresholds.

Key provisions of the Families First Coronavirus Response Act (FFCRA), enacted in March 2020, can be analyzed through the lens of this historical context. Section 6008 of the Act offered states a 6.2 percentage point increase in their Federal Medical Assistance Percentages (FMAPs).¹ The FMAP increase was, however, conditioned on a “continuous coverage requirement”, which prohibited states from disenrolling individuals who would otherwise have lost Medicaid eligibility due to changes in income, household size, or other qualifying conditions. Given the scale of Medicaid, the FMAP increase represented substantial fiscal assistance, but it was tied to a mandate whose costs were uncertain and potentially increasing over time.² The provision remained in effect through March 31, 2023, after which the

¹The FMAP is the share of a state’s Medicaid expenditures reimbursed by the federal government.

²It is worth clarifying, however, that while the continuous coverage requirement would constitute a mandate in the colloquial sense of the term, it did not constitute a mandate in the technical sense that governs the administration of the Unfunded Mandate Reform Act.

enhanced FMAP was phased down.³

The CBO produced budgetary projections for spending associated with both the FMAP increase and the continuous coverage provision (Congressional Budget Office 2020*a,b*). Using these projections, along with additional modeling assumptions, Clemens, Ippolito, and Veuger (2021) concluded that the enhanced federal match would roughly fully offset states’ costs arising from increased enrollment. However, the extent to which the continuous coverage mandate was ultimately “funded” remains unknown.

In this paper, we provide the first ex post estimates of excess Medicaid costs attributable to the continuous coverage requirement, both nationally and by state. We quantify both the total excess costs and the share allocable to states under pre-pandemic FMAP rules, the latter representing the states’ direct gross costs. Using data on federal aid in the form of increased FMAPs during the pandemic, we then quantify states’ net fiscal exposure after reimbursement, which we interpret as the extent to which the continuous coverage mandate was funded.

We find that between federal fiscal years 2020 and 2025, Medicaid programs incurred \$541.4 billion in excess costs, driven by approximately 86.6 million excess enrollee-years. States’ share totaled \$139.2 billion. After accounting for \$150.1 billion in revenues to states though the FFCRA-induced increase in FMAPs, aggregate net exposure was -\$11.0 billion, indicating that the policy was funded above costs at the national level. The fiscal pattern we find stands in contrast to at least some historical examples of federal mandates on state governments. For example, several analyses have concluded that the No Child Left Behind Act of 2001 was modestly to moderately underfunded relative to its actual costs.⁴

³The CAA phased out the increased FMAP incrementally—a 5 percentage point reduction through June 30, 2023; 2.5 percentage points through September 30, 2023; and 1.5 percentage points through December 31, 2023, after which FMAP reverted to each state’s baseline rate.

⁴Mathis (2005) finds that estimates across several studies of the costs and revenues to states associated with the No Child Left Behind Act suggest that the mandate was underfunded by about 22.5% of costs, or roughly \$144.5 billion. Other reports, such as Peyser and Costrell (2004), suggest that the funding shortfall may have been more modest.

However, fiscal effects varied substantially across states. Thirty-one states experienced negative net exposure, with federal transfers exceeding costs by up to \$838 per capita, while twenty states faced shortfalls of up to \$594 per capita. States’ average effective FMAP rates—the average federal reimbursement rates implied by statutory (pre-FFCRA) matching rules, accounting for differential match rates across ACA Medicaid expansion adults and other eligibility groups—emerge as the primary predictor of cross-state variation in exposure; a 10-percentage point difference in the average effective FMAP—approximately the difference between Texas (64.7%) and California (74.6%), averaged across federal fiscal years (FFYs)—is associated with a \$192 reduction in per capita exposure. Other factors—including political preferences, the generosity of continuous coverage unwinding policies, and pandemic severity—are not significantly associated with net exposure.

The Medicaid mandate was one among several key pieces of federal COVID-19 policy targeted towards stabilizing state finances, making states’ fiscal exposure central to assessing whether these policies were effectively funded. Accurately calibrating that exposure, however, required real-time projections under considerable uncertainty. The continuous coverage provision created a particularly novel environment by suspending disenrollment and limiting the eligibility churn that typically characterizes Medicaid, complicating forecasts of enrollment and spending. Using realized data, our ex-post analysis highlights how this complexity affected the alignment between federal financing and state costs, with implications for the design of future federal–state health policy responses.

The remainder of the paper is organized as follows. Section 2 presents the conceptual framework underlying our measurement of excess costs. Section 3 describes the methodology used to construct or estimate each component of excess costs, along with the data sources employed. Section 4 presents our estimates of excess costs and aid nationally. Section 5 offers descriptive evidence on potential correlates of cross-state heterogeneity. Section 6 concludes.

2 Conceptual Framework

In this section, we define our measures of the excess costs associated with the continuous coverage requirement. The fiscal impacts of interest are at the state-by-time level, and we use the notation s to denote state and t to denote month. Underlying these state-by-time measures of fiscal impact are components that are constructed at a more disaggregated state-by-month-by-enrollment group level. This underlying level of detail accounts for variations in each state’s typical cost of enrollees from the various enrollment groups (e.g., children vs. adults), the relative contribution of each group to each state’s excess enrollments, and variations in the federal share of states’ costs (e.g., for ACA expansion enrollees vs. traditionally eligible enrollees). While Section 3 describes the sourcing for and construction of these group-specific components, the present section focuses on defining the state-level fiscal impacts on which our analysis is ultimately focused.

Excess costs for state s in each month t between March 2020, when the continuous coverage requirement went into effect, and September 2025, the last month in our sample period and the end of federal fiscal year (FFY) 2025, are given by equation 1:

$$\text{Excess Costs}_{s,t} = \text{Excess Enrollment}_{s,t} \times \text{Cost Per Enrollee}_{s,t}. \quad (1)$$

Excess enrollment is defined in equation 2 as the difference between the state’s observed enrollment under the continuous coverage requirement, denoted by the subscript 1, and its counterfactual enrollment without the continuous coverage requirement, denoted by the subscript 0.

$$\text{Excess Enrollment}_{s,t} = (\text{Enrollment}_{s,t,1} - \text{Enrollment}_{s,t,0}). \quad (2)$$

Note that equation 1 captures the total excess costs incurred due to the continuous coverage requirement. These costs are shared between the states and the federal government.

We compute each state’s share of excess costs by deducting the portion attributable to the federal government, under statutory (pre-FFCRA) matching rules, from the total. We capture pre-FFCRA matching rules using a state’s “average effective Federal Medical Assistance Percentage (FMAP),” which can be interpreted as the federal matching rate applied to each additional dollar of total excess costs incurred by the state.

$$\text{State Share of Excess Costs}_{s,t} = (1 - \text{Average Effective FMAP}_{s,t}) \times \text{Excess Costs}_{s,t}. \quad (3)$$

The average effective FMAP is constructed as a weighted average of the 90% federal matching rate for ACA Medicaid expansion adults and the “base” FMAP for all other enrollees, with weights proportional to each group’s share of excess costs in the FFY. We discuss the construction of the average effective FMAP in greater detail in Section 3.

Alongside the continuous coverage requirement, the FFCRA implemented a temporary 6.2 percentage point increase to states’ base FMAPs. A key feature of this increase is that it applied to the costs of covering all enrollees, not just the excess enrollees induced during the pandemic. This distinction is central to our analysis—because the higher match rate applied broadly, it effectively generated a cross-subsidy from inframarginal to excess enrollees, with increased federal transfers on the former helping to offset the costs of the latter. This mechanism underlies our analysis of the extent to which the FMAP increase covered the costs associated with the continuous coverage requirement. The FMAP increase remained at 6.2 percentage points until the unwinding of continuous coverage in March 2023, and was phased down gradually, fully ending by January 1, 2024.

In principle, revenues to states through the increased FMAPs could be estimated by applying the statutory FMAP increases enacted under the FFCRA and CAA to total costs. However, we circumvent this step by directly using data on the total dollar amounts of federal Medicaid aid (FMAP-Increase Aid_{s,t}) provided to states from FFY 2020 to FFY

2025 through Section 6008 of the FFCRA, and subsequently, the CAA.⁵

A state’s net exposure to the excess costs imposed by the continuous coverage requirement is given by equation 4. Net exposure is the difference between the state share of excess costs and revenues from federal aid through increased FMAPs.

$$\text{Net Exposure}_{s,t} = \text{State Share of Excess Costs}_{s,t} - \text{FMAP-Increase Aid}_{s,t}. \quad (4)$$

Finally, we consider the ratio of increased FMAP aid to the state share of excess costs, described in equation 5, as a metric of the degree to which federal aid proportionally under- or overshoot the costs of the continuous coverage provision.

$$\text{Aid-to-State-Cost Ratio}_{s,t} = \text{FMAP-Increase Aid}_{s,t} / \text{State Share of Excess Costs}_{s,t}. \quad (5)$$

We note that for each state-level metric, namely total excess costs, the state share of excess costs, net exposure, and the aid-to-state-cost ratio, we calculate both a statewide aggregate and a per-capita measure by dividing the aggregate by the state’s population for the calendar year. We specify which measure is used in each analysis as needed.

3 Data and Construction

In this section, we describe how we measure the inputs underlying the concepts defined in Section 2—excess enrollment, cost per enrollee, the average effective FMAP, and aid through the increased FMAPs. We provide details on the data sources used, and outline the key assumptions underlying our construction. As before, we use s to denote states and t to denote months, and we additionally use g to denote demographic subgroups and y to denote calendar years.

⁵Aid data are drawn from state-reported expenditures submitted to CMS through the Medicaid Budget and Expenditure System (MBES) via Form CMS-64. The data are publicly available on the *Medicaid.gov* website: <https://tinyurl.com/3xs553td>

3.1 Excess Enrollment

The key inputs in our construction of excess enrollment are the observed Medicaid enrollment ($\text{Enrollment}_{s,t,1}$) and the counterfactual Medicaid enrollment without the continuous coverage requirement ($\text{Enrollment}_{s,t,0}$). $\text{Enrollment}_{s,t,1}$ is derived directly from the monthly enrollment data provided by the Centers for Medicare and Medicaid Services Centers for Medicare & Medicaid Services (2024). Our analysis focuses on Medicaid enrollment, excluding the Children’s Health Insurance Program (CHIP), as neither the continuous coverage requirement, nor the federal support through increased FMAPs applied to children enrolled in CHIP.⁶

Our method for estimating $\text{Enrollment}_{s,t,0}$ involves a two-step procedure. In the first step, defined by equation 6, we estimate a linear trend in observed Medicaid enrollment over a specified pre-pandemic period T_{pre} , which we define as the period from January 2019 to February 2020.

$$\text{Enrollment}_{s,t,1} = \alpha_s + \beta_s t + \epsilon_{s,t} \quad \text{for } t \in T_{pre}. \quad (6)$$

In the second step, as in equation 7, we estimate the counterfactual enrollment for months March 2020 onward using the estimated coefficient $\hat{\beta}_s$ and intercept $\hat{\alpha}_s$ from equation 6.

$$\text{Enrollment}_{s,t,0} = \hat{\alpha}_s + \hat{\beta}_s t \quad \text{for } t \in \{\text{March 2020}, \dots, \text{September 2025}\}. \quad (7)$$

A state’s excess enrollment in each month between March 2020 and September 2025 is defined as the difference between observed enrollment and the counterfactual enrollment estimated in equation 7. Any negative values resulting from the counterfactual exceeding the observed enrollment are set to zero. Summing monthly excess enrollment across all states provides

⁶States operate the CHIP program in diverse ways. Some states expand Medicaid eligibility to cover children from households with a wider range of incomes (M-CHIP), while other states operate the CHIP program separately from the Medicaid program (S-CHIP) (Burak, Elisabeth 2014). States were not mandated to provide continuous coverage to S-CHIP enrollees, while the mandate applied to M-CHIP enrollees (Centers for Medicare and Medicaid Services N.d.). The CMS CHIP enrollment data does not offer a way to separate M-CHIP and S-CHIP enrollees from the broader “CHIP” category. We therefore utilize Medicaid-only enrollment in our analysis.

the national monthly excess enrollment. Appendix Figure A.1 plots the annual average of excess enrollment at the national level.

We assess the sensitivity of our excess enrollment measure to two alternative estimation approaches. In the first approach, we utilize a longer pre-pandemic period (T_{pre}) for the extrapolation of Medicaid enrollment trends—January 2018 through February 2020. In the second approach we assume that the enrollment in each month from March 2020 to September 2024 is equal to the state’s enrollment in February 2020, the last month before the continuous coverage requirement went into effect. Appendix Figure A.1 shows that estimates of excess enrollment derived from these alternative methodologies do not deviate meaningfully from those produced by our baseline specification, which uses January 2019 to February 2020 as T_{pre} . Consequently, the remainder of our discussion relies on estimates from the baseline method. We favor the baseline specification because it captures state-level enrollment trends immediately prior to the pandemic without extending too far back in time—where structural changes such as Medicaid expansions may confound trends—while also avoiding reliance on a single point-in-time estimate to construct the counterfactual.

Our next step is to multiply the excess enrollment by the cost per enrollee to calculate a state’s total excess costs. As an intermediary step, however, we first decompose the total excess enrollment across Medicaid’s five key demographic subgroups, namely ACA Medicaid expansion adults, other adults, children, seniors, and individuals with disabilities, and then apply subgroup-specific cost estimates to arrive at the total excess costs. This step is necessary because Medicaid expenditures vary meaningfully across demographic groups, with per-enrollee costs for seniors and individuals with disabilities substantially higher than those for adults and children. Therefore, the demographic composition of excess enrollment plays a critical role in accurately estimating total excess costs.

To do this, we first calculate the change in actual Medicaid enrollment from FFY 2019 to each subsequent fiscal year across each of the five subgroups using data on subgroup-specific Medicaid enrollment from the Medicaid and CHIP Payment and Access Commission

(Medicaid and CHIP Payment and Access Commission 2026).⁷ For each FFY, we then compute the share of total enrollment growth observed in the MACPAC data accounted for by each group.⁸ We use these shares to distribute our estimates of a state’s monthly excess enrollment in any FFY across subgroups. The MACPAC data series end in FFY 2023, so we assume that the enrollment shares in FFYs 2024 and 2025 are the same as those in 2023.

3.2 Costs Per Enrollee

To estimate state-specific costs per enrollee, we utilize KFF data on annual Medicaid spending per full- or partial-benefit enrollee, disaggregated by demographic subgroup and calendar year (KFF 2026b).^{9,10,11} Since the KFF estimates ($C_{s,y,g}$) are annual, but our primary excess enrollment estimates are on a monthly basis, we divided the annual spending per enrollee by 12 to obtain the average monthly cost per enrollee. Additionally, the KFF data series on spending per enrollee are available for the years 2019 to 2023. Thus, for calendar months through December 2023, we use the KFF estimates directly, but for the following months, we construct the cost estimate by assuming that the growth in per-enrollee costs relative to 2019 is proportional to inflation over this period—we multiply the mean annual 2019 KFF cost-per-enrollee within each subgroup by a month-specific inflation factor i_t . This factor is the ratio between the seasonally adjusted urban Consumer Price Index (CPI) in that month

⁷We use Exhibit 15 from the annual MACStats, which reports full-year equivalent enrollment by state and eligibility group, to measure enrollment among ACA Medicaid expansion adults, other adults, seniors, and individuals with disabilities. However, the child enrollment reported in this exhibit does not clearly distinguish between M-CHIP and pure-Medicaid child enrollees. Therefore, we use Exhibit 32, which reports child enrollment separately for CHIP and Medicaid, to derive the number of children covered solely under Medicaid.

⁸Specifically, the share for each group equals its non-negative enrollment growth divided by the sum of all groups’ non-negative enrollment growths, thus excluding negative changes from the denominator.

⁹KFF’s per-enrollee spending estimates are reported on a calendar-year basis. Accordingly, for a given FFY, we apply the current calendar year’s estimates for the months of January through September, and the previous year’s estimates for October through December.

¹⁰The KFF spending per enrollee is based on Medicaid claims data and reflect spending at the time healthcare services are delivered or premium payments are made. The measure excludes prescription drug rebates and most supplemental payments to providers.

¹¹KFF spending per enrollee data are unavailable for Virginia and Mississippi in 2021, so we use the 2020 values for these states in 2021.

to the average urban CPI across all months in the calendar year 2019. We obtain data on monthly CPI from the Bureau of Labor Statistics (U.S. Bureau of Labor Statistics 2026).

Accordingly, the cost per enrollee within the demographic subgroup g for state s , in any month t associated with calendar year y is given by equation 8.

$$\text{Cost Per Enrollee}_{s,t,g} = \begin{cases} \frac{C_{s,y,g}}{12}, & \text{for } y \in \{2020, 2021, 2022, 2023\}. \\ i_t \times \frac{C_{s,2019,g}}{12}, & \text{for } y \in \{2024, 2025\}. \end{cases} \quad (8)$$

Excess costs for a subgroup are, therefore, given by equation 9.

$$\text{Excess Costs}_{s,t,g} = \text{Excess Enrollment}_{s,t,g} \times \text{Cost Per Enrollee}_{s,t,g}. \quad (9)$$

Summing the products of subgroup-specific excess enrollment and cost per enrollee across all subgroups within a given month yields the state’s total excess Medicaid costs, implying equivalence between equations 1 and 10.

$$\text{Excess Costs}_{s,t} = \sum_g \text{Excess Enrollment}_{s,t,g} \times \text{Cost Per Enrollee}_{s,t,g}. \quad (10)$$

3.3 Average Effective FMAP

As described in equation 3, we obtain the state share of excess costs by subtracting from total excess costs the portion that would have been covered by the federal government under pre-FFCRA matching rules. Federal reimbursement, in turn, is governed by the average effective FMAP, which is constructed as a weighted average of the 90% federal matching rate for ACA Medicaid expansion adults and the “base” FMAP for all other enrollees, with weights proportional to each group’s share of excess costs in the FFY.

$$\begin{aligned} \text{Average Effective FMAP}_{s,t} = & 0.90 \times \frac{\text{Excess Costs}_{s,t,\text{Expansion Adults}}}{\sum_g \text{Excess Costs}_{s,t,g}} \\ & + \text{Base FMAP}_{s,t} \times \left(1 - \frac{\text{Excess Costs}_{s,t,\text{Expansion Adults}}}{\sum_g \text{Excess Costs}_{s,t,g}}\right). \end{aligned} \quad (11)$$

During FFYs 2020–2025, ACA Medicaid expansion adults received a uniform 90% federal match rate, while all other enrollees were matched at the base FMAP, which varies by state and FFY and is determined by statutory formulas tied to state per capita income. The effective FMAP applicable to every dollar of excess costs is, therefore, a cost-share-weighted average between these two rates. We obtain the state- and FFY- specific base FMAPs from the KFF (KFF 2026a) for all years.

3.4 Aid from FMAP Increases

To calculate each state’s net exposure to excess costs, we subtract from the state share of excess costs the FMAP-increase aid allocated under the FFCRA (2020) and the CAA (2023). We measure aid revenue directly using data from the Medicaid Budget and Expenditure System (Centers for Medicare & Medicaid Services 2026), which reports the actual dollar amounts of aid disbursed to each state through Section 6008 of the FFCRA, by calendar year and quarter. We emphasize again that aid revenue captures FMAP increases applied to the costs of covering all enrollees, not just excess enrollees. We also note that although the continuous coverage requirement covered ACA expansion adults, the FMAP increases under the FFCRA and CAA did not extend to their coverage costs, which were already reimbursed at relatively high federal matching rates (Cardwell 2020). Our measure aggregates this aid across FFYs, capturing the combined impact of the two pieces of legislation.^{12,13}

¹²Because the federal fiscal year runs from October of the previous calendar year to September of the current year, aid disbursed in quarters 1 to 3 of a calendar year is attributed to the current fiscal year, while aid disbursed in quarter 4 is attributed to the following fiscal year.

¹³Accounting adjustments in the MBES result in regular data updates as well as occasional negative values. We use the version of MBES reports downloaded in May 2026 and retain negative values as reported.

4 Quantifying Excess Costs and Aid Nationwide

Aggregating our state-month level measures of fiscal exposure, outlined in Section 2, first across all months within a federal fiscal year (FFY) for each state, and then across all states, yields nationwide measures at the FFY level.¹⁴ Figure 1 shows the evolution of nationwide total excess costs, the state share of excess costs, and increased FMAP aid from FFY 2020 to FFY 2025. Cumulative excess costs (Figure 1, panel A, solid line) nationwide reached a little over \$541 billion, reflecting steadily rising contemporaneous costs (Figure 1, panel B, solid line) through 2023, with a slight decline in 2024 and 2025 following the unwinding of the continuous coverage provision. The cumulative state share of total excess costs (Figure 1, panel A, dashed line) was approximately \$139 billion, which corresponds to just under 26% of the nationwide total. This figure is broadly consistent with expectations based on statistics summarized in Appendix Table B.1 which show that the mean of states’ average effective FMAPs was 75%. The cumulative aid to states through increased FMAPs (Figure 1, panel A, dotted line) was just over \$150 billion.

The vertical distance between the dotted and dashed lines in Figure 1’s panel A represents net exposure nationwide. Cumulatively, FMAP-increase aid exceeded states’ share of excess costs by nearly \$11 billion, reflecting surplus funding of roughly 8% relative to costs. Until the end of FFY 2023—covering most of the period during which the continuous coverage requirement was in effect and the full period of the FMAP increases—contemporaneous federal aid exceeded the share of excess costs (Figure 1, panel B). FFYs 2024 and 2025 marked a sharp decline in aid, as expected under the FMAP phaseout schedules. However, excess enrollment and associated costs persisted despite the unwinding of continuous coverage, such that excess costs exceeded aid, leaving contemporaneous exposure positive in these years. Overall, our estimates still imply that aid delivered through increased FMAPs was greater

¹⁴Monthly excess enrollment is measured at a point in time and may include the same individuals across months. Dividing annual per-enrollee costs by 12 and applying them to monthly excess enrollment ensures that total excess costs—and related measures derived from them, including net exposure—are not overstated when aggregated across months within a fiscal year.

in magnitude than the costs of the continuous coverage mandate by the end of FFY 2025 at the national level.

In Table 1, we compare our fiscal estimates against actual Medicaid spending growth between 2019 and 2025. The cumulative growth in Medicaid spending net of inflation between FFY 2020 and 2025 amounted to \$770.3 billion. Column 5 reports our measure of total excess costs, which is \$541.4 billion. The relative magnitudes of these figures are reassuring regarding our methodology, as it strikes us as reasonable that the continuous coverage requirement would be responsible for on the order of 70% of real Medicaid spending growth during this time period. The residual reflects factors including secular growth in Medicaid enrollment (which is subtracted in our counterfactual), state implementation of Medicaid expansions during the pandemic, and deviations in healthcare cost growth from increases in the overall CPI.

5 Analysis of Cross-State Variation in Fiscal Exposure

We next turn to state-level estimates of excess costs and net exposure, shown in Figure 2. Cumulative per-capita excess costs through 2025 (Figure 2, panel A), range from \$228 to \$4,242. Subtracting state-specific federal transfers yields state shares of excess costs per capita (Figure 2, panel B), which range from \$32 in Virginia to \$1,279 in New York, with a mean of \$356 (Appendix Table B.1). Variation in overall excess enrollment is a primary determinant of differences in states' shares of excess costs—Virginia exhibits among the lowest per-capita excess enrollment (0.005 per capita, or 0.5% of its population, on average across FFYs), while New York exhibits among the highest (0.083 per capita, or 8.3% of its population, on average across FFYs), as shown in Appendix Figure A.2, panel B. Beyond excess enrollment per se, the share of excess costs attributable to ACA Medicaid expansion adults, as well as base FMAPs applicable to other demographic subgroups substantially mediate fiscal exposure. For example, Rhode Island has even higher average excess enrollment per

capita across FFYs (0.088), but also a higher base FMAP than New York (the cross-FFY mean base FMAP is 0.54 in New York and 0.59 in Rhode Island). Similarly, excess costs in Rhode Island are more heavily composed of costs associated with ACA Medicaid expansion adults, which receive federal reimbursements at 90%—the cross-FFY mean of the share of excess costs associated with ACA expansion adults in Rhode Island was 73.0%, compared to 46.3% in New York.

Net exposure—defined such that positive values indicate net fiscal deficits and negative values indicate net fiscal surpluses after accounting for FMAP-increase aid—ranges from -\$838 per capita in the District of Columbia to \$594 per capita in New York. This measure is shown in Figure 2, panel C. Thirty-one states experienced negative net exposure, while twenty experienced positive net exposure. Panel D of Figure 2 further illustrates the wide variation in the extent to which states appear to be under- or over-funded. Among states with positive net exposure, eight received less than two-thirds of the excess costs they bore in aid on a per capita basis, while fourteen states received more than twice their excess costs, with Virginia receiving more than ten times. Vermont and Delaware came closest to receiving dollar-for-dollar reimbursement, with ratios of aid-to-state-cost ratios of 0.995 and 0.999, respectively.

Our analysis of fiscal burden at the state level has the striking implication that while the increased FMAP aid was about 8% higher than the costs of excess enrollment at the national level, the extent to which the continuous coverage mandate can be considered fully funded varied substantially across states. A natural question, then, is whether any observable state characteristics predict their net fiscal burdens.

At first glance, the maps in Figure 2 do not make immediately apparent any features distinguishing states with low net exposure from those with high net exposure. To examine further, we estimate the regression in equation 12 to explore the predictors of variation in excess costs across states.

$$Y_s = \beta_0 + \mathbf{X}_s\beta_1 + \epsilon_s. \tag{12}$$

Here, Y_s is a state’s cumulative (FFY 2020-FFY 2025) total excess costs, the state share of excess costs, the net exposure or the aid-to-state-cost ratio, all in per-capita terms. $\mathbf{X}_s$ is a vector of state characteristics, discussed in detail below, that may be expected to generate differential net exposure.

Within $\mathbf{X}_s$, we first examine whether the state’s average effective FMAP is associated with its excess cost burden. The average effective FMAP is the average federal reimbursement rate for the state’s Medicaid spending. It is calculated as a weighted average of the 90% federal match rate for ACA Medicaid expansion adults and the state’s standard FMAP for all other enrollees, with weights equal to the shares of excess costs attributable to ACA expansion adults and all other enrollees, respectively. The consideration of average effective FMAPs is particularly relevant to our analysis as they mechanically affect a state’s responsibility in excess costs but may also correlate with structural aspects of the Medicaid program that drive variation in excess costs overall. We examine the association between our fiscal metrics and a state’s mean (across FFYs) average effective FMAP.

Second, we consider the role of a state’s Medicaid expansion timeline. We categorize states into three groups—pre-pandemic (before February 2020) adopters, post-pandemic (March 2020 through September 2025) adopters, and never-adopters. States that expanded Medicaid earlier may cover populations whose continuous coverage enrollment disproportionately drives costs, or may have administrative systems supporting higher pandemic enrollment. We thus interpret our indicator for pre-pandemic adoption of ACA Medicaid expansions as capturing a baseline state characteristic that may be predictive of its exposure to costs from the continuous coverage requirement. By contrast, states expanding Medicaid during the pandemic may experience additional enrollment growth driven by the expansion itself, as opposed to being driven by the continuous coverage requirement. We thus interpret our indicator of post-pandemic adoption of ACA Medicaid expansions as a control for an alternative source of cost growth. Reflecting the fact that post-pandemic Medicaid expansions may cloud our interpretation of excess cost growth, we report a set of regressions for which

we exclude these states from the sample rather than controlling for their post-pandemic expansion status. We obtain data on states’ Medicaid expansion status from KFF (2026*c*).

Third, we consider the possibility that excess Medicaid costs may have been influenced by differences in states’ political preferences, which could affect how the program is implemented and ultimately lead to variation in enrollment. As a proxy for political preferences, we use the vote share received by Donald Trump in the 2016 U.S. presidential election in each state, obtained from the MIT Election Data and Science Lab (2023).

Fourth, we consider whether states’ excess costs were driven by the policies they enacted during the unwinding of the continuous coverage provision to increase outreach to individuals for whom eligibility renewal verification was due. A stated goal of these policies was to reduce the likelihood that eligible individuals lost coverage for reasons related to a failure to provide the information required to recertify eligibility. Greater generosity in these policies is hypothesized to lead to lower reductions in enrollment—and higher excess costs—following March 2023, after the unwinding of the continuous coverage requirement.

Our measures of states’ outreach and renewal policies come from the KFF (2024).¹⁵ These data are available for all states and the District of Columbia, except for Florida. To determine whether the overall generosity of states’ renewal architecture predicts excess costs, we construct a composite index, following Clemens, Detering, and Mahajan (2025), that aggregates across individual policy variables. This variable ranges from 0 to 1 where a higher value represents more generous renewal procedures.¹⁶

¹⁵We use data from Tables 17, 21, and 23 of the KFF report “A Look at Medicaid and CHIP Eligibility, Enrollment, and Renewal Policies During the Unwinding of Continuous Enrollment and Beyond,” which document the processes adopted by states to facilitate enrollee outreach and ex parte renewals. Ex parte, or automatic, renewal is the process of eligibility redetermination by state agencies without requiring individuals to provide information, signatures or any other active inputs. The policies we consider include increased enrollee outreach, extended renewal response times, new methods for updating contact information in enrollees’ accounts, enhanced online account functionality, simplified renewal forms, additional translations of renewal forms, engagement of community-based organizations and managed care organizations in outreach efforts, sending renewal notices early (defined as more than 45 days prior to eligibility loss), adoption of 1902(e)(14)(A) waivers to improve ex parte renewal rates, improvement of system rules, expansion of the data sources used in eligibility determination, changes to the hierarchy of such data sources, and revisions to restrictions on the age of such data sources. These variables are categorical, with 1 indicating the state’s adoption of the policy.

¹⁶The variable is constructed so that the denominator equals the total number of policy variables with available information for the state (e.g., 14 for states that provided responses for all included variables), and the numerator equals the number of

Fifth, we examine whether the severity of the pandemic is associated with excess costs. To capture variation in the pandemic’s impact on population health, we use the 2019 share of the state’s population aged 65 and older, based on data from the Centers for Disease Control (2026). To capture differential economic impacts, we categorize states as tourism- or natural-resource-dependent, reflecting exposure to sectors hit hardest during the pandemic.¹⁷

Table 2 reports results from our analysis of the correlates of cross-state variation in fiscal exposure for the 50 states for which we have all the variables.¹⁸ We find that the strongest predictor of states’ fiscal exposure to the costs of the continuous coverage provision is the state’s average effective FMAP. A 10-percentage point difference in the average effective FMAP—approximately the difference between Texas (64.7%) and California (74.6%), averaged across FFYs—is associated with a \$191.7 reduction in per capita exposure.¹⁹

Higher average effective FMAPs mechanically increase federal reimbursements per dollar spent. The average effective FMAP can be larger because a state receives a higher base FMAP for its traditional enrollees and/or because a higher share of excess costs was linked to ACA expansion adults, for which the federal reimbursement is 90%. Unsurprisingly, states with higher average effective FMAPs also received more increased-FMAP aid relative to the state share of excess costs, since the denominator in this ratio—state excess costs—is smaller when the average effective FMAP is higher.

Figure 3 further illustrates the strong association between average effective FMAP levels and state fiscal burdens. The relationship between average effective FMAPs and total excess costs (panel A) is weak, which is unsurprising given the limited mechanical channels through which the FMAP should affect excess enrollment and therefore total excess costs. The

those policies enacted by the state (i.e., the number of policies for which the variable equals 1).

¹⁷Early pandemic effects on oil and gas prices and resource extraction significantly impacted revenues in states like Alaska, Wyoming, and North Dakota, which depend heavily on severance and other resource-related income. For more information, see the discussion of this fact in Clemens et al. (2024). Tourism-dependent states such as Nevada, Hawaii, and Florida experienced more pronounced economic disruptions during the pandemic’s onset. For more information, see Dey and Loewenstein (2020).

¹⁸Data on the generosity of continuous coverage unwinding policies are unavailable for Florida.

¹⁹We clarify once again that this is the average effective FMAP applicable to each state’s excess enrollees (as opposed to their full sets of enrollees) and any variation in their coverage as traditional or ACA eligibility channels.

negative association becomes more pronounced when the outcome is the state share of excess costs (panel B) or net exposure (panel C). The relationship between the average effective FMAP and the ratio of aid to state excess costs (panel D) is positive, and appears to be driven primarily by states with average effective FMAPs above 70%. While several states in the above-70% range contribute to this pattern, the average relationship appears to reflect, in part, a small number of observations with particularly high ratios.

Among the other covariates we analyze, the pre-pandemic Medicaid expansion indicator is the second strongest predictor of fiscal exposure. In our estimates of equation 12, we find that, conditional on our other covariates, the states that expanded Medicaid prior to the pandemic experienced about \$245 more in the state share of excess costs and \$256 more in net exposure, per capita. The bivariate relationship between pre-pandemic Medicaid expansion status and our primary fiscal outcomes is shown in Figure 4.²⁰

In contrast, our proxies for states' political preferences, the generosity of the policies they implemented during the unwinding of continuous coverage, and the incidence of the pandemic on population health or economic conditions have statistically weak relationships with states' fiscal burdens. Jointly, the full set of covariates we consider predictively explain 40% of the variation in net exposure. Appendix Table B.2 shows that we obtain similar relationships if we exclude the states that implemented Medicaid expansions during or after the pandemic from the sample.

²⁰Figure 4 can be compared with Appendix Table B.2, as both exclude states that expanded Medicaid during or after the pandemic. In bivariate comparisons, expansion states exhibit \$956.96 higher excess costs per capita ($p < 0.01$), \$148.31 higher state share of excess costs per capita ($p < 0.10$), \$56.57 higher net exposure per capita, and a 0.12 lower aid-to-state-cost ratio relative to non-expansion states. For excess costs, the bivariate differential closely mirrors the corresponding regression coefficient from a specification saturated with covariates. For the state share, net exposure, and aid-to-state-cost ratio, however, the bivariate differences are substantially smaller than the regression estimates, which imply even greater state exposure and lower aid-to-state-cost ratios in expansion states. This pattern appears to reflect the correlation pattern between Medicaid expansion status and states' average effective FMAPs—regressions that include both the average effective FMAP and pre-pandemic expansion indicator, but not the other covariates, produce results quite similar to the more saturated regressions reported in tables 2 and B.2.

6 Conclusion

Between March 2020 and December 2023, states received a temporary increase in their standard Federal Medical Assistance Percentages (FMAPs). In exchange, they were required to maintain “continuous coverage,” suspending Medicaid disenrollment until the end of the COVID-19 public health emergency. Because states’ net fiscal exposure to this blend of policy instruments had not previously been quantified, our analysis fills this gap.

We estimate that excess Medicaid costs nationwide between federal fiscal years 2020 and 2025, as resulting from the continuous coverage requirement, totaled \$541.4 billion. Of this amount, \$139.2 billion fell to state governments after federal reimbursement at standard rates. Federal aid through the increased FMAP totaled \$150.1 billion, implying that, in aggregate, the FMAP increase exceeded the costs of the mandate. At the same time, we document substantial cross-state heterogeneity in fiscal exposure. Twenty states experienced positive net exposure, meaning their share of excess costs exceeded the revenues they received from increased FMAPs, with some receiving less than two-thirds of their excess costs in FMAP aid.

Our analysis of cross-state variation points to states’ average effective FMAP rates as the single strongest predictor of states’ net exposure to the continuous coverage requirement’s costs. Whether a state had enacted an ACA Medicaid expansion also emerges as a predictor of states’ exposure, reflecting the continuous coverage requirement’s high relevance to the eligibility of this particular beneficiary group. Just as previous research has studied the effects of pandemic fiscal aid driven by variation in political representation (Clemens and Veuger 2021; Clemens and Mahajan 2025; Clemens, Hoxie, and Veuger 2025), future research can study the effects of these predictable dimensions of fiscal exposure on states’ budgets and economic outcomes. Such research can inform the design of future policy towards state governments in the context of public health and economic crises. At the same time, a substantial share of cross-state heterogeneity in fiscal exposure remains unexplained. Research

that further uncovers the mechanisms driving these variations can also help to inform our understanding of the effects of these and similarly designed fiscal interventions.

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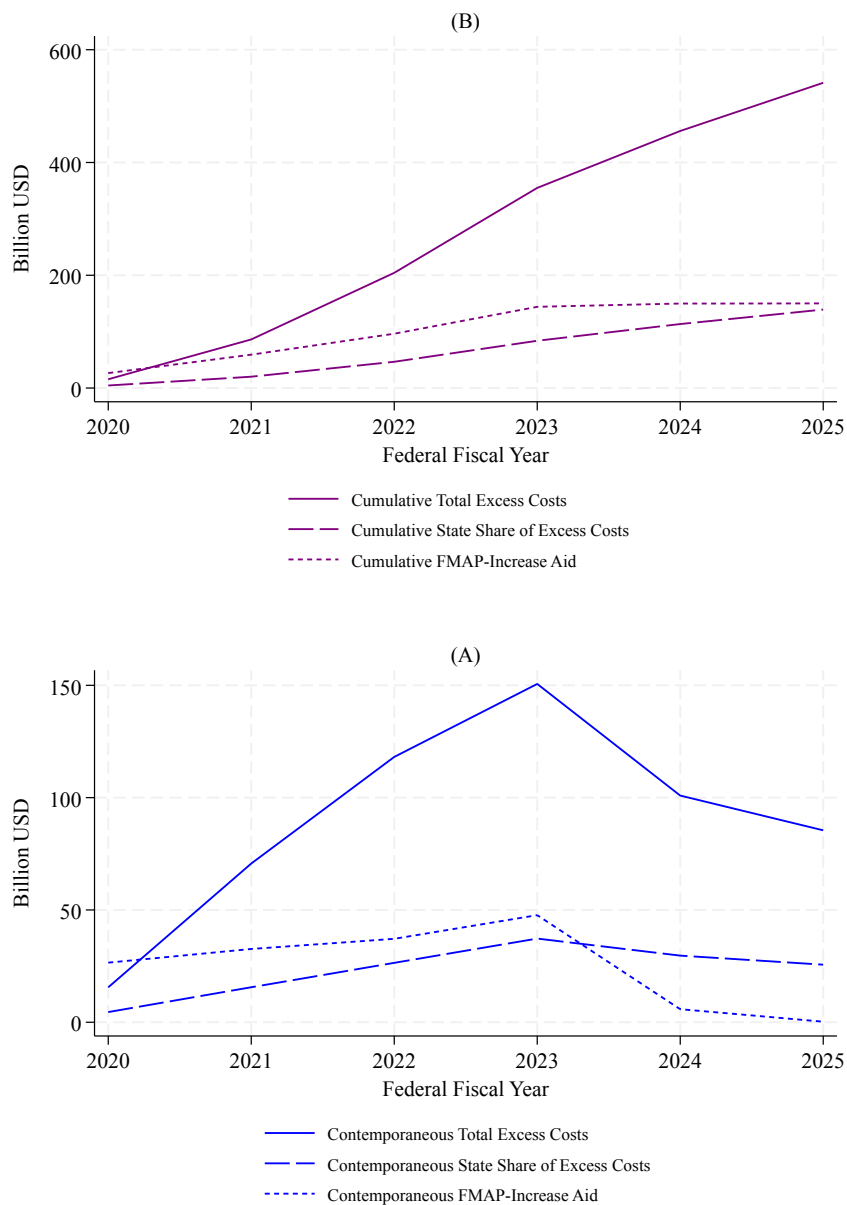
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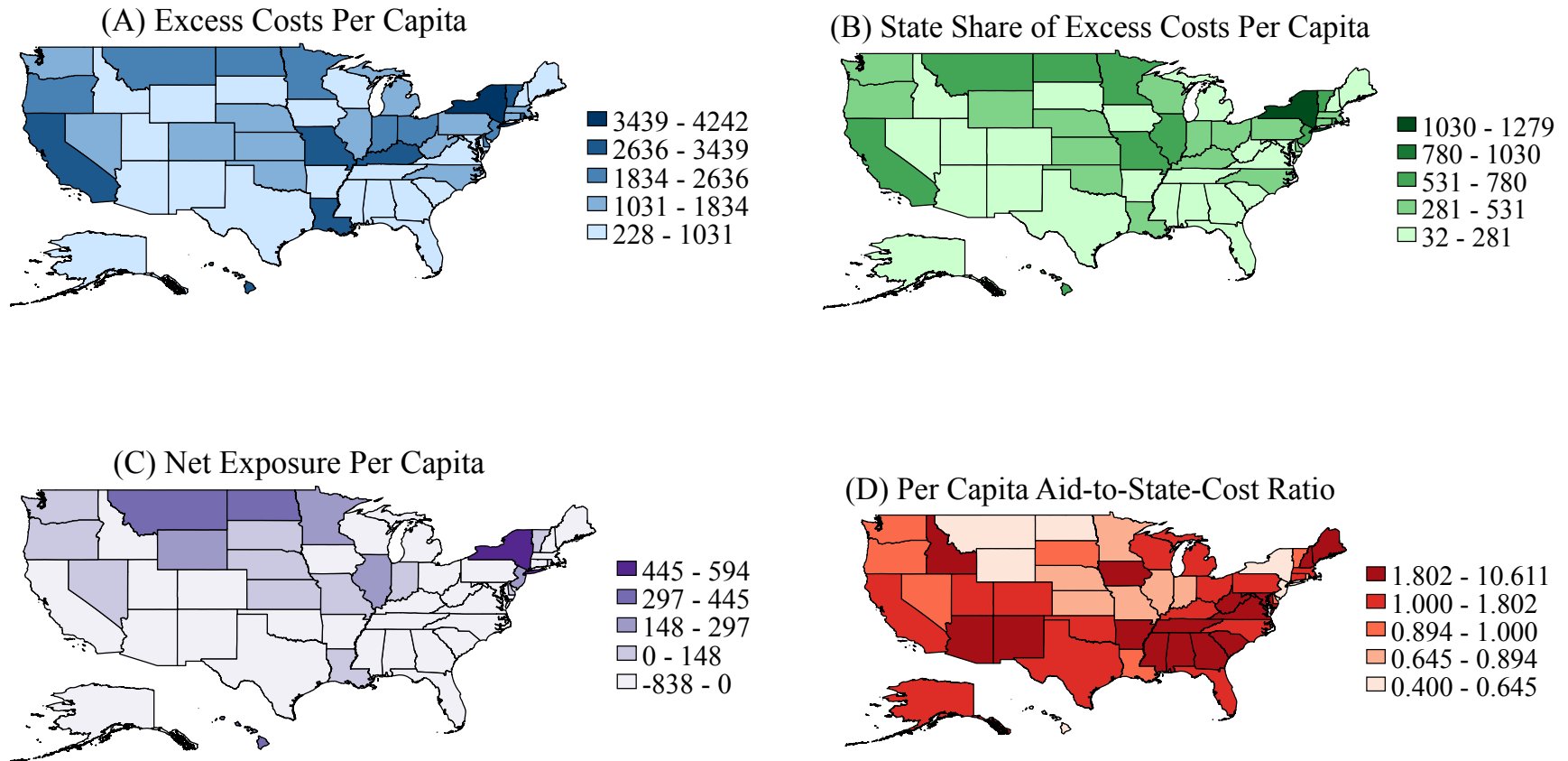
Figures

Figure 1: The Evolution of National Excess Costs During the COVID-19 Pandemic and Total Federal Medicaid Assistance Allocated Through the FFCRA and CAA



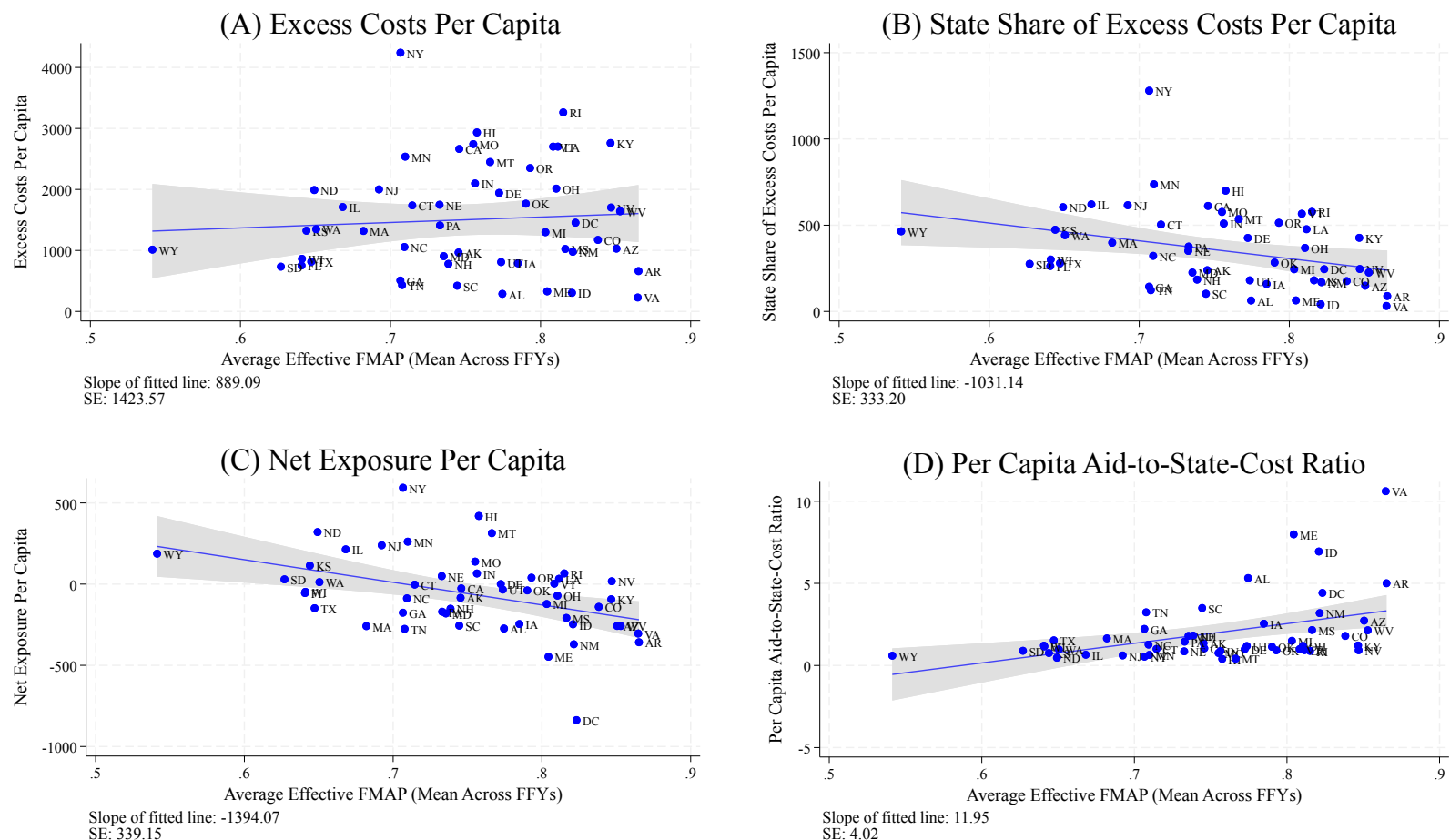
NOTES: This figure shows the evolution of cumulative (panel A) and contemporaneous (panel B) national excess costs (in billions of USD) by federal fiscal year, aggregated across states. Total excess costs, defined in equation 1, represent the overall cost of enrolling mandate-induced excess enrollees. The state share of excess costs, defined in equation 3, represents the portion of these costs borne by states after federal reimbursement at 90% for ACA Medicaid expansion adults, and at the base Federal Medical Assistance Percentage (FMAP) for all other demographic groups. FMAP-increase aid represents the additional federal transfers to states through temporary increases in FMAP enacted under the FFCRA and CAA. The excess enrollment estimates underlying these calculations are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020.

Figure 2: Cross-State Variation in Excess Costs of the Mandate



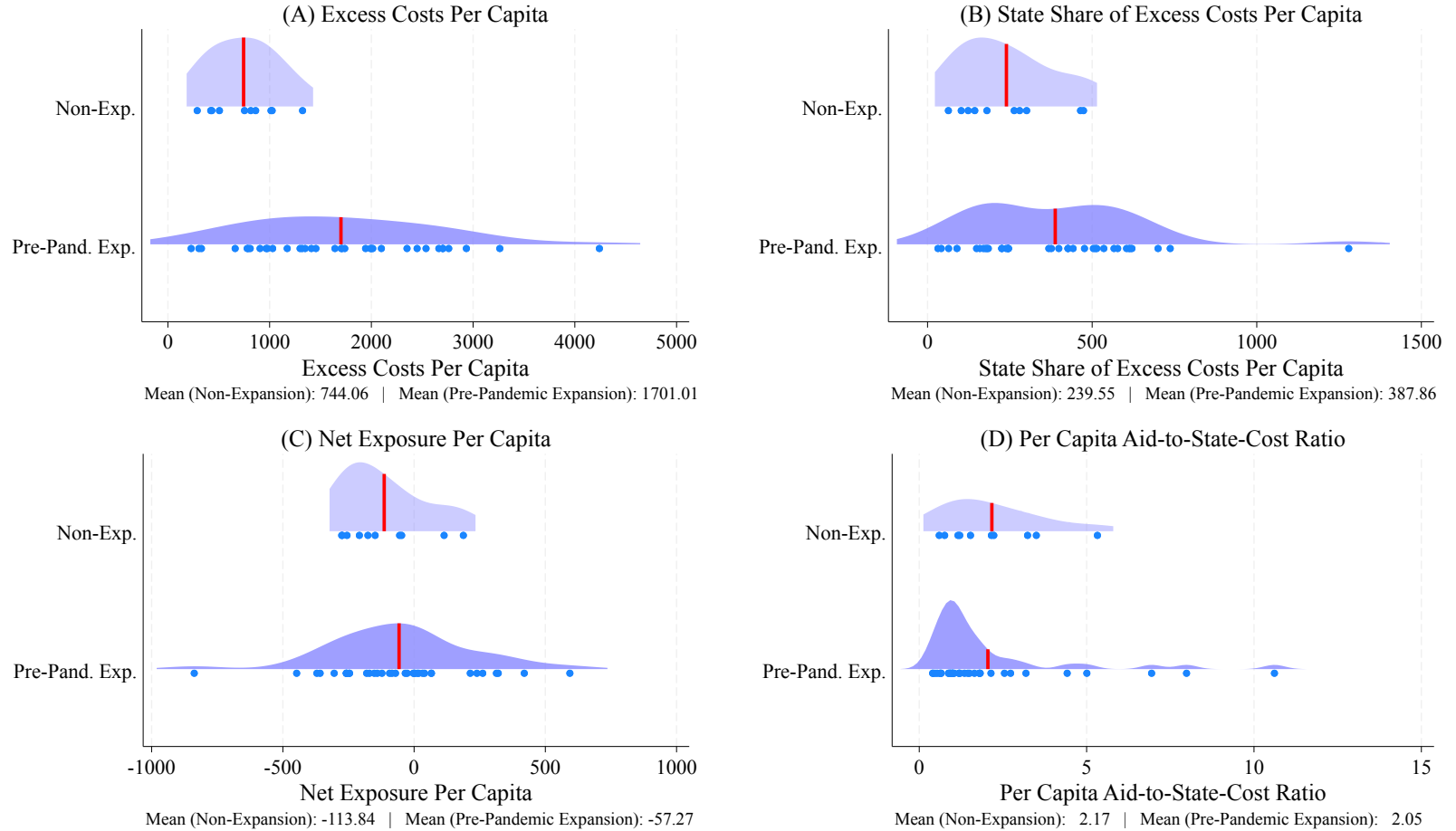
NOTES: This figure shows cross-state variation in cumulative (FFY 2020-FFY 2025) excess costs per capita. Total excess costs shown in Panel A are defined in equation 1 and represent the overall cost of enrolling mandate-induced excess enrollees. The state share of excess costs shown in Panel B is defined in equation 3 and represents the portion of these costs borne by states after federal reimbursement. Net exposure shown in Panel C is defined in equation 4 and represents the difference between the state share of excess costs and transfers received through the FMAP-increase aid. Panel D shows the ratio of FMAP-increase aid to the state share of excess costs. The excess enrollment estimates underlying these calculations are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020. Per capita measures are constructed by dividing state-year values by annual state population from the U.S. Census before aggregating across years.

Figure 3: Association Between Cumulative (FFY 2020-FFY 2025) Excess Costs and the Average Effective FMAP



NOTES: This figure shows the bivariate association between a state's cumulative (FFY 2020-FFY 2025) excess costs per capita and the average effective FMAP. The average effective FMAP is calculated as a weighted average of the 90% federal match rate for ACA Medicaid expansion adults and the state's standard FMAP for all other enrollees, with weights equal to the shares of excess costs attributable to ACA expansion adults and all other enrollees, respectively. We construct a state-level mean of the average effective FMAP across FFYs over which it varies, and use this measure as the variable of interest in the figure. Total excess costs (Panel A) are defined in equation 1 and represent the overall cost of enrolling mandate-induced excess enrollees. The state share of excess costs (Panel B) is defined in equation 3 and represents the portion of these costs borne by states after federal reimbursement. Net exposure (Panel C) is defined in equation 4 and represents the difference between the state share of excess costs and transfers received through the FMAP-increase aid. Panel D shows the ratio of FMAP-increase aid to the state share of excess costs. The excess enrollment estimates underlying these calculations are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020. Per capita measures are constructed by dividing state-year values by annual state population from the U.S. Census before aggregating across years.

Figure 4: Association Between Cumulative (FFY 2020-FFY 2025) Excess Costs and Pre-Pandemic Medicaid Expansion



NOTES: This figure shows the bivariate association between a state's cumulative (FFY 2020-FFY 2025) excess costs per capita and its Medicaid expansion status. States which expanded Medicaid after March 2020 are excluded from the analysis. The shaded regions depict the kernel density of state-level outcome values within each expansion category, the red line indicates the group mean, and each dot represents an individual state observation within the distribution. Total excess costs (Panel A) are defined in equation 1 and represent the overall cost of enrolling mandate-induced excess enrollees. The state share of excess costs (Panel B) is defined in equation 3 and represents the portion of these costs borne by states after federal reimbursement. Net exposure (Panel C) is defined in equation 4 and represents the difference between the state share of excess costs and transfers received through the FMAP-increase aid. Panel D shows the ratio of FMAP-increase aid to the state share of excess costs. The excess enrollment estimates underlying these calculations are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020. Per capita measures are constructed by dividing state-year values by annual state population from the U.S. Census before aggregating across years.

Tables

Table 1: A Comparison of Estimated Mandate Costs with Medicaid Spending Growth Relative to 2019

(1) Federal Fiscal Year	(2) Medicaid Spending (Billion USD)	(3) Growth in Medicaid Spending Relative to 2019 Accounting Only for Inflation (Billion USD)	(4) Growth in Medicaid Spending Relative to 2019 Net of Inflation (Billion USD)	(5) Excess Costs (Billion USD)	(6) State Share of Excess Costs (Billion USD)	(7) Net Exposure (Billion USD)
2019	623.94	623.94	0.00			
2020	679.55	633.02	46.53	15.57	4.55	-22.00
2021	744.49	653.84	90.66	70.67	15.60	-17.04
2022	818.56	705.72	112.83	118.12	26.46	-10.71
2023	889.71	741.27	148.44	150.62	37.26	-10.44
2024	943.82	764.27	179.55	100.93	29.68	23.85
2025	977.20	784.94	192.26	85.46	25.64	25.38
Cumulative (2020-2025)			770.26	541.36	139.18	-10.95

NOTES: This table compares the annual and cumulative (FFY 2020-FFY 2025) growth in realized national Medicaid spending net of inflation, shown in column 4, to our estimates of excess Medicaid costs induced by the continuous coverage requirement, defined in equation 1 and shown in column 5. First, we obtain total Medicaid spending in each federal fiscal year (FFY) between 2020 and 2024, from the Medicaid and CHIP Payment and Access Commission (2026), which we present in column 2. Exhibit 16 of each FFY's MACStats reports total Medicaid spending for all states, excluding territories. As of May 2026, MACStats data for FFY 2025 had not yet been released. Therefore, we estimate the FFY 2025 total Medicaid spending using the National Health Expenditure Projections from the Centers for Medicare and Medicaid Services (2025). The FFY 2025 estimate is constructed as a weighted average of the calendar year (CY) 2024 and CY 2025 projections, assigning weights of 0.25 to CY 2024 and 0.75 to CY 2025 to align CY projections with the FFY. From the Bureau of Labor Statistics, we obtain the monthly urban CPI, from which we compute the FFY's average CPI. We then calculate inflation growth between FFY 2019, prior to the pandemic, and each FFY from 2020 to 2025 as the ratio of each year's CPI to that in 2019. Multiplying FFY 2019's actual Medicaid spending (\$623.94 billion) by these inflation growth factors yields each fiscal year's spending accounting solely for inflation, reported in column 3. Column 4 reports the difference between actual spending from column 2, and the figure in column 3. In theory, this difference captures spending growth due to changes in enrollment, as price effects are fully accounted for in the inflation-indexed measure in column 3. We also report our estimates of the state share of excess costs, defined in equation 3, and states' net exposure, defined in equation 4 in columns 6 and 7, respectively. The excess enrollment estimates underlying calculations in columns 5-7 are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020.

Table 2: Cross-State Correlates of Excess Costs and Fiscal Exposure

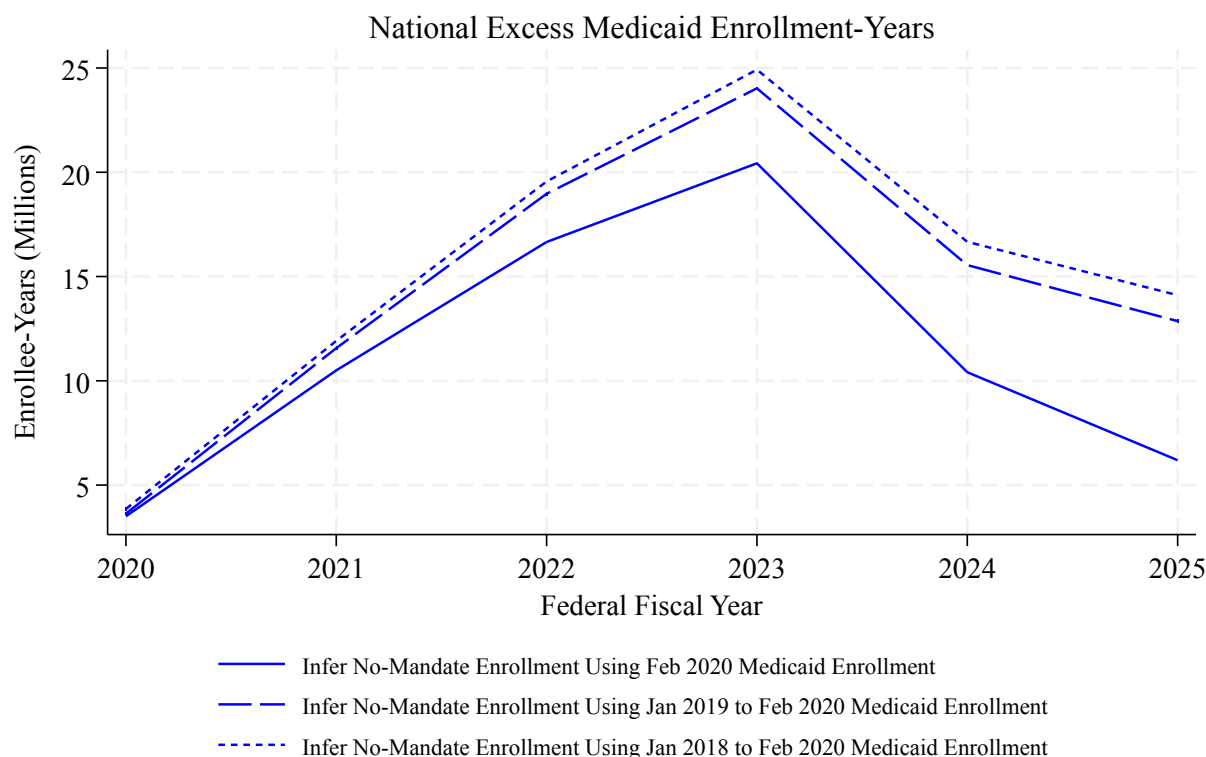
	(1) Excess Costs Per Capita	(2) State Share of Excess Costs Per Capita	(3) Net Exposure Per Capita	(4) Per Capita Aid-to-State-Cost Ratio
Average Effective FMAP (Mean Across FFYs)	-1,577 (1,728)	-1,788*** (448.0)	-1,917*** (496.4)	14.61*** (4.726)
Pre-Pandemic Medicaid Expansion	903.2*** (271.9)	245.1*** (68.04)	256.1*** (83.11)	-1.592** (0.679)
Vote Share for Donald Trump in 2016	-1,162 (1,199)	-339.7 (268.2)	384.2 (445.3)	-0.894 (2.532)
Generosity of Continuous Coverage Unwinding Policies	-62.49 (784.3)	-43.22 (192.1)	-3.823 (175.0)	-1.183 (1.548)
Share of Population Above Age 65 in 2019	6,955 (6,393)	1,718 (1,375)	1,634 (1,856)	0.145 (18.01)
Resource- or Tourism-Intensive Industry Status	258.6 (295.7)	33.42 (75.87)	161.3 (115.2)	-0.718 (0.568)
Post-Pandemic Medicaid Expansion	923.5* (485.8)	173.2 (114.8)	202.7** (93.66)	-2.125*** (0.754)
Observations	50	50	50	50
R-squared	0.223	0.362	0.398	0.282
Mean dep. var.	1504.44	356.24	-60.97	1.97

NOTES: This table presents the association between total excess costs per capita (column 1), state share of excess costs per capita (column 2), net exposure per capita (column 3), and the per capita aid-to-state-cost ratio (column 4), and several potential drivers expected to produce cross-state variation. The excess enrollment estimates underlying the outcomes are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020. Pre- and post-pandemic expansion are dummy variables equal to 1 if the state enacted an ACA Medicaid expansion before February 2020 or after March 2020, respectively. The average effective FMAP is calculated as a weighted average of the 90% federal match rate for ACA Medicaid expansion adults and the state's standard FMAP for all other enrollees, with weights equal to the shares of excess costs attributable to ACA expansion adults and all other enrollees, respectively. We construct a state-level mean of the average effective FMAP across FFYs over which it varies, and use this measure as the variable of interest. The state's Trump vote share, also between 0 and 1, serves as a proxy political preferences and is defined as the share of votes cast for Donald Trump in the 2016 presidential election. The generosity of continuous coverage unwinding policies is captured by an index ranging from 0 to 1, where higher values indicate greater generosity. The population share above age 65, between 0 and 1, captures population susceptibility to the pandemic. Resource- or tourism-intensive states is a dummy variable equal to 1 if the state's economy was heavily reliant on resource extraction or tourism prior to the pandemic. Coefficients are from a bivariate regression (equation 12) of the state-level outcome, measured as the total from FFY 2020–FFY 2025, on all variables simultaneously, with standard errors robust to heteroskedasticity. Florida is excluded from the regression because data are not available to construct the policy generosity index.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

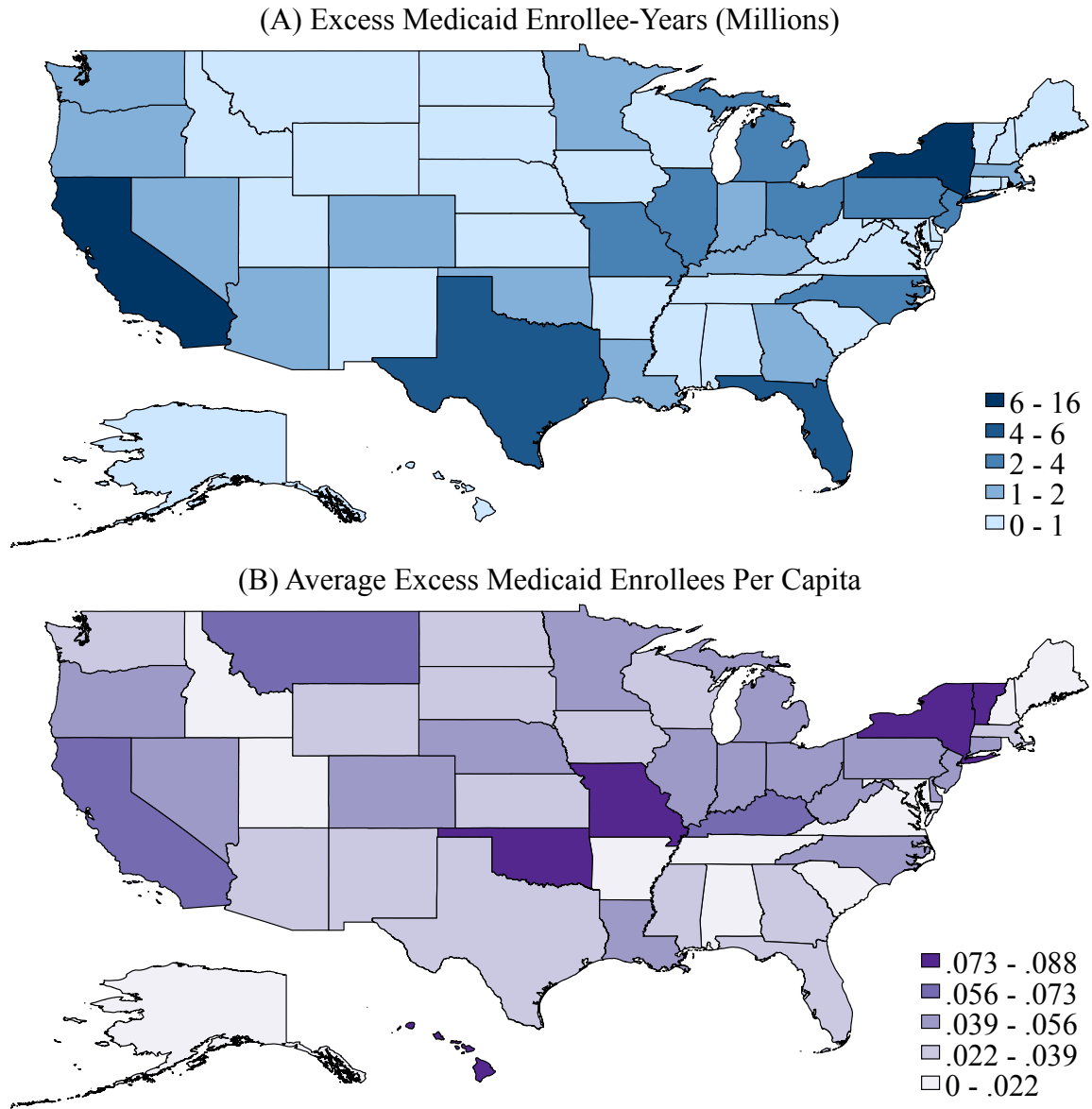
Appendix A: Figures

Figure A.1: The Evolution of National Excess Medicaid Enrollment During the Continuous Coverage Mandate



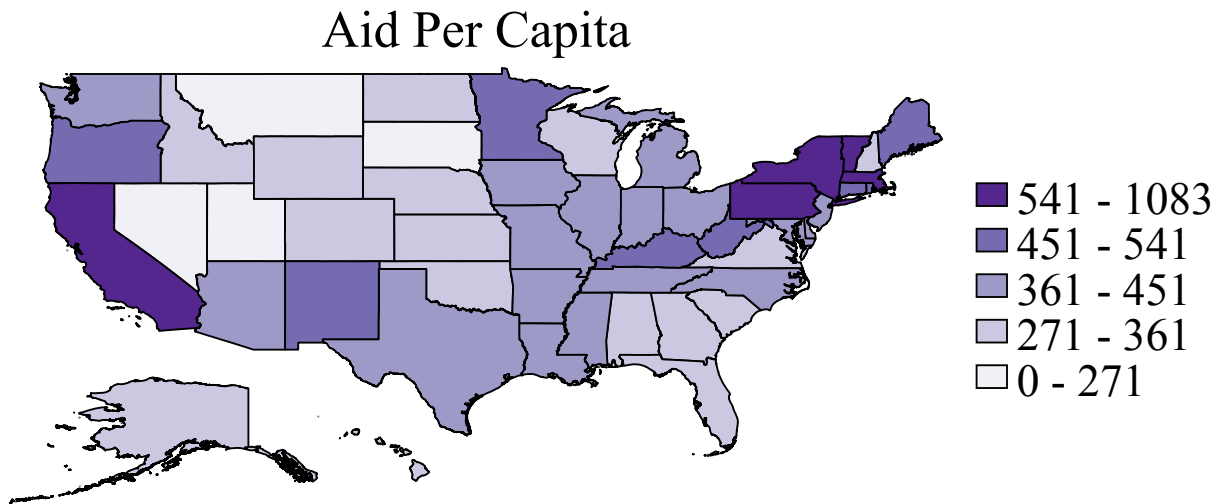
NOTES: This figure shows the evolution of contemporaneous national excess Medicaid enrollment (in millions of enrollee-years) by federal fiscal year (FFY). We first aggregate monthly excess enrollment, as defined in equation 2, across states. We then take the average of these monthly national totals within each FFY, which we plot here. The three lines represent estimates based on alternative methods for constructing the counterfactual (“non-mandate”) level of Medicaid enrollment. Two series use equations 6 and 7, in which counterfactual enrollment is obtained by extrapolating trends in realized enrollment from either January 2019–February 2020 or January 2018–February 2020. The third series sets counterfactual enrollment in each state equal to the state’s realized enrollment in February 2020, the last month before the continuous coverage requirement took effect.

Figure A.2: Cross-State Variation in Excess Enrollment



NOTES: This figure shows cross-state variation in cumulative (FFY 2020-FFY 2025) excess Medicaid enrollee-years (panel A) and the cross-FFY average of per capita excess enrollees (panel B). The excess enrollment estimates are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020 to construct counterfactual non-mandate enrollment, and subtracting it from observed enrollment. Per capita measures are constructed by dividing excess enrollment values by the annual state population from the U.S. Census.

Figure A.3: Cross-State Variation in Per-Capita Aid from the FMAP Increase



NOTES: This figure shows cross-state variation in cumulative per capita aid from the FMAP increases enacted under the FFCRA and CAA over FFY 2020–FFY 2025. We measure aid revenue directly using data from the Medicaid Budget and Expenditure System (Centers for Medicare & Medicaid Services 2026), which reports the actual dollar amounts of aid disbursed to each state through Section 6008 of the FFCRA. Per capita measures are constructed by dividing aid dollar values by the annual state population from the U.S. Census, before aggregating across FFYs.

Appendix B: Tables

Table B.1: Summary Statistics

Variable	Mean	SD	Variable	Mean	SD
Excess Costs Per Capita			State Share of Excess Costs Per Capita		
2020	48.03	34.63	2020	12.49	10.30
2021	214.31	102.95	2021	46.36	23.12
2022	354.62	161.27	2022	74.30	33.98
2023	438.42	230.79	2023	97.30	54.38
2024	254.41	227.89	2024	69.84	64.78
2025	194.64	235.54	2025	55.95	68.14
Cumulative (2020-2025)	1504.44	892.22	Cumulative (2020-2025)	356.24	230.24
Net Exposure Per Capita			Per Capita Aid-to-State-Cost Ratio		
2020	-62.36	27.67	2020	11.92	14.01
2021	-45.15	36.87	2021	2.80	2.30
2022	-29.86	46.34	2022	1.85	1.37
2023	-34.99	58.42	2023	2.05	2.15
2024	55.61	63.14	2024	0.44	0.62
2025	55.77	67.90	2025	0.02	0.12
Cumulative (2020-2025)	-60.97	238.51	Cumulative (2020-2025)	1.97	2.03
FMAP-Increase Aid Per Capita			Average Effective FMAP		
2020	74.85	26.68	State Trump Vote Share (2016)	0.48	0.12
2021	91.50	31.93	Share of Pop. Above Age 65 (2019)	0.17	0.02
2022	104.16	35.92	Generosity of Continuous		
2023	132.29	46.58	Coverage Unwinding Policies	0.46	0.20
2024	14.23	8.14	Pre-Pandemic Medicaid Expansion	0.71	
2025	0.17	1.51	Post-Pandemic Medicaid Expansion	0.10	
Cumulative (2020-2025)	417.21	144.22	Resource- or Tourism-Intensive	0.12	

NOTES: This table presents the means and standard deviations of the key variables used in this paper. Excess costs are defined in equation 1 and represent the overall cost of enrolling mandate-induced excess enrollees. The state share of excess costs, defined in equation 3, represents the portion of total excess costs borne by states after federal reimbursement. Net exposure is defined in equation 4 and represents the difference between the state share of excess costs and federal transfers received through FMAP-increase aid. The aid-to-state-cost ratio is defined in equation 5. The excess enrollment estimates underlying these calculations are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020. For each variable capturing an element of state fiscal burden, we report both annual estimates and cumulative estimates capturing totals from FFY 2020 through FFY 2025. The average effective FMAP is calculated as a weighted average of the 90% federal match rate for ACA Medicaid expansion adults and the state's standard FMAP for all other enrollees, with weights equal to the shares of excess costs attributable to ACA expansion adults and all other enrollees, respectively. State Trump vote share is a proxy for state political preferences and is defined as the share of votes cast for Donald Trump in the 2016 presidential election. The generosity of continuous coverage unwinding policies is captured by an index ranging from 0 to 1, where higher values indicate greater generosity. The mean reported for pre-pandemic Medicaid expansion represents the share of states that expanded Medicaid between 2014 and February 2020. The mean reported for post-pandemic Medicaid expansion represents the share of states that expanded Medicaid between March 2020 and September 2024. The mean reported for resource- or tourism-intensive states represents the share of states whose industries were heavily reliant on resource extraction or tourism prior to the pandemic. Data sources and the construction of all variables are described in further detail in Section 3.

Table B.2: Cross-State Correlates of Excess Costs and Fiscal Exposure (Excluding Pandemic and Post-Pandemic Medicaid Expansion States)

	(1) Excess Costs Per Capita	(2) State Share of Excess Costs Per Capita	(3) Net Exposure Per Capita	(4) Per Capita Aid-to-State-Cost Ratio
Average Effective FMAP (Mean Across FFYs)	-2,571 (1,765)	-2,022*** (464.5)	-2,091*** (531.6)	15.76*** (5.049)
Pre-Pandemic Medicaid Expansion	957.2*** (271.8)	259.0*** (69.41)	266.6*** (85.81)	-1.678** (0.701)
Vote Share for Donald Trump in 2016	-1,248 (1,213)	-347.2 (272.5)	375.6 (447.5)	-0.856 (2.538)
Generosity of Continuous Coverage Unwinding Policies	-433.9 (809.4)	-142.0 (202.5)	-60.93 (190.9)	-1.240 (1.818)
Share of Population Above Age 65 in 2019	6,952 (6,488)	1,671 (1,404)	1,650 (1,899)	-1.108 (18.48)
Resource- or Tourism-Intensive Industry Status	189.6 (317.7)	15.68 (82.89)	149.4 (122.9)	-0.669 (0.606)
Observations	45	45	45	45
R-squared	0.263	0.416	0.418	0.278
Mean dep. var.	1492.98	355.62	-69.57	2.08

NOTES: This table presents the association between total excess costs per capita (column 1), state share of excess costs per capita (column 2), net exposure per capita (column 3), and the ratio of FMAP-increase aid to state share of excess costs per capita (column 4), and several potential drivers expected to produce cross-state variation. The excess enrollment estimates underlying the outcomes are obtained by extrapolating trends in realized enrollment from January 2019 to February 2020. Pre-pandemic expansion is a dummy variable equal to 1 if the state enacted an ACA Medicaid expansion before February 2020. The sample excludes states which enacted a Medicaid expansion after and including March 2020—Missouri, North Carolina, Nebraska, Oklahoma, South Dakota. The average effective FMAP is calculated as a weighted average of the 90% federal match rate for ACA Medicaid expansion adults and the state's standard FMAP for all other enrollees, with weights equal to the shares of excess costs attributable to ACA expansion adults and all other enrollees, respectively. We construct a state-level mean of the average effective FMAP across FFYs over which it varies, and use this measure as the variable of interest. The state's Trump vote share, also between 0 and 1, serves as a proxy political preferences and is defined as the share of votes cast for Donald Trump in the 2016 presidential election. The generosity of continuous coverage unwinding policies is captured by an index ranging from 0 to 1, where higher values indicate greater generosity. The population share above age 65, between 0 and 1, captures population susceptibility to the pandemic. Resource- or tourism-intensive states is a dummy variable equal to 1 if the state's economy was heavily reliant on resource extraction or tourism prior to the pandemic. Coefficients are from a bivariate regression (equation 12) of the state-level outcome, measured as the total from FFY 2020–FFY 2025, on all variables simultaneously, with standard errors robust to heteroskedasticity. Florida is excluded from the regression because data are not available to construct the policy generosity index.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$