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Unveiling Medicaid fraud and abuse: the influence of price transparency and state political context

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(Received 31 October 2023; revised 12 December 2024; accepted 11 June 2025)

Abstract

Despite the tremendous waste due to Medicaid fraud and abuse, not much scholarly attention has been paid to state variation in the investigations. This study explores the factors influencing variations in Medicaid fraud and abuse investigations across U.S. states, with a focus on the role of All-Payer Claims Databases (APCDs) and state political context. To test the impacts of price transparency and political factors, we built a dataset spanning eight years (2014 to 2021) and covering 49 states, excluding North Dakota. We then conducted a fixed-effects panel data analysis based on the results of a Hausman test. The impact of APCDs is statistically significant, suggesting its association with more fraud and abuse detection. A Democratic governor tends to be associated with fewer Medicaid fraud investigations. The findings of this research demonstrate that the operation of APCDs can influence the number of Medicaid fraud investigations conducted by Medicaid Fraud Control Units (MFCUs). Moreover, political discretion plays a role in the number of state investigations into Medicaid fraud and abuse.

Keywords: Medicaid fraud and abuse; Medicaid Fraud Control Units; All-Payer Claims Databases; political context

1. Introduction

The U.S. Centers for Medicare and Medicaid Services (CMS) estimate the cost of fraudulent and inappropriate reimbursements in Medicaid amounted to approximately \$80.1 billion in the U.S. in 2022 (CMS, 2022). Medicaid fraud and abuse constitute a variety of falsifications, inconsistencies, and illegal actions that result in the misappropriation of resources. Fraudulent and abusive behaviours for Medicaid refer to the knowingly and wilful false statement of material fact for payment, reimbursement, or benefits by both providers and end users that is contradictory to approved business and medical practice (Artiga and Rudowitz, 2019; Kaiser Family Foundation [KFF], 2012; Peluso *et al.*, 2023). Examples of recipient fraud and abuse include lending or sharing a Medicaid Identification card, forging or altering a prescription, re-selling items provided by Medicaid, and trading the card or number for money, gifts, or non-Medicaid services. Provider fraud and abuse examples include billing for services not provided, billing for unnecessary services, upcoding, selling prescriptions, intentionally billing for more expensive treatments than provided, and accepting kickbacks. The propensity for exploitation of the Medicaid healthcare system is pervasive primarily due to the immense size, the dispersion and divergence of application across the fifty U.S. states, and the unlimited reimbursement capacity of Medicaid from the federal government (CMS, 2023a).

As such, there is need for continued investment in fraud prevention and detection measures within the Medicaid system to protect programme integrity and maximise effectiveness (Perez and Wing, 2019). Efforts to combat Medicaid fraud and abuse are pivotal in ensuring that taxpayer funds are used appropriately to provide healthcare services to eligible beneficiaries. In this way, each state has established a Medicaid Fraud Control Unit (MFCU) to detect and manage fraud and abuse cases (Perez and Ramos Pastrana, 2023). MFCUs are generally composed of a multidisciplinary team that includes investigators, attorneys, and auditors. MFCUs are organised as single, identifiable entities and must be separate and distinct from the state Medicaid agency. MFCUs vary considerably in size and structure across different states. Differences in state laws pursuant to Medicaid fraud and abuse can affect how MFCUs operate, as some states have more stringent regulations and enforcement mechanisms. The size of an MFCU depends on the state's population, the volume of Medicaid funds, and the specific needs of the Medicaid programme. In 2023, the largest unit was in New York, which included 259 total staff, while Wyoming operated the smallest unit, with only 4 staff (U.S. Department of Health and Human Services Office of Inspector General [HHS-OIG], 2023). The unit budget also varies significantly, ranging from \$73.3 million in California to \$494,730 in Wyoming (National Association of Medicaid Fraud Control Units, 2023).

MFCUs conduct statewide investigations and prosecutions of healthcare providers who defraud the Medicaid programme. These units inspect a wide range of healthcare providers, from solo practitioners to multinational corporations. MFCUs have prosecuted in-home care and individual providers such as physicians, dentists, and mental health professionals, as well as hospitals, nursing homes, home health care agencies, medical transportation companies, pharmacies, laboratories, durable medical equipment companies, and pharmaceutical manufacturers (National Association of Attorneys General [NAAG], 2024).

In 2021, the total number of Medicaid fraud and abuse investigations was 18,815. Among the five states with the highest Medicaid enrolment, Texas recorded the highest number of investigations at 1,532 cases, followed by California (1,452), New York (821), Florida (809), and Illinois (502). New Hampshire reported the lowest number at 41 cases (HHS-OIG, 2023). After adjusting for the size of Medicaid enrollees, Delaware shows the highest rate of investigations, at 20.8 per 10,000 enrollees. This is followed by Hawaii (16.0), Missouri (7.8), and Arkansas (7.0). This data accounts for differences in Medicaid population size, offering a more informative perspective on the rates of investigations in each state. In 2022, the number of convictions resulting from MFCU cases led to 946 convictions for fraud and 381 for patient abuse or neglect. The investigations conducted by MFCUs resulted in recovering \$3.08 for every \$1 spent, totalling \$1.1 billion (Maxwell, 2022).

This research explores the factors affecting variations in Medicaid fraud and abuse investigation across U.S. states with a focus on the state operation of All-Payer Claims Databases (APCDs) to enhance price transparency in the healthcare market and assorted political influences within each state. Understanding Medicaid fraud is critical to quality public policy and healthcare administration, transcending mere financial considerations and displaying formative ethical foundations for one of the most representative health services programmes in the nation. Despite the gravity of this issue, research on state efforts to address Medicaid fraud and abuse is not full fledged, underscoring the need for further inquiry. Some prior studies have empirically examined associated factors with the success of MFCU investigations, including the effects of spending by MFCUs on enforcement outcomes (Flasher and Lamboy-Ruiz, 2019; Perez and Wing, 2019) and the relationship between Medicaid expansion and MFCU enforcement activities (Perez and Ramos Pastrana, 2023). Yet, Medicaid fraud research should be broadened to embrace the variety of embedded policy contexts across states.

This study aims to expand comprehension in this area, targeting the operational aspects of APCDs and the role of state politics in MFCU enforcement. First, state operation of APCDs that disclose healthcare claims data can be associated with increased Medicaid fraud and abuse

investigations. APCDs serve as databases that collect claims data from various payers, including Medicaid, Medicare, and private payers, and they serve as useful resources for state policymakers to analyse healthcare costs (Han *et al.*, 2022; McAvey, 2022; Murray *et al.*, 2020). By providing policymakers with essential and comparable data, APCDs facilitate the detection of Medicaid fraud and abuse (McAvey, 2022; National Association of Health Data Organizations [NAHDO], 2017). Second, state politics and partisan climate may affect the number and nature of Medicaid fraud and abuse investigations conducted by state oversight agencies. State policy decisions and outcomes are shaped by internal inducements and constraints, such as the state political context, socio-economic factors, and state administrative capacity, as well as external circumstances (Callaghan and Jacobs, 2014; Goggin *et al.*, 1990; Mazmanian and Sabatier, 1989; Singer, 2016). Our study seeks to augment the existing scope of Medicaid fraud and abuse research to assess the impact of these two influential factors towards the investigative conduct and outcomes demonstrated among the U.S. states.

The next section provides an overview of previous studies examining the factors of state Medicaid fraud and abuse investigations. Then, we delve into the influences of the operation of APCDs and state politics on Medicaid regulatory activities. Our analysis results, discussion, and implications are presented, including a detailed description of methodology.

2. Literature review

Medicaid fraud and abuse are estimated to comprise up to 10% of Medicaid spending (Texas Attorney General, 2023), amounting to \$80.1 billion in 2022 (CMS, 2022). Examples of such fraud and abuse may include false identities or misrepresentations of individuals toward eligibility requirements and access to coverage, fallacious utilisation of goods or services, deceptive and improper billing for medical procedures, and the malicious submission of claims for reimbursement of fictitious services and/or patients (Flasher and Lamboy-Ruiz, 2019; HHS-OIG, 2023; Larson *et al.*, 2021). Other conditions that contribute to Medicaid losses may involve erroneous miscalculations, miscommunications among agencies or with providers, the misappropriation of funds or reimbursements, and the duplication or mismanagement of resources (CMS, 2023b; KFF, 2012; Rosenbaum *et al.*, 2021; Tolbert *et al.*, 2023).

Although an expansive topic, a limited number of studies have examined factors associated with Medicaid fraud and abuse investigations. Insurance fraud literature predominantly focuses on human and financial resources to detect insurance fraud, such as special investigation units (Lesch and Brinkmann, 2011), crime-fighting resources (Goel, 2014), and well-trained and skilled investigators (Skiba and Disch, 2014). Research on the effectiveness of MFCUs emphasises the importance of capacity to detect and investigate fraudulent claims (Flasher and Lamboy-Ruiz, 2019; Perez and Wing, 2019). Flasher and Lamboy-Ruiz (2019) underscore the consequence of staffing levels and budget allocation related to the yearly number of exclusions, and Perez and Wing (2019) provide evidence that higher levels of MFCU spending are positively associated with fraud enforcement actions. In addition, Perez and Ramos Pastrana (2023) find that states with Medicaid expansion are more likely to have an increase in the number of fraud and abuse investigations.

While such findings of extant research offer a baseline for further exploration, it is prudent to include a relevant policy context, especially given the localised character of state Medicaid implementation. Incorporating contextual factors into Medicaid fraud analysis can lead to a more comprehensive understanding of the dynamics impacting MFCU investigations. This study adds two prominent state-level contextual factors: healthcare price transparency and political setting.

Previous literature observes the policy impact of transparency tools on healthcare costs, such as online price searching websites, star ratings, or quality scorecards (Chen and Miraldo, 2022). However, findings are still inconclusive about whether having a transparent environment leads to

lower healthcare prices. Some studies show that the availability of price information is associated with reduced costs (Brown, 2019; Carey and Dor, 2020; Christensen *et al.*, 2020; Dor *et al.*, 2015; Noh, Janousek, and Park, 2021; Whaley *et al.*, 2014, 2019). On the contrary, others offer a cautionary note that transparency regulation may not necessarily contain costs (Desai *et al.*, 2017). Disclosed price or quality information may increase rates if supply capacity cannot meet the demand (Boone and Pottersz, 2006). One piece of empirical evidence has demonstrated that high-performing hospitals in New York raised their prices immediately after the state's data reporting mandate (Mukamel *et al.*, 2007). It was also found that utilising a price transparency tool resulted in higher mean spending due to low usage (Desai *et al.*, 2016; Higgins *et al.*, 2016).

It is reasonable to expect that transparency tools will inform public policy and help state administrators access accurate and detailed data. The targeted use of cost data can be collected and compared as evidence of Medicaid fraud and abuse. Despite the potential capacity of transparency tools, the relationship between transparency and fraud has been understudied, if not nonexistent.

Over the past several decades, political change in the public health policy arena, especially for state-coordinated programmes such as Medicaid, has warranted further elucidation of impact within the disparate political settings of states. Previous research inquiries consider political determinants of state spending for Medicaid (Oyun, 2017; Rudolph and Evans, 2005), the partisan discord surrounding Medicaid expansion (Haselswerdt, 2021; Marmor and Gusmano, 2017; Shaw, 2017), and the political inclinations of elected officials and citizens in Medicaid operation (Brecher and Rose, 2013; McIntyre *et al.*, 2024; Rocco *et al.*, 2018). However, state political contexts specific to the investigation of Medicaid fraud and abuse distinguish a topic for additional examination, particularly given the current transformations of Medicaid at the state level and the contemporary climate of extraordinary political polarisation. Our study probes these contributory components.

3. Theoretical expectations

3.1 State price transparency strategy and Medicaid fraud and abuse investigation

One of the statewide transparency instruments is APCDs. APCDs are archives that aggregate statewide healthcare data from various payers, which supply vital data, bolster state health reform strategies, curtail healthcare expenditure, and improve care quality (Blewett *et al.*, 2023). As of 2023, nineteen states have established APCDs by legislation, requiring insurers, including Medicaid, Medicare, and commercial payers, to submit and disclose claims data, while nine states have shown strong interest in creating such databases (APCD Council, 2023). It is known that the data collected for state APCDs in 2019 represent approximately 39% of the employer market (KFF, 2019).

States can take advantage of APCD data in many beneficial ways. It is expected that gaining a comprehensive view of state health spending across different payers through APCDs holds economic importance. For instance, comparing costs among hospitals or geographical regions enables consumers to identify low-cost providers while aiding health insurers in establishing efficient healthcare networks. Supplementing this information with sociodemographic data on enrollees will equip policymakers to develop more targeted policies catered to specific populations (Blewett *et al.*, 2023). For example, an analysis of the Colorado APCD discovered a wide range of hospital payments, varying from 115% to 576% of Medicare reimbursements due to 5% higher utilisation and 13% higher prices (Murray *et al.*, 2020). The state could potentially save over \$54 million per year if prices were reduced to the Colorado statewide median (Murray *et al.*, 2020).

The value of these databases is increasingly evident as they continue to mature and become more frequently used, as the aggregated information assists states in obtaining a better appreciation of healthcare utilisation patterns and costs in the state (Peters *et al.*, 2014). APCD data have been used for various purposes, such as to expand the registry (Perraillon *et al.*, 2022;

Mahashabde *et al.*, 2022), conduct population-level research (Hallvik *et al.*, 2021; Raifman *et al.*, 2020), and identify active physicians with a primary care scope (Huffstetler *et al.*, 2022).

As APCDs enable more targeted claims data analysis, the price transparency strategy can also exert its regulatory effect on Medicaid fraud and abuse. Several reasons compel researchers to investigate this relationship. Foremost, the goals of state operation for APCDs include identifying 'health system failures, including excessive cost growth or price variation' and supporting 'regulatory and program oversight of payers and providers' (McAvey, 2022, p. 26), which can be related to Medicaid fraud and abuse detection. The NAHDO and the APCD Council have also indicated that 'robust data systems, which contain data across payers and systems of care, can be effective in developing tools to reduce fraud, waste, and abuse' (NAHDO, 2017).

Moreover, the use of APCDs allows state policymakers to access more accurate and detailed data for the detection of Medicaid fraud and abuse. The data collected through APCDs includes important information such as individuals' diagnoses, services and prescriptions received, service providers, amounts paid by the payer and individual, individual population characteristics, insurance plan characteristics, and provider information (McAvey, 2022). Since Medicaid fraud and abuse can take various forms, having access to relevant information on patients, service providers, and insurers at the right time is crucial. Namely, Medicaid fraud refers to intentionally providing false information to obtain payment for medical care or services, and this can involve billing for unnecessary services or items, unbounding, upcoding, drug diversion, and other types of fraudulent activities (CMS, 2016).

We expect APCDs to help MFCUs identify unusual billing patterns that may signal fraud, such as providers consistently billing for high-cost procedures more frequently than their peers. APCDs also allow MFCUs to cross-reference Medicaid claims with data from other payers, helping to identify discrepancies and duplicate claims, which can indicate billing fraud. Longitudinal data from APCDs enable the tracking of provider behaviour over time, revealing patterns of upcoding, unnecessary services, or other fraudulent practices. It is important to note that the effectiveness of using APCDs for fraud detection can either be fostered or limited by certain factors, such as varying data quality among payers, lack of clinical detail, and difficulties in data collection and maintenance (AHQR, 2017). Therefore, we posit that the operation of APCDs by states may lead to an increase in the number of Medicaid fraud and abuse investigations.

H1: State operation of APCDs is positively associated with the number of state investigations for Medicaid fraud and abuse.

3.2 State politics and Medicaid fraud and abuse investigation

Modern changes in the implementation of Medicaid at the state level, for instance managed care, signal aggravated opportunities for fraud and abuse as well as complications in CMS oversight and compliance among the states (Meacham, 2021; Tolbert *et al.*, 2023). Political factors, such as citizen ideology and party objectives, invariably play a role in increases of state health policy spending (Martin *et al.*, 2013; Oyon, 2017; Williams, 2017), especially where escalations in expenditures do not substantiate advancements in quality and care (Duggan and Hayford, 2013), which may be politically accentuated in situations where disbursements coincide with devoting further funding to law and criminal enforcement (O'Rourke *et al.*, 2021; Simes and Jahn, 2022). Many state Medicaid reform activities comprise political agendas and values, such as penchants towards cost savings of privatisation and contracting (Romzek and Johnston, 1999; Thompson, 2013) and enrolment take-up through administrative restructuring (Herd *et al.*, 2013). For example, recent studies indicate that political objectives toward reductions in criminal activity and improvements for the financial health of individuals within states may be associated with specific reform policies for enhanced access to health insurance coverage, distinctly in relation to

the Medicaid expansion choices by states and typically more consistent with Democratic-led governments (Miller *et al.*, 2021; Vogler, 2020).

Political polarisation in public health policy at the state level represents diverse interests across the spectrum of federalism, encompassing government officials, cultural motivations of individualistic and moralistic perspectives, and the dynamic attitudes and viewpoints of the voting populace, which suggests that party control denotes an influential element in state legislative decisions (Bowman and Kearney, 2022; Elazar, 1994) expressly when involving federal programmes and interventions (Callaghan *et al.*, 2022). State MFCUs operate within the executive branch (NAAG, 2024), generally manifesting policy direction and motive from the attorney general and governor. In relation to Medicaid expansion and the Patient Protection and Affordable Care Act (ACA), the political orientations of state governors held a principal position in the determination of states to consider added resources toward enactment and innovation, even more dominant than financial considerations, with Democratic governors being the most amenable to reform (Jensen, 2017; Meyer-Gutbrod, 2019; Shaw, 2017).

Democratic-controlled states frequently espouse Medicaid spending and development efforts, with most actions promoted and manoeuvred by governors. States with divided government, or those with split party control of the governorship and legislature, tend to encounter political resistance despite persistent attempts at bipartisan coalitions and lobbying forces (Haselswerdt, 2021; McIntyre *et al.*, 2024). Historically, Republicans have favoured tighter regulation and reduced expenditures for Medicaid (Thompson, 2012), which has escalated in political posturing for recent election cycles (Altman, 2024; Gusmano and Thompson, 2023). However, in the latest sessions, legislatures in Democratic-led states enacted more than twice as many policies related to Medicaid than those of a Republican majority (National Conference of State Legislatures [NCSL], 2024). Based on the above discussion, we posit:

H2: State political contexts of a Democratic governor, Democratic control of the state legislature, and unified Democratic control of state government are positively associated with the number of state investigations for Medicaid fraud and abuse.

Of course, state economics and overall financial capacity represent constraints on the ability of policymakers to act in healthcare reform and supervision (Callaghan and Jacobs, 2014; Singer, 2016). Still, the political connotations accompanying increased Medicaid spending and allocation (eg., endorsing welfare and social redistributive programmes) and other cultural dispositions of state politics may equally deter the championing of Medicaid regulation by Republicans (Brasfield, 2016; Grumbach, 2022; Hanson, 1984). Conservative factions typically view proliferated government spending negatively, even towards criminal justice enhancements, unless perceiving guarantees of consistency with ideological and self-interests, while liberals are generally more agreeable to enlarged expenditures for governmental reform and augmentation (Hertel-Fernandez *et al.*, 2016; Percival, 2020; Rudolph and Evans, 2005).

The political fervour surrounding the ACA created partisan stigmatisations for insurance exchanges and Medicaid expansion that effectively neutralised political backing and usage from Republicans at both the national and state levels (Lerman *et al.*, 2017; Rocco *et al.*, 2018). Notably, the Trump administration and Republican congress attempted several iterations of the repeal and replacement of the ACA, including the insertion of various restrictions and limitations on Medicaid coverage (Marmor and Gusmano, 2017), which also was mirrored in the policy stance of Republican governors against Medicaid expansion in states (Brecher and Rose, 2013; Singer and Rozier, 2020). Thus, a state with a divided government may limit the propensity for Medicaid investigations due to the lack of concerted political and financial support (Nicholson-Crotty 2015). Based on the discussion above, we posit:

H3: State political contexts of a Republican governor, Republican control of the state legislature, unified Republican control of state government, and divided state government are negatively associated with the number of state investigations for Medicaid fraud and abuse.

3.3 State administrative capacity and Medicaid fraud and abuse investigation

State administrative capacity encompasses the ‘policies, procedures, and resources governing administrative action and designed to improve government performance’ (Hou, Moynihan, and Ingraham, 2003, p. 300). Previous literature substantiates the significance of state administrative capacity concerning policy design and implementation (eg., Goggin *et al.*, 1990; Mazmanian and Sabatier, 1989). This capacity generally refers to personnel and finances, indicating state personnel and resources devoted to certain programmes, which have been linked to the scope of design, adoption, and implementation of state policies (eg., Jacobs and Callaghan, 2013; Krause, Feiock, and Hawkins, 2016; Noh and Park, 2022).

Two state agencies, state Medicaid agencies and MFCUs, play roles in preventing and detecting Medicaid fraud and abuse cases. State Medicaid agencies develop and implement systems to identify those eligible for Medicaid and to approve and administer payments (MACPAC, 2024), reducing the potential for fraudulent reimbursements. This indicates that states with well-established eligibility and payment systems may experience decreased investigations, being able to detect suspect cases before necessitating action by MFCUs. On the other hand, a MFCU is typically a certified unit within the state attorney general’s office that regulates, investigates, and prosecutes Medicaid fraud and abuse in accordance with state law, independently of the state Medicaid agency (HHS-OIG, 2023). Research suggests that adequate resources, such as budgetary aid and discretionary authority, are crucial for an MFCU’s enforcement activities (Flasher and Lamboy-Ruiz, 2019). Based on the discussion above, we propose the following hypotheses:

H4: A state with higher Medicaid administrative capacity is negatively associated with the number of state investigations for Medicaid fraud and abuse.

H5: A state with higher MFCU capacity is positively associated with the number of state investigations for Medicaid fraud and abuse.

4. Methods

4.1 Data

Our dataset from multiple sources covers eleven years from 2014 to 2021 and 49 states ($8 \text{ years} \times 49 = 392$). The state of North Dakota was excluded from this research because the state has only started to report the number of Medicaid fraud and abuse investigations since 2020. We used data and samples from multiple sources, including the APCD council, the NCSL, the HHS-OIG, and the University of Kentucky Center for Poverty Research (UKCPR) National Welfare Data. Table 1 summarizes the variables and their corresponding data sources.

4.2 Model specification

To assess the influence of price transparency and politics on levels of state investigation of Medicaid fraud and abuse, we utilised a fixed-effects panel data analysis after conducting a Hausman test. Our model used robust standard errors to resolve heterogeneity problems. The basic model has the following form:

where:

T_{it} = the log-transformed total number of Medicaid investigations per 10,000 Medicaid enrollees, covering fraud and abuse cases

T_{it-1} = the log-transformed total number of Medicaid investigations per Medicaid enrollee, covering fraud and abuse cases in year $t-1$

A_{it-1} = whether a state has operated APCDs in year $t-1$

D_{it-1} = Democratic governor in state i in year $t-1$

L_{it-1} = Divided government in state i in year $t-1$

G_{it-1} = Medicaid administrative spending per Medicaid enrollee in state i in year $t-1$

F_{it-1} = the log-transformed Medicaid Fraud Control Units (MFCU) grants per Medicaid enrollee in state i in year $t-1$

P_{it-1} = the log-transformed number of MFCU staff per 1,000,000 Medicaid enrollees in state i in year $t-1$

M_{it-1} = the log-transformed Medicaid enrollee in state i in year $t-1$

S_{it-1} = the log-transformed Medicaid spending per Medicaid enrollee in state i in year $t-1$

E_{it-1} = whether a state has expanded Medicaid in year $t-1$

R_{it-1} = the log-transformed number of state residents in year $t-1$

α_i = the unobserved time-invariant effect

e_{it} = the error term

4.3 Variables and measurement

Our dependent variable was coded as the log-transformed total count of Medicaid investigations per 10,000 Medicaid enrollees, encompassing both fraud and abuse cases. This measurement enables researchers to study the impact of independent variables while controlling for the effect of Medicaid enrollee size.

We also integrated a one-year lagged dependent variable into our model. This variable reflects the historical patterns of Medicaid fraud and abuse investigations within states, influencing present levels of the dependent variable. Its inclusion enables researchers to account for past distributions of fraud and abuse cases across states (Langbein, 2012).

The first independent variable is the state operation of APCDs to enhance price transparency. An APCD is a targeted transparency policy to require insurers, including commercial payers, Medicaid, and Medicare, to submit and disclose their claims data (Noh and Park, 2022), which can be analysed to provide insights to state health policymakers on Medicaid fraud and abuse. We coded this independent variable as having a value of '0' for the years in which state governments have not yet collected claims data and '1' in the year of data collection.

To examine the influence of state political context, this research included seven indicators. The first model includes Democratic governor and divided government; the second model with Democratic governor, Democratic control of state legislature, and the interaction of these two variables; and the third model with Republican governor, Republican control of state legislature, and the interaction of these two variables. Democratic governors and Democratic control of state legislature were coded as '1' and otherwise '0.' A state with a split between the party affiliation of the governor and the state legislature majority is coded 1, otherwise 0. Republican governors, and Republican control of state legislature were coded as '1' and otherwise '0.'

For state administrative capacity, this research examines a state Medicaid agency's administrative capacity to determine eligibility and process payments. When a state has an adequate level of Medicaid administrative capacity, the state may be able to prevent potential fraud and abuse cases before MFCU investigation is required. This variable is measured by the extent of Medicaid administrative spending per Medicaid enrollee. In addition, state personnel and financial resources

allocated to a MFCU are included. The MFCU grant from the federal government funds a portion of each MFCU's operational expenses. We coded the size of the MFCU grant as the log-transformed MFCU grants per Medicaid enrollee in a state, while the staff size of MFCU was coded as the log-transformed number of MFCU staff per 1,000,000 Medicaid enrollees in a state.

To measure state fiscal burdens, we included the size of Medicaid enrollees and the amount of Medicaid spending. We coded the size of Medicaid enrollees as the log-transformed Medicaid enrollees and the amount of Medicaid spending as the log-transformed Medicaid spending per Medicaid enrollee. We included Medicaid expansion because expanded eligibility and enrollees could contribute to the increased number of Medicaid fraud and abuse investigations. A state implementing Medicaid expansion was coded as 1, and otherwise 0. Descriptive statistics are presented in Table 2 to summarise key state-level characteristics. To provide a more nuanced picture of the characteristics associated with APCD adoption status, we have included two supplementary appendices (Appendix 1 and Appendix 2).

5. Findings

Table 3 presents the results of our fixed-effects panel data analysis. We estimated six models with and without year effects. Models 1 and 2 examined the impacts of having a Democratic governor and a Divided government. Models 3 and 4 explored the effects of having a Democratic governor, Democratic control of state legislature, and the interaction of these two variables. Models 5 and 6 examined the impact of having a Republican governor, Republican control of state legislature, and the interaction of these two variables.

We hypothesised that state operation of APCDs would be positively associated with the number of investigations into Medicaid fraud and abuse. The positive effect of APCDs on the dependent variable was statistically significant across all models. State operation of APCDs is associated with a 22.5% increase in investigations for Medicaid fraud and abuse in Model 1, and a 33.3% increase in Model 4. This finding bolsters our hypothesis that states operating databases for price transparency are more likely to be proactive in investigating cases of Medicaid fraud and abuse. Price transparency in healthcare is a promising tool for combating fraud by promoting accountability and detection of irregularities in billing practices. While challenges exist in implementing effective transparency measures, the potential to reduce fraudulent activities and healthcare costs is supported by the results.

The findings partially suggest that the extent of state Medicaid fraud and abuse investigations varies depending on the political context. In the Models 3 and 4, states with Democratic governors tended to have fewer investigations, while divided government did not show statistical significance. Democratic governor is associated with a 10.9% decrease in Medicaid fraud and abuse investigations in Model 3 and a 12.5% decrease in Model 4. It is possible that, in a divided government, veto power between branches could hinder political support for thorough investigations, yielding no statistically significant impact on the dependent variable. Interestingly, neither Republican governors nor Republican-led state legislatures were linked to increased investigations. These results highlight the nuanced influence of state political dynamics on Medicaid oversight (Brasfield, 2016; Grumbach, 2022; McIntyre *et al.*, 2024; Singer, 2016).

State administrative capacity was partially associated with the number of Medicaid fraud and abuse investigations. We hypothesised the negative relationship between state Medicaid administrative capacity and the dependent variable. The findings indicated that state Medicaid administrative spending was not associated with the investigations, contrary to previous research (eg., Goggin *et al.*, 1990; Jacobs and Callaghan, 2013; Noh and Park, 2022). However, an increase in the number of MFCU staff was associated with a higher number of investigations, as reported by prior studies (Flasher and Lamboy-Ruiz, 2019; Perez and Wing, 2019) and consistent with our hypothesis. An increase in financial resources for the MFCU was not associated with the dependent variable.

Table 1. Variable description and sources

Variables	Description	Data Sources
Dependent variable		
Total number of Medicaid fraud and abuse investigations	The log-transformed total number of Medicaid investigations per Medicaid enrollee, covering fraud and abuse cases	The Office of Inspector General (HHS-OIG) within the U.S. Department of Health and Human Services
Independent variables		
Transparency		
State operation of APCD	An indicator of whether states have operated APCDs (operated = 1, otherwise = 0)	APCD Council
State political context		
Democratic governor	Democratic governor = 1, otherwise = 0	National Conference of State Legislatures (NCSL)
Divided government	A state with a split between the party affiliation of the governor and the state legislature majority is coded 1, otherwise 0	
Democratic control of state legislature	Democratic control of state legislature = 1, otherwise = 0	
Republican governor	Republican governor = 1, otherwise = 0	
Republican control of state legislature	Republican control of state legislature = 1, otherwise = 0	
State administrative capacity		
State Medicaid administrative capacity	State Medicaid administrative spending per Medicaid enrollee	Medicaid and CHIP Payment and Access Commission
# of MFCU Staff	The log-transformed number of MFCU staff per 1,000,000 Medicaid enrollees in state	The Office of Inspector General (HHS-OIG) within the U.S. Department of Health and Human Services
MFCU grants	The log-transformed Medicaid Fraud Control Units (MFCU) grants per Medicaid enrollee	
Controls		
One-year lagged total number of Medicaid fraud and abuse investigations	The log-transformed total number of Medicaid investigations per Medicaid enrollee, covering fraud and abuse cases in year t-1	The Office of Inspector General (HHS-OIG) within the U.S. Department of Health and Human Services
Medicaid expansion	A state with Medicaid expansion = 1, otherwise = 0	Kaiser Family Foundation
Medicaid enrollees	The log-transformed Medicaid enrollee	The UKCPR National Welfare Data
Medicaid spending	The log-transformed Medicaid spending per Medicaid enrollee	
State population	The size of state population	

Additionally, our analysis did not support that states with a greater fiscal burden from Medicaid would conduct more investigations into fraud and abuse. Medicaid enrollees did not show a statistically significant effect on the dependent variable, while Medicaid spending was statistically significant in all models, contradicting extant analysis on state fiscal burden and health cost-containment strategies (Noh and Park, 2022). We found a negative association between Medicaid expansion and the dependent variable, likewise incongruous with former reports (Perez

Table 2. Descriptive statistics

Variables	Mean	Std	Min	Max
Total number of Medicaid fraud and abuse investigations	373.25	371.89	28	1830
State operation of APCD	.39	.49	0	1
Democratic governor	.39	.49	0	1
Divided government	.31	.46	0	1
Democratic control of state legislature	.29	.45	0	1
Republican governor	.61	.49	0	1
Republican control of state legislature	.62	.49	0	1
State Medicaid administrative spending	419.45	194.46	118.88	1419.12
# of MFCU Staff	41.02	54.45	3	304
MFCU grants per Medicaid enrollee	3.77	1.97	.27	12.96
Medicaid expansion	.63	.48	0	1
Medicaid enrollees	1,535,892	1,946,195	54,259	13,603,756
Medicaid spending per enrollee	8373.74	2390.27	967.44	34826.65
State population	6,743,893	7,360,889	576,851	39,538,223

and Ramos Pastrana, 2023), suggesting that a state with Medicaid expansion may not have the capacity to oversee eligibility, payments, and Medicaid fraud and abuse cases.

6. Discussion and implications

Previous research on healthcare transparency tools, including various types of public reporting and APCDs, has primarily focused on the impact towards costs or quality. Our study diverges from this trend by finding a significant association between the use of APCDs and the frequency of Medicaid fraud and abuse investigations at the state level, portending that APCDs can be an effective tool in identifying fraudulent activities. This result offers corroboration for the benefits of operating APCDs, potentially leading to more targeted and effective policies for safeguarding public health funds and ensuring the integrity of Medicaid services. Our findings support a broader scope of future studies on APCDs or similar transparency initiatives, extending to state strategies for minimising financial losses due to fraud and abuse in government programmes. This includes the inclination of MFCUs to utilise APCD information in identifying offenders and the relationship between state government professionalism and accelerated fraud and abuse control.

Since the enactment of the ACA in 2010, nationally growing demands to ensure price transparency have become widespread (Mehrotra *et al.*, 2012). Recently, substantial federal policy changes for price transparency in the healthcare sector aim to hold health providers more accountable and deter fraudulent activities. Effective January 1, 2021, the CMS Hospital Price Transparency final rule (84 FR 65,524) mandates hospitals to publicly disclose price information on their websites in a machine-readable form (CMS, 2023c). Under Transparency in Coverage regulations in 2020 (85 FR 72158), health insurance plans are required to provide comprehensive information to enrollees about the costs and benefits associated with their coverage. Beginning in 2022, healthcare providers must provide Good Faith Estimates (GFE) to uninsured or self-pay patients. When the billed charges for any provider exceed the GFE by \$400 or more, patients can dispute the charges through the patient-provider dispute resolution (PPDR) process.

Table 3. The factors affecting varied Medicaid fraud and abuse investigations in the U.S. states

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Price Transparency						
State operation of all-payer claims databases	.203** (.095)	.272*** (.106)	.212** (.123)	.285*** (.090)	.217** (.100)	.278*** (.082)
State Political Context						
Democratic governor	-.050 (.052)	-.085* (.044)	-.115** (.046)	-.134*** (.046)		
Divided government	-.055 (.042)	-.033 (.039)				
Democratic control of state legislature			-.127 (.106)	-.164 (.098)		
Democrat governor*Democratic control of state legislature			.145 (.091)	.124 (.083)		
Republican governor					.022 (.081)	.060 (.074)
Republican control of state legislature					.110 (.100)	.153 (.099)
Republican governor*Republican control of state legislature					.053 (.092)	.027 (.089)
State Administrative Capacity						
Medicaid administrative spending per Medicaid enrollee	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)
# of MFCU Staff per 1,000,000 Medicaid enrollees	.253* (.126)	.230 (.141)	.245* (.126)	.226 (.137)	.265** (.126)	.250* (.143)
MFCU grants	-.141 (.138)	-.047 (.145)	-.130 (.135)	-.038 (.142)	-.157 (.133)	-.069 (.140)
Controls						
One-year lagged total number of Medicaid fraud and abuse investigations	.408*** (.089)	.402*** (.089)	.409*** (.088)	.404*** (.086)	.413*** (.087)	.403*** (.086)
Medicaid enrollees	.251 (.189)	.341* (.194)	.252 (.188)	.327 (.189)	.250 (.185)	.306 (.193)
Medicaid spending	-.039 (.107)	-.075 (.101)	-.043 (.106)	-.082 (.103)	-.032 (.107)	-.076 (.104)
Medicaid expansion	-.216** (.081)	-.201** (.084)	-.200** (.080)	-.178 (.081)	-.204** (.076)	-.189** (.079)
State population	-.344 (1.276)	-.722 (1.064)	-.298 (1.222)	-.563 (1.029)	-.056 (1.183)	-.525 (1.017)
Constant	2.085 (20.692)	6.989 (16.328)	1.432 (19.841)	4.817 (15.910)	-2.514 (19.172)	4.229 (15.643)
Year Effect	Yes	No	Yes	No	Yes	No
Observations	328	328	328	328	328	328
R-squared	.357	.285	.358	.294	.359	.298

* $p < .10$, ** $p < .05$, *** $p < .01$, robust standard errors in parentheses.

This noticeable evolution toward transparency may alleviate some of the challenges for states in implementing APCDs, such as stakeholder objections and administrative burden, as understanding prices and costs is becoming imperative for providers themselves. As such, state administrators may use claims data for more targeted purposes, for example, antitrust enforcement by the Department of Justice and Federal Trade Commission (Fiedler and Young, 2020). Newly proposed legislation seeks to remove barriers and provide subsidies to promote usage and create a nationwide APCD programme (Fiedler and Young, 2020).

The findings of our research partially support the impact of state political contexts in Medicaid fraud and abuse investigations. States with Democratic governors indicated a lower rate of investigations. This finding may be attributable to the classical focus of Democratic-majority states on enlarging Medicaid coverage and enrolment, being more responsive to perceived localised necessities and citizen demands (Brecher and Rose, 2013; Marmor and Gusmano, 2017; Martin *et al.*, 2013; Singer, 2016), which may not inevitably align with increased support for criminal inspections and prosecutions. On the other hand, the variables for Republican governor and Republican control of state legislature were not associated with an increase in investigations. The Republican party position has continually maintained an aversion to Medicaid expansion and enhanced spending following the passage of the ACA (Altman, 2024; Brasfield, 2016; Shaw, 2017; Thompson, 2013). However, recent concessions from Republican-led states in this area may denote the impact of political advocacy and policy learning toward the reframing of these issues to be more attuned to the priorities of policymakers and state needs (Callaghan and Jacobs, 2014; Hertel-Fernandez *et al.*, 2016; KFF, 2024; McIntyre *et al.*, 2024; Percival, 2020). The findings also signal partial support for a positive association between the size of MFCU staff and number of investigations. As most MFCUs are housed within the state attorney general's office (NAAG, 2024), there is the potential for partisan and professional motivations toward fraud and abuse enforcement. Future research may want to investigate further the role of state attorneys general related to Medicaid investigations and possible political influences on MFCU operations.

More broadly, the findings raise additional questions concerning the overall policy goals of states for Medicaid fraud and abuse investigation. Federal directives and oversight guide the activities of MFCUs, yet states maintain some discretion in the extent and application of state law and administration (CMS, 2023a; KFF, 2012; NAAG, 2024). From a pragmatic standpoint, there exists extensive variability in the perceptions of programmatic integrity for Medicaid that ranges from increased efficiency and cost savings, a typically conservative stance, to accelerating social policy and the effectiveness of outputs, allying with a more liberal view (Duggan and Hayford, 2013; Hanson, 1984; Lerman *et al.*, 2017; Miller *et al.*, 2021; Romzek and Johnston, 1999; Singer and Rozier, 2020; Thompson, 2013; Vogler, 2020). Thus, the policy objectives of states for Medicaid investigations can be reflective of ideological assumptions toward the necessity and improvement of localised services and the philosophy for the role of government, which informs differing dispositions and proclivities among the continuum of the U.S. states in the pursuit of integrity measures and the use of transparency initiatives.

7. Limitations

Our study has several limitations. Notably, there is limited evidence to suggest that MFCUs consistently utilise APCDs to identify potential fraud targets. While MFCUs typically rely on various data sources and referrals from state Medicaid agencies, providers, and whistleblowers, the specific use of APCDs for fraud detection is not well-documented in the literature. Consequently, while we have identified associations between APCDs, price transparency, and Medicaid fraud detection, we cannot definitively conclude that these factors directly cause changes in fraud detection rates. However, APCDs can provide valuable claims data that may help identify patterns of fraud, waste, and abuse, making them a potential tool for future integration into fraud control

mechanisms. Future research could focus on establishing causal relationships by employing a mixed-method approach to better understand how APCDs and other factors contribute to effective Medicaid fraud control, and how these tools can be more effectively leveraged for public benefit.

Our study has an additional limitation related to sample size. Drawing inferences based on only a few states that adopted APCDs (Florida, Delaware, Washington, and Virginia) or discontinued them (Tennessee) during the study period may lead to unreliable statistical outcomes. While our findings provide valuable insights, the limited number of states transitioning to or abandoning APCD adoption during our study period constrains our ability to make broad generalisations about the effects of APCD implementation. These considerations suggest that our findings should be interpreted as preliminary evidence rather than definitive conclusions about the relationship between APCD adoption and fraud detection outcomes. Future studies should examine longer time periods to capture more state-level APCD adoption events and consider alternative analytical approaches that account for small sample limitations.

For an exploratory study on the effects of political contexts related to Medicaid fraud and abuse investigations, we adopted several indicators for representation of state politics. However, future research may want to utilise a more expansive range of indicators to encompass differing policy actors, institutions, and venues. This study was unable to account for the varying stages of investigations, including indictments, convictions, civil settlements, judgments, and other policy outcomes such as total criminal and civil recoveries, which require observation over several years. Future researchers may want to consider the differing complexities of criminal and civil prosecutions, public visibility, and their impacts on funds recovered for taxpayers. Furthermore, the lack of available data and scope of this study prevented the consideration of state-level variation in APCD data reporting and analysis, including other indicators for low-quality care incidents such as malpractice, characteristics of state health providers, and beneficiaries. Future research may incorporate varied provider reimbursement rates, particularly in relation to provider-only Medicaid fraud and abuse cases.

8. Conclusion

This study highlights two important implications for state efforts to curtail Medicaid fraud and abuse. First, our research provides evidence that state operation of APCDs influences detection and investigation, which should encourage state policymakers to consider adopting and effectively utilising these databases to reduce wasteful expenditures in healthcare. Second, our findings suggest that political discretion may play a role in individual state approaches to address Medicaid fraud and abuse, an aspect that has received limited attention in prior research. While national agendas and inherent partisan priorities tend to materialise in state health policy debates, there appears to be a more fragmented inclination displayed by executive and legislative policymakers that adheres to the contextual needs and immediate objectives of individual states (Haselswerdt, 2021; McIntyre *et al.*, 2024; Meyer-Gutbrod, 2019). Although the resources may differ among states to pursue advanced policy changes, acknowledging the alignment of mutual state goals toward improved Medicaid implementation may offer opportunities for joint party approaches and solutions to addressing fraud and abuse. Therefore, we encourage state policymakers and advocates to seek common ground that reflects localised conditions and constituent needs, fostering unified policy objectives for Medicaid investigations and the operation of APCDs moving forward.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S1744133125100157>

Acknowledgements. Shihyun Noh's work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2024S1A3A2A06046280).

Financial support. No funding was received for conducting this study.

Competing interests. The authors have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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