Agency Leaders and Organizational Adaptation to Administrative Reform:

Evidence from the Timely Disbursement of Unemployment Insurance Benefits in the American States

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Abstract

The timely disbursement of government program benefits is a core attribute of effective administration. In recent decades, American states charged with administering unemployment insurance programs have instituted IT modernization reforms to improve the efficient delivery of unemployment benefits. Variation among those 28 states instituting IT modernization reforms between 2002 and 2022 reveals that these reforms improved the timely delivery of initial unemployment benefits by increasing the rate of meeting target performance benchmarks by 5.26%, while reducing the tardy disbursement of unemployment benefits by 2.90% — thus constituting a net performance swing of 8.16%. These performance benefits, however, are most pronounced for agency leaders holding prior appointed administrative leadership experience. More broadly, these findings indicate that appropriate matching of the type of prior government experience held by agency leaders in accordance with the nature of administrative reforms is critical for realizing these performance benefits.

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A critical element of effective administration is the timely delivery of programmatic benefits to eligible recipients. This is especially important in the realm of social services where vulnerable citizens require swift access to government services and benefits. Administrative delays reflect the temporal rate of bureaucratic responsiveness to citizens eligible for receiving programmatic benefits (Drolc and Keiser 2021; Keiser and Soss 1998), while also signifying higher administrative burdens imposed on citizens seeking government services (Christensen, et al. 2020; Herd and Moynihan 2019; Linos and Riesch 2020). To enhance the effective provision of public services, public agencies have become increasingly reliant on information technology (IT) to support administrative processes (Mergel, et al. 2019; Young, et al. 2019). IT makes sharing accurate information easier, potentially reducing learning costs associated with administrative burdens (Herd and Moynihan 2019). Automation also improves both administrative efficiency and citizen accessibility to government benefits (Bovens and Zouridis 2002; Halling and Baekgard **nd**). These administrative benefits include better serving the needs of women (Wenger and Wilkins 2009) and persons of color (Compton, et al. 2022). Because new technology adoption is often a costly and challenging process that requires public agencies to alter practices to realize these administrative benefits (Repenning and Sterman 2002; Schwab 2007; Tyre and Orlikowski 1994), public agencies undergo a process of organizational adaptation reflected in their performance.

This study seeks to bridge these disconnected research streams to understand how IT modernization reform efforts shape administrative performance based on the timely delivery of government services. The timely disbursement of unemployment insurance benefits to claimants in the American states from 2002 through June 2022 are analyzed based on how state unemployment insurance agencies adapt to information technology (IT) modernization reforms adopted by 28 states. The performance measures consist of monthly implementation delay data on both timely (effective) and tardy (poor) case processing. A flexible nonparametric estimation strategy is employed to generate statistical estimates of organizational adaptation that reflect dynamic

performance changes attributable to these IT reforms. Because this empirical approach accounts for variable and nonlinear rates of organizational adaptation through time, it offers a unique means for evaluating how technology has a distributed impact on agency performance through time.

Drawing on existing theories predicated on the differences between the government and non-government sectors (e.g., Moulton and Sandfort 2017; Perry and Rainey 1988) and human capital asset specificity (e.g., Ospina 2017; Williamson 1999), organizational adaptation to administrative reforms is hypothesized as being superior when agency heads have prior government experience, as well as possessing suitable prior government experience that more closely aligns with the administrative and policy duties of these state UIP agencies. The statistical evidence indicates that IT modernization reforms delivery performance benefits by increasing rate of timely disbursement of initial claimant unemployment program payments by an average of 5.26%, while reducing exceedingly tardy disbursements by an average of 2.90% — thus constituting a net performance swing of 8.16%. However, not just any type of prior government experience is sufficient per predictions emanating from intersectoral theories (e.g., Feeney and DeHart-Davis 2009; Jacobsen and Jakobsen 2018; Moulton and Sandfort 2017; Perry and Rainey 1988). Similarly, nor is having human asset specific expertise in the agency's policy field sufficient for improving administrative performance per policy expertise theories (Gailmard and Patty 2013; Krause and Zarit 2022; Ospina 2017; Petrovsky, et al. 2017; Williamson 1999). Rather prior experience held by agency leaders that accords with the nature of the administrative reforms yields the greatest performance benefits. In the context of the present study, agency leaders with prior appointed administrative positions, regardless of agency policy mission, are best situated to effectively manage organizational adaptation to IT modernization reforms since they represent a general core task function of public agencies.

Organizational Adaptation in Administrative Processes: IT Modernization and State Unemployment Agencies

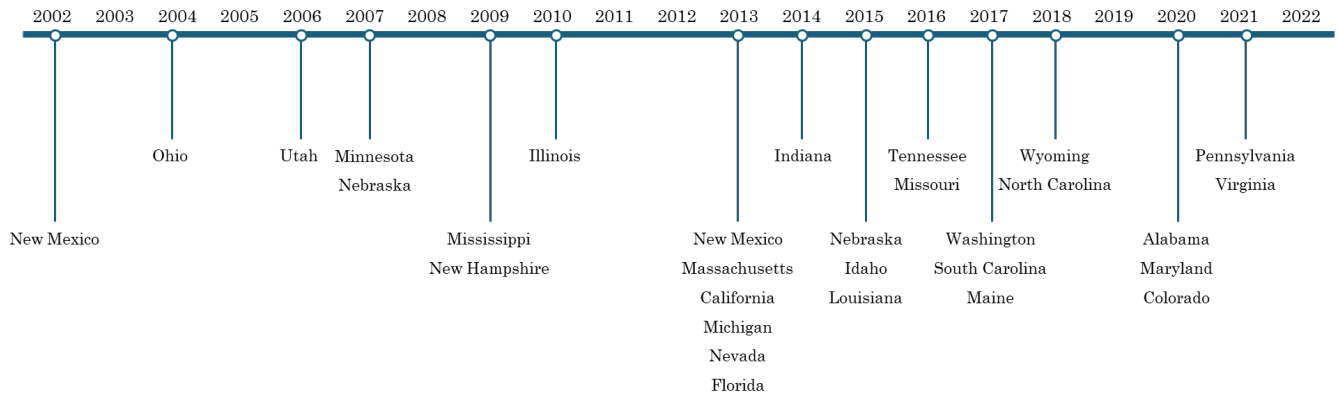
Organizational adaptation focuses on how administrative behavior changes through time in response to new routines or systems adopted by organizations (Cyert and March 1963; Levitt and March 1988). Organizational adaptation is often presumed to enhance productivity, efficiency, and other means of performance as agencies experience 'learning by doing' (Argote 1993; Levitt and March 1988). Yet, this rate of performance-based learning, however, systematically varies when adapting to organizational change (Argote, et al. 2021; Choi and Chandler 2020; Rhee and Kim 2015). Analyzing these dynamic processes offers insight into the conditions by which performance improves, deteriorates, or remains unaffected in response to organizational change.

Understanding how public agencies adapt to reforms is a critical substantive policy and governance issue with real-world implications. The timely delivery of program benefits to eligible unemployed citizens represents a key performance criterion for state unemployment insurance program (UIP) agencies (U.S Government Accountability Office 2021: 19). Failure to swiftly administer state unemployment benefits results in a host of adverse implications for unemployed citizens, such the inability to pay bills, incurring higher levels of credit card debt, food scarcity, and homelessness (Henderson 2020; Office of Inspector General, U.S. Department of Labor 2021: 7). Put simply, the timely disbursement of unemployment payments to program eligible citizens is a vitally important task entrusted to state UIP agencies.

This study evaluates how the timely provision of these programmatic benefits to vulnerable citizens are affected by administrative performance in response to Information Technology (IT) modernization reforms adopted in 28 state UIP agencies from January 2002 through June 2022. IT modernization reforms are intended to enhance both efficiency and accuracy in program administration (National Association of Workforce Agencies 2010; U.S. Government Accountability Office 2023). These IT modernization reforms largely transpired in the decade following the 'Great Recession' in response to the rising demand for social services, coupled with inadequate processing

efficiency due to a reliance on outdated technology systems (National Association of State Workforce Agencies 2010). This pattern is borne out by the timeline of IT modernization reforms adopted by state UIP agencies denoted in **Figure 1**. All but five of the 28 states adopting IT reforms occurred in 2009 and beyond, with two of the early adopters, New Mexico and Nebraska, undertaking a second round of major IT modernization reforms in 2013 and 2015, respectively.[1]

FIGURE 1. Temporal Sequence of IT Modernization Adoptions by State UIP Agencies, 2002-2022



The core feature of these IT modernization reforms involves a transition to employing "*…..application technology that inherently supports web-based services and object-oriented paradigms in combination with relational database technology.*" (National Association of State Workforce Agencies 2010: 7). Although automated case processing by state UIP agencies extends back several decades, older technologies are cumbersome since they require agency staff needed to check multiple systems for claims information, wherein any inconsistencies in the information resulted in additional delay in payments (U.S. Government Accountability Office 2021: 22). Most cases claim filing required in-person visit or reaching out to a call center agent, which also expend a substantial level of staff resources (U.S. Government Accountability Office 2023: 11).

[1] New Mexico had two separate modernized IT systems instituted in November 2002 and March 2013, while Nebraska's separate launches of modernized IT systems occurred in July 2007 and July 2015.

In contrast, IT modernization reforms offer web-based services, module-based systems, relational database technology, and position automation as a means of reducing reliance on 'paper-based' case processing of unemployment benefits (U.S. Department of Labor Office of Inspector General 2021). The web-based system enables claimants to submit their unemployment insurance claims online. When claimants enter their information online, the system can immediately validate and process the data. Further, integrated filing system expedites claim processing by facilitating both claims filed by citizens and its adjudication by agency staff. Previous systems had distinct platforms for filing, validating, and updating claimant information delay claims processing and inhibit collaboration across different units within the agency (National Associated of State Workforce Agencies 2010; U.S. Government Accountability Office 2021: 22). A modernized UIP system handles large volumes of applications electronically, thus reducing processing times. IT modernization reform efforts have greatly enhanced the percentage of unemployment case filings processed via automation by state UIP agencies between 2002-2022. The mean automation rate, the proportion of claims filed through internet as opposed to telephones, in-person, and postal mail, is numerically similar, albeit statistically significant due to precise nature of these estimates, when comparing non-IT modernization reform states (45.86%) and pre-adopting IT modernization reform states (40.61%). Once IT modernization is instituted, the mean automation rate surges to 70.47% — a figure much higher than the overall sample mean (52.60%).

Automation has generally enhanced the processing of unemployment claims, yet these administrative gains have not uniformly benefited all states instituting IT reforms. States with legacy IT systems started the Pandemic Emergency Unemployment Compensation program 15 days slower than states with modernized IT systems (Office of Inspector General, U.S. Department of Labor 2021: 17). State UIP officials emphasize the significant role that modernized IT systems have played in improving communication with UIP claimants with 24-hour service access and direct claim status updates for UIP claimants (Simon-Mishel, et al. 2020: 19). Although IT modernization

reforms can improve the timely disbursement of benefit payments to claimants, some states do not experience immediate performance improvements. For example, Virginia encountered a week-long backlog in case processing during the temporary shutdown of the old IT system to transition to the new system soon after modernizing their UIP agency's IT system in 2021 (Martz 2021). Therefore, performance improvements resulting from IT modernization reforms will be gradual as agencies adapt to organizational processes to new technologies. This logic leads to the first hypothesis.

> H1 (*Unconditional Organizational Adaptation Hypothesis*): *Administrative reforms improve performance through time.*

Next, a theoretical logic is advanced explaining why performance benefits from IT reforms are unequally distributed both across states and through time based on the nature of the prior government-related experience of agency heads.

How IT Modernization Reforms Shape the Implementation of State Unemployment Insurance Benefits: The Role of Agency Leaders' Prior Government Experience

Agency heads are accountable for administrative performance since they are legally responsible for providing effective leadership in overseeing their agency's overall functions in compliance with applicable laws and regulations. For example, California's State Leadership Accountability Act commands that agency heads are "*responsible for the establishment and maintenance of a system or systems of internal control, and effective and objective ongoing monitoring of the internal controls within their state agencies*." (CA Govt Code § 13402). This responsibility includes system documentation, employee communication, and adapting the system to changing conditions. Agency heads biennially review and report on operational inadequacies, along with a correction schedule, until all issues are resolved. Agency leaders are also held politically accountable to elected officials and the public for their agency's performance. In Oregon, for instance, Governor Kate Brown dismissed two successive directors of the Oregon State

Department of Employment — Lisa Nisenfeld and Kay Erickson — Nisenfeld's dismissal followed a state audit revealing mismanagement in its software development projects, while Erickson's dismissal resulted from "the *continued delays from the Oregon Employment Department in delivering unemployment insurance benefits to thousands of out-of-work Oregonians*" that were deemed "*unacceptable*" (Borrud 2016; Rogoway 2020).

Because agency heads put their imprint on management reforms that shape administrative outcomes (Fernandez and Rainey 2017; Petrovsky 2010), effective adaptation to administrative reforms requires that these leaders not merely validate the need for change (Fernandez and Rainey 2017), but also the ability to effectively communicate organizational goals and foster cooperation is crucial when implementing reforms (Moynihan, et al. 2013; Oberfield 2012). Effective adaptation to administrative reforms can be achieved when agency leaders' backgrounds are aligned to a sector or organization (Meyer, et al. 2010). Yet, public sector organizations differ from private firms with respect to goals, operations, and organizational structure (Perry and Rainey 1988), in terms of having to navigate a broad political environment (e.g., Lee, et al. 2009; Moulton and Sandfort 2017) as well as a unique management setting (e.g., Feeney and DeHart-Davis 2009; Jacobsen and Jakobsen 2018). Agency leaders must be adept at handling such inherent complexities, especially during times of administrative change (Murphy, et al. 2017). These sectoral differences presume that leadership of public organizations requires a unique skill set, distinct from the talent and skills required to lead private firms (Ospina 2017; Williamson 1999). Studies of human capital development underscore the importance associated with the type of public sector work experience (Boardman, et al. 2010; Papenfuß and Schmidt 2023; Wiersma, et al. **nd**).[2] Prior government work

[2] This public-private distinction can also serve to the detriment of those with public sector experience working in profit-oriented public corporations (Papenfuß and Schmidt 2023).

experience enables the cultivation of public-sector specific skills that are necessary for managing organizational adaptation to administrative reforms.

> H2 (*Inter-Sectoral Experience Hypothesis*): *Administrative reforms will yield better performance when agency leaders possess prior government experience compared to counterparts who lack such prior experience.*

Agency heads with prior work experience in administrative positions will develop distinctly different knowledge and skills than those who come from political or non-administrative positions (e.g., Bowman, et al. 2014; Lewis 2007; Krause, et al. 2006; Mumford, et al. 2000).[3] Agency heads with administrative experience are more likely to develop a keen managerial understanding of public agencies, if not also benefit from policy-specific expertise relating to an agency's mission. In contrast, agency heads either serving or working on behalf of an elected official face short-term incentives, thereby, exhibiting a tendency to delegate detailed administrative responsibilities, while also exhibiting lower levels of policy expertise (Krause, et al. 2006). This latter type of individuals typically have both knowledge and skills relevant to handling political matters, requiring persuasion, bargaining, and conflict resolution, as well as being more attuned to the preferences of elected stakeholders (Maranto 2005; Selin, et al. 2022). The evidence bears out such skill-based differences by showing that U.S. federal programs run by career executives get systematically higher grades than programs administered by political appointees (Gilmour and Lewis 2006), and that reducing politicization in the selection of agency heads is a contributing factor to successful implementation of reforms in the U.S. federal agencies (Kelman and Myers 2011).

[3] We refer to administrative positions as those where individuals had previously served in an administrative agency in either an appointed or non-appointed (civil service) position, while political experience refers to service in elective office or working on behalf of elected officials in government.

H3 (*Administrative—Specific Experience Hypothesis*): *Administrative reforms will yield better performance when agency leaders possess prior administrative-specific government experience compared to counterparts who have only non-administrative related prior government experience.*

Finally, an agency head's human capital investments in policy-specific areas consistent with public agencies' missions represent another critical aspect of administrative performance (Gailmard and Patty 2013). This distinction effectively captures those agency leaders who possess specialized expertise in agency policy activities from those that do not (Krause and O'Connell 2016). Technical expertise in public sector leadership is critical for "….*not only for meeting the everyday technical aspects of a job as an individual contributor but also because of its role in more deeply understanding the tasks that need to be completed through others*." (Marcy 2014: 12). Expertise that is tailored to the agency-specific policy area is associated with increased investment in shared administrative governance (Gailmard and Patty 2013; Krause and Zarit 2022), as well as greater personnel stability (e.g., Petrovsky, et al. 2017).

H4 (*Agency—Specific Experience Hypothesis*): *Administrative reforms will yield better performance when agency leaders possess prior agency-specific government experience compared to counterparts who have other types of prior government experience.*

Next, the data and analytical strategy employed for evaluating the consequences of IT reforms on the timely provision of unemployment benefits to citizens are discussed.

Data and Analytical Strategy

Evaluating Implementation Delay as Efficient Performance

A pair of outcome measures are used to gauge performance quality that tap into the timely implementation of unemployment insurance benefits by state UIP agencies.[4] The first dependent variable, *Effective Performance*, is the proportion of unemployment cases where first payment time lapse is processed within 14 days by the agency in state *i*, month *t*.[5] This performance benchmark is set by the Department of Labor for all state unemployment insurance program agencies (U.S. Department of Labor 2019: I-2). These measures gauge the actual timeliness of state UIP disbursements that are not confounded by issues beyond the control of claimants 'actions. This measurement scheme ensures that these IT systems do not account for time spent by claimants in waiting lines or dealing with web service system issues, common challenges noted in the implementation of new IT systems (Simon-Mishel, et al. 2020: 11). A second dependent variable, *Poor Performance*, is the proportion of unemployment cases where first payment time lapse processing exceeds 28 days for a given state *i* for a given month *t*. This dependent variable captures poor administrative performance since these cases represent implementation delay that is more than double the DOL instituted limit for all state agencies. These measures represent count-based

[4] More information on these data sources and variable construction appears in **Appendix A: i. State Implementation Delay Measures (*Effective Performance* and *Poor Performance*).**

[5] First payment time lapse involves the weekly schedule and reporting of eligibility determination and payments in all states that represent "*….number of days from the week ending date of the first compensable week in the benefit year to the date the payment is (a) made in person, or (b) mailed, or (c) released to the financial institution/entity responsible for depositing the benefit payment into the UIP beneficiary's account (U.S. Department of Labor 2007: V-1-7).*"

proportions, and hence, are not appropriately modeled as continuous-proportions via log-ratio or Dirichlet models (Douma and Weedon 2019).[6]

Organizational Adaptation & Agency Leaders' Prior Experience Covariates

The effects of how agency performance adapts to a new automated system of case processing through time are measured by an *Organizational Adaptation* variable. This measure is defined as a time counter variable that equals "0" before the activation of a new automated system for state *i*, month $t-\iota$ (where $\iota \geq 0$); "*1*" for the first month of the new automated system is in effect for state *i*, month *t+1*; ……..; and "*m*" for state *i*, month m^{th} month that the new automated system has been in effect for state *i* year *t*.[7] Organizational adaptation is posited as conditionally affecting these implementation delay performance outcome measures based on the nature of state UIP agency heads' prior government experience. Unconditional organizational adaptation effects consistent with **H1** are evaluated by assessing dynamic (positive) improvements with respect to *Effective Performance*, and dynamic (negative) declines with respect *Poor Performance*.

The first covariate, *Prior Government Experience*, is a binary indicator that equals 1 if the current agency head has prior government experience (either of a non-administrative or administrative position, including elected office), equals 0 if the agency head lacks any prior government experience. This measure permits evaluation of **H2** to assess how inter-sectoral differences in the prior experience of agency leaders can affect organizational adaptation to IT modernization reforms. A pair of other measures are also employed to assess intra-sectoral

[6] Further, only a small percentage of these measures are observed close to the boundaries of 0.00 and 1.00 respectively for measures of *Poor Performance* (5.69% of adopting state observations fall below 0.01 [N * t = 7,386]) and *Effective Performance* (0.10% of adopting state observations fall above 0.99 [N * t = 7,386]).

[7] More information on these data sources and variable construction appears in **Appendix A: ii. Information on IT Modernization Reform Indicator Variable (*Organizational Adaptation).***

differences involving prior government experience for agency heads for evaluating **H3** and **H4**, respectively. *Prior Administrative–Specific Government Experience*, is a discrete categorical measure that equals 3 if the agency head has prior government civil service administrative agency experience, equals 2 if the agency head has, at most, prior appointed administrative agency experience, equals 1 if the agency head only has, at most, prior non-administrative (political-related) experience in government, and equals 0 if the agency head lacks any prior government experience. This covariate used to evaluate **H3** distinguishes not only between prior government experience or lack thereof performance assessments, but also among political, appointed administrative, and civil service administrative types of governmental experience. Finally, *Prior Agency–Specific Government Experience*, is a discrete categorical measure that permits evaluation of **H4** by distinguishing among whether an agency head has prior government UIP administrative agency experience (= 3), at most, prior non–UIP administrative agency experience (= 2), at most, prior non-administrative (political-related) experience in government (= 1), or when the agency head lacks any prior government experience (= 0). If the type of prior government experience held by agency heads is important to organizational adaptation, then administrative-specific (**H3**) and agency-specific (**H4**) expertise should yield greater performance benefits relative to other forms of prior government experience. Additional information on these state UIP agency prior government experience variables appear in **Appendix A: iii. Agency Head Prior Government Sector Experience Variables (*Prior Government, Prior Administrative–Specific Government Experience*, and *Prior Agency–Specific Government Experience*).**

Unit Effect Covariates

Both state-level and year-level unit effects are accounted for through a distinct set of binary indicators control for systematic differences across states and over time that might bias the organizational adaptation estimates of interest in this study. In addition, IT modernization reform adoption-year cohort reform effects account for the impact of staggered temporal sequence of when

states adopt IT modernization reforms on the timely disbursement of state UIP benefits (Wooldridge 2021). These indicators representing adoption year-cohort unit effects equal 1 when state *i* institutes an IT modernization reform in year *T* in the precise month (*t+1*), and beyond (*t+m*), that the IT modernization reform goes into effect (i.e., adopted), and equals 0 otherwise.

Additional Control Covariates

Agency Head Tenure Experience, measured as the number of months that the state UIP agency head has been in office within a given state for a given month.[8] State UIP agencies with longer-tenured agency heads should exhibit enhanced performance benefits in the timeliness of processing benefits. *Automation Rate* is measured as the percentage of claims filed through internet as opposed to in-person, telephones, and mails per state-month.[9] The U.S. Department of Labor calculates the estimated proportion of each filing method based on a randomly drawn sample of the states' claims processing records, ranging from 360 to 480 cases annually. This control covariate is posited as exhibiting a positive correlation with performance benefits, as an increasing proportion of claims filed via the internet should indicate greater reliance on modernized IT systems for administrative processes. *Administrative Staffing Capacity* is measured as the total number of staff divided by the total number of initial claims for a given state UIP agency per month.[10] This covariate captures the average staffing capacity available per claim. The administrative capacity for

[8] Compiled from online biographical sources by the authors. A comprehensive list is available upon request from the authors.

[9] Obtained from the U.S. Department of Labor Benefit Accuracy Measurement Survey, publicly available upon request.

[10] Total staff size and the total number of initial claims are obtained from the U.S. Department of Labor Employment and Training Administration's 'Resource Justification Model' (https://oui.doleta.gov/rjm/) and the ETA-5159 Report (https://oui.doleta.gov/unemploy/DataDownloads.asp), respectively.

processing each claim should be positively correlated with performance benefits. *Administrative Task Difficulty* is measured as the total number of staff divided by the proportion of claims involving inter-state or multi-claimants out of total number of claims filed in each state-quarter.[11] Because inter-state and multi-claimant cases typically require greater administrative efforts (in terms of resources and coordination), greater task difficulty is hypothesized as being negatively correlated with performance benefits. *State Unemployment Rate* is measured as the percentage of seasonally adjusted unemployment rates, reflecting the workload of the agency within a given month-year.[12] This control covariate is expected to be negatively correlated with performance benefits since rising unemployment conditions in a given state should bear greater workload that the state UIP agency has to handle than compared to when economic conditions reflect lower levels of unemployment. *Administrative Management Capacity* measures the state UIP agency's administrative quality, operationalized as the average real dollar amount of salary for administration and supervision of the UI program per position in each state for a given year.[13] This control covariate is expected to be positively associated with performance benefits reflected in improved timeliness in the processing of UI benefits. Descriptive statistics for the variables analyzed in the manuscript appear in **Appendix A: Table A1**.

[11] Information on inter-state and multi-claimant cases is sourced from the ETA-207 Nonmonetary Determinations Activities Report (https://oui.doleta.gov/unemploy/DataDownloads.asp), with quarterly intervals being the finest level of granularity.

[12] Obtained from the U.S. Bureau of Labor Statistics- Local Area Unemployment Statistics. 2002-2023 (https://download.bls.gov/pub/time.series/la/la.data.2.AllStates).

[13] Obtained from the U.S. Department of Labor Employment and Training Administration's 'Resource Justification Model' (https://oui.doleta.gov/rjm/).

Statistical Methods

Statistical modeling of organizational adaptation is complicated by the fact that many alternative processes exist, and hence, obtaining the correct functional form might be difficult, if not impossible, across the array of outcomes and heterogeneous learning behavior analyzed in this study. Rather than impose an incorrect functional form *a priori* that can result in biased estimates of organizational adaptation, these relationships are instead estimated from the observed data in a nonparametric manner to avoid misspecification of the estimated organizational adaptation processes of interest. This is an important consideration not only for estimating the 'correct shape' of the organizational adaptation process estimates, but also to ensure that the resulting estimated optimal performance effects are allowed to vary at different future time periods following the institution of IT modernization reforms. This modeling approach can distinguish between unconditional and conditional organizational adaptation estimates from the same model specification, unlike parametric models containing product-based interaction terms. Yet, this flexible estimation approach comes at considerable computational cost since nonparametric regression methods suffer from the 'curse of dimensionality' insofar that models have difficulty converging to stable estimates as the number of regressors increases given data sparseness in nonparametric estimation (Geenens 2011: 32).

A hybrid semi-parametric modeling strategy is implemented to address this dilemma. This modeling approach models heterogenous organizational adaptation nonparametrically using B-spline series regression estimation approach, while estimating all control covariates (unit effects and additional controls) using parametric linear methods. B-spline approaches to nonparametric estimation are appealing for applications that require complex numerical computations (Kirkby, et al. 2023: 76). Hybrid semi-parametric models balance the need for generating unbiased estimates of organizational adaptation that are void of distributional and functional form assumptions, while ensuring statistical efficiency by reducing the curse of dimensionality that plagues nonparametric

models seeking to estimate several parameters (covariates) over a sparse observed data region.[14] Modeling organizational adaptation behavior is both practical and appropriate given that the temporal process involves high frequency data that contains a large number of time points that make modeling monthly unit effects both problematic and ill-advised. [15]

The general form of the hybrid semi-parametric estimating equation appears below:

$$y_{i,t} = \overbrace{g\left(x_{i,t}\right)}^{Organizational\ Adaptation} + \overbrace{\gamma_i S_i + \lambda_T T_T + \eta_{i,T} C_{i,T}}^{Unit\ Effects} + \overbrace{\beta_k Z_{k\,i,t}}^{Additional\ Controls} + \varepsilon_{i,t} \qquad (1)$$

where the pair of implementation delay measures defined earlier (*Effective Performance*, *Poor Performance*) for state *i* in month *t* ($y_{i,t}$) is estimated nonparametrically as a function of organizational adaptation that is heterogenous across different sectoral types of prior professional experience obtained by state UI agency heads – i.e., *Prior Government Experience*/ *Prior Administrative—Specific Experience/Prior Agency—Specific Administrative Experience* measures in respective models [$g(x_{i,t})$], plus a linear-parametric function of state (S_i), year (T_T), adoption year-cohort reform unit effects ($C_{i,T}$), and also a vector of additional control covariates ($Z_{k\,i,t}$), with a regression disturbance term ($\varepsilon_{i,t}$). A cross-validation criterion reveals that a single knot is optimal for estimating B-Splines in all of the statistical models.[16]

Statistical Findings

The consequences of timely delivery of unemployment benefits by state agencies resulting from IT modernization reforms are analyzed using the *Effective Performance* and *Poor*

[14] This would result in considerable efficiency loss and risk for overfitting these data since it would require estimating 251 (t–1) monthly unit effect parameters.

[15] This B-spline involves estimating 504 and 1,008 respective cross-product derivative combinations of post-IT reform monthly outcomes (252) and discrete categories relating to agency head prior experience (2, 4).

[16] The hybrid semi-parametric models are estimated using Stata 18's ***npregress series*** function.

Performance measures defined in the preceding section. The tabular estimates appear in **Table A1** at the end of the manuscript. To facilitate substantive interpretation, the core organizational adaptation nonparametric estimates are presented in graphical terms.[17]

Figures 1A and **1C** provide a baseline perspective on how IT modernization has affected the efficient delivery of unemployment benefits from successful claimants by displaying the dynamic path of administrative performance following this class of administrative reforms. **Figure 1A** reveals that the proportion of cases meeting the 14 day performance benchmark standard set by DOL (*Effective Performance*) modestly improves by approximately an average 5.26% with the passage of five years (60 months) following IT modernization reform. **Figure 1C** indicates the mirror pattern since cases taking more than double this DOL standard exceeding 28 days (*Poor Performance*) are reduced by an average of 2.90% over the same time span. The performance swing, defined as the difference between these expeditious and protracted implementation rate estimates, is a useful statistical measure of the net maximum performance benefits accrued from both *Effective Performance* and *Poor Performance*. The performance swing estimate corresponding to unconditional adaptation effects represents an 8.16% net improvement in state UI agency performance. **Figures 1B** and **1D** evaluate performance differentials involving conditional adaptation to such differences regarding whether state agency heads have any prior government experience consistent with **H2** (*Inter-Sectoral Experience Hypothesis*). The evidence clearly rejects intersectoral experience differences (**H2**). **Figure 1B** yields a paltry −0.41% prior intersectoral experience differential effect in *Effective Performance*, while **Figure 1D** yields an even smaller

[17] The estimated regression coefficient represents an average derivative effect that neither is capable of distinguishing nonlinear learning through time nor the cross-product (interactive) effects between the organizational adaptation covariate and various agency head prior experience covariates. These effects are disentangled in the resulting graphical analysis of these effects using Stata's ***margins*** function.

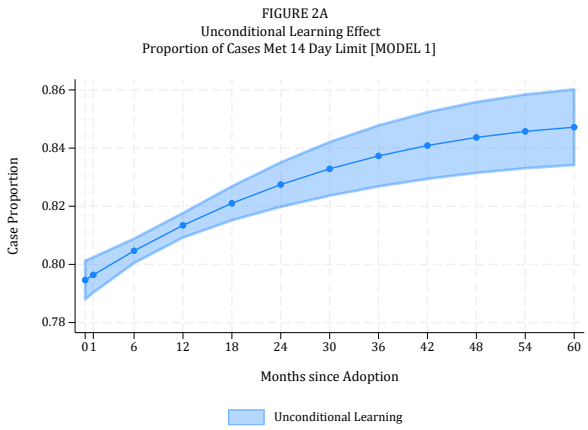
corresponding estimate (−0.11%). This performance swing gap is a mere −0.30%. Yet, it is possible that organizational adaptation to IT reforms might be masked by not differentiating among various types of prior government experience held by state UIP agency leaders.

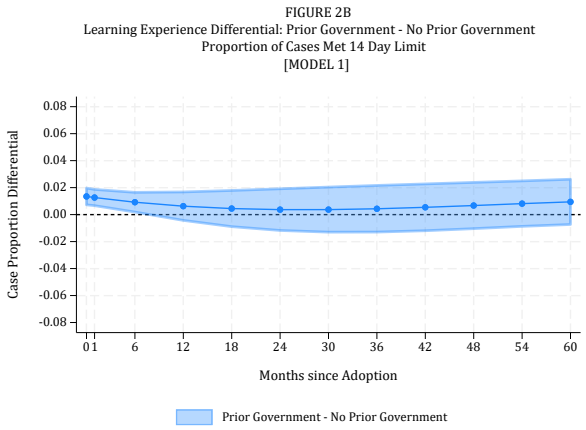
This issue is evaluated with respect to the timely disbursement of unemployment insurance program benefits in subsequent analysis evaluating both **H3** (*Administrative—Specific Experience Hypothesis*) and **H4** (*Agency—Specific Experience Hypothesis*). The subsequent empirical tests estimate the average marginal performance difference between each agency leader type following the institution of an IT reform. All subsequent comparisons are made using the estimated average marginal difference between each agency leader type for administrative performance post-IT reform relative to the baseline average performance differential pre-IT reform. These estimate comparisons capture organizational adaptation that takes place from the onset of these IT reforms, with steeper curves indicating greater organizational adaptation differential effects.

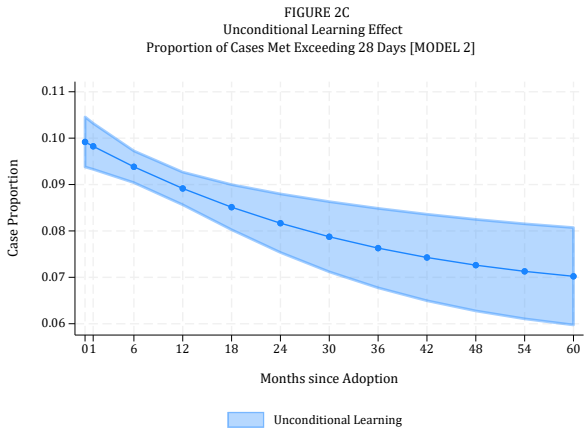
The estimates evaluating the *Administrative—Specific Experience Hypothesis* (**H3**) appear in both **Figures 3** and **4** with respect to *Effective Performance* and *Poor Performance* outcomes, respectively. **Figures 3A** and **4A** indicate that state UIP agencies whose leaders only possess prior political related government experience exhibit not only somewhat inferior *Effective Performance* compared to agencies led by individuals lacking any prior government experience 24 months following IT reforms (−1.71%), but this pattern also holds for *Poor Performance* after 60 months (1.84%). This represents a maximum estimated performance swing of 3.55%. Yet, the most robust evidence relates to the superior performance emanating from organizational adaptation when a state UIP agency head has prior appointed administrative experience. Specifically, *Effective Performance* improves following IT reforms relative to agency heads lacking any prior government experience results in a net differential estimate of 5.15% after 60 months (**Figure 3B**), while *Poor Performance* generates a corresponding 2.11% decline in the proportion of initial claimant cases processed that exceed 28 days (**Figure 4B**) – a performance swing differential of 7.26%. This

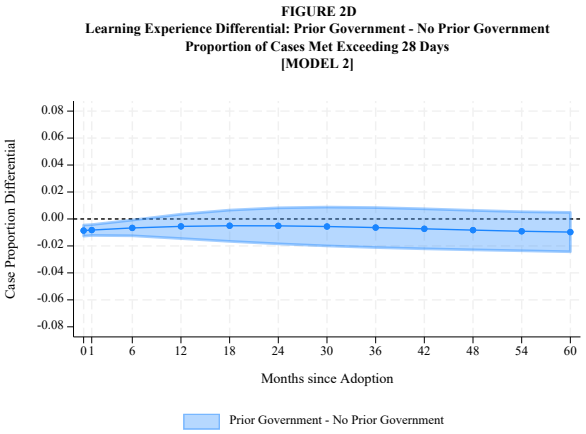
FIGURE 2

Unconditional Baseline Organizational Adaptation Estimates (*Figures 2A & 2C*) & Conditional Organizational Adaptation Estimates Based on Prior Government Experience or Lack Thereof (*Figures 2B & 2D*)









pattern is also observed when comparing the performance differential between agency heads with prior appointed administrative experience versus those with either only prior political-related experience or prior civil service administrative experience. In the former case, the estimated *Effective Performance* differential after 42 months is 5.91% (**Figure 3D**) while the maximum dynamic reduction in *Poor Performance* differential is 2.89% (**Figure 4D**) – an estimated maximum performance swing of 8.80%. In the latter case, performance suffers under agency leaders with prior civil service experience relative to counterparts with prior appointed administrative

experience. The average *Effective Performance* differential is 6.59% lower after 48 months for state UIP agencies led by individuals with prior civil service experience compared to those with prior appointed administrative experience (**Figure 3F**). The corresponding differential for *Poor Performance* is 3.03% higher after 36 months for agency leaders with prior civil service administrative experience relative to prior appointed administrative experience (**Figure 4F**). This estimated maximum performance swing is 9.62%. Taken together, these findings offer support for the *Administrative—Specific Experience Hypothesis* (**H2**) insofar that agency heads with lacking either prior government administrative experience or possessing only civil service administrative experience are less successful in obtaining performance gains from IT reforms compared to agency leaders with prior appointed administrative experience.

What might explain evidence indicating a concordance between the nature of administrative reforms and the type of prior experience held by state UIP agency heads? A plausible explanation lies in the unique experiential backgrounds of individuals serving in appointed administrative positions. Specifically, state UIP agencies obtain greater performance benefits from IT reforms since agency heads with prior appointed administrative experience are disproportionately represented by holding the top appointed agency official with "CEO" responsibilities. 79.42% of the post-IT adoption observations for this specific type of prior government experience are represented by former state or local agency heads.[18] These chief administrative positions contain the unique requisite organizational authority and responsibility

[18] Nearly half of these post-IT reform adoption observations (49.67%) consist of former state agency heads, while 29.75% are represented by former local government agency heads. The remaining 20.58% of these observations are comprised of state agency political executives serving directly underneath state agency heads (e.g., deputy commissioner, deputy secretary, deputy executive director, assistant secretary).

FIGURE 3

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative–Specific Government Experience (Effective Performance)

FIGURE 3A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL 3]

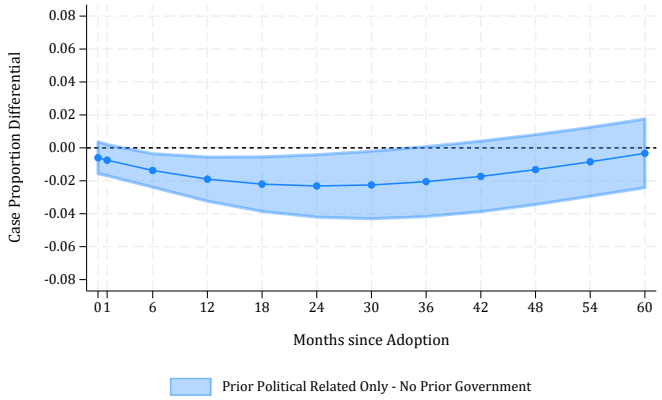


FIGURE 3B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL 3]

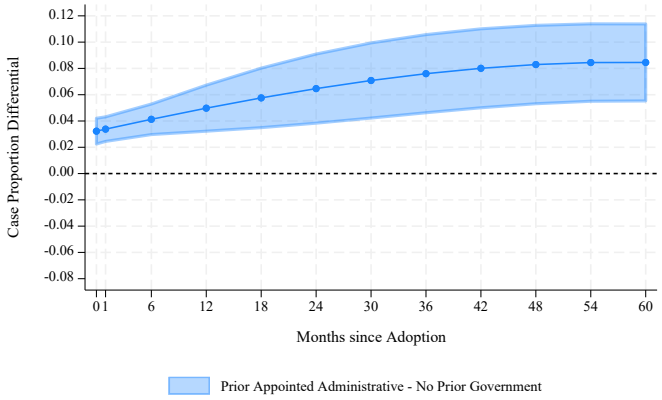


FIGURE 3C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL 3]

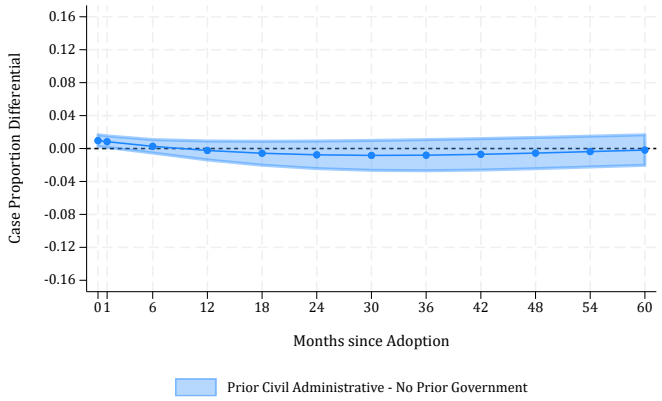


FIGURE 3D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL 3]

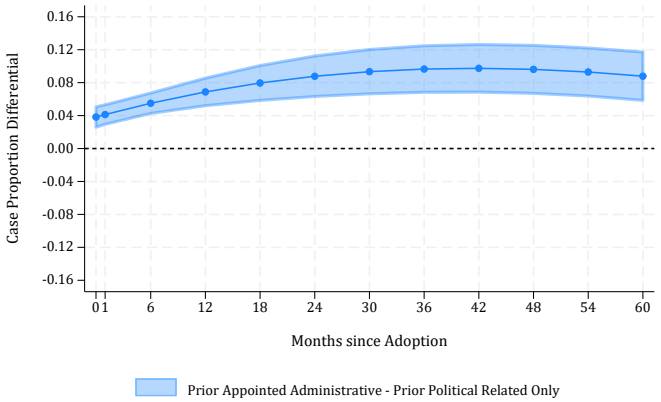


FIGURE 3E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL 3]

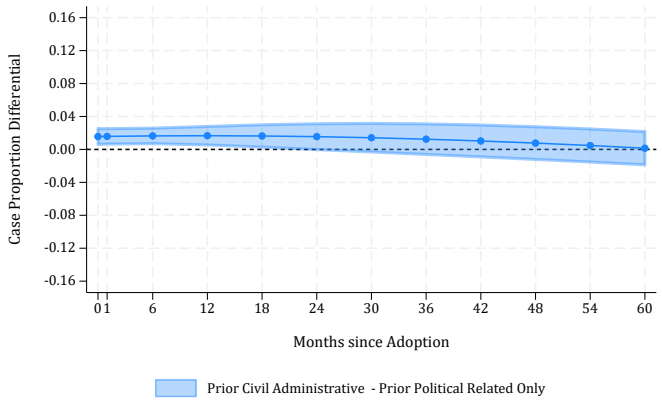


FIGURE 3F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met 14 Day Limit [MODEL 3]

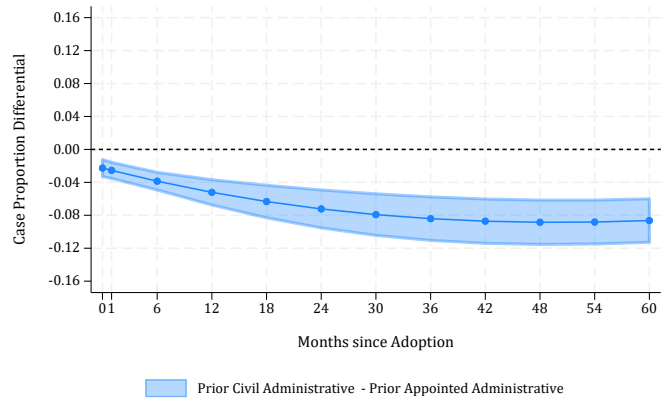


FIGURE 4

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative–Specific Government Experience (Poor Performance)

FIGURE 4A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL 4]

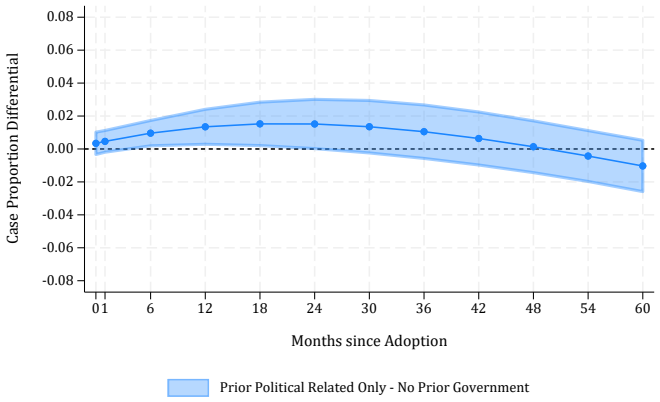


FIGURE 4B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL 4]

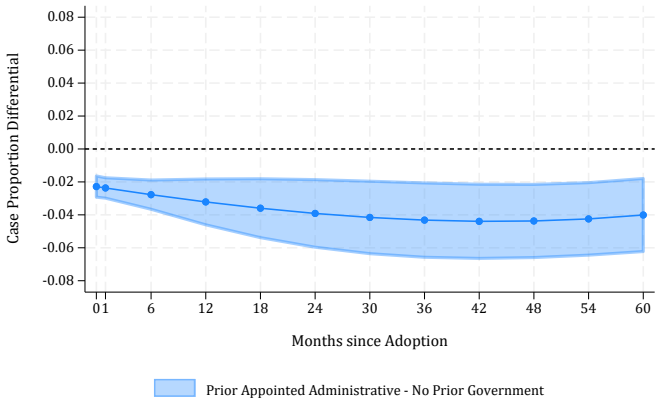


FIGURE 4C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL 4]

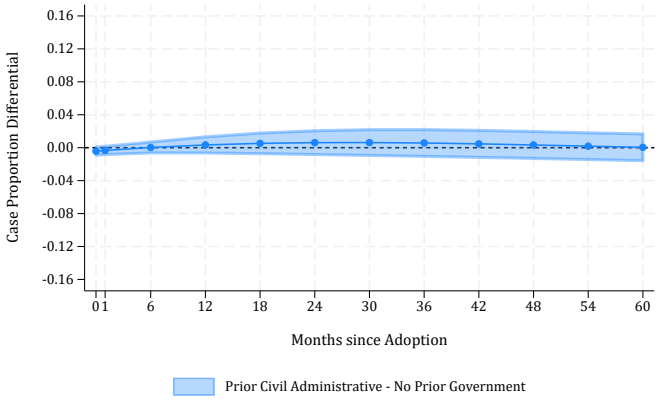


FIGURE 4D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL 4]

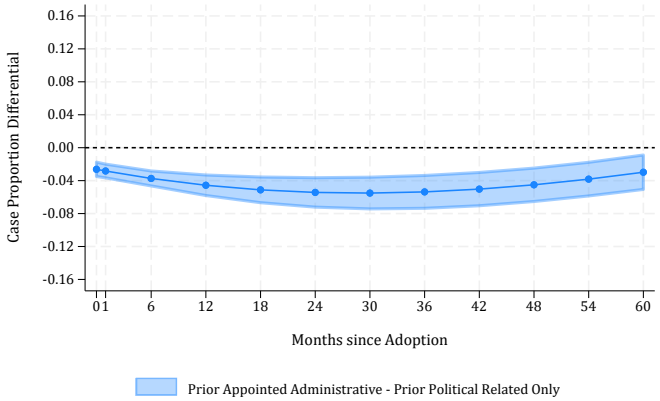


FIGURE 4E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL 4]

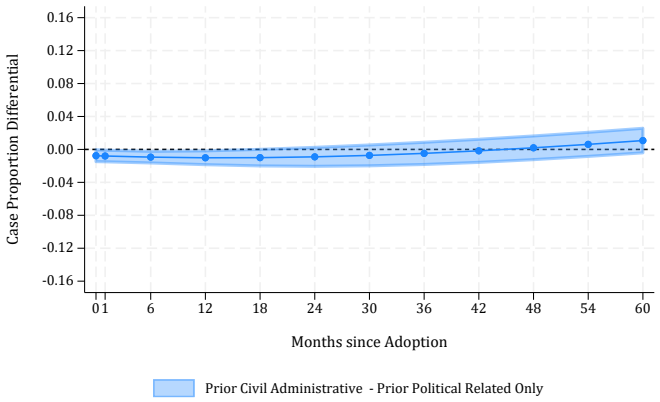
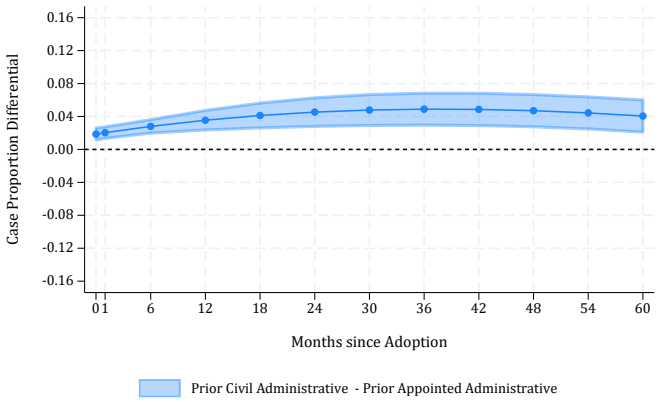


FIGURE 4F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL 4]



for managing such agency wide reforms involving core tasks functions. Experience involving the same type of government position through time yields performance benefits from IT reforms that are attributable to 'learning by doing' observed in both organizations (Levitt and March 1988) and governing (Krause and O'Connell 2016).

Both *Effective Performance* and *Poor Performance* outcome measures are used to evaluate the *Agency−Specific Experience Hypothesis* (**H4**) in **Figures 5** and **6**. Generally, these differential effect estimates of organizational adaptation following IT reforms fail to uncover any systematic support consistent with **H4**. This is most acutely typified in both **Figures 5F** and **6F** where the differential effect performance estimate between UIP agencies whose leader has prior UIP agency-specific experience versus prior non-UIP administrative experience is a paltry 0.09% (*Effective Performance*) and −0.32% (*Poor Performance*) respectively after 60 months. The corresponding performance swing differential estimate is 0.41%. These null findings contrast with those reported earlier revealing that unconditional organizational adaptation effect estimates represent a performance swing of 8.16%, as well as those for agency leaders with prior appointed administrative experience (ranging between 7.62% and 9.62%). Substantively, these patterns indicate that agency leaders' prior agency-specific expertise does a poor job of predicting delay in the timely disbursement of unemployment insurance program benefits. This finding is hardly surprising since IT reforms represent a core task function that is common across public agencies with varying policy missions (Borins 2014; Dunleavy, et al. 2006).

Sensitivity Analyses and Alternative Mechanism Tests

In addition, the sensitivity of the reported model estimates are analyzed by comparing these model results from those which (1) omit additional control covariates from the model specification to avoid overfitting, as well as potential post-treatment bias (**Appendix B: *Sensitivity Analysis, I: Omit Additional Control Variables***); (2) inclusion of Non-IT modernization reform states [N = 22] that alter the pre-reform baseline estimates in a manner that does not restrict these latter estimates

FIGURE 5

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency–Specific Government Experience (Effective Performance)

FIGURE 5A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL 5]

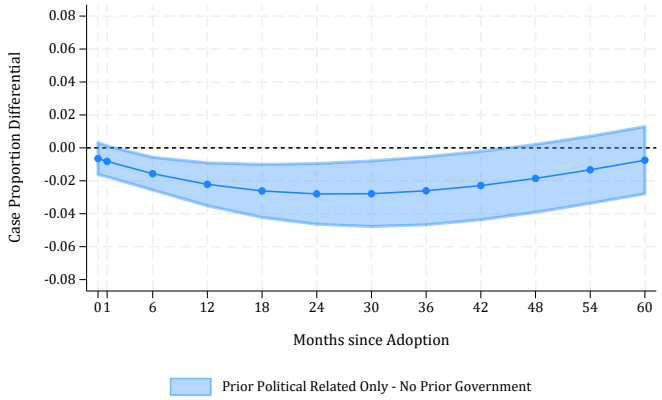


FIGURE 5B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL 5]

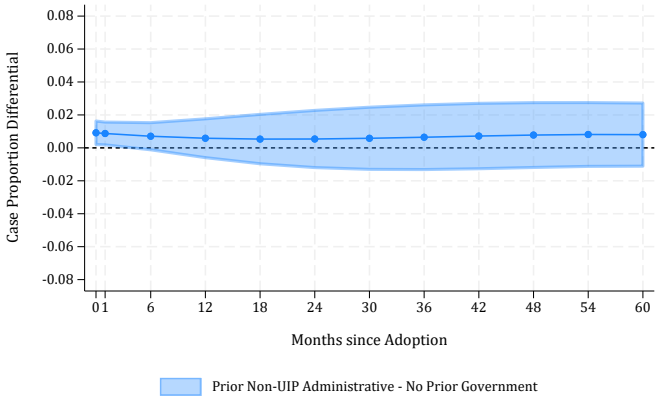


FIGURE 5C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL 5]

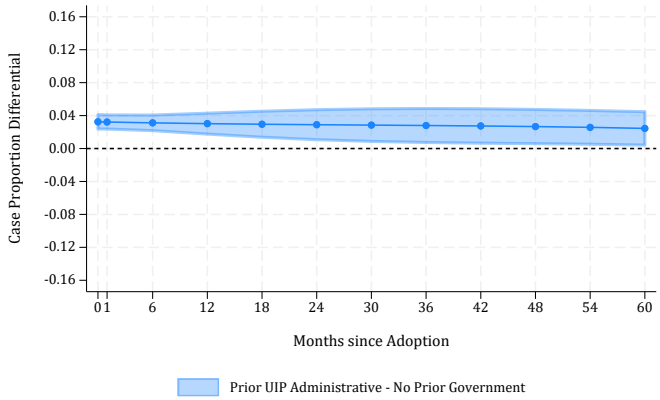


FIGURE 5D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL 5]

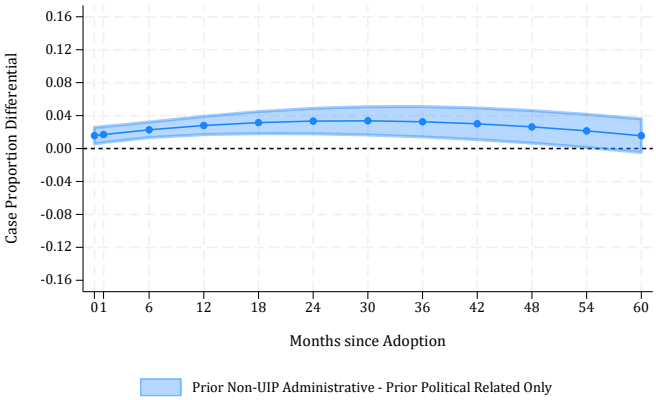


FIGURE 5E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL 5]

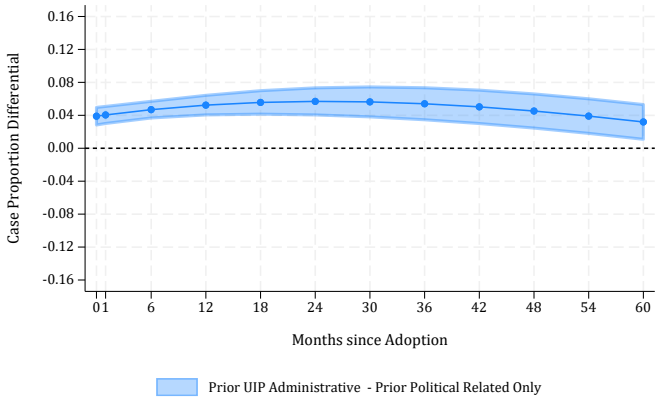


FIGURE 5F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met 14 Day Limit [MODEL 5]

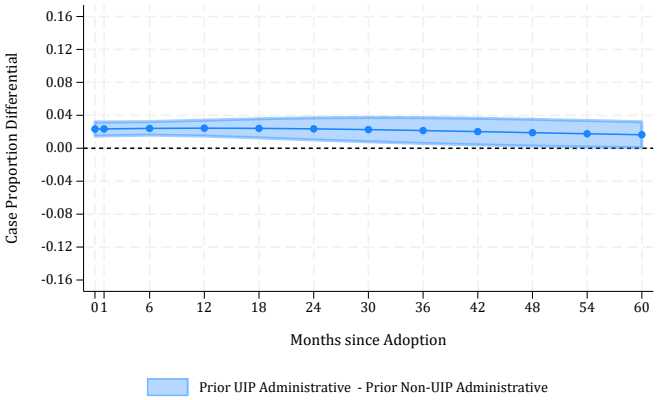


FIGURE 6

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency–Specific Government Experience (Poor Performance)

FIGURE 6A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL 6]

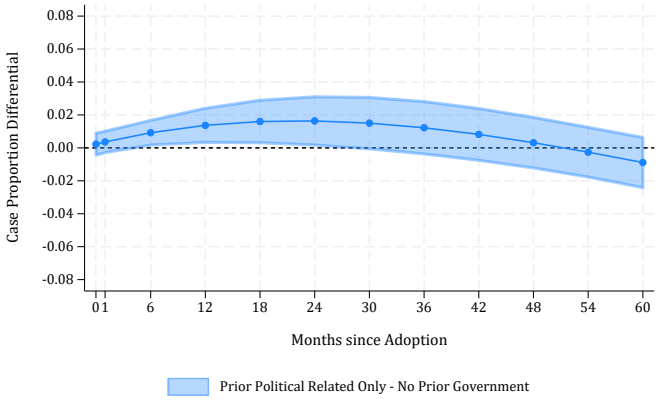


FIGURE 6B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL 6]

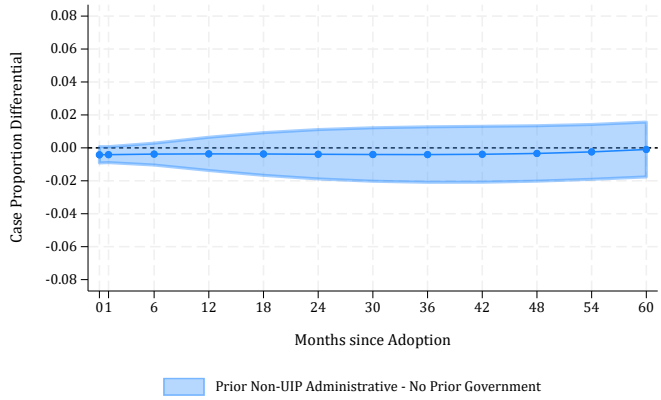


FIGURE 6C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL 6]

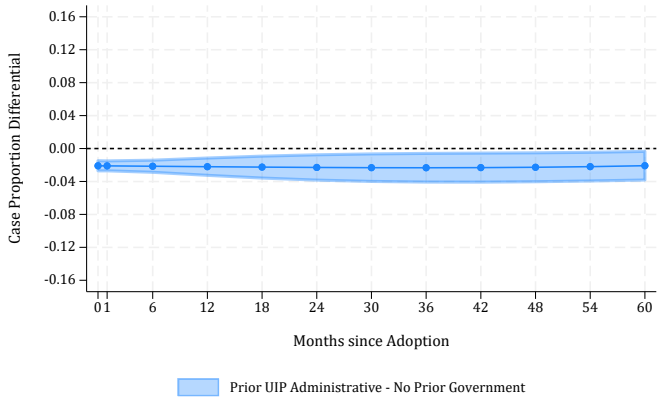


FIGURE 6D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL 6]

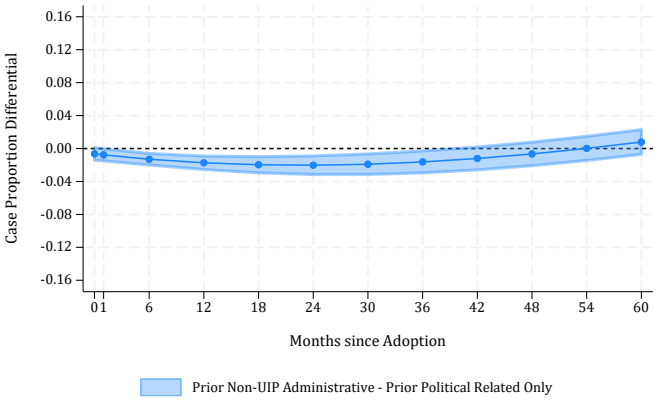


FIGURE 6E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL 6]

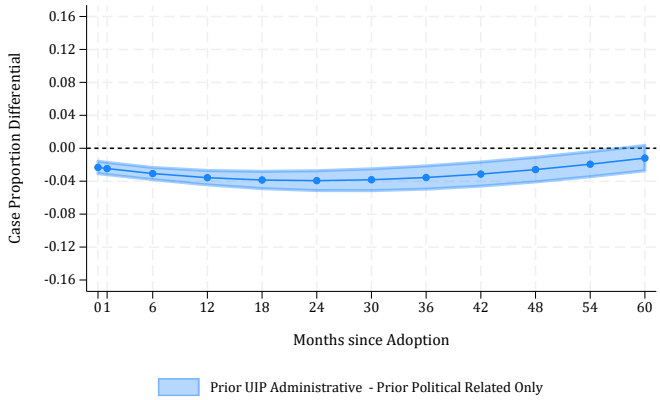
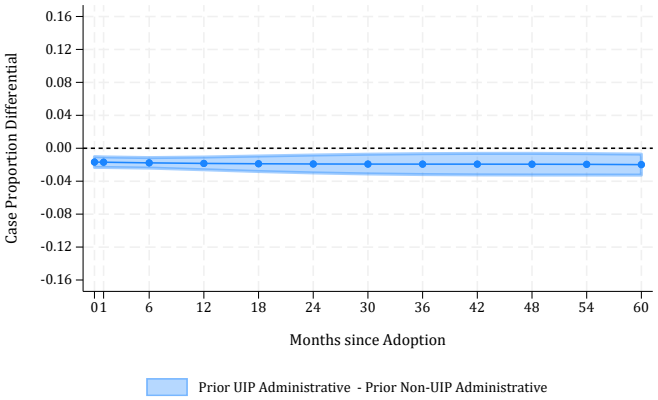


FIGURE 6F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL 6]



to only the agencies in question that adopt IT modernization (**Appendix C:** ***Sensitivity Analysis, II: Inclusion of Non-IT Adopting States***); and (3) omit cases for state panels adopting a second IT reform (Nebraska 2015, New Mexico 2013), as well as COVID pandemic years between 2020-2022 (**Appendix D:** ***Sensitivity Analysis, III: Omit 2nd IT Modernization Reforms [Nebraska and New Mexico] & COVID Pandemic Years (2020-2022)***). In summary, the evidence from the first two sets of sensitivity analyses (reported in **Appendices B & C**) is substantively consistent with results reported in the manuscript.[19] Further, no substantive differences generally arise between the last set of sensitivity analysis estimates (reported in **Appendix D**) and the reported estimates in terms of the primary findings reported in the manuscript indicating both unconditional and *Prior Appointed Administrative Experience* performance gains in response to IT reforms. An exception is that the *Prior Appointed Administrative Experience – No Prior Government Experience* Differential organizational adaptation effects are somewhat attenuated due to the omission of COVID-19 pandemic year cases (**Figures D2B/D3B**: *Effective Performance: 2.68*%; *Poor Performance*: 1.25%; *Performance Swing: 1.43* %) in **Appendix D** compared to those reported in the manuscript with the full complement of cases (**Figures 3B/4B:** *Effective Performance: 5.15*%; *Poor Performance*: −2.11%; *Performance Swing: 7.26*%). Closer inspection reveals that these differences are driven by the omission of COVID-19 pandemic years from the sample estimates, as opposed to the omission of the pair of states (New Mexico and Nebraska) with second IT modernization reforms.[20]

Two additional analyses are performed that consider alternative mechanisms that might explain these dynamic performance effects attributable to organizational adaptation to IT reforms postulated in this study. First, we consider the possibility that the effects attributable to an agency

[19] Minor numerical differences are discussed in **Appendices B** and **C**, respectively.

[20] The basis for this inference, and other distinctions between the reported estimates and those from this sensitivity analyses are discussed in greater detail in **Appendix D**.

leader's prior administrative experience (**H3**) are being driven by state UIP agency leaders' breadth of prior government experience – based on holding single versus multiple types of government positions (See **Appendix E:** ***Agency Heads' Breadth of Prior Government Experience Models***). Findings reported in **Appendix E** reject the thesis that differential performance benefits can be attributed to the breadth of prior government experience held by state UIP agency heads. Finally, placebo reform intervention analysis is undertaken to ensure the proper identification of the IT reform dynamic effects. These tests employ IT modernization project start date (as opposed to adoption/'launch' date) as the placebo reform intervention of interest (see **Appendix F: '*Placebo' Reform Intervention Analysis: IT Modernization Reform Project Start Date as a 'Placebo' Reform Intervention***). The findings from this analysis do not reveal tangible support for the IT modernization reform project start date as a viable alternative source of the organizational adaptation effects to those based on the adoption (i.e., institution) of these reforms.[21]

The empirical evidence demonstrates that the efficient delivery of unemployment benefits to citizens in need rests upon having state UIP agency heads with the correct type of prior government experience – one that is best suited for providing the leadership of agency-wide reforms pertaining to core task functions of administration, and not pertaining to more specific forms of human capital relating to either civil service (careerist) or agency-specific administrative experience. In summary, these findings suggest that realizing the performance benefits of administrative reforms critically depends upon having an agency leader with the correct type of experience suitable for the reform in question.

Discussion

Analyzing how public sector organizations adapt to reforms is a critical element for evaluating agency performance. Effective utilization of information technology (IT) is emerging as a

[21] More details on the specifics of these findings can be obtained in **Appendix F**.

critical component in delivering public services, aiding in streamlining processes, promoting transparency and fairness in decision-making (Young, et al. 2019), and improving service accessibility (Peeters, et al. 2023). Yet, adopting new technology can be costly and challenging, thus requiring organizations to adapt their practices to fully realize potential benefits and enhance performance outcomes (Repenning and Sterman 2002; Schwab 2007; Tyre and Orlikowski 1994). Ill-conceived technological reforms can produce inferior outcomes when the new technology is not properly integrated within existing organizational practices (e.g., Choi and Chandler 2020; Fernandez and Rainey 2017). In this study, how IT modernization reforms impact state UI agencies' timeliness in processing unemployment claims for initial claimants seeking benefits from this government program is analyzed. Efficient claim handling by state UI agencies is vital for the effectiveness of the unemployment benefits program under federal guidelines (U.S. Government Accountability Office 2023). More importantly, delays of UIP benefits can adversely impact unemployed citizens, including financial distress and homelessness (Henderson 2020; Office of Inspector General, U.S. Department of Labor 2021: 7).

On a broader level, this study departs in two novel ways from existing studies analyzing how administrative reform can alter administrative performance. First, this study focuses on how agency performance dynamically adapts to administrative reform. This approach can evaluate the dynamic adjustment path for public agencies to realize any performance improvements or reductions attributable to reform. This type of dynamic behavior cannot be inferred from static evaluations of performance change resulting from new administrative processes that rely simply on a summary assessment whether such reforms are beneficial based on average performance through time. Such static evaluations of performance effects cannot address how swiftly agencies adapt to new processes, nor whether these effects yield transitory or permanent performance benefits. Another important substantive contribution of this study is the insight that state UIP agencies adapt less well to IT reforms when led by individuals with immersive prior government administrative

experience (serving either as a careerist or in a UIP agency) compared to counterparts with prior appointed administrative experience. Because these latter type of positions in state government agencies represent the top-level political executive positions, this empirical pattern suggests that adaptation to administrative reforms benefit from having agency leaders with similar prior administrative experience as part of their resumes. Since IT modernization reforms directly impact common core task functions across agencies, it is worth noting that evidence in favor of more specialized prior government experience might be beneficial for evaluating the consequences of administrative reforms either relating to specific policy expertise or more localized reforms that only affect a particular component of an agency where the agency leader has prior occupational-related experience.

Analyzing how public agencies adapt to organizational-wide reforms can enhance our collective understanding of the conditions that shape successful adoption of these new initiatives. Empirical evaluation of such administrative reforms can offer practical governance insights regarding how to best maximize performance benefits while minimizing the adjustment costs of adapting to innovations that might adversely impact agency performance. This study is hopefully a springboard for future research seeking to analyze how public agencies adapt to organizational changes, and its dynamic consequences on administrative performance.

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TABLE A1. Hybrid Semi-Parametric Models of Implementation Delay: State Unemployment Insurance Benefits (2002-2022)

	M1	M2	M3	M4	M5	M6
Organizational Adaptation (Post-IT Reform Time Trend)	**0.013E-01*** **	**−0.07E-02*** **	**0.001*** **	**−0.07E-02*** **	**0.002*** **	**−0.001*** **
	(0.02E-01)	**(0.02E-02)**	**(0.003E-01)**	**(0.02E-02)**	**(0.03E-01)**	**(0.02E-02)**
Prior Government Experience (H2)	**−0.002**	**0.004**	_____	_____	_____	_____
	(0.003)	**(0.003)**				
Prior Govt Political-Related Experience Only (H3 & H4)	_____	_____	**−0.015*** **	**0.006** **	**−0.014*** **	**0.004**
			(0.004)	**(0.003)**	**(0.004)**	**(0.003)**
Prior Govt Appointed Administrative Experience (H3)	_____	_____	**0.022*** **	**−0.006**	**−0.010*** **	**0.014*** **
Prior Govt Non-UIP Administrative Experience (H4)			**(0.007)**	**(0.006)**	**(0.004)**	**(0.003)**
Prior Govt Civil Service Administrative Experience (H3)	_____	_____	**−0.010*** **	**0.011** **	**0.018*** **	**−0.011*** **
Prior Govt UIP Administrative Experience (H4)			**(0.004)**	**(0.003)**	**(0.004)**	**(0.003)**
Agency Head Tenure Experience (+/–)	0.03E-03	−0.07E-03**	0.001E-03	−0.07E-02**	−0.02E-03	−0.05E-03
	(0.04E-03)	(0.03E-03)	(0.004E-03)	(0.03E-02)	(0.04E-03)	(0.03E-03)
Automation Rate (+/–)	−0.069***	0.034***	−0.064***	0.034***	−0.072***	0.039***
	(0.009)	(0.008)	(0.010)	(0.008)	(0.010)	(0.008)
Administrative Staffing Capacity (+/–)	0.06E-04***	0.07E-04***	0.07E-04***	−0.07E-04***	0.07E-04***	−0.07E-04***
	(0.08E-05)	(0.07E-05)	(0.08E-05)	(0.07E-05)	(0.08E-05)	(0.07E-05)
Administrative Task Difficulty (–/+)	−0.305***	0.154***	−0.317***	0.156***	−0.294***	0.137***
	(0.058)	(0.039)	(0.057)	(0.038)	(0.057)	(0.037)
State Unemployment Rate (–/+)	−0.007***	0.007***	−0.008***	0.008***	−0.008***	0.008***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Administrative Management Capacity (+/–)	0.07E-04***	0.03E-05*	0.07E-05***	0.03E-05*	0.07E-05***	−0.03E-05*
	(0.02E-05)	(0.02E-05)	(0.02E-05)	(0.02E-05)	(0.02E-05)	(0.02E-05)
State−Fixed Effects	YES	YES	YES	YES	YES	YES
Year−Fixed Effects	YES	YES	YES	YES	YES	YES
Year Cohort−Fixed Effects	YES	YES	YES	YES	YES	YES
Total Number of Observations	7,386	7,386	7,386	7,386	7,386	7,386
Post-IT Modernization Reform Observations	2,967	2,967	2,967	2,967	2,967	2,967

NOTES: Bootstrapped Standard Errors (1,0000 Replications) reported in parentheses. **Boldface Type** Entries are Nonparametric B-Spline Estimates. Regular Typeface Entries are Linear (OLS) Estimates. * $p \leq 0.10$ ** $p \leq 0.05$ *** $p \leq 0.01$.

APPENDIX FOR

Agency Leaders and Organizational Adaptation to Administrative Reform:

Evidence from the Timely Disbursement of Unemployment Insurance Benefits in the American States

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APPENDIX A

TABLE A1

Descriptive Statistics for Variables Analyzed in Manuscript

Variable	N	Mean	SD	Min	Max	Source
Dependent Variables						
Effective Performance	7,386	0.81	0.14	0.03	1.00	ETA-9050 First Payment Time Lapse (https://oui.doleta.gov/unemploy/DataDownloads.asp)
Poor Performance	7,386	0.09	0.11	0.00	0.96	ETA-9050 First Payment Time Lapse (https://oui.doleta.gov/unemploy/DataDownloads.asp)
Organizational Adaptation & Agency Leaders' Prior Experience Covariates						
Organizational Adaptation	7,386	27.44	46.89	0.00	236.00	Compiled by authors from online sources. A comprehensive list of sources is available upon request.
Prior Government Experience	7,386	0.73	0.44	0.00	1.00	Compiled by authors from online sources. A comprehensive list of sources is available upon request.
Prior Administrative–Specific Government Experience	7,386	1.82	1.28	0.00	3.00	
Prior Agency–Specific Government Experience	7,386	1.62	1.15	0.00	3.00	
Control Covariates						
Agency Head Tenure Experience	7,386	34.17	33.60	0.00	249.00	Compiled by authors from online sources. A comprehensive list of sources is available upon request.
Automation Rate	7,386	0.53	0.32	0.00	1.00	U.S. Department of Labor. "Benefit Accuracy Measurement Survey. 2002-2021." Publicly Available Upon Request.
Administrative Staffing Capacity	7,386	1,889.98	2,779.13	2.00	83,598.83	U.S. Department of Labor. "Resource Justification Model," https://oui.doleta.gov/rjm/
Administrative Task Difficulty	7,386	0.02	0.04	0.00	0.51	U.S. Department of Labor. "Resource Justification Model," https://oui.doleta.gov/rjm/
State Unemployment Rate	7,386	5.69	2.29	1.80	30.30	U.S. Bureau of Labor Statistics. "Local Area Unemployment Statistics. 2002-2021."
Administrative Management Capacity	7,386	61,935.33	11,838.52	23,198.77	103,441.30	U.S. Department of Labor. "Resource Justification Model," https://oui.doleta.gov/rjm/

Detailed Description of Key Variables: Measures, Data Construction, and Data Source

i. State Implementation Delay Measures (*Effective Performance* and *Poor Performance)*

The two dependent variables on state-level monthly time lapse for unemployment insurance claims processing were obtained from the U.S. Department of Labor's monthly report, ETA-9050 First Payment Time Lapse (https://oui.doleta.gov/unemploy/DataDownloads.asp). On every 20th, the U.S. Department of Labor collects "First Payment Time Lapse" information from all the state first payment records that are made in the preceding month, where the term "time lapse" is defined as "a measurement of the number of days from the week ending date of the first compensable week in the benefit year to the date the payment is (a) made in person, or (b) mailed, or (c) released to the financial institution/entity responsible for depositing the benefit payment into the UI beneficiary's account (U.S. Department of Labor 2007: V-1-7)." Because eligibility determination and payments in all states are conducted weekly, the time lapse calculation for UI benefits uses the week-ending date of the first compensable week, which is when claimants believe they meet the state's weekly eligibility conditions and apply for compensation (see U.S. Department of Labor 2007 p.V-1-6 – V-1-9 for greater detail of data reporting instructions). It is important to note that the federal benchmark prioritizes the efficiency of the UIP agency by using each week's end date rather than individual claimants' filing dates to measure actual benefit timeliness. This approach assesses the program's operational effectiveness directly, without being influenced by claimant actions. This measurement scheme ensures that these IT systems do not account for time spent by claimants in waiting lines or dealing with web service system issues, common challenges noted in the implementation of new IT systems (Simon-Mishel, et al. 2020: 11).

Using the ETA-9050 database, the first dependent variable*, Effective Performance*, is measured as the proportion of the number of unemployment insurance claims cases where the first payment time lapse is processed within 14 days by the agency in a given state i, month t. This

measure is constructed from the sum of columns **c9** (total number of first payments processed within 7 days or sooner) and **c17** (total number of first payments processed within 8 to 14 days) divided by column **c1** (total number of intra-state claims first payments).The second dependent variable, *Poor Performance*, is the proportion of unemployment cases where first payment time lapse processing exceeds 28 days for a given state i in a given month t. This measure is constructed from the sum of columns **c41** (total number of first payments processed within 29 to 35 days), **c49** (total number of first payments processed within 36 to 42 days), **c57** (total number of first payments processed within 43 to 49 days), **c65** (total number of first payments processed within 50 to 56 days), **c73** (total number of first payments processed within 57 to 63 days), **c81** (total number of first payments processed within 64 to 70 days), and **c89** (total number of first payments processed exceeding 70 days).

ii. Information on IT Modernization Reform Indicator Variable (*Organizational Adaptation*)

We evaluate how the timely provision of UI program benefits for vulnerable citizens is impacted by agency performance, in response to Information Technology (IT) modernization reforms adopted by 28 state UI agencies since 2002. The *Organizational Adaptation* variable is defined as a time counter variable that equals "*0*" before the activation of a new automated system for state i, month $t-\iota$ (where $\iota \geq 0$); "*1*" for the first month of the new automated system is in effect for state i, month t+1; …….; and "*m*" for state I in m^{th} month that the new automated system has been in effect for state i year t.

For the purposes of the study, the first year-month of each state's introduction of the new automated system is determined by the time when the new automated system went live, as this indicates the point at which the system began to influence the agency's operations. The go-live dates and vendor information of the new automated system in these states were collected by the authors. Major source of information comes from the official website of the UI Information Technology Support Center (http://www.itsc.org/Pages/UIITMod.aspx), which is an organization

under the National Association of State Workforce Agencies (NASWA) that provides the status of state UI IT modernization projects since 2013. Sources include news articles, state legislature audit reports, state RFP documents, and from inquiries to the agency's IT unit. A comprehensive list of sources by each state and agency head is available upon request.

The new automated systems adopted by these 28 states—despite being state-initiated and driven reforms (i.e., IT modernization projects)—share the following two key components. The system "uses an application technology that inherently supports (a) web-based services and (b) object-oriented paradigms in combination with a relational database technology (National Association of State Workforce Agencies 2010: 2)." See manuscript pages 4-5 for more details on these key common features of state UIP agencies' IT Modernization Project and their automated systems. This is due to instances where a single vendor collaborated with multiple states[1], and therefore using the same product developed by that vendor, and/or the states faced common federal incentives to comply with several components in the IT modernization project to be eligible for federal funding (U.S. Department of Labor 2023: VI-1 – VI-3). Therefore, we coded the month as "1" and beyond for the go-live date of the automated system only when the state UIP agency's IT system reform, commonly referred to as the "IT Modernization Project," consisted of these two

[1] List of vendors and partner state UIP agencies.

Vendor Name	Partner State UIP Agencies
Accenture	Illinois
Capgemini	Nevada, North Carolina, South Carolina
CSG Government Solutions	Michigan
Deloitte	Colorado, Florida, Massachusetts, Minnesota, New Hampshire, New Mexico (2002), Ohio, Utah
FAST Enterprise	Washington
Geographic Solutions	Louisiana, Nebraska (2015), Pennsylvania, Tennessee
HCL America	Virginia
KSM Consulting	Indiana
Netacent	Alabama, Idaho
SAGITEC	California, Maryland
Tata Consultancy Services	Maine, Mississippi, Missouri, Nebraska (2007), New Mexico (2013), Wyoming

features. Other minor updates to the existing system were excluded and thus not coded as the launch of a new system.

iii. Agency Head Prior Government Sector Experience Variables (*Prior Government Experience, Prior Administrative–Specific Government Experience*, and *Prior Agency–Specific Government Experience)*

Information on state UIP agency heads' prior government sector experience was collected by the authors from publicly available biographical sources. First, we identified the name of each state agency that is in charge of administering the state UIP program from the U.S. Department of Labor's annually updated state contact list, which is attached to each year's Unemployment Insurance Performance Management report (https://oui.doleta.gov/unemploy/bqc.asp). Next, based on the agency information, we collected the tenure dates of the current and prior agency heads who served in these agencies between 2002 and 2022. For each agency head, we compiled the individual's comprehensive employment history since college from online biographical sources, including their professional networking sites, news articles, and agency websites. A comprehensive list of sources by each state and agency head is available upon request.

For government sector experience, the following positions in agency heads' prior employment history are related:

1= Prior government service experience as an elected official.

2= Working directly for an elected official in an elective office/institution post.

3= Appointed position service in an administrative ("line"), non-UIP agency.

4= Civil service (non-appointed) position in an administrative ("line"), non-UIP agency.

5= Appointed position service in an administrative ("line"), UIP agency.

6= Civil service (non-appointed) position in an administrative ("line"), UIP agency.

Variable ***Prior Government Experience*** is a binary indicator that equals 1 if the current agency head has experience in at least one of the above types of positions (1, 2, 3, 4, 5, or 6). ***Prior Administrative–Specific Government Experience*** is a discrete categorical measure that equals 3 if

the agency head has prior government civil service administrative agency experience (4 or 6), equals 2 if the agency head has, at most, prior appointed administrative agency experience (3 or 5), equals 1 if the agency head only has, at most, prior non-administrative (political-related) experience in government (1 or 2), and equals 0 if the agency head lacks any prior government experience (none of the above). ***Prior Agency–Specific Government Experience*** is also a four-categorical variable which equals 3 if the agency head has prior government UIP administrative agency experience (5 or 6), equals 2 if the agency head has, at most, prior non–UIP administrative agency experience (3 or 4), equals 1 if the agency head has, at most, prior non-administrative (political-related) experience in government (1 or 2), and equals 0 when the agency head lacks any prior government experience (none of the above).

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APPENDIX B

Sensitivity Analysis, I: Omit Additional Control Variables

Appendix B presents reduced model specifications omitting control covariates to assess the sensitivity of core estimates and address concerns that the manuscript's findings may result from overfitting due to these additional covariates, and possibly post-treatment bias in the core estimates of interest. All coefficients are substantively identical with the reported manuscript findings in terms of their estimated direction and statistical significance. One notable exception is Figure **B2F,** where agency heads with prior appointed administrative experience exhibit more pronounced performance benefits compared to those with civil administrative experience, with a maximum adaptation effect of 7.39% higher timely disbursement rates (**Figure B2F**, t+48 months), increasing from the original estimate of 6.64% (**Figure 3F**, t+48 months). Additionally, agency heads with prior political government experience have lower timely disbursement rates compared to those without government experience, ranging from −2.5% (**Figure B2A**, t+24 months) to −3.04% (**Figure B4A**, t+24 months). This contrasts with the manuscript's analogous estimates, which were not statistically significant (**Figures 3A** and **5A**), suggesting that these organizational adaptation estimates reported in the manuscript with the full set of control covariates are more conservative to the corresponding estimates of the restricted model specifications reported in **Appendix B**.

FIGURE B1

Unconditional Baseline Organizational Adaptation Estimates: H1 (Figures B1A & B1C) & Conditional Organizational Adaptation Estimates Based on Prior Government Experience or Lack Thereof: *H2* (Figures B1B & B1D)

Omit Additional Control Variables

FIGURE B1A
Unconditional Learning Effect
Proportion of Cases Met 14 Day Limit [MODEL B1]

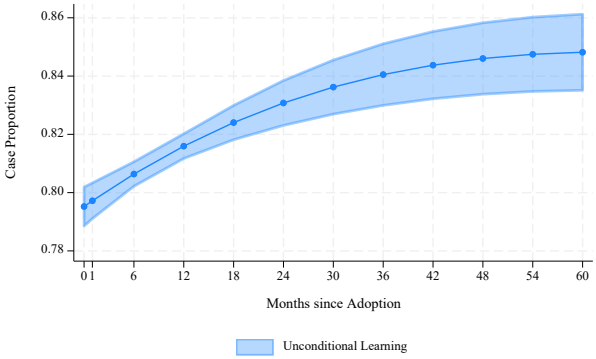


FIGURE B1B
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met 14 Day Limit
[MODEL B1]

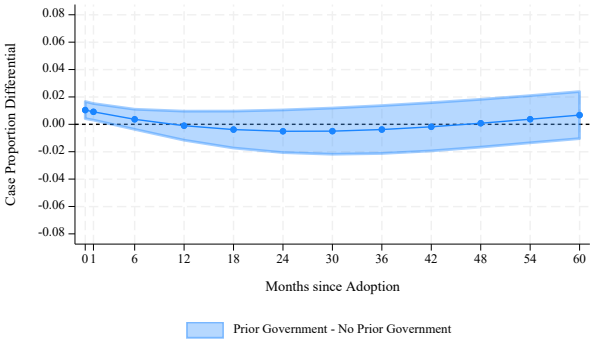


FIGURE B1C
Unconditional Learning Effect
Proportion of Cases Met Exceeding 28 Days [MODEL B2]

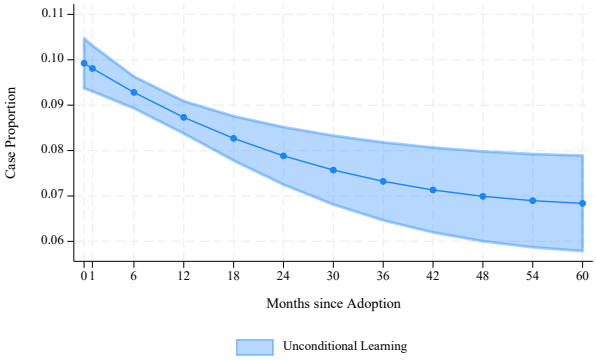


FIGURE B1D
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met Exceeding 28 Days
[MODEL B2]

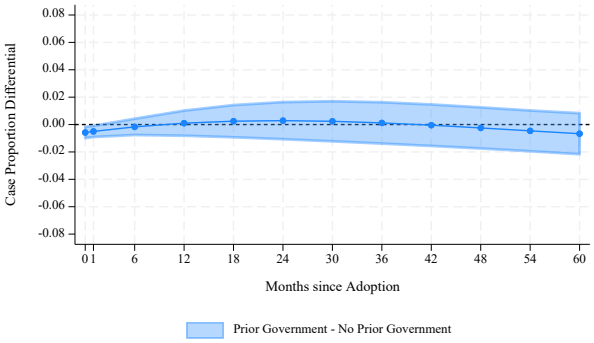


FIGURE B2

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative-Specific Government Experience: *H3* (*Effective Performance*)
Omit Additional Control Variables

FIGURE B2A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL B3]

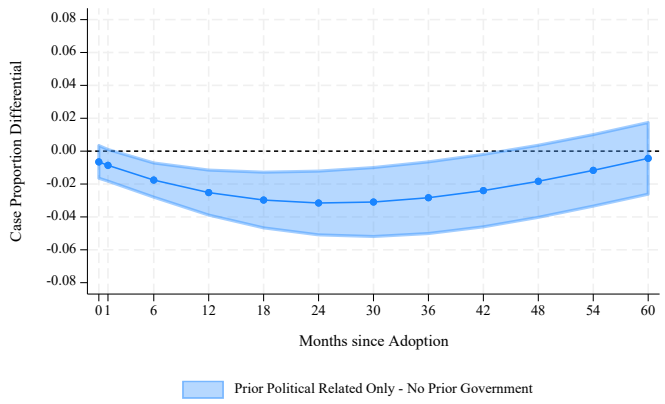


FIGURE B2B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL B3]

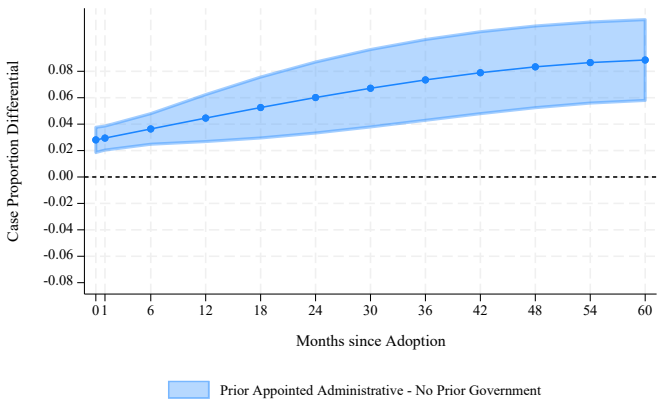


FIGURE B2C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL B3]

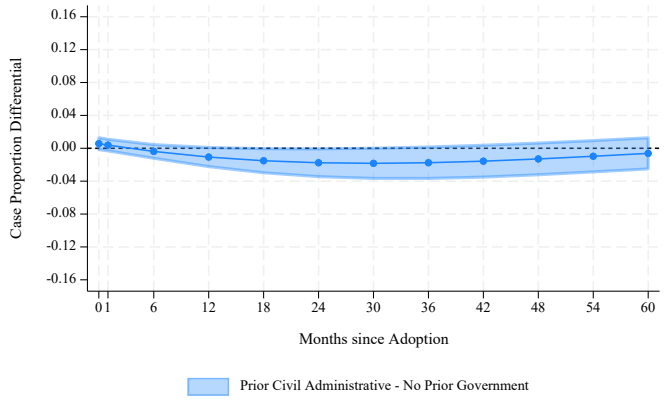


FIGURE B2D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL B3]

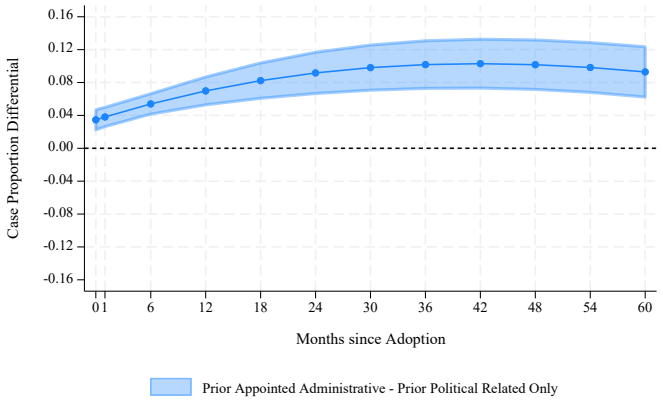


FIGURE B2E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL B3]

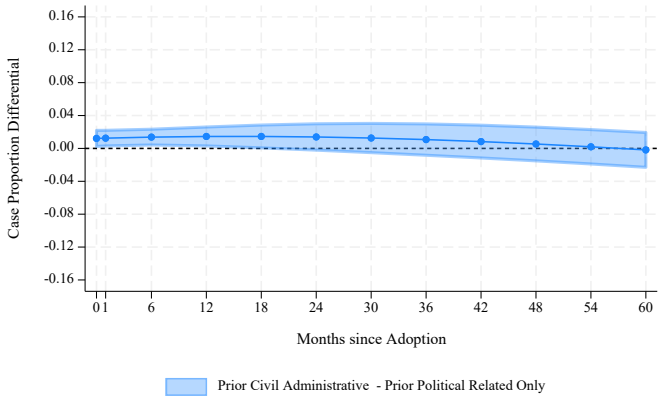


FIGURE B2F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met 14 Day Limit [MODEL B3]

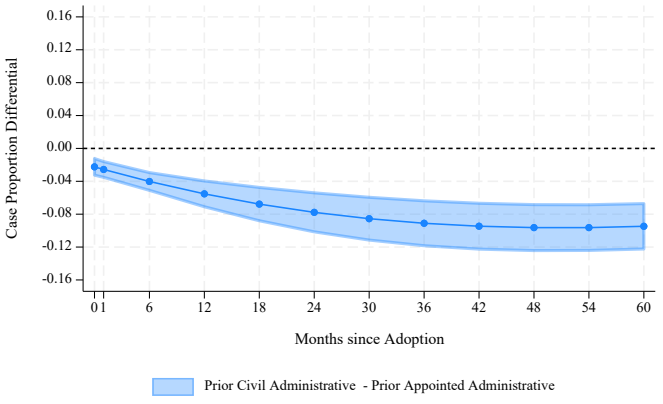


FIGURE B3

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative-Specific Government Experience: *H3* (*Poor Performance*)
Omit Additional Control Variables

FIGURE B3A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL B4]

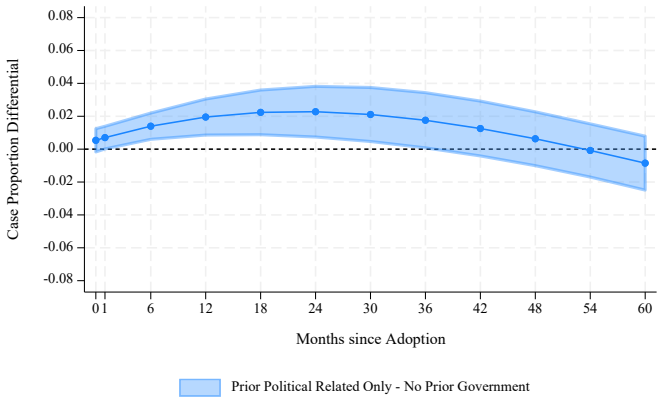


FIGURE B3B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL B4]

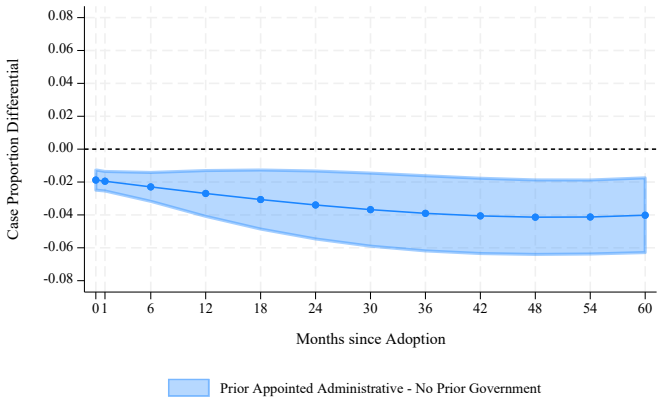


FIGURE B3C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL B4]

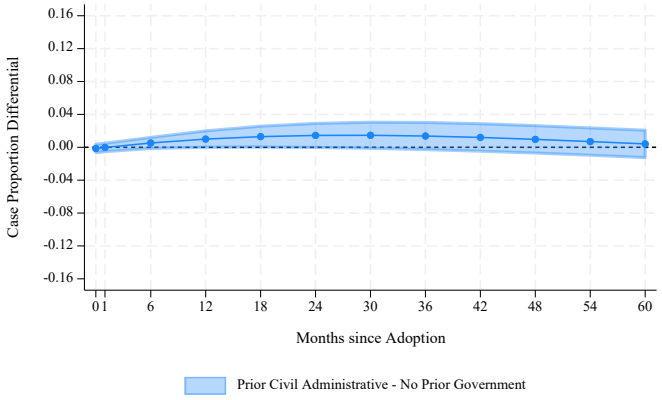


FIGURE B3D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL B4]

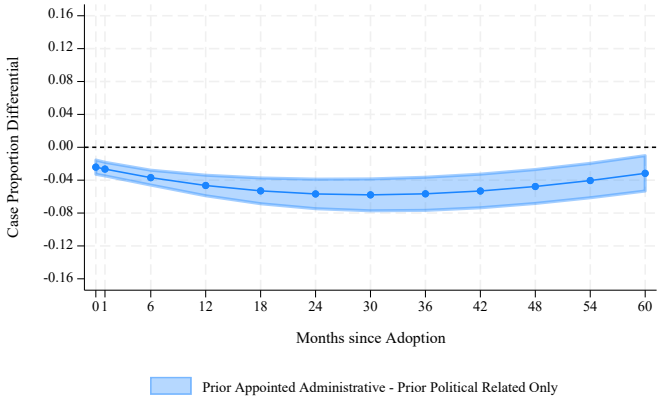


FIGURE B3E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL B4]

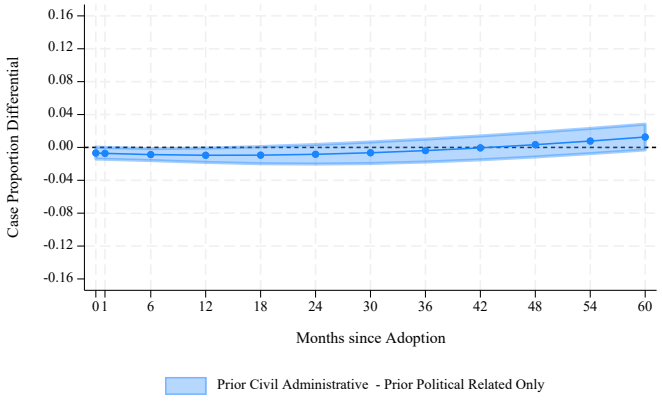


FIGURE B3F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL B4]

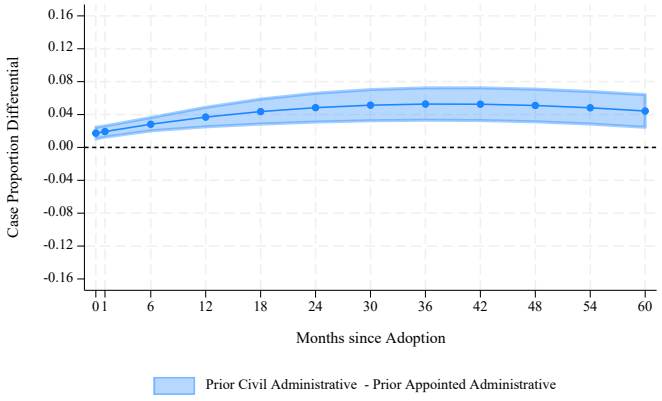


FIGURE B4

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency-Specific Government Experience: *H4* (*Effective Performance*)
Omit Additional Control Variables

FIGURE B4A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL B5]

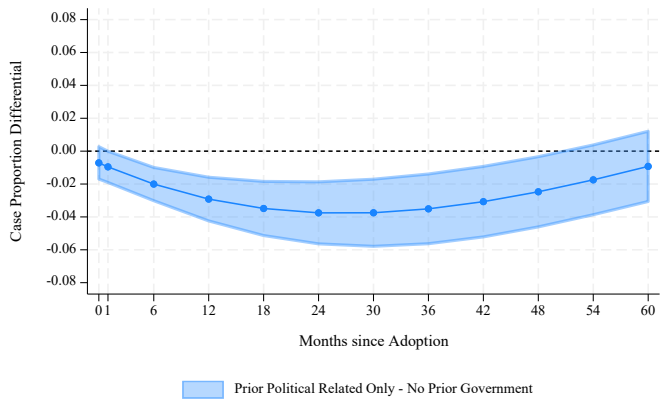


FIGURE B4B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL B5]

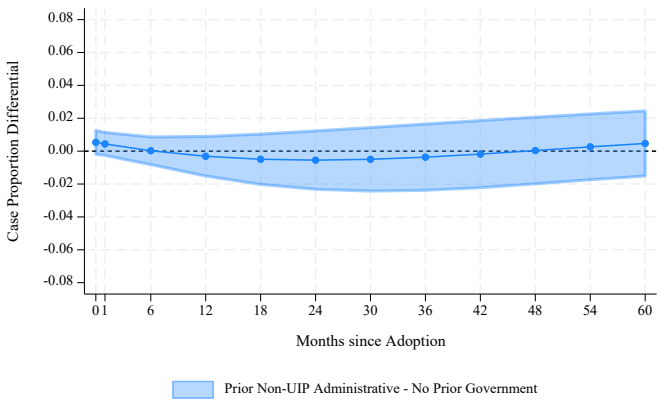


FIGURE B4C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL B5]

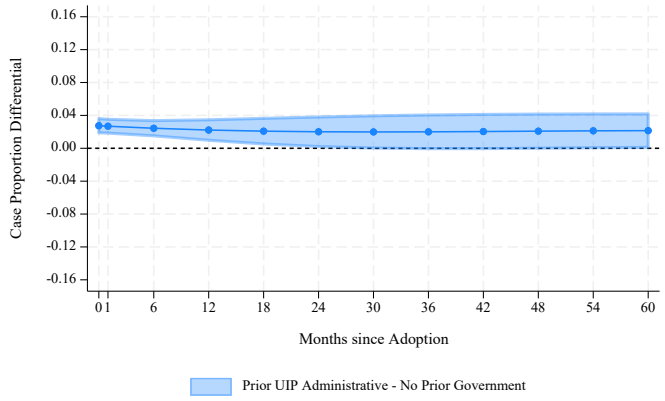


FIGURE B4D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL B5]

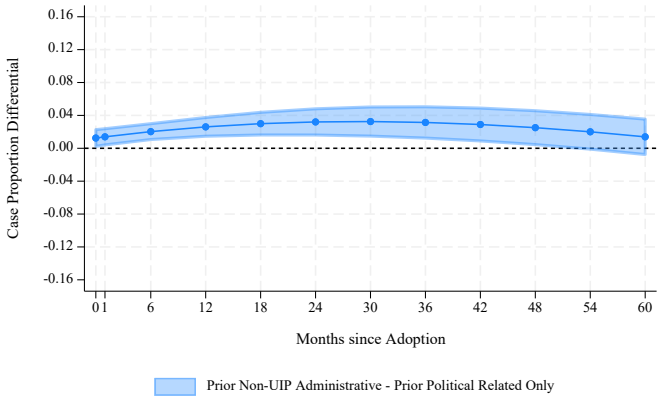


FIGURE B4E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL B5]

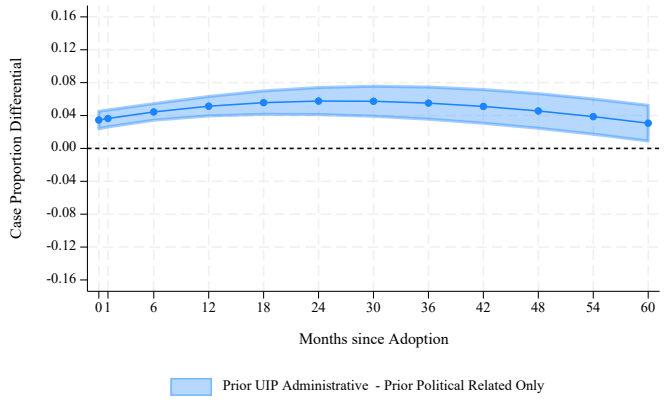


FIGURE B4F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met 14 Day Limit [MODEL B5]

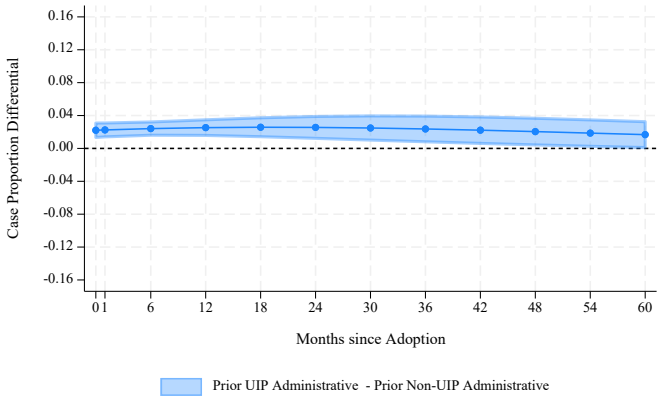


FIGURE B5

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency-Specific Government Experience: *H4* (*Poor Performance*)
Omit Additional Control Variables

FIGURE B5A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL B6]

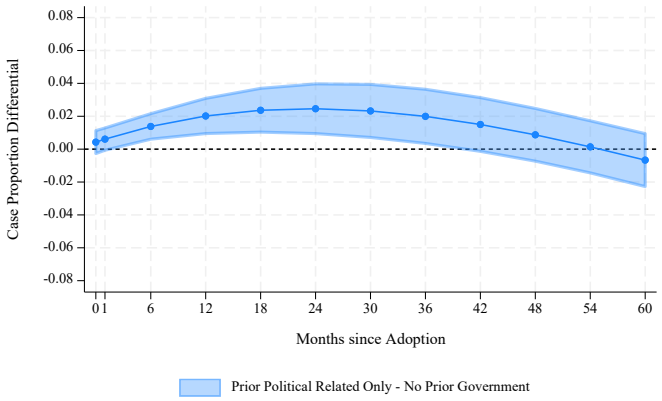


FIGURE B5B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL B6]

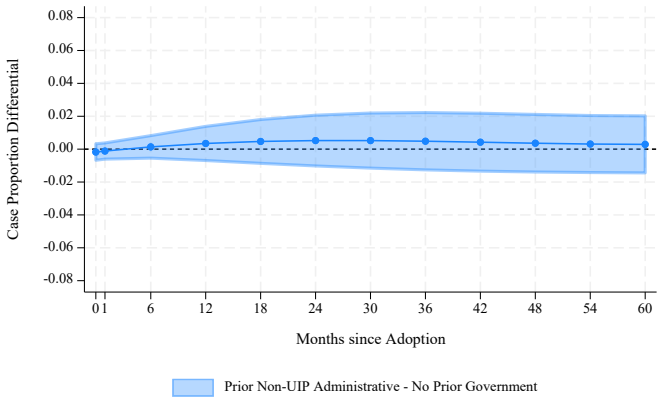


FIGURE B5C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL B6]

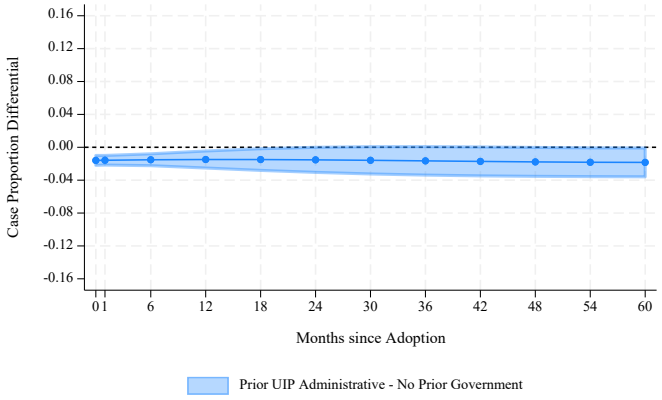


FIGURE B5D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL B6]

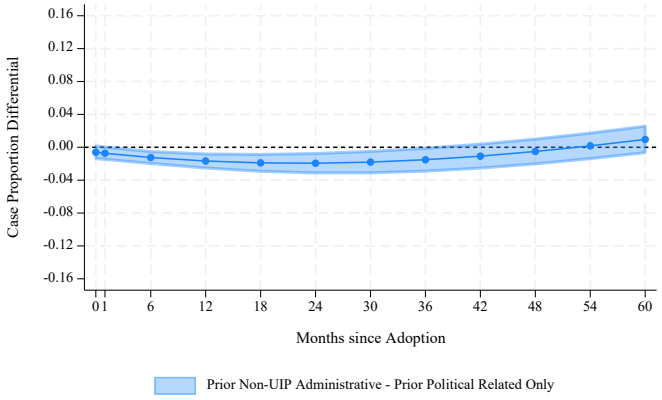


FIGURE B5E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL B6]

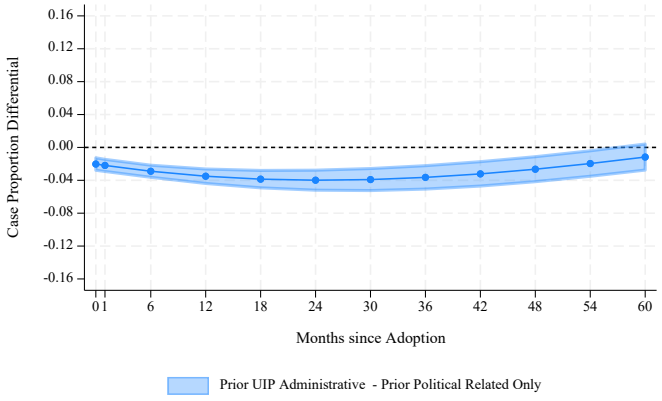
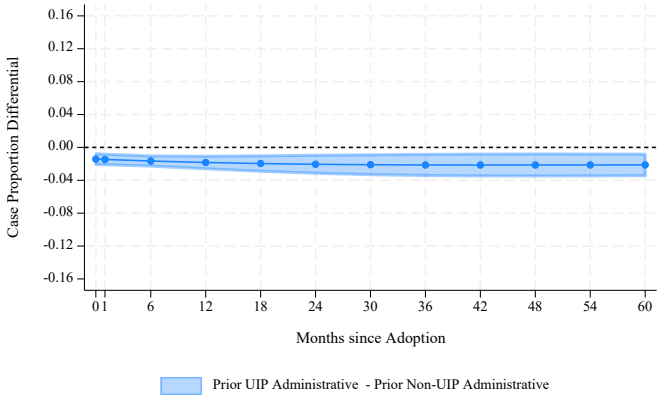


FIGURE B5F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL B6]



APPENDIX C

Sensitivity Analysis, II: Inclusion of Non-IT Adopting States

This supplementary analysis incorporates the remaining 22 non-IT adopting states in the estimation sample. The results are substantively similar compared to the analogous estimates reported in the manuscript that only account for the 28 IT adopting states (30 state panels: with Nebraska and New Mexico undertaking two separate IT modernization reforms during the sample period). Although yielding identical statistical inferences, the only notable numerical difference occurs with the unconditional organization adaptation effects compared to the reported manuscript models. Specifically, effective performance increases by a maximum average of 3.99% (**Figure C1A**) when the non-IT adopting states are included in the same (cf. **Figure 2A**: 5.26% reported in manuscript), while the corresponding poor performance estimates are –2.42% (**Figure C1C**) compared to omission of non-IT adopting states from the regression sample (**Figure 2C**: cf. –2.90%). The resulting performance swing is 6.41% (cf. 8.16% reported in manuscript). In short, although inclusion of non-IT modernization reform adopting states provides a non-comparable baseline to evaluate the performance effects of IT modernization reform for adopting states, these results are substantively similar to those reported in the manuscript.

FIGURE C1

Unconditional Baseline Organizational Adaptation Estimates: H1 (Figures C1A & C1C) & Conditional Organizational Adaptation Estimates Based on Prior Government experience or Lack Thereof: *H2* (Figures C1B & C1D)

Inclusion of Non-IT Adopting States

FIGURE C1A
Unconditional Learning Effect
Proportion of Cases Met 14 Day Limit [MODEL C1]

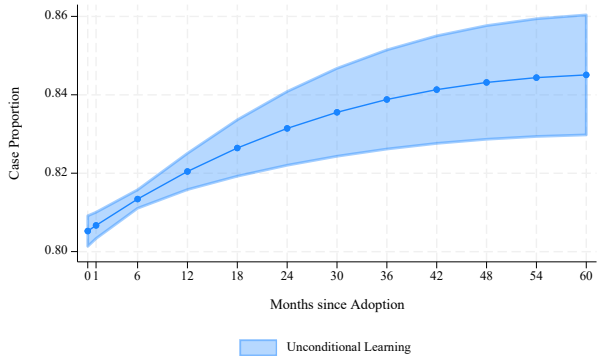


FIGURE C1B
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met 14 Day Limit
[MODEL C1]

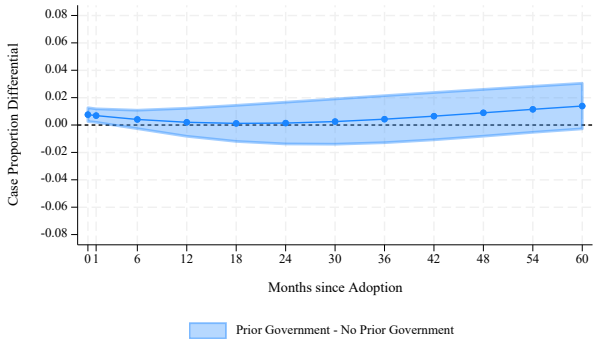


FIGURE C1C
Unconditional Learning Effect
Proportion of Cases Met Exceeding 28 Days [MODEL C2]

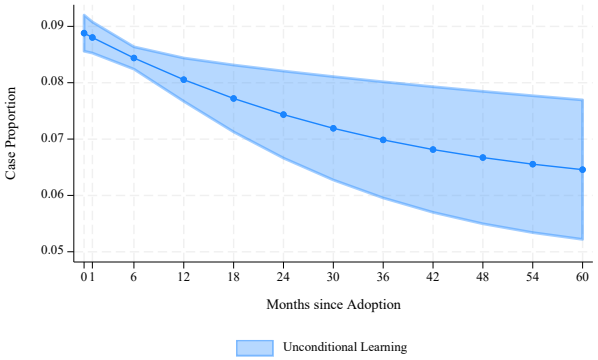


FIGURE C1D
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met Exceeding 28 Days
[MODEL C2]

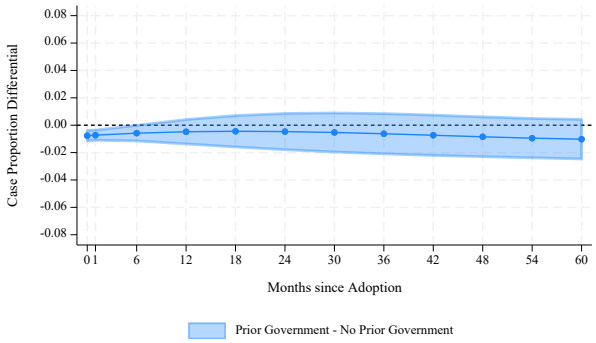


FIGURE C2

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative-Specific Government Experience: *H3* (*Effective Performance*)
Inclusion of Non-IT Adopting States

FIGURE C2A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL C3]

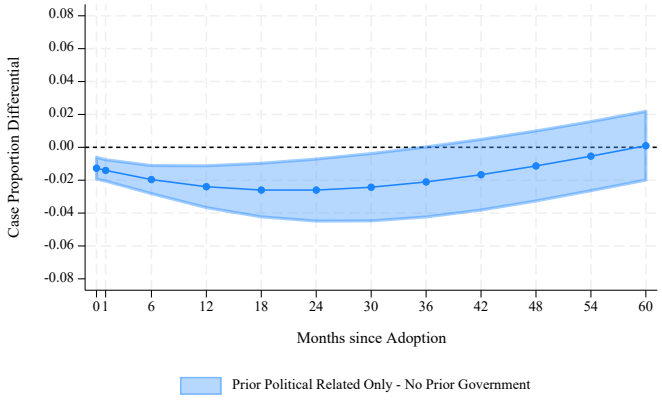


FIGURE C2B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL C3]

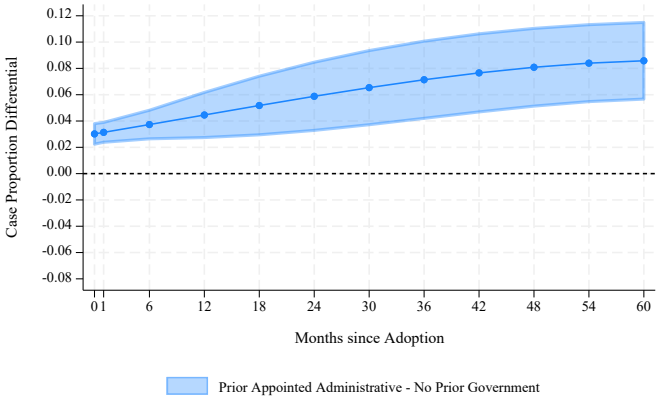


FIGURE C3C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL C3]

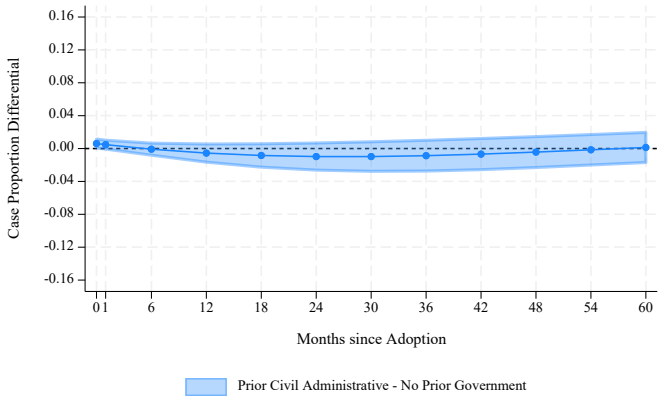


FIGURE C2D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL C3]

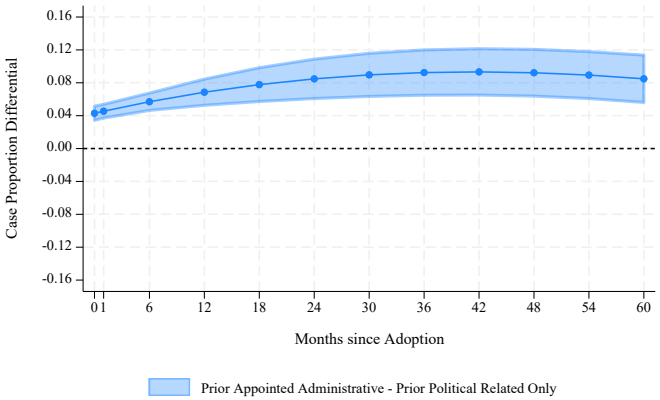


FIGURE C2E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL C3]

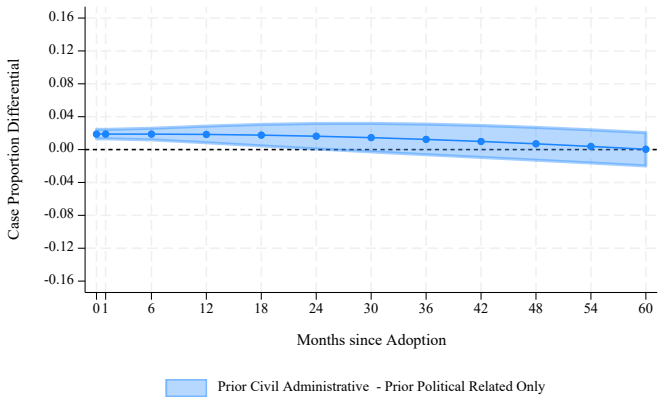


FIGURE C2F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met 14 Day Limit [MODEL C3]

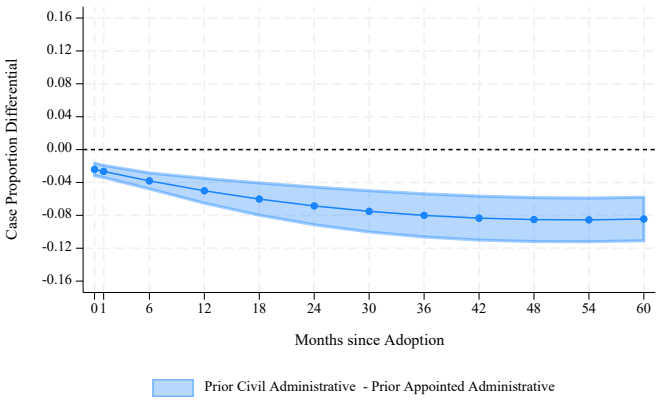


FIGURE C3

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative-Specific Government Experience: *H3* (*Poor Performance*)
Inclusion of Non-IT Adopting States

FIGURE C3A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL C4]

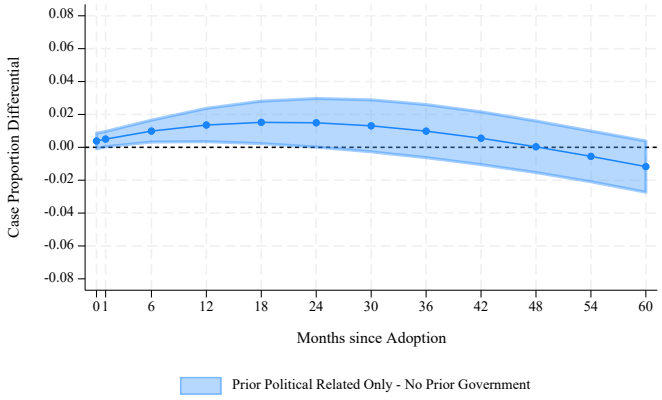


FIGURE C3B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL C4]

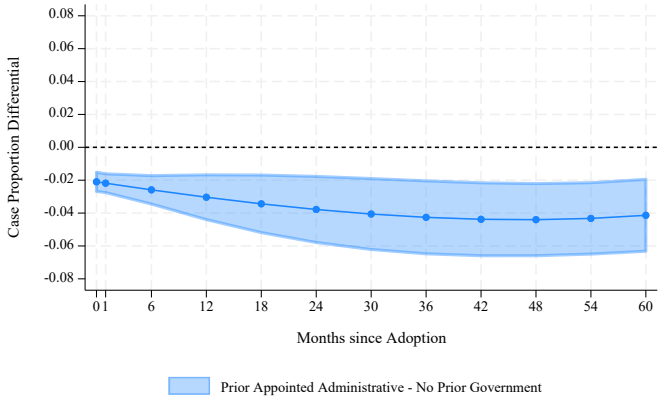


FIGURE C3C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL C4]

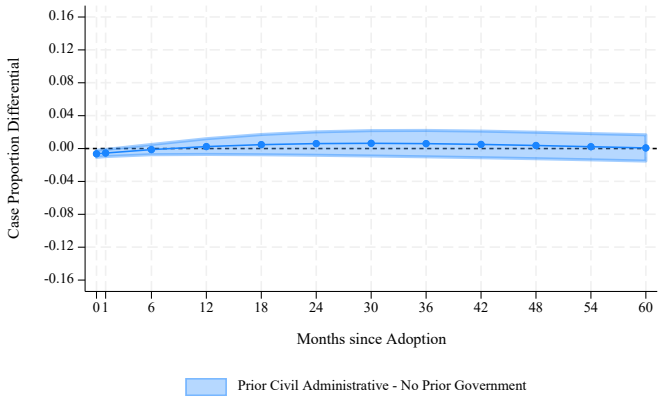


FIGURE C3D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL C4]

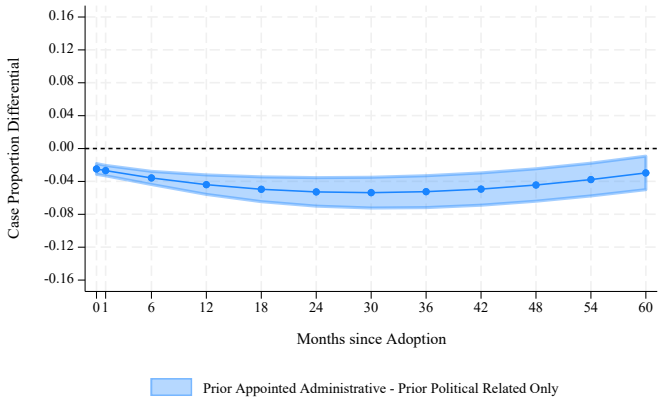


FIGURE C3E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL C4]

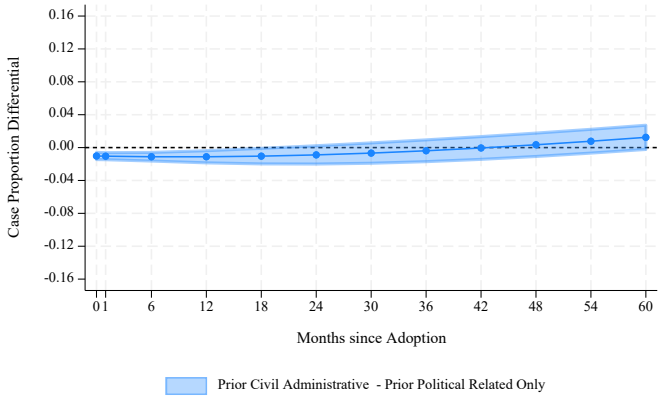


FIGURE C3F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL C4]

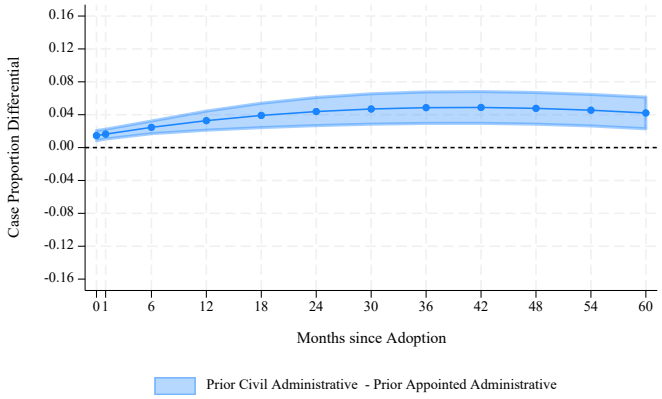


FIGURE C4

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency-Specific Government Experience: *H4* (*Effective Performance*)
Inclusion of Non-IT Adopting States

FIGURE C4A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL C5]

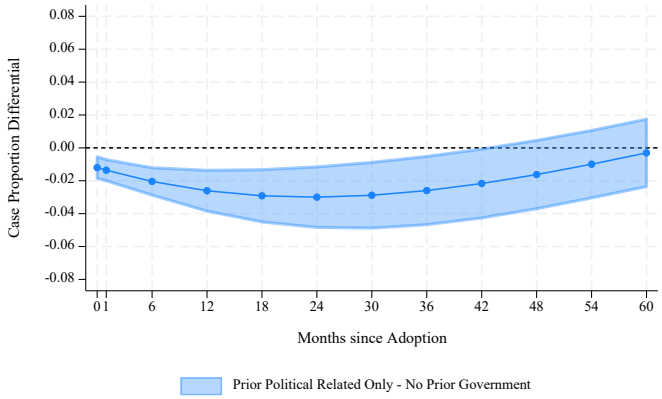


FIGURE C4B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL C5]

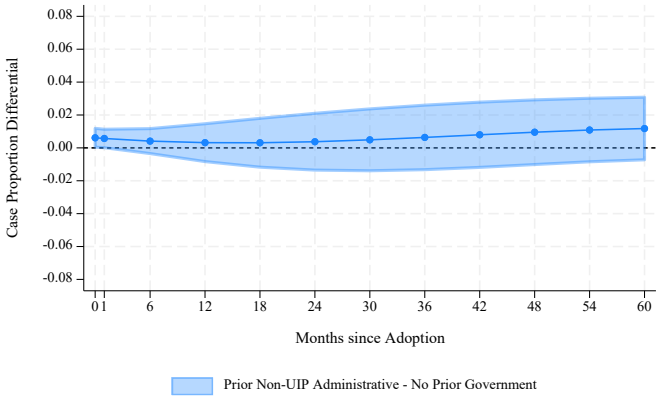


FIGURE C4C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL C5]

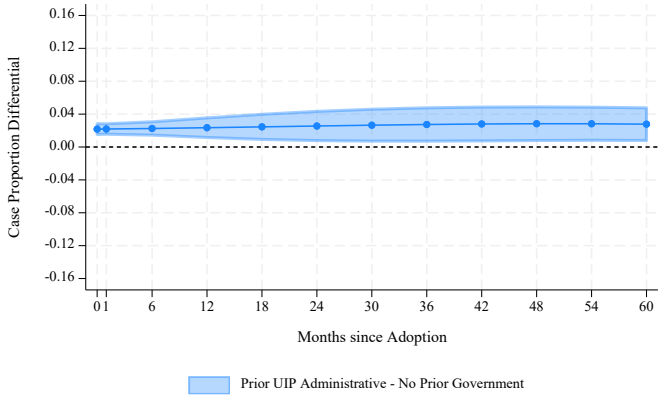


FIGURE C4D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL C5]

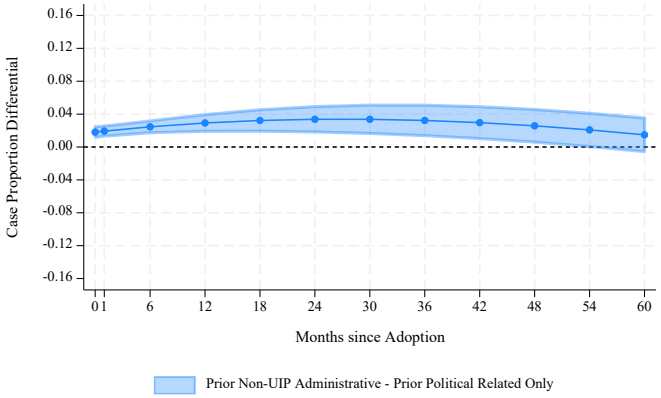


FIGURE C4E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL C5]

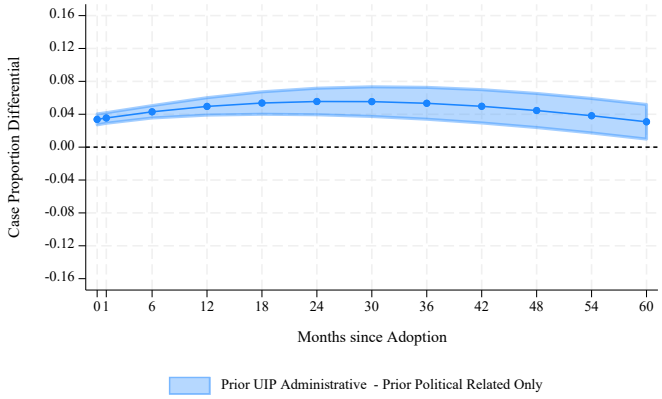


FIGURE C4F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met 14 Day Limit [MODEL C5]

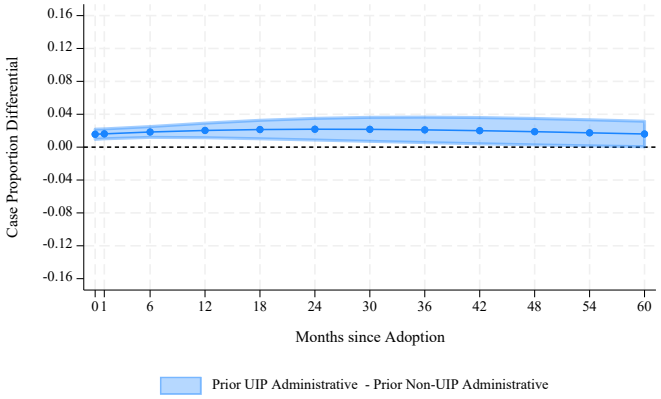


FIGURE C5

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency-Specific Government Experience: *H4* (*Poor Performance*)
Inclusion of Non-IT Adopting States

FIGURE C5A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL C6]

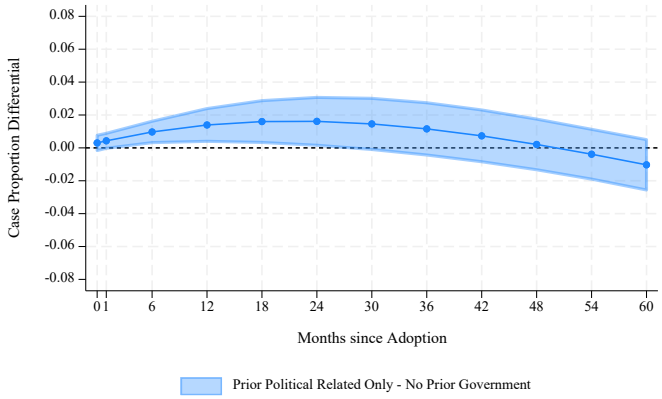


FIGURE C5B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL C6]

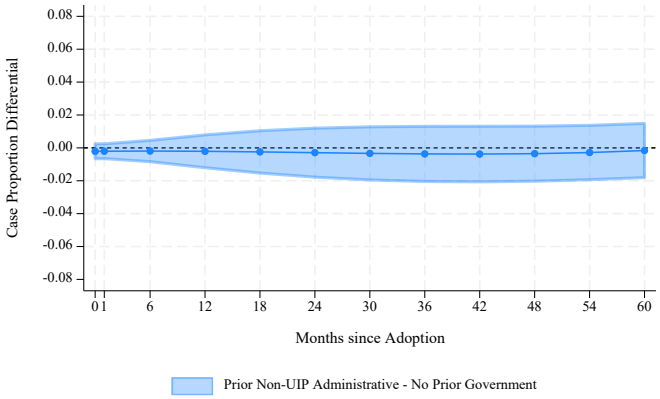


FIGURE C5C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL C6]

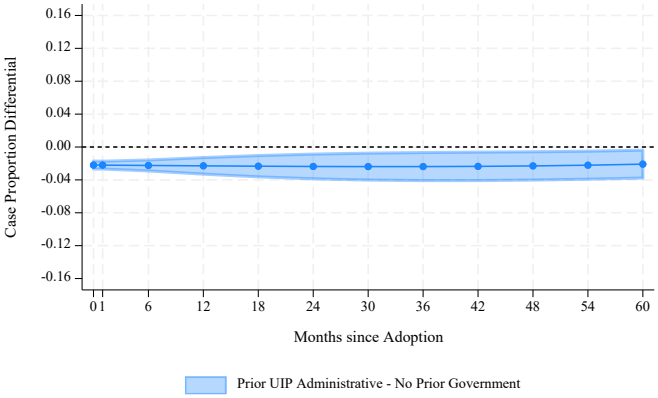


FIGURE C5D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL C6]

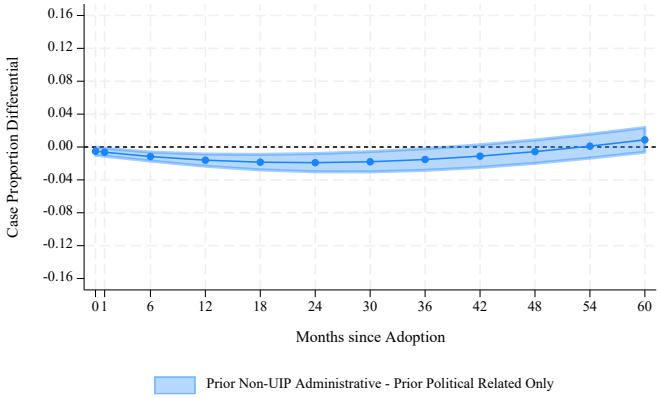


FIGURE C5E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL C6]

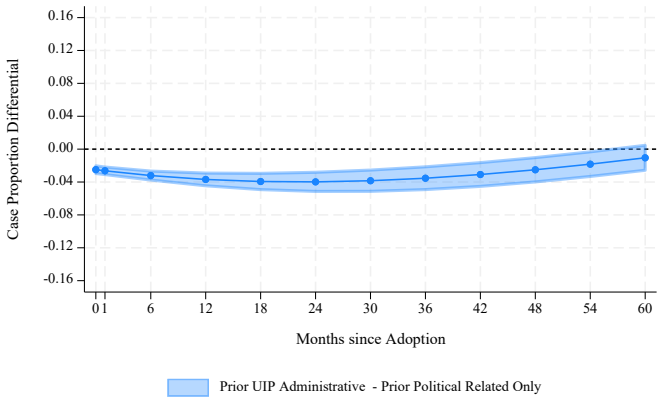
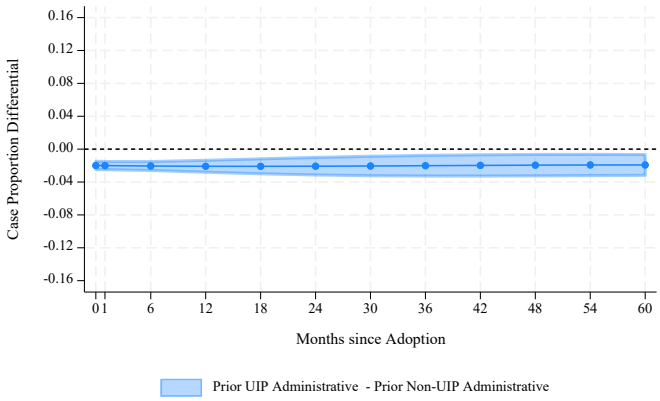


FIGURE C5F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL C6]



APPENDIX D

Sensitivity Analysis, III: Omit 2nd IT Modernization Reforms [Nebraska and New Mexico] & COVID Pandemic Years (2020-2022)

Appendix D presents a sensitivity analysis that excludes states where IT reform took place more than once during the sample period to accurately assess how organizational adaptation shapes the state UIP agencies' performance. The excluded states are New Mexico and Nebraska. We also exclude states with an adoption year in 2020, 2021, or 2022 to assess whether the manuscript findings involve potential confounding effects of the COVID pandemic whereby state UIP agencies experienced extreme delays in claims processing due to the unprecedented rise in demand. These states are Alabama, Maryland, Colorado, Pennsylvania, and Virginia.

One notable deviation from the manuscript findings appears in **Figure D1B** of **Model D1**, where state UIP agencies headed by individuals with prior government experience display a –5.47% lower *Effective Performance* rate after 36 months following IT reform compared to agencies headed by someone lacking prior government experience. Regarding poor performance (**Model D2**), those state UIP agencies led by someone with prior government experience exhibit a maximum 2.98% higher protracted implementation rate compared to state UIP agencies whose head lacked any prior government experience. These performance differentials over time between agency heads with prior government experience and those lacking such experience are also statistically significant, thereby offering contradictory evidence in relation to **H2** than the null findings reported in the manuscript for the corresponding pair of estimates (**Figures 2B** & **Figure 2D**), where the estimated difference between prior government experience and its absence is statistically insignificant.

Prior intra sectoral government experience analyzed in **Models D3** and **D4** reveals that prior appointed administrative experience produces substantively similar effects on timely disbursement of UI benefits through IT reforms compared to those reported in the manuscript (see **Figure D2B**, cf. **Figure 3B**; **Figure D2D**, cf**. Figure 3D**; **Figure D2F**, cf. **Figure 3F**). However, notable deviations appear

in the effects of prior politically related government experience and prior civil administrative experience. Each type of government experience produces a maximum decrease of −7.05% (**Figure D2A**, t+30 months) and −5.97% (**Figure D2C**, t+36 months) in timely disbursement rates compared to those lacking any government experience, which align with the original estimates in direction but with greater statistical precision (cf. **Figures 3A** and **3C**). **Figure D3A** pattern indicates that agency heads with prior political related experience not only produce lower performance benefits in terms of timely disbursement but also for protracted implementation rates compared to those without any government experience (**Figure D3A**-maximum adaptation effect: 3.45%. t+30 months). Also, agency heads with prior appointed administrative experience show a modest increase in protracted implementation rates compared to those lacking any government experience (**Figure D3B** – maximum adaptation effect: 1.25%, t+30 months). This finding contradicts **H3**, unlike the analogous estimate found in **Figure 4B**.

Regarding the *Agency-Specific Experience Hypothesis* (**H4**), the reduced model specification (**Model D5**) uncovers a more pronounced performance disadvantage effect for agency heads with UIP-specific administrative experience compared to those lacking any government experience, with a maximum adaptation effect of −5.64% lower timely disbursement rates (t + 36 months, cf. **Figure D4C**) decreasing from the original estimate of −0.80% (t + 60 months, cf. **Figure 5C**). Additionally, those agency heads with prior UIP-specific administrative experience also exhibit fewer performance benefits in the *Poor Performance* model (**Model D6**) and show slightly higher protracted implementation rates compared to those lacking any government experience (**Figure D5C** – maximum adaptation effect: 3.00%, t + 30 months), increasing from the original estimate of −0.23% (t + 36 months, cf. **Figure 6C**). **Figure D4B** reveals that state UIP agencies whose leaders possess non UIP-specific administrative experience exhibit inferior *Effective Performance* compared to those led by individuals lacking any prior government experience (maximum adaptation effect: −4.99%, t+30 months), whose effect was originally not significant (**Figure 5B**).

Further inspection of these differences between the reported manuscript estimates of organizational adaptation reported in the manuscript vis-à-vis these **Appendix D** estimates is illuminating. Estimation of a corresponding set of models that only omit COVID-19 pandemic years (2020-2022) from the regression sample (and include the second IT modernization reform panels for Nebraska and New Mexico) uncovers estimates that are very similar to those reported in **Appendix D**. Therefore, the unconditional organizational adaptation effects for both effective and poor performance are estimated more conservatively when including COVID-19 pandemic years in the regression sample appearing in the manuscript. In addition, the inferior performance attributable to state UIP agencies led by individuals with prior political related government experience vis-à-vis no prior government experience (**Figures D2A**, **D3A**) is magnified when omitting the COVID-19 pandemic years from the estimation sample.

FIGURE D1

Unconditional Baseline Organizational Adaptation Estimates: H1 (Figures D1A & D1C) & Conditional Organizational Adaptation Estimates Based on Prior Government experience or Lack Thereof: *H2* (Figures D1B & D1D)

Omit Second IT Reforms & 2020-2022 Cases

FIGURE D1A
Unconditional Learning Effect
Proportion of Cases Met 14 Day Limit [MODEL D1]

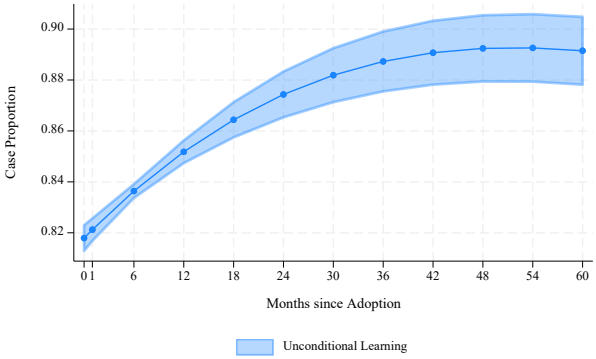


FIGURE D1B
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met 14 Day Limit
[MODEL D1]

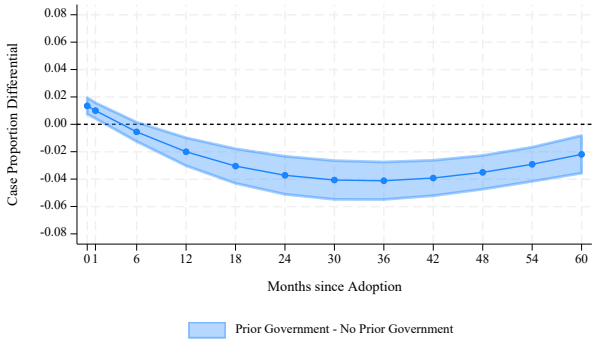


FIGURE D1C
Unconditional Learning Effect
Proportion of Cases Met Exceeding 28 Days [MODEL D2]

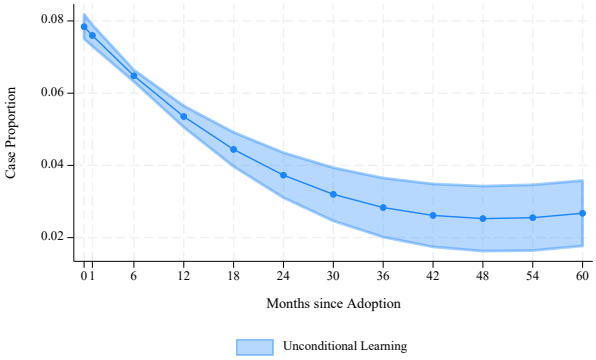


FIGURE D1D
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met Exceeding 28 Days
[MODEL D2]

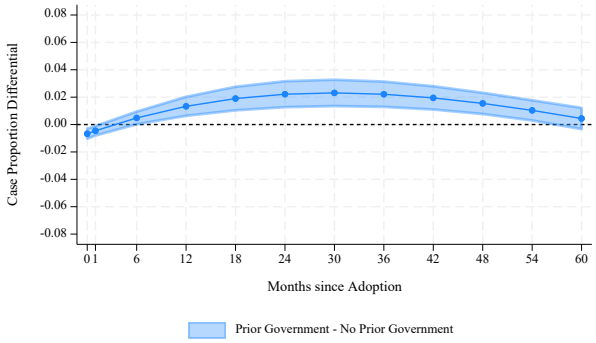


FIGURE D2

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative-Specific Government Experience: *H3* (*Effective Performance*)
Omit Second IT Reforms & 2020-2022 Cases

FIGURE D2A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL D3]

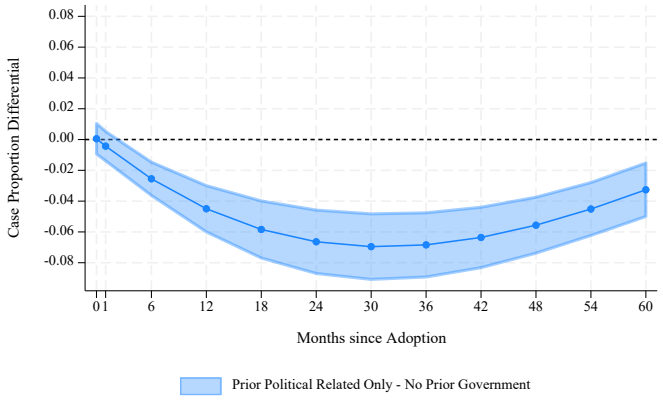


FIGURE D2B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL D3]

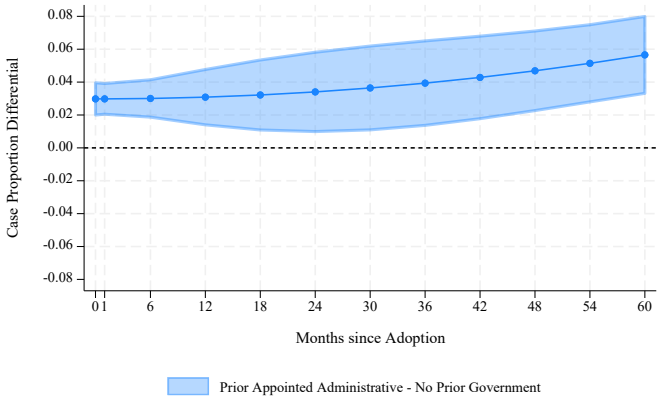


FIGURE D2C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL D3]

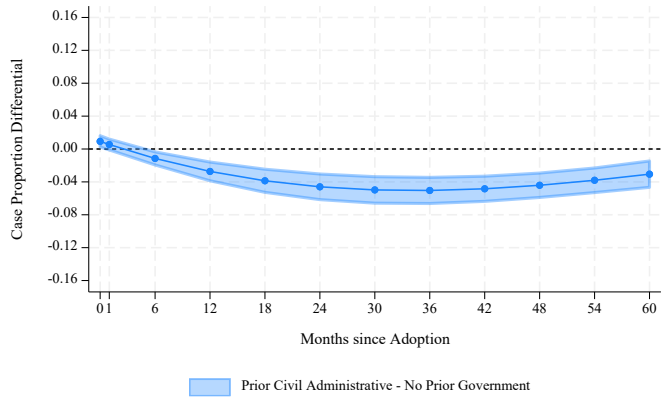


FIGURE D2D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL D3]

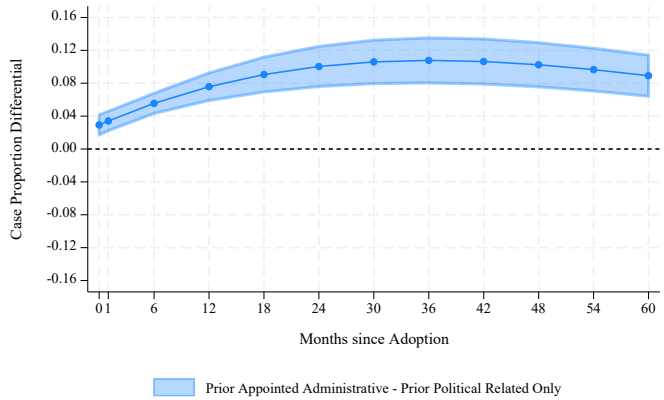


FIGURE D2E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL D3]

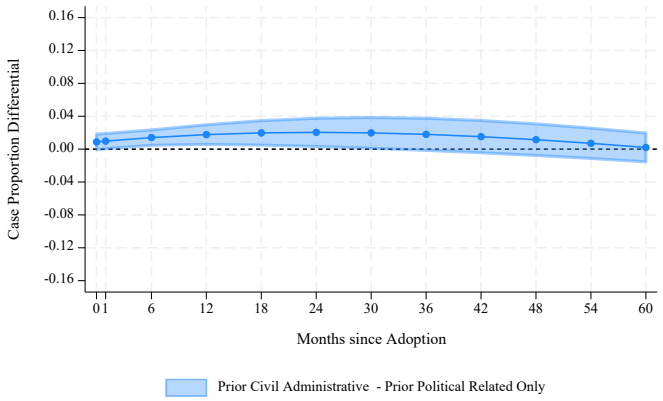


FIGURE D2F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met 14 Day Limit [MODEL D3]

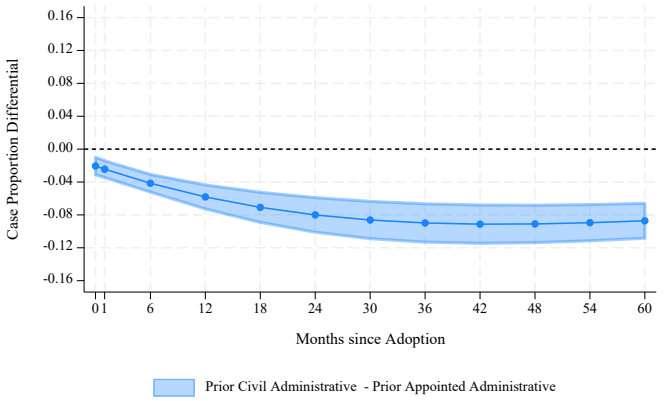


FIGURE D3

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Administrative-Specific Government Experience: *H3* (*Poor Performance*)
Omit Second IT Reforms & 2020-2022 Cases

FIGURE D3A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL D4]

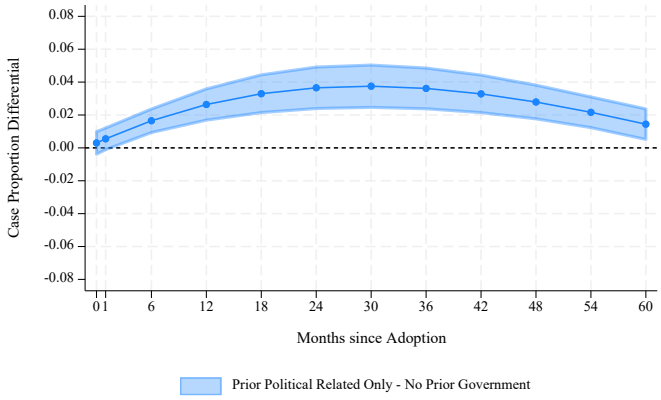


FIGURE D3B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL D4]

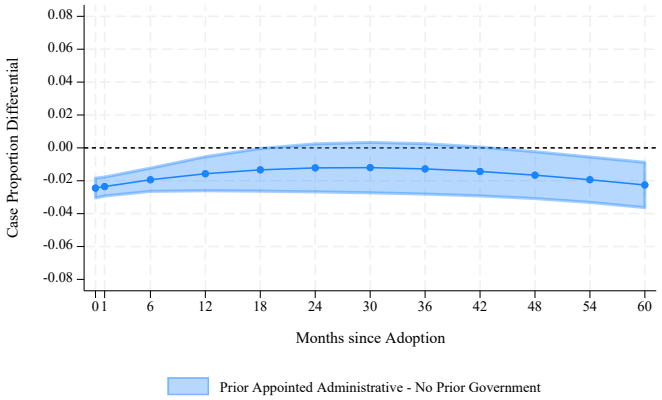


FIGURE D3C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL D4]

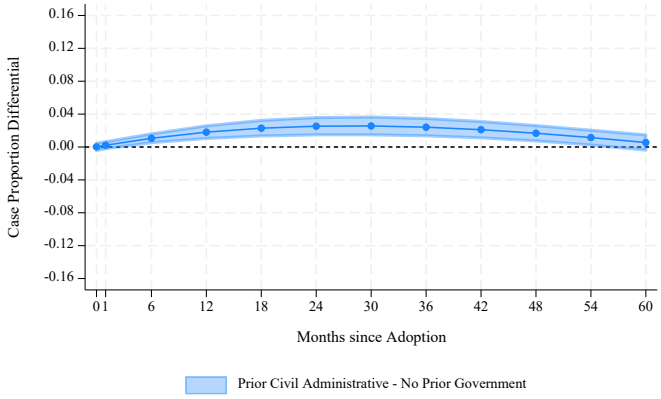


FIGURE D3D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL D4]

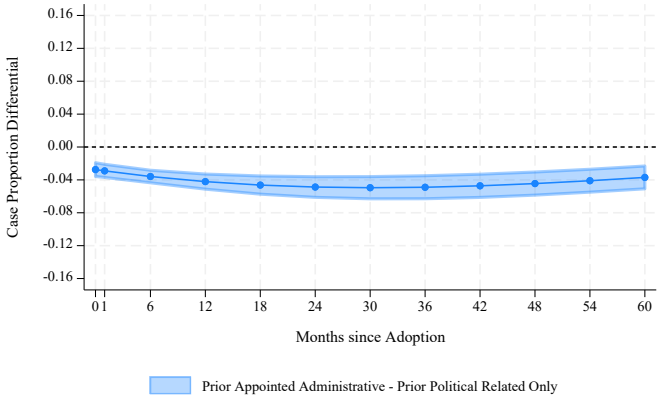


FIGURE D3E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL D4]

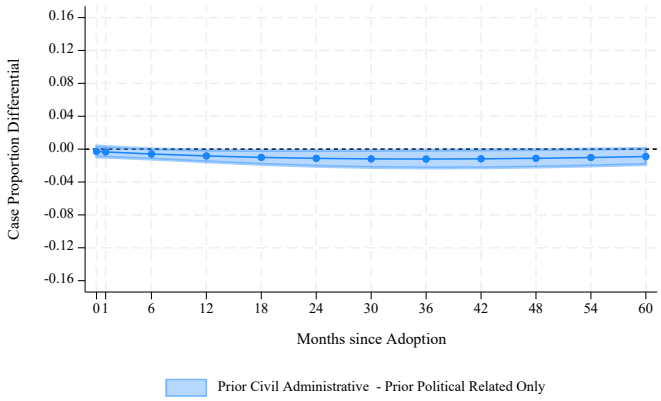


FIGURE D3F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL D4]

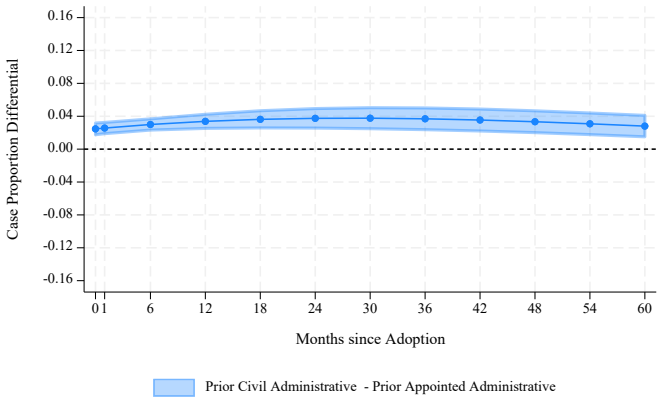


FIGURE D4

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency-Specific Government Experience: *H4* (*Effective Performance*)
Omit Second IT Reforms & 2020-2022 Cases

FIGURE D4A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL D5]

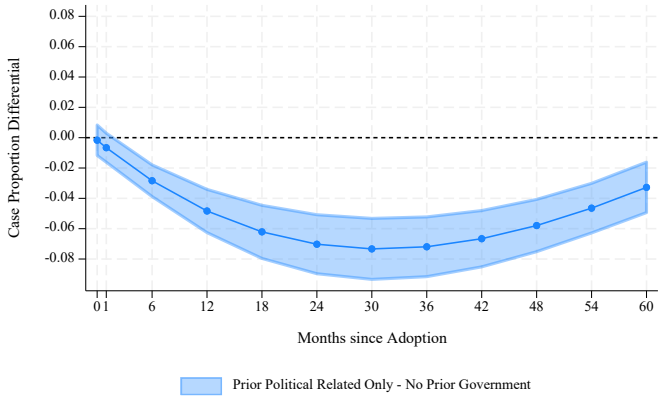


FIGURE D4B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL D5]

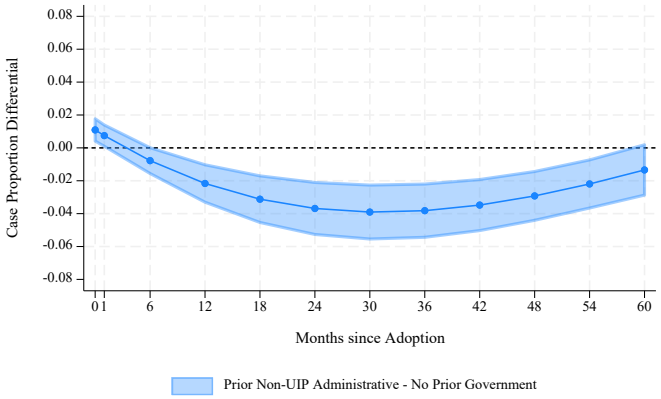


FIGURE D4C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL D5]

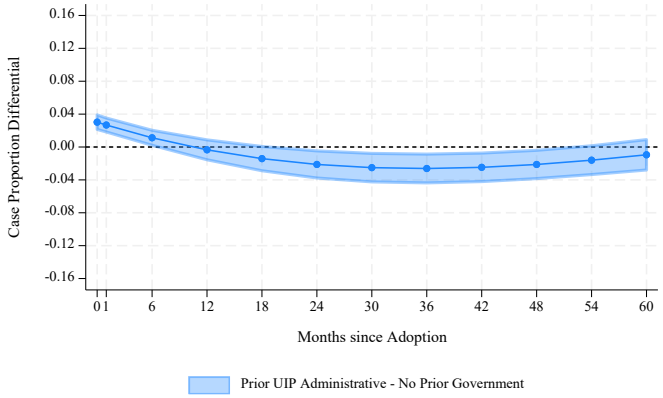


FIGURE D4D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL D5]

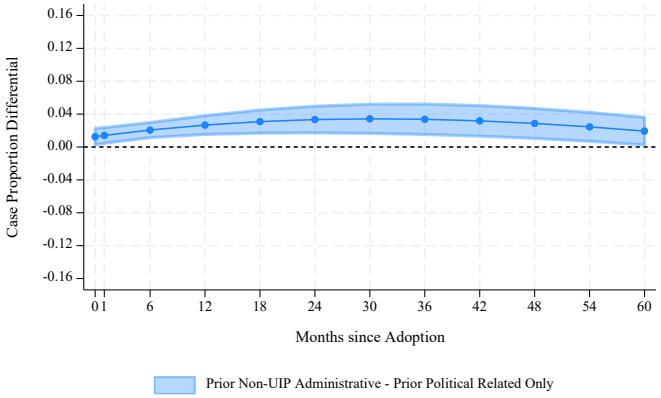


FIGURE D4E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL D5]

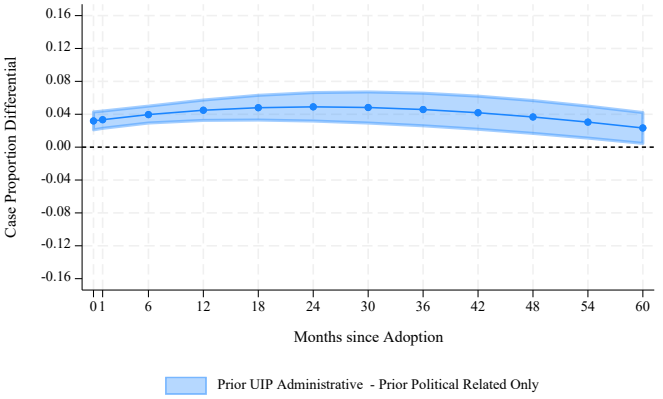


FIGURE D4F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met 14 Day Limit [MODEL D5]

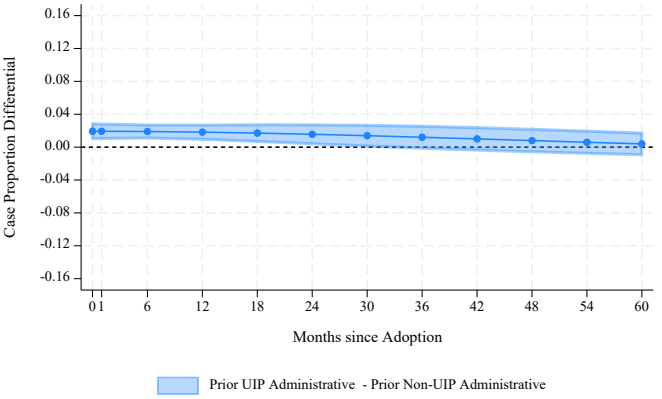


FIGURE D5

Heterogeneous Organizational Adaptation Estimates:
Agency Head Prior Agency-Specific Government Experience: *H4* (*Poor Performance*)
Omit Second IT Reforms & 2020-2022 Cases

FIGURE D5A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL D6]

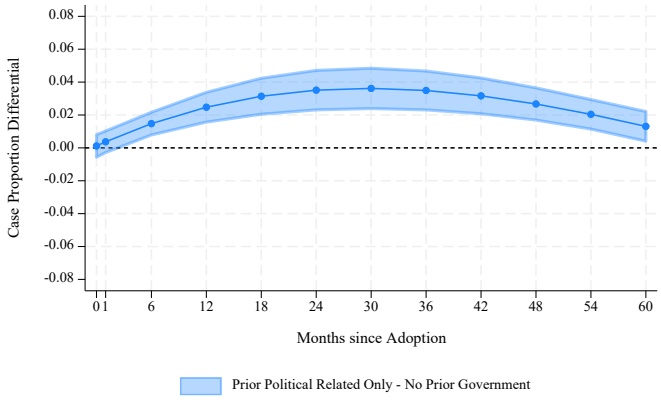


FIGURE D5B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL D6]

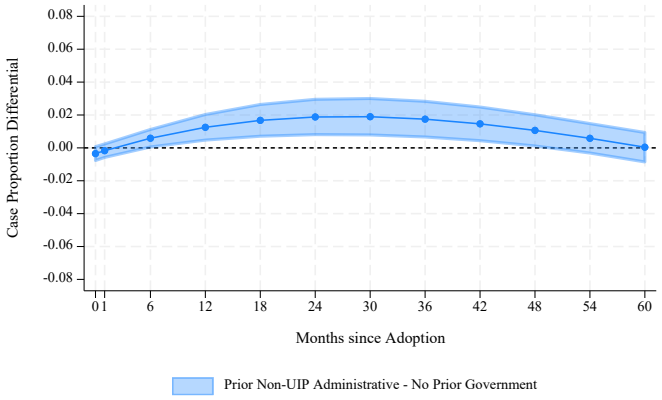


FIGURE D5C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL D6]

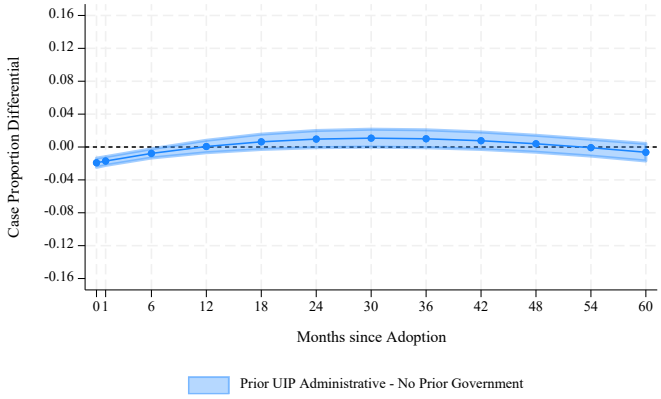


FIGURE D5D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL D6]

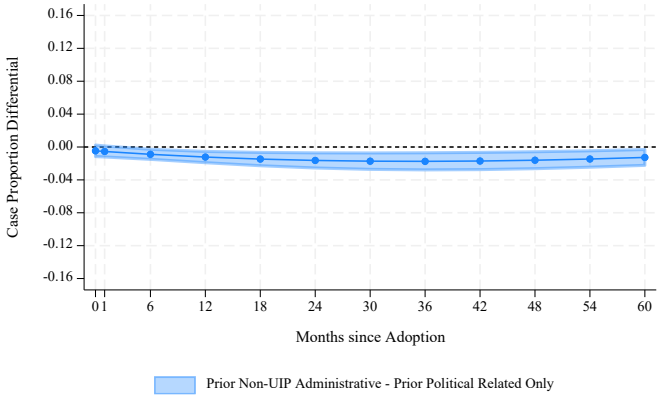


FIGURE D5E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL D6]

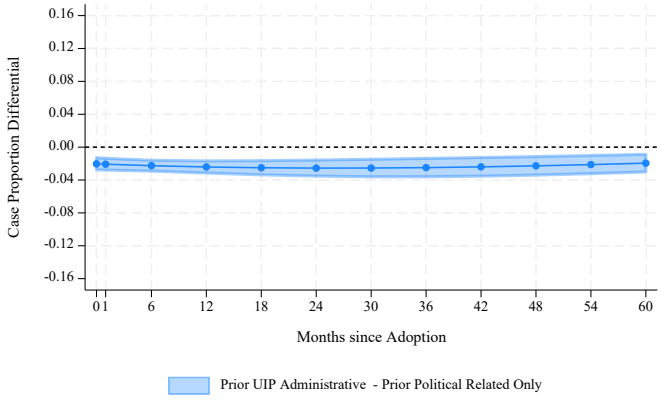
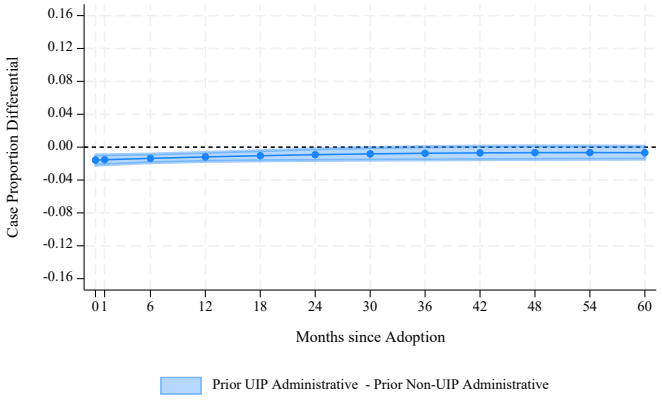


FIGURE D5F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL D6]



APPENDIX E

Models Analyzing Conditional Adaptation Based on Agency Heads' Breadth of Prior Government Experience

The present study focuses on the type of prior government experience held by state UIP agency heads evaluated for both **H3** (*Administrative-Specific Experience Hypothesis*) and **H4** (*Agency-Specific Experience Hypothesis*). These hypotheses and corresponding measures focus on the 'depth' of prior government experience that is suggestive of the performance benefits attributable to agency leadership. We also estimate a comparable set of statistical models that analyze how conditional adaptation works with respect to 'breadth' of prior government experience for state UIP agency heads. That is, we evaluate the *Breadth of Government Experience* hypothesis (**EH1**) that posits that the number of government positions previously held by a state UIP agency head will be positively associated with more effective agency performance in response to adopting IT modernization reform efforts. **Figure E1** displays the differential marginal effect estimates of organizational adaptation for effective or timely delivery of initial unemployment benefits to claimants within the 14 day limit (**Model E1: Figures E1A–E1C**), and also for delays beyond 28 days reflecting poor performance (**Model E2: Figures E1D–E1F**).

Positive differentials are indicative of a higher percentage of cases which meet the 14 day DoL limit discussed in the manuscript. In the *Effective Performance* model (**Model E1**), state UIP agency heads with multiple types of prior government experience offer less performance improvements resulting from IT modernization reforms relative to those counterparts lacking any prior government experience (**Figure E1B** – maximum adaptation effect: -2.02%, $t + 36$ months), albeit the differences are not statistically significant based on the 95 % confidence interval. These performance effects associated with multiple position prior government experience state UIP agency heads, however, are actually negative and statistically significant relative to state UIP agency

heads with single type of prior government experience (**Figure E1C** – maximum adaptation effect: –2.73%, t+ 54 months). This finding runs contrary to **EH1**.

The results from the *Poor Performance* model (**Model E2**) regarding the importance of state UIP agency breadth of prior government experience on agency performance show very modest effects in terms of both magnitude and statistical significance. In this model, negative differentials are desirable since it signifies a reduction in poor performance. Once again, the performance differential between resulting from IT modernization reforms has a positive sign opposite of **EH1** for state UIP agency heads with multiple types of government position compared to those holding a single type of government position in their resume (**Figure E1F** – maximum adaptation effect: 0.57%, t + 42 months) and also to those lacking any prior government experience (**Figure E1E** – maximum adaptation effect: 0.10%, t + 60 months).

These results mirror those analyzing the 'depth' of prior government experience for state UIP agency heads in both the manuscript and elsewhere in this appendix. The key distinction when assessing the performance consequences of organizational adaptation to IT modernization reforms is the difference between having a specific type of prior government experience, particularly in appointed administrative positions, that match the nature of the administrative reforms, as opposed to the variety of prior government experiences.

FIGURE E1

Conditional Organizational Adaptation Estimates Based on Breadth of Prior Government Experience or Lack Thereof: E*H1*
Effective Performance (Figures E1A, E1B, & E1C) and *Poor Performance* (Figures E1D, E1E, & E1F)
Agency Heads' Breadth of Prior Government Experience Models

FIGURE E1A
Learning Experience Differential: Single Position Type - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL E1]

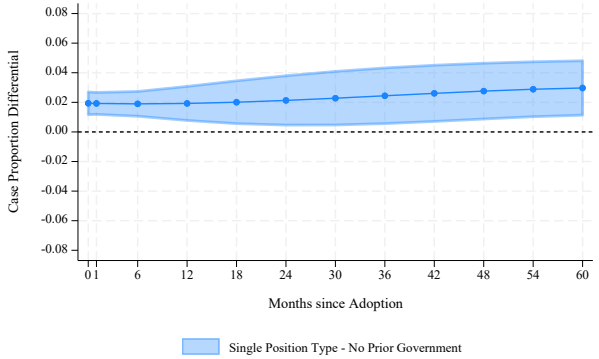


FIGURE E1B
Learning Experience Differential: Multiple Positions Type - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL E1]

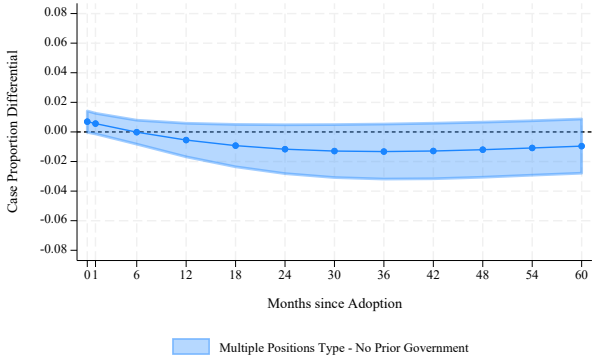


FIGURE E1C
Learning Experience Differential: Multiple Positions Type - Single Position Type
Proportion of Cases Met 14 Day Limit [MODEL E1]

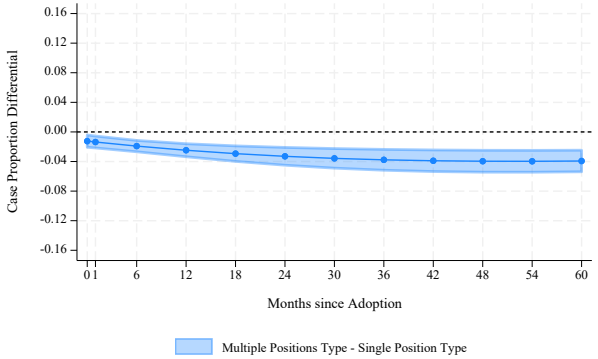


FIGURE E1D
Learning Experience Differential: Single Position Type - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL E2]

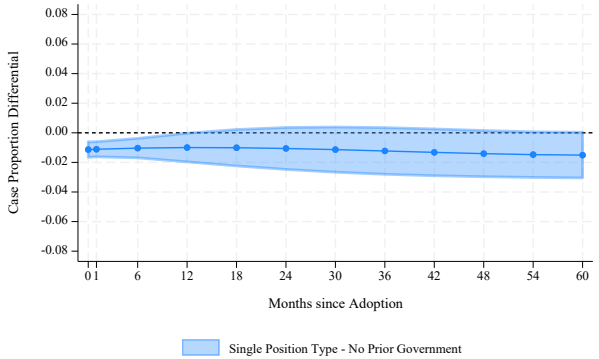


FIGURE E1E
Learning Experience Differential: Multiple Positions Type - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL E2]

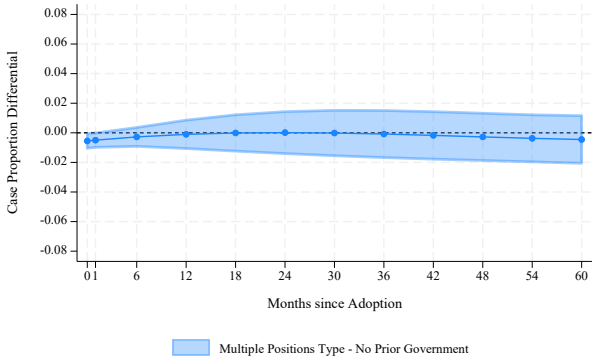
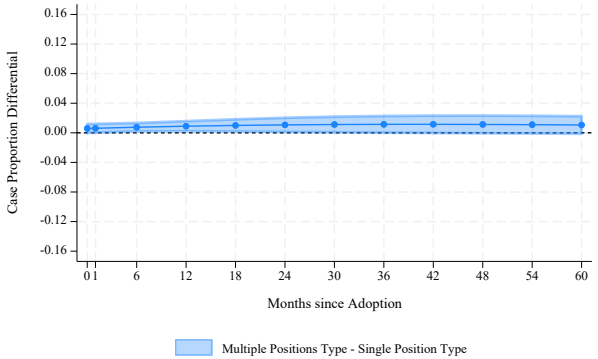


FIGURE E1F
Learning Experience Differential: Multiple Positions Type - Single Position Type
Proportion of Cases Met Exceeding 28 Days [MODEL E2]



APPENDIX F

Placebo Reform Intervention Analysis: IT Modernization Reform
Project Start Date as a 'Placebo' Reform Intervention

Placebo reform intervention analyses are conducted to evaluate whether the empirical patterns observed in the manuscript reported results exhibit treatment effects are tangible compared to estimates from a placebo reform intervention based on the project start date for IT modernization reforms. It is worth noting that the median time between project start date and adoption (i.e., 'launch') date is 3.92 years (47 months), with a standard deviation of 2.25 years (27 months), a minimum of 1year (12 months), and a maximum of 12.17 years (146 months). Put simply, a substantial amount of time elapses from when an IT reform project begins its implementation phase until its completion when it becomes ready for program administration.

This analysis includes the reform adoption intervention counter trend as a control covariate since it might potentially confound the placebo reform intervention effect (**Figures F1–F5**). This empirical strategy ensures against obtaining false-positive findings attributable to common correlation between the placebo intervention (*project starting date*) and actual intervention (*adoption date*) that is independent of confounding (see Eggers, et al. 2024: 1115). For purposes of brevity, we thus limit our discussion to the evidence presented in the manuscript that uncovers statistically meaningful organizational adaptation effects (i.e., unconditional adaptation effects, and *Prior Appointed Administrative Experience* effect differentials with respect to other forms of prior government experience). First, the placebo reform intervention reveals that *Effective Performance* marginally declines in numerical terms (**Figure F1A**), while *Poor Performance* marginally increases in response to the project start date for IT modernization reforms (**Figure F1C**). These effects are not statistically distinguishable at the 95% confidence level, but also move in the opposite direction of the observed evidence supporting **H1** reported in the manuscript, as well as elsewhere based on the adoption of IT reforms when instituted into practice.

The *Prior Appointed Administrative Experience* conditional organizational adaptation effects on improved timely disbursement of unemployment insurance benefits to initial claimants relative to other forms of prior government experience also indicate that the placebo reform intervention of the IT project start date does not have a tangible effect on performance outcomes relative to the pre-project start date baseline. This content can be gleaned from comparing **Figures F2** & **F3** to corresponding estimates displayed in **Figures 3** & **4**. Specifically, the adoption date intervention yields a positive (negative) and statistically discernible differential effect on *Effective (Poor) Performance* in **Figures 3B** & **4B** for *Prior Appointed Administrative Experience* vis-à-vis *No Prior Government Experience*. Specifically, the placebo reform intervention analysis estimates reveal an initial sharp decline in *Effective Performance* before rebounding to near pre-project start date intervention levels (**Figure F2B**, cf. **Figure 3B**). A mirror pattern transpires for *Poor Performance* with a sharp surge in the months following an IT project start date before declining at approximately pre-intervention differential levels (**Figure F3B**, cf. **Figure 4B**). The placebo test results reveal a similar muted, albeit inverted countercyclical pattern for the *Prior Appointed Administrative Experience – Civil Administrative Experience* differential effects resulting from IT project start date placebo intervention (**Figures F2F, F3F**). This set of placebo estimates reveal a transitory increase in *Effective Performance* before declining towards pre-project start date intervention levels (**Figure F2F**, cf. **Figure 3F**), while *Poor Performance* temporarily falls within the first six months following an IT project start date before steadily rising toward pre-intervention differential rates (**Figure F3F**, cf. **Figure 4F**). Finally, the performance differences between *Prior Appointed Administrative Experience* vis-à-vis *Only Prior Political Related Experience* for the placebo reform intervention analysis estimates uncover null effects which are flat with respect to time following the project start date (**Figures F2D** & **F3D**). This contrasts with the reported and supplementary analysis estimates based on the adoption date which uncover a surge for *Effective Performance* (**Figure 3D**) and a decline, followed by a slight uptick in *Poor Performance* (**Figure**

4D). In summary, these observed placebo effects are either short-lived or run opposite of the observed effects from the actual treatment intervention events. Given the considerable time elapsed between these IT modernization reform project start dates and the time that they are adopted/instituted noted at the onset of this **Appendix** section, these results undermine the veracity of this alternative explanation of the organizational adaptation process posited in this study.

FIGURE F1

Organizational Adaptation: Implementation Delay via Placebo Treatment Intervention (H1 & H2)

[Placebo Treatment Intervention: IT Reform Project Start Date]

FIGURE F1A
Unconditional Learning Effect
Proportion of Cases Met 14 Day Limit [MODEL F1]

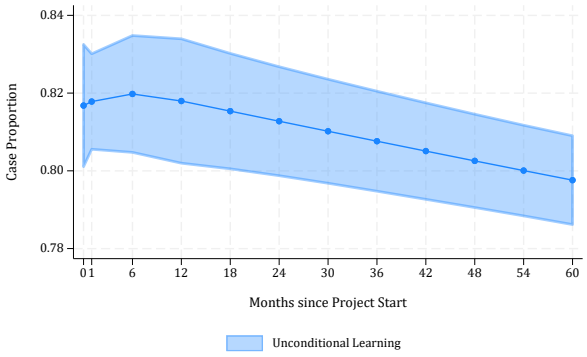


FIGURE F1B
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met 14 Day Limit
[MODEL F1]

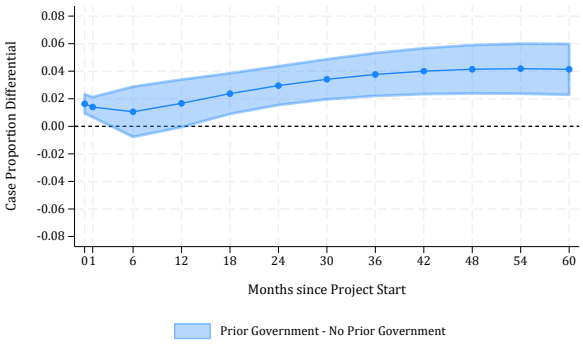


FIGURE F1C
Unconditional Learning Effect
Proportion of Cases Met Exceeding 28 Days [MODEL F2]

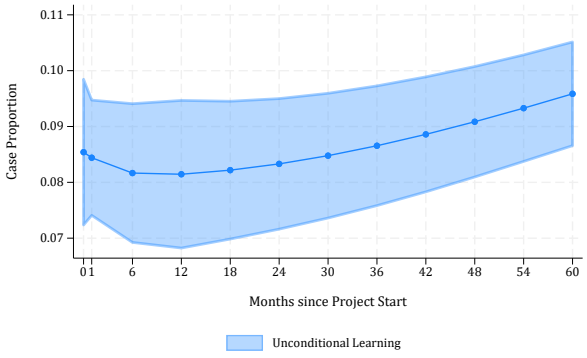


FIGURE F1D
Learning Experience Differential: Prior Government - No Prior Government
Proportion of Cases Met Exceeding 28 Days
[MODEL F2]

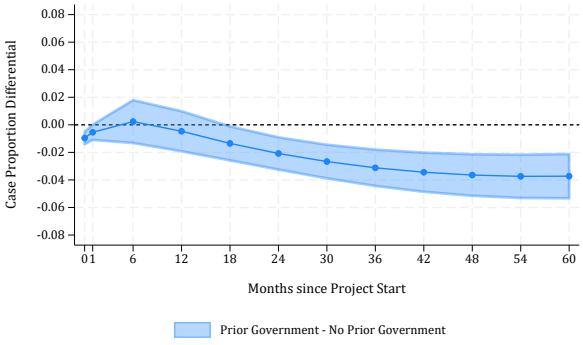


FIGURE F2

Organizational Adaptation: Implementation Delay via Placebo Treatment Intervention: H3 (*Effective Performance*)

[Placebo Treatment Intervention: IT Reform Project Start Date]

FIGURE F2A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL F3]

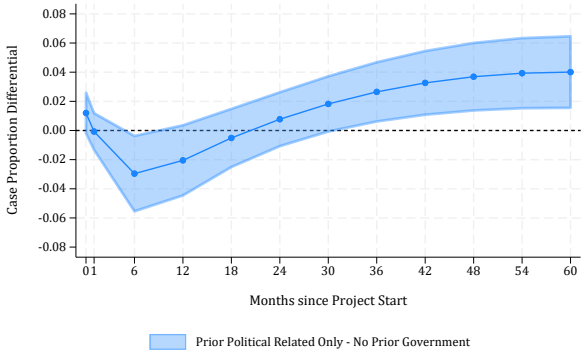


FIGURE F2B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL F3]

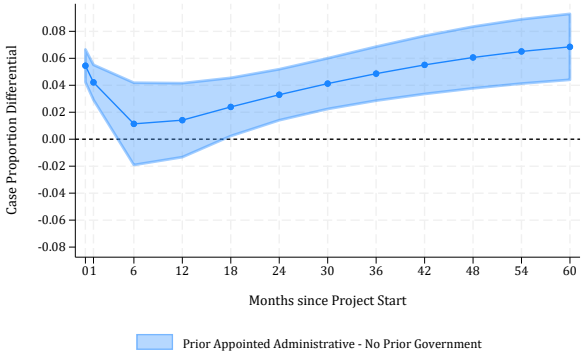


FIGURE F2C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL F3]

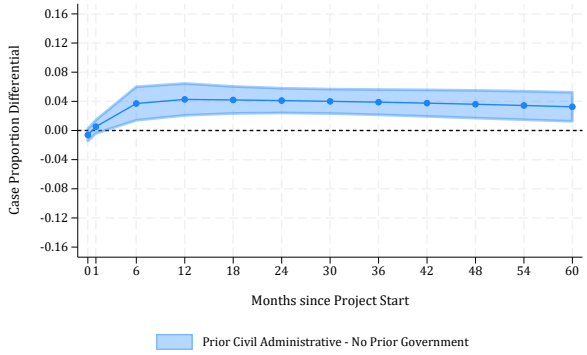


FIGURE F2D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL F3]

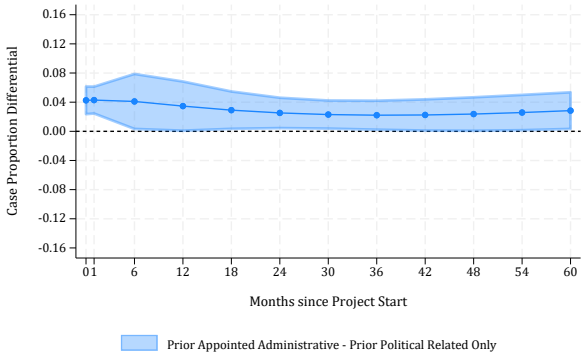


FIGURE F2E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL F3]

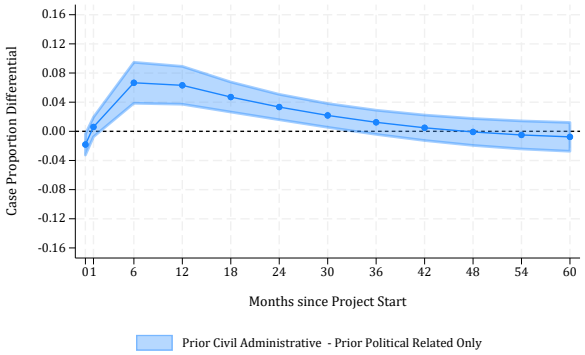


FIGURE F2F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met 14 Day Limit [MODEL F3]

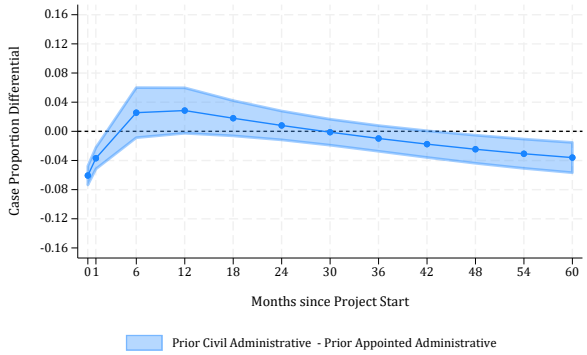


FIGURE F3

Organizational Adaptation: Implementation Delay via Placebo Treatment Intervention: H3 (*Poor Performance*)

[Placebo Treatment Intervention: IT Reform Project Start Date]

FIGURE F3A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL F4]

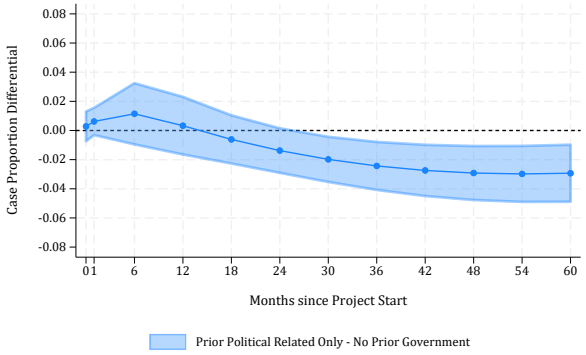


FIGURE F3B
Learning Experience Differential: Prior Appointed Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL F4]

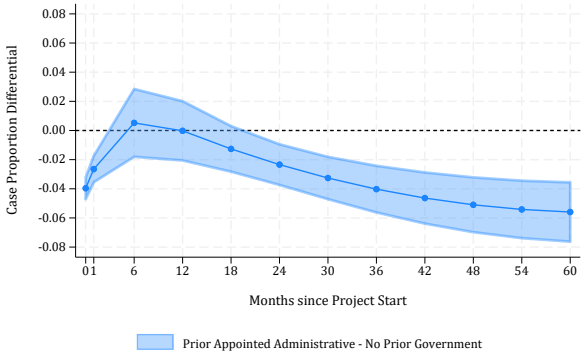


FIGURE F3C
Learning Experience Differential: Prior Civil Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL F4]

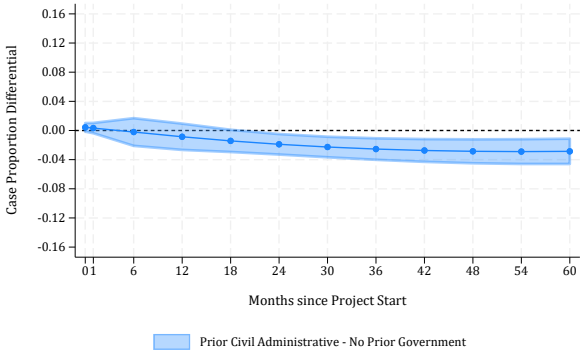


FIGURE F3D
Learning Experience Differential: Prior Appointed Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL F4]

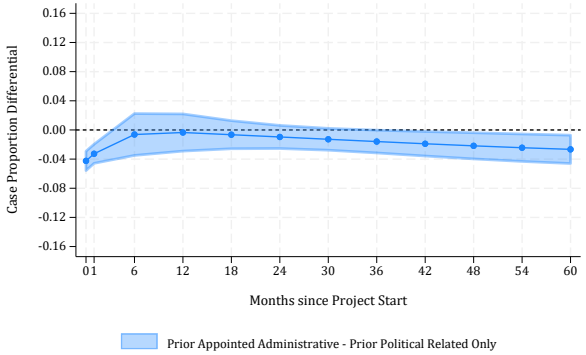


FIGURE F3E
Learning Experience Differential: Prior Civil Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL F4]

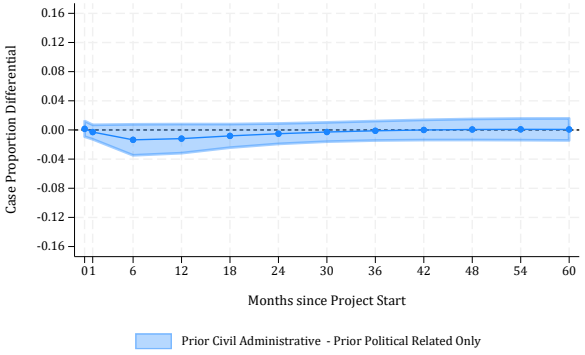


FIGURE F3F
Learning Experience Differential: Prior Civil Administrative - Prior Appointed Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL F4]

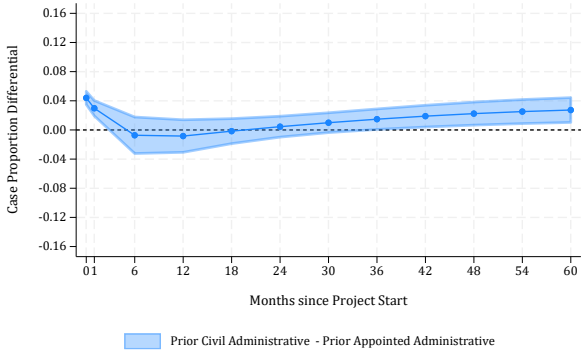


FIGURE F4

Organizational Adaptation: Implementation Delay via Placebo Treatment Intervention: H4 (*Effective Performance*)

[Placebo Treatment Intervention: IT Reform Project Start Date]

FIGURE F4A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL F5]

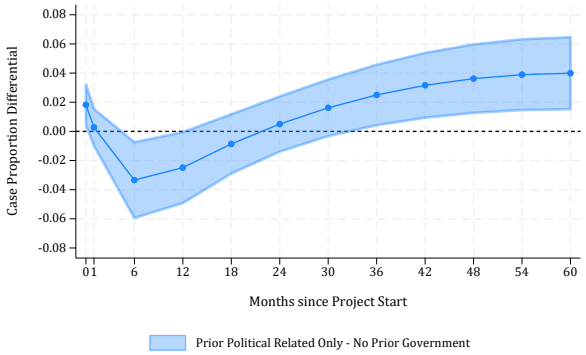


FIGURE F4B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL F5]

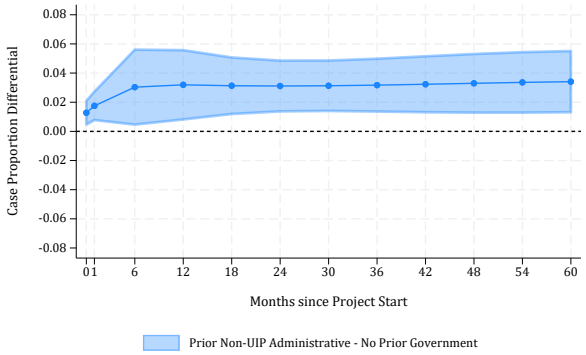


FIGURE F4C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met 14 Day Limit [MODEL F5]

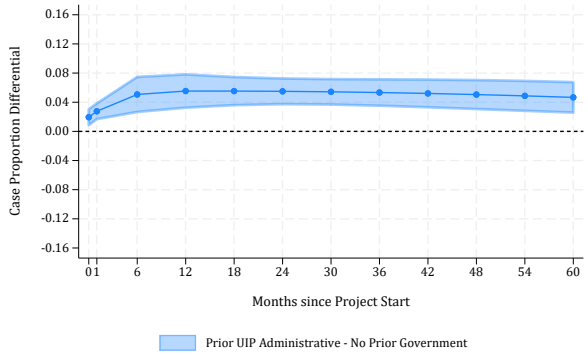


FIGURE F4D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL F5]

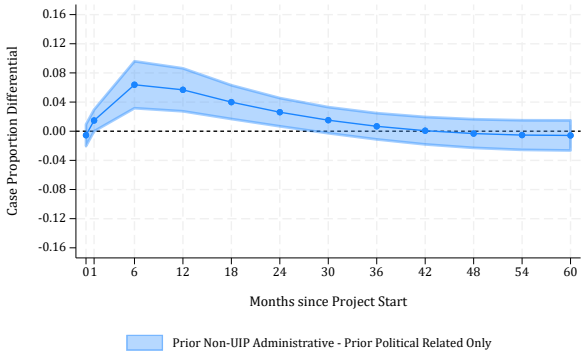


FIGURE F4E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met 14 Day Limit [MODEL F5]

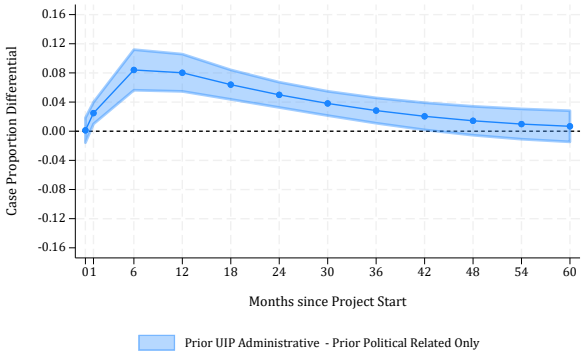


FIGURE F4F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met 14 Day Limit [MODEL F5]

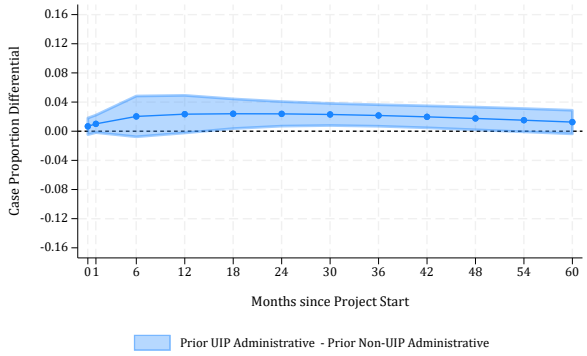


FIGURE F5

Organizational Adaptation: Implementation Delay via Placebo Treatment Intervention: H4 (*Poor Performance*)

[Placebo Treatment Intervention: IT Reform Project Start Date]

FIGURE F5A
Learning Experience Differential: Prior Political Related Only - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL F6]

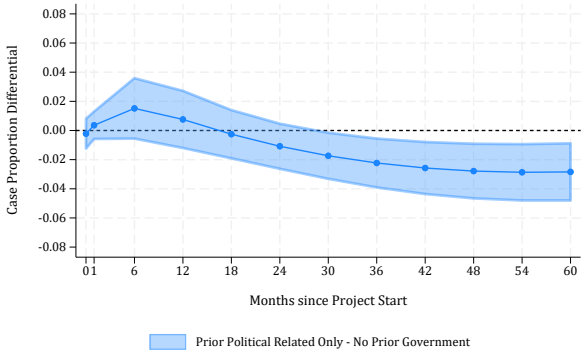


FIGURE F5B
Learning Experience Differential: Prior Non-UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL F6]

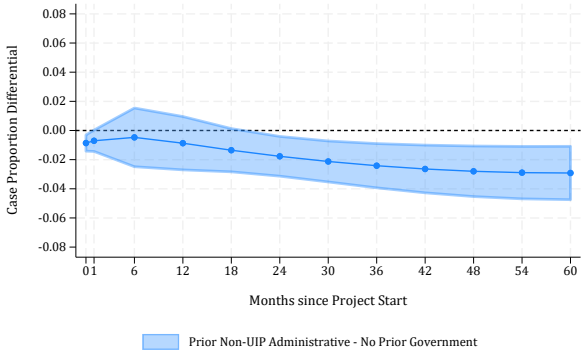


FIGURE F5C
Learning Experience Differential: Prior UIP Administrative - No Prior Government
Proportion of Cases Met Exceeding 28 Days [MODEL F6]

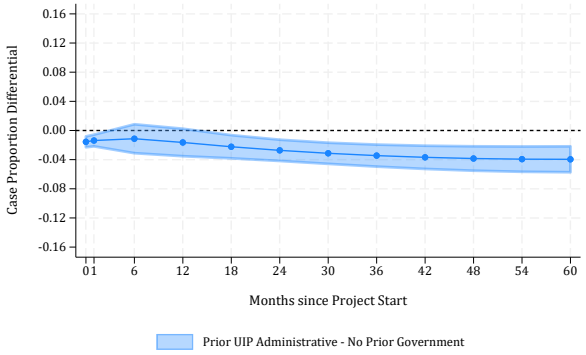


FIGURE F5D
Learning Experience Differential: Prior Non-UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL F6]

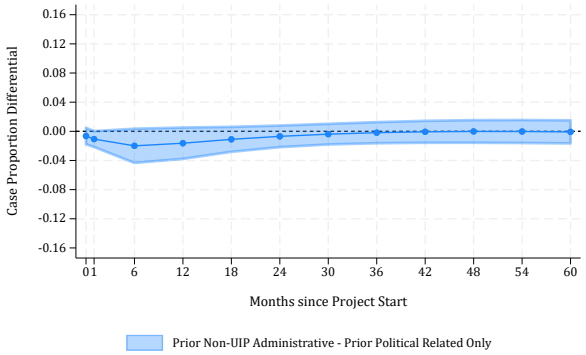


FIGURE F5E
Learning Experience Differential: Prior UIP Administrative - Prior Political Related Only
Proportion of Cases Met Exceeding 28 Days [MODEL F6]

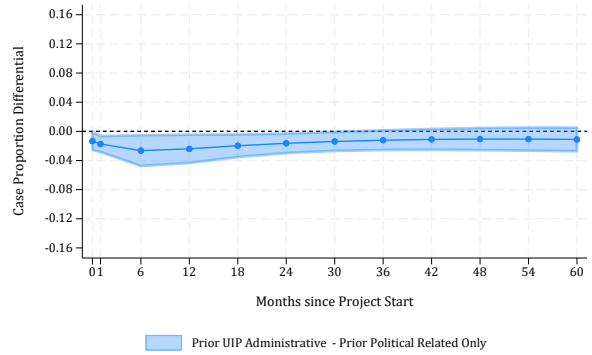


FIGURE F5F
Learning Experience Differential: Prior UIP Administrative - Prior Non-UIP Administrative
Proportion of Cases Met Exceeding 28 Days [MODEL F6]