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Influences on cannabis policy design and adaptation in the American states

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Abstract

Despite federal prohibitions, three-quarters of states had implemented medical marijuana laws (MML) and one-third had implemented recreational cannabis laws (RCL) by 2020. State policy designs varied considerably, and we focus on policy development and maturation in policy implementation, examining factors influencing design features of policy bundles for MML and RCL policies. Using data for 50 states from 1994 to 2020, we categorized 36 policies into three distinctive policy bundles. The pharmaceutical bundle regulates cannabis like other medicinal drugs. The permissive bundle gives individuals discretion to use cannabis with minimal state regulation. The fiscal bundle treats cannabis as a state revenue source. Most importantly, policy design choices continue beyond adoption into implementation, and each bundle score can change over time and by state. Using panel regression with state and year fixed effects, we test five influence pathways for the policy design of cannabis policy bundles: (a) the average bundle score of neighboring states, (b) the partisan-weighted neighbor average, (c) the neighbor average weighted by citizen ideology, (d) the average of all states with similar unified party control, and (e) the policy leader bundle score weighted by ideological similarity. Models also include partisanship, economics, public finance, citizen ideology, demographics, and policy-specific variables. Besides internal factors of Democratic legislative composition, state citizen ideology, and the relative percentage of a state's population receiving disability benefits, we find support for external cue-taking from other states, particularly among those with similar ideological leanings.

KEYWORDS

cannabis, policy

INTRODUCTION

The American states provide a rich environment for exploring differences in policy design and the processes involved in the implementation of the mixes, portfolios, or bundles of policy designs in a policy domain (Doremus, 2003; Gunningham et al., 1998; Howlett, 2014; Pierce et al., 2014). The policy design literature has numerous branches of inquiry, and among those is the study of how policy content emerges in the policy formulation and implementation stages of the policy process and the social, economic, and political factors that shape the context of complex policy designs (de Aguiar et al., 2023; Siddiki, 2020). Further, there are questions on how the policy mixes have varied over time and in different governance settings (Howlett et al., 2015).

While policy diffusion has been a staple of state policy analyses (see Desmarais et al., 2015; Graham et al., 2013; Gray, 1973; Walker, 1969), less attention has been devoted to the analysis of the factors shaping policy mixes, portfolios, or bundles. In this study, we examine state policy designs associated with cannabis and the particular mixes of those policies. Cannabis policy offers a unique lens on policy in the American system of federalism in that states have adopted numerous policies despite a federal ban on cannabis (Hannah & Mallinson, 2018). While policy adoption is crucial to understanding the spread of policies through the federal system, policy design and development do not simply stop at the policy formulation and adoption stages of the process. States continue to refine their cannabis policies in the implementation and adaptation process, thus posing a challenge in defining influences on policy and exactly when and how to construct a measure representing a particular policy (Hayes & Brown, 2014).

To delineate the dimensions of state cannabis policies, we summarize policy design complexity across three bundles based on unique policy characteristics. The policy bundles include annual measurement of each characteristic over time as states continue designing policy *with* adaptation after their initial implementation of cannabis policy. Using a state-year unit of analysis, the policy bundle scores reflect how a state, at a particular point in time, chooses cannabis policies that fit into *pharmaceutical*, *permissive*, and *fiscal* approaches. In short, the pharmaceutical bundle policies treat cannabis like other regulated drugs with medicinal value that can only be obtained in controlled circumstances. In contrast, the permissive bundle policies treat cannabis like a normal good that can be manufactured and purchased in an open market with limited controls for the safety of consumers, workers, and children. Fiscal bundle policies focus on revenue-enhancing aspects of the cannabis market, and state coffers have experienced substantial growth with the implementation of fiscal policy bundles.

In this article, we examine the effects of political, economic, fiscal, contextual, and diffusion factors shaping cannabis policies, in the choices states make in designing their specific policy mix through the initial adoption phase and subsequent adaptations, across the American states from 1994 to 2020. We first consider the literature on policy adoption, diffusion, and adaptation, and we then expand on the definition of policy bundles. We then develop hypotheses and methods for the analysis before turning to the results. We find a significant impact of both internal factors—Democratic legislative composition, state citizen ideology, and the relative percentage of a state's population receiving disability benefits—and external cue-taking, especially among states with similar ideological profiles. We conclude with a discussion on the findings and paths for future research.

POLICY DESIGN AND THE POLICY PROCESS

Policy variation across space and time offers analytical leverage in understanding policy adoption and subsequent changes, but measuring and conceptualizing policy variation pose challenges. Earlier studies relied on dichotomous measures of a policy, but policy bundles demonstrate policy complexity and better represent implementation dynamics (Boehmke, 2009; Boehmke & Witmer, 2004; Carley & Miller, 2012; Karch et al., 2016).

Our analysis focuses on policy bundles for legalized cannabis and the dynamics shaping the characteristics of medical and recreational marijuana policies at the state level. As states consider

legalization and contemporaneously develop policy well outside normal boundary conditions of federal influence (Hannah & Mallinson, 2018), policies appear fluid, mutable, and shaped by state-specific conditions.

While policy *adoption* is an important aspect of cannabis policy, equally important is the fact that policies mature and *adapt* in a post-implementation timeframe. As states consider and reconsider policy choices resulting in a state-specific bundle, the legalization ecosystem evolves as other states make contemporaneous policy changes. Further, moving beyond a singular, one-time decision for policy-making allows examination of factors influencing state-level policy bundles through policy *adaptation*. Understanding this continuing dynamic provides insight into how states adjust to changing political and policy environments. Further, the policy bundle approach, a more expansive measurement compared to a one-time dichotomy, allows analysis of non-trivial policy changes reflecting political, economic, and social considerations as well as policy learning.

State medical cannabis policies vary widely at adoption, during implementation, and in subsequent years due to amendments (Pacula et al., 2015, 2016; Wilkinson et al., 2016). Scholars have examined marijuana legalization as the product of traditional policy adoption and diffusion factors, along with unique policy domain rationales, such as factors related to marijuana usage rates (Cerdá et al., 2012, 2018). State activities post-adoption, or in our term *policy adaptatio*n, provide the opportunity to understand how and why states adjust prior policy choices, recognize concomitant strengths or weaknesses, and consider how opinions have changed (Chapman et al., 2016; Martins et al., 2021; Williams et al., 2016).

Conceptualizing policy bundles

As of 2020, 36 states had adopted but not necessarily implemented a form of legal medical marijuana (plus the District of Columbia, which is not analyzed here). Further, 11 states had approved but not necessarily implemented recreational cannabis policies. While other studies have examined the adoption of a marijuana policy (Hannah & Mallinson, 2018), we seek to understand the factors shaping the design of cannabis policy, including the persistence of those factors across the policy timeline, from adoption through continued adaptation.

To capture the diversity of cannabis policy approaches (see Chapman et al., 2016 for a different schema), we classify legalized cannabis policies into pharmaceutical, permissive, and fiscal bundles. Each policy bundle scale is constructed from the dichotomously coded policies indicated in Table 1, and the score on each bundle can vary by state and by year.

In total, 36 unique policies were identified, and each was included in only one of the policy bundles, with each policy bundle comprised of 12 policies. While each policy is uniquely assigned to one policy bundle, states can and do choose policies that respectively fit into different bundles, leading to varying policy bundle measurements representing a state's policy choices and changes over time, illustrating how states can choose to adapt and modify their approach to cannabis policy—strengthening or weakening a particular bundle policy and/or adding policies constituent of another bundle. Thus, bundle scores can fluctuate over time in a state, which is important to understanding how the multiple dimensions of state cannabis policies remain mutable (Neeley & Richardson, 2023).

Policy bundle data sources

To measure specific policies comprising the policy bundles, the primary sources for policy language and implementation dates were state legislative bill tracking websites and state agency websites for medical marijuana or cannabis control. Ballot measures were obtained from state electoral agencies. State agency annual reports were used to verify policy characteristics and implementation dates. For tax rates and producer or dispensary fees, we consulted state regulatory agencies, such as the department

TABLE 1 Cannabis policy bundle scales.

Pharmaceutical	Permissive	Fiscal
Growers licensed	Gray market supply	Medical dispensaries
Nonprofit dispensaries	Medical home cultivation	Non-resident purchase allowed
Mandated patient registration	High usable amount (>5 ounces)	For-profit dispensaries allowed
Required annual patient certification by physician	High number of medical plants (>7)	MML tax presence
Bona fide physician patient relationship	Unlimited patients per caregiver	High MML tax (>3%)
Patient limit per caregiver	No restriction on usage type	High production or cultivation fee (> $25,000)
Local option to opt out	Cooperatives allowed	No restriction on number of dispensaries
Medical marijuana exempt from sales tax	Recreational cannabis approved	Recreational dispensaries operational
No smoking of cannabis	Higher recreational ounces (>1 ounce)	Dispensary fee for either MML or RML (> $25,000)
Required safety testing	Recreational cultivation allowed	Recreational cannabis taxed
Restriction on the number of dispensaries	High number of recreational plants (>7)	High recreational wholesale tax (>5%)
Dispensaries must include pharmacist	Possession defelonization (No jail, fine only or legal)	High recreational sales tax (>5%)

of revenue. Newspapers and policy-relevant websites (such as the Marijuana Policy Project, NCSL, NORML, and Pro-Con) were used to confirm dates and examine relevant court cases shaping policies and implementation.

Policy timing and the effective date of policy implementation

To determine implementation timing, the ability to legally obtain cannabis was the key, as years may pass between the policy enabling action (via ballot measure or legislative bill) and policy implementation resulting in the availability of legal cannabis. Medicalized and nonmedical programs have differed significantly with respect to route and year of passage, with medicalized programs more likely resulting from legislative action (Neeley & Richardson, 2023; Williams et al., 2016).

Timing of policy impact varies considerably. In states with home cultivation, implementation could be immediate, depending on the effective date of the authorizing measure. In contrast, in states with dispensaries as the only legal outlet, relevant regulations must be promulgated; thus, implementation may be significantly delayed—even stretching to a few years. For example, in Louisiana, a medical marijuana bill passed in 2015, but it was deemed unworkable for various legal reasons, and amendments across multiple legislative sessions refined the policy to allow dispensaries to open in 2019.

With a state-year unit of analysis, we considered a policy to have been implemented at any point in the calendar year. For states with legal home cultivation or cannabis cooperatives, related policies were counted as implemented immediately upon the effective date, as a resident could start growing and using. In states without cooperatives or home cultivation, implementation depends on when registries approved cardholders, cultivation licenses were awarded, and dispensaries opened. Therefore, we consider related policies (such as requiring nonprofit status of a dispensary or an attending pharmacist) as not implemented until dispensaries are licensed and operational, and this date is determined separately for medical marijuana dispensaries and recreational (or adult use) dispensaries.

Finally, laws removing felony cannabis possession provisions were included in the permissive bundle, as some states passed legislation focused on the removal of felonies by itself, but others did so as part of the passage of an adult use law that legalized dispensary sales. Some states removed felony possession provisions prior to implementing other medical marijuana policies (i.e., Minnesota, New York, and Ohio), but most were passed after implementing more limited medical marijuana possession laws. This policy characteristic was deemed to be implemented on the effective date of the bill or ballot measure.

Pharmaceutical bundle

State cannabis policies may approximate pharmaceutical regulation (see Williams et al., 2016) treating cannabis like controlled substances for physician-approved treatment. The pharmaceutical bundle policies limit cannabis availability, with some provisions regulating businesses and others the user. For businesses, laws include licensing of cannabis growers, nonprofit requirements for dispensaries, safety testing requirements, restrictions on the number of dispensaries, a mandate for an attending pharmacist, local options to opt out and not allow dispensaries, and state sales tax exemptions. Restrictions on individuals include mandated patient registration, annual eligibility certification, a bona fide patient –medical provider relationship, a limit on the number of patients per caregiver, and prohibitions on smoking cannabis (see Table 1).

Permissive bundle

Alternatively, states have chosen policies favoring a *permissive* approach to cannabis, which emphasizes individual rights and relaxed regulations. In "defiant innovation" against the Federal prohibition on cannabis (Hannah & Mallinson, 2018), many early MML adopters moved to decriminalize possession, allow home cultivation, and provide an affirmative defense for users with a physician-endorsed card but did not mandate state centralized record keeping or registration. Some states were silent on cannabis supply without provisions for either large-scale cultivation or product testing (O'Keefe, 2013).

The permissive approach includes home cultivation, high possession limits, a high number of plants per user, growing cooperatives with multiple medical marijuana users, no restrictions on the form of usage, possession for personal recreational usage, licensing dispensaries for adult recreational users, higher personal recreational possession, home cultivation for recreational use, and the defelonization of possession for low levels of cannabis (Braakmann & Jones, 2014; Huber et al., 2016).

Fiscal bundle

Other policies afford states fiscal benefits from cannabis sales (Dragone et al., 2019; Fisk et al., 2018; Huber et al., 2016). The most frequent recreational pro-legalization arguments were reduced criminal justice system involvement and costs, increased tax revenue, and increased business revenue (McGinty et al., 2016). Further, public support for legalization correlates positively with similar cost-related concerns: lower law enforcement costs, increased tax revenue, and job production (McGinty et al., 2017).

Some policies offer direct fiscal implications: establishing a dispensary and commercial cultivation system that prescribes the cost, number, and type of allowable facilities, taxation schedules for manufacturing, wholesale, and retail sales, and allowing for non-resident purchases with associated tax revenues. Case studies suggest state lawmakers are sensitive to recreational marijuana risks, but budgetary benefits may mitigate other political risks, such as cannabis tax revenues funding public services

(Fisk et al., 2018), additional sales tax revenue, and decreased crime costs (van der Brink, 2008; Wodak et al., 2002). Instead of limiting cannabis (pharmaceutical) or allowing unregulated and untaxed usage (permissive approach), the fiscal bundle policies create state revenue from cannabis distribution.

Assessing the policy bundle measures

To measure the pharmaceutical, permissive, and fiscal policy bundles, we constructed each with 12 policies, and each individual policy and the assigned policy bundle are presented in Table 1. Each policy is measured dichotomously for the respective state-year in which it was effectively implemented, and then 12 policies are summed for each policy bundle. The policy bundles were developed from a theoretical perspective, but to test the construction of each, we estimated a Cronbach's Alpha, calculated a Kuder–Richardson (KR20) coefficient, and conducted a factor analysis using the STATA tetrachoric correlation for binary variables using the Edwards and Edwards (1984) estimator. Previous studies of drugs and alcohol policy have found an index constructed from dichotomous variables has advantages over employing multiple dummy variables in the analysis (Ritter et al., 2016). The policy bundle scales were standardized to range from 0 to 100 for interpretation, and each policy bundle was assessed in separate analyses.

FACTORS SHAPING CANNABIS POLICY BUNDLES

Studies have shown that external and internal forces influence cannabis policy adoption (Mallinson, 2021). We discuss the common factors used in policy adoption models, but we also explore factors influencing policy choices during policy adaptation.

Cue-taking from other states

As a state considers adopting and implementing a new policy or adapting current policies, other states are fertile ground for policy ideas and assessing policy successes and failures (Berry & Berry, 1990; Walker, 1969). Policy learning may be particularly important in cannabis legalization as states are active in the policy maturation phase, refining frequently vague enabling laws into more complex policy bundles (Hannah & Mallinson, 2018). Conceptualization of this external influence, based in either economic competition or social learning, has varied in the policy literature, from simple models where states look to their closest neighbors to models positing state leaders also look to neighboring states with similar partisan control or congruent ideological preferences (Boehmke & Witmer, 2004; Grossback et al., 2004).

We consider five conceptualizations of how cue-taking may influence the design of cannabis policies within a particular state. We do not delve into the individual decision-making of policymakers, but each operationalization allows the possibility of state officials seeking information and experiences from outside of their respective state boundaries (Berry, 1994; Berry & Berry, 2014; Graham et al., 2013; Mintrom, 1997; Walker, 1969). We consider geographic or regional components focused on the experience of neighboring states and add the interaction effects of institutional partisanship and ideology (Mallinson, 2021).

Cue-taking from other states could take several forms: (1) the average score on each bundle for geographically adjacent *neighboring states*, (2) the average bundle score weighted by *partisan congruence with neighboring states*, (3) the average bundle score weighted by *ideological congruence with neighboring states*, (4) the average bundle score for all states with the *same unified partisan control*, and (5) the average ideological congruence with the state(s) having the highest score on a particular bundle in a year (the *national policy leader with ideological congruence*). Using a framework similar to Desmarais et al. (2015), the following function

represents that state *i* is a source of policy cues to a "follower" state *j* in each state dyad, depending on the cue-taking form discussed in the following section.

$$\text{Cue}_{jpkt} = \sum_{1}^{n} \left(W_k * \text{BundleScore}_{ipt-1} \right) / n$$

where *p*, which policy bundle, i.e., pharmaceutical, permissive, or fiscal; *i*, source state; *j*, follower state; *k*, cue definition as described below for each type; *t*, year; *n*, number of states in each cue (*k*) definition; W_k, a weight (*W*) for each type of state cue (*k*).

Because states compete with neighbors for population growth, economic development, and revenue expansion, the policies of *adjacent neighboring states* have long been influential in diffusion studies (Berry & Berry, 1990). For example, if state residents could buy lottery tickets across the border, a state is losing potential tax revenues. Similarly, residents of neighboring states may drive across state lines for cheaper gasoline, cigarettes, or alcohol.

Competitive pressures may not matter as much for pharmaceutical bundles with limited eligibility, but competition may influence states considering permissive or fiscal bundles. States may fear losing revenue or population growth to nearby states with legalized cannabis. For this measure, we use any state touching another state's borders as a neighbor and treat California, Oregon, and Washington as neighbors of Alaska and Hawaii. For each bundle, the average score in a year is calculated for the adjacent neighboring states using the following formula: If *k* = *Neighbor Geographic* cue, then $W_k = 1$ if adjoining state, and else $W_k = 0$.

Alternatively, state policymakers may focus more on policies in nearby states with similar partisan control of state political institutions. Using a definition of unified party control of the state legislature and the Governorship at the beginning of the session, as recorded by the National Conference of State Legislatures, this measure considers the *policy bundle of any adjacent state with the same unified party control*, and then averages the bundle score for such states calculated as follows: If *k* = *Neighbor Party* cue, then $W_k = 1$ if adjoining state j is controlled by the same party as state i, and else = 0. For example, Republican-controlled Indiana (in 2020) would ignore the pharmaceutical bundle score of 58 for Democratic-controlled Illinois, but would consider the 58 score on the same bundle for Ohio and the 0 score of Kentucky. The partisan neighbor average would be 29 (as opposed to the 41 score for all neighbors).

Partisan congruence is a simple cue, but states of the same party can vary in ideological preferences. This was especially true in the late 1990s and early 2000s when some southern states were conservative and controlled by Democrats, but even a state such as Colorado, under Republican control from 1999 to 2004, may not have looked to Arizona, Kansas, Utah, or Wyoming for cues on social and moral policies, such as cannabis policy. Rather, the ideological preferences of these states differed, and we construct an ideological congruence weight on nearby states' bundle scores (Grossback et al., 2004).

For the *neighbor ideological congruence* measure, we use the Caughey and Warshaw (2016, 2018, 2022) measures of social policy preferences and standardize the scores on a range from zero (liberal) to one (conservative) for ease of interpretation. Starting with the absolute value of the difference in ideology scores between two states, the measure is one minus the ideological difference to assign a weight that is then multiplied by each policy bundle score for each neighboring state. The average of those weighted policy bundle scores is used for each bundle for each year represented by the following formula: If *k* = *Neighbor Ideological* cue, then W_k = absolute value [1 − (the social ideology score of state$_i$ − the social ideology of state$_j$)] for each adjoining state, and else = 0. The summary statistics for all variables are included in Table 2.

The partisan congruence and ideological congruence measures could be quite different. For example, Nevada in 2015 and 2016 had congruence with Republican-controlled Arizona, Idaho, and Utah but not California or Oregon. Its partisan weighted neighbor average was 16.7 on the pharmaceutical bundle, but on the social policy ideology measure in 2015, its "closeness" weighting factor with California (0.75) and Oregon (0.85) was much higher than Arizona (0.41), Idaho (0.44), and Utah (0.40).

TABLE 2 Summary statistics for all variables ($N = 1350$, $n = 50$, $T = 27$).

Variable	Mean	Std. dev.	Minimum	Maximum
Pharmaceutical bundle	10.17	20.78	0	83.30
Permissive bundle	9.66	16.46	0	75.00
Fiscal bundle	5.37	14.95	0	83.3
Pharm neighbor avg	7.71	14.27	0	77.78
Pharm neighbor party avg	3.42	11.72	0	79.17
Pharm neigh ideology avg	5.58	11.53	0	74.30
Pharm unified govt same	6.46	13.06	0	79.59
Pharm national policy leader score	26.53	20.31	0	83.21
Permissive neighbor avg	8.71	12.69	0	69.44
Permissive neighbor party avg	3.94	11.71	0	75.00
Permissive neigh ideology avg	6.50	10.14	0	68.18
Permissive unified govt same	6.25	9.55	0	89.30
Permissive national policy leader score	29.11	18.51	1.54	74.99
Fiscal neighbor avg	4.10	9.93	0	63.89
Fiscal neighbor party avg	2.03	8.47	0	70.83
Fiscal neigh ideology avg	2.81	7.59	0	62.97
Fiscal unified govt same	3.72	9.73	0	70.20
Fiscal national policy leader score	17.05	22.79	0	83.25
Ogden memo era	0.15	0.36	0	1
Cole memo era	0.15	0.36	0	1
Sessions memo era	0.03	0.19	0	1
Barr era	0.07	0.26	0	1
Democratic governor	0.43	0.49	0	1
Legislative democratic %	0.49	0.17	0.11	0.94
Social ideology	0.51	0.30	0.003	0.99
Total debt outstanding (real $ per thousand, lagged)	2.19	1.41	0.38	8.05
Administrative FTE per capita	1.63	0.77	0.54	4.71
College percent	27.14	5.55	12.62	45.00
Unemployment rate	5.41	1.90	2.30	13.70
Poverty rate	12.38	3.40	3.70	25.70
SSI disability rate (1000K pop.)	19.20	7.61	7.27	41.62
Income per capita (real $ in 1000K)	27.12	4.96	16.90	45.03

Next, we consider measures to capture how state officials may look beyond the regional influence of neighboring states to states with similar partisan control. With information available online and advocates sharing information across states, policy design sources could be more national while still being painted by partisanship. Considering only unified control states, we generated an average bundle score for all other states with Democratic unified control or Republican unified control using the following: If k = *Unified Government Same* cue, then $W_{jk} = 1$ if state_i is controlled by the same party as state_j, and else = 0. For Alabama in 2020, the pharmaceutical bundle influence score was 25.8, which was the average for all other states with the *same unified partisan control* (Republican). In contrast, Connecticut in 2020 had a pharmaceutical bundle influence score of 53.6 among the Democratically controlled states across the country. In general, the "caucus" of Democratically controlled states (the composition of which differs by year) has seen much faster growth in bundle scores since 2014 than the Republican caucus.

Finally, we consider how leaders in a policy bundle may influence other states. Rather than looking to nearby states or partisan colleagues, states may follow the policy bundle leader, but ideological congruence with the leader state may shape that decision. We are less concerned about the ideological directionality influencing policy bundles (Parinandi, 2020) but rather about the congruence between states that are designing their policies.

To test this concept, we take the average ideological score (as computed above) for the state(s) with the highest score on a particular bundle in a year—in essence, the *national policy leader with ideological congruence*. For example, Alaska and Colorado were early leaders for the pharmaceutical bundle (1999–2007) with a 33.3 bundle score, but since 2013, Vermont has been a leader with a 75 score (and Pennsylvania and Delaware joined it in recent years with the same score). For each state, we estimate ideological congruence between a state and the average ideology score for the national policy leaders using the formula: If k = *National Policy Leader* cue, then W_k = absolute value [1 − (the social ideology score of state$_i$ − the social ideology score of state$_j$)], where state$_i$ is the state (or states) with the highest score on the policy bundle. For example, in 2020, Oregon led the permissive bundle with a score of 75, and its social policy ideology score was a liberal 0.03, so conservative Alabama with a 0.99 would have a huge ideological gap and put a low weight on Oregon's permissive bundle score. Alternatively, Connecticut with a 0.03 social policy score in 2020 would have strong ideological congruence with Oregon, and it would place a greater weight on the Oregon cue on the permissive bundle.

Each external influence measure is included separately in a full model for each of the three cannabis policy bundles. These measures provide tests of different possible paths for the influence of external cues on state policy design through adoption and adaptation. Given the complexity of possible external influences and the changes exhibited in cannabis legalization policies, our measures provide some leverage to understand multiple conceptualizations of how states consider the influence of other states' policies and experiences beyond the traditional count model (Boehmke & Witmer, 2004).

Federal influence

While cannabis remains Federally prohibited, enforcement has varied over time. One important signal of Federal intent has been statements by the US. Attorney General or their deputies, which signaled states as to what the Feds might allow or at least ignore (Hannah & Mallinson, 2018; O'Keefe, 2013). Whereas the Clinton and Bush administrations deployed aggressive enforcement, the Obama era Ogden memo signaled a more relaxed approach in states with well-regulated systems of medical marijuana (Cambron et al., 2017; Mallinson & Hannah, 2020; Vann, 2022). The Cole memo, later in the same administration, added further conditions but was more permissive in legalized cannabis states (but not in states without medical marijuana or recreational use laws). The Sessions memo, early in the Trump administration, brought a more aggressive prosecutorial stance, but a year later, Attorney General William Barr testified that the department was returning to the Cole enforcement approach (Somerset, 2019).

To capture this variation, our models include a dummy variable for the years in which each of these memos was in place for most of the year. The expectation is that states innovated and thereby increased bundle scores in the years that the Ogden and Cole memos were in effect, but states would have paused under the more aggressive Sessions' memo era.

Internal forces

Partisan control of a state's policymaking institutions is a persistent factor, important for any policy domain (Roh & Haider-Markel, 2003; Spill et al., 2001). While Democrats generally support cannabis legalization (Daniller, 2019), there is little evidence on partisan views on specific policy choices. We include a dichotomous variable for a Democratic governor and the average percent of Democrats in the

legislature, measured as the average of the House percent and Senate percent (and Nebraska's nonpartisan unicameral legislature is dropped from the analysis).

The pharmaceutical bundle limits cannabis access, and Democrats (as cannabis supporters) could be opposed to it, but it could also be seen as expanding access within states without previous legal access. Further, Democrats may be more supportive of legalized cannabis reducing negative externalities of pharmaceutical drug abuse (Bachhuber et al., 2014; Bradford & Bradford, 2016; Bradford et al., 2018). The permissive bundle affords greater access, so it is more consistent with Democratic support of cannabis legalization, but the permissive approach could allow greater abuse problems, limit regulatory oversight, and forego additional revenue to offset costs. The fiscal bundle allows the state more resources, so this could be seen as more favorable by Democrats, but it could also be seen as regressive in shifting governance costs to a user sin tax, which Democrats generally do not support.

Similarly, the ideology of a state's citizenry may influence policy adoption (Berry & Berry, 1990, 2014; Berry et al., 1998; Mooney & Lee, 2000). Ideology may be particularly important for legalization, where many states have taken initial steps via the ballot measure rather than legislation. We use the Caughey and Warshaw (2016, 2018, 2022) measure of social policy ideology scores, and we standardize the scores from zero to one for ease of interpretation. Given the Pew survey data on greater liberal support for legalization (Daniller, 2019), one could expect a negative relationship across the bundles, but the same factors listed for Democratic legislators could influence citizen support for the different bundles.

Fiscal health could motivate state leaders to legalize. When governments face revenue shortfalls, taxation, and expenditure policies creating state revenues are more likely (Dye, 1966; Plotnick & Winters, 1985; Tiebout, 1956; Walker, 1969). This effect could be most pronounced for the fiscal bundle, but it could also indirectly affect the other bundles, as legal cannabis could reduce a variety of associated expenses present in nonlegalized states.

For states experiencing expenditure growth or stagnating tax revenues, legalization may ameliorate these fiscal challenges. Economic incentives differ across the policy bundles, including possible cost savings coupled with possible increased taxation. Fiscal stress from any policy area may lead states to pursue fiscal measures, even simply using legalization as a new revenue source without regard to offsetting policy costs. To test for fiscal health effects, we include the total debt outstanding in the state in real dollar terms per thousand residents (using the Willamette State Finance Database, 2020).

Administrative capacity to oversee a newly legal substance may shape policy design as substantial administrative hurdles exist in developing a regulatory framework. States with greater administrative capacity may be better equipped to manage the regulatory process and to ensure the policy meets its desired outcomes (Barrilleaux & Miller, 1988). Further, limited administrative capacity may lead legislators to restrict bureaucratic discretion in policymaking (Huber & McCarty, 2004). We measure state administrative capacity using Financial Administration, Judicial and Legislative, and Other Government Administration Full-Time Equivalent Employees (per capita) from the U.S. Census Bureau Annual Survey of Public Employment.

State economic health may shape policy through perceptions of economic competition with nearby states, lost jobs, or potential lost revenue (Berry & Baybeck, 2005; Dye, 1966). This could have a larger effect on the fiscal policy bundle as states consider lost concomitant tax revenue streams to neighboring states allowing non-resident sales. In the models, we include measures for the state unemployment rate, the poverty rate, and personal income in real terms per capita (Bureau of Labor Statistics). States with healthy economic indicators could better afford to develop cannabis regulatory frameworks, or alternatively, economically struggling states could enhance their economy and spur job growth by legalizing cannabis.

Models include the percentage of college-educated adults (National Center for Education Statistics) and the per capita rate of state citizens on SSI disability (Social Security Administration). Generally, college-educated adults are more socially liberal and willing to accept less traditional social activities. Similarly, states with higher disability rates may have more citizens suffering from chronic pain, PTSD, or other qualifying conditions for SSI disability payments, which may be ameliorated by medical marijuana.

Ballot measure effects

We include a measure representing whether a state had initially legalized cannabis by way of a ballot measure rather than legislation (*Legalization by Ballot*). Research suggests that initiative-capable states have different policies across many policy areas, such as lotteries, abortion, and tribal gaming, and ballot measures are associated with greater policy innovativeness depending on ballot rules (LaCombe & Boehmke, 2021). Cannabis policy changes have frequently been by the initiative, warranting consideration of these models (Hannah & Mallinson, 2018; Vann, 2022). In addition, the complexity of the ballot measure could affect implementation and reduce the likelihood of voter support (Hessami & Resnjanskij, 2019). Further, this effect may be stronger in states with more restrictive ballot measure requirements as they are associated with less complex policy measures on the ballot (Milita, 2015). For example, a policy requiring a licensing system for doctors, patients, dispensaries, and growers could be very complex, but a policy allowing a certain number of plants for home cultivation and possession of a large quantity of cannabis is much simpler. Therefore, the mode of policy origination, particularly ballot measures, could affect which policies are more likely to be implemented and drive the number and type of policies subsequently added or amended by the legislature. Overall, the use of a popular vote could shape the time available for implementation, the complexity of the policy instrument, and the resulting nature of the policy.

METHODS

While traditional policy adoption models use event history analysis to assess factors shaping policy adoption (Berry & Berry, 1990), policy bundles cannot be measured as a dichotomous variables. Further, event history analysis, built on survivor or duration models, assumes that a state drops out of the data set upon adoption, but the policy bundle approach allows a state to continue adapting and designing, or redesigning, policy. Similarly, dyadic policy influence models rely on event history analysis to predict adoption using a dichotomous construction of policy adoption activity (Volden, 2016). However, states can choose to add or drop policies comprising the policy bundles at any time in the policy lifespan, thus rendering a higher or lower policy bundle measure each year and not merely a one-time policy choice.

Policy variation and continuous policy adaptation suggest a cross-sectional time series or panel regression approach, and we used state fixed effects, year fixed effects, and standard errors clustered by state to help account for unobserved differences in the states not included in the models. Our data set is comprised of 27 state-year observations from 1994 to 2020. While legalization began in 1996, 11 states had previously defelonized marijuana possession of one ounce or less and begin with a non-zero score in the permissive bundle only. States with no implemented cannabis policies remain in the data set with policy bundle scores of zero. We separately estimated each policy bundle with a separate model for each of the external cue-taking measures using the functional form:

$$Y = a + f\left(\text{External Cues states, Federal influences, partisanship, internal forces, state fixed effects, year fixed effects}\right) + e.$$

The year fixed effects account for unobserved changes over time and the possibility that later adopting states act differently because of the actions of earlier adopters or general trends in adoption present due to developments in unmeasured influences, which could include factors such as public opinion, market forces, and technological innovation. A highly controversial new policy might be less contentious when other states implement it later. Similarly, early state experiences might provide administrative or political lessons enabling trailing states to expand on their efforts (Clark, 1985). Further, states may wait to see if policies successfully work around the Federal prohibition. For example, language about physicians "prescribing" medical cannabis may put doctors at legal risk and endanger their license to prescribe scheduled drugs, but "recommending" cannabis was upheld in the *Conant v. Walters* 2002 decision in the US Ninth Circuit Court

of Appeals (Gregorio, 2014). Therefore, the policy process may lead trailing states to implement a more robust set of policies, and the year fixed effects help account for that process.

RESULTS

For the three cannabis policy bundles, we test the unique external cue-taking factors in separate models and present those results for each bundle. Further, we test separate models adding the legalization by ballot variable due to previous research in which initiative-based policy leads to simpler initial policies and drives future legislative actions.

Pharmaceutical bundle results

Examining the pharmaceutical bundle coefficients in Table 3A, we find external cue-taking factors are significant and positive for three conceptualizations—the Neighbor Average ($p < 0.05$), the Neighbor Ideology Average ($p < 0.01$), and the National Ideological Policy Leader ($p < 0.001$). Federal influence on the adoption of pharmaceutical bundle features during the Cole, Sessions, and Barr eras is significant ($p < 0.05$) and positive in 9 of 20 possible coefficients across the models as states added pharmaceutical policies during all these eras.

Internal factors reveal a strong positive preference toward the pharmaceutical bundle in states with higher Democratic legislative representation—four of five coefficients are positive and significant ($p < 0.01$)—only the National Ideological Policy Leader model yields no effect of Democratic legislative representation as the National Ideological Policy Leader coefficient itself is positive and significant (also $p < 0.01$). The state citizen social ideology is negative and significant across four of the models (three coefficients at $p < 0.01$, one at $p < 0.05$). Finally, the Social Security Insurance Disability per capita coefficients are positive and significant in all five pharmaceutical bundle models (four coefficients at $p < 0.01$, one at $p < 0.05$).

Adding the Legalization by a Ballot Measure to the pharmaceutical bundle results in no significant change to the external cue-taking measures presented in Table 3B. The included variable mutes the Federal influence with only one significant coefficient and reduces statistical significance for two of the Democratic Legislative percentage coefficients from $p < 0.01$ to $p < 0.05$. Other internal changes to the model are slight changes in significance levels for one model each for the Social Ideology and Disability per capita variables.

Permissive bundle results

Turning to the permissive cannabis bundle in Table 4A, external cue-taking factors are significant and positive in four models—the Neighbor Average ($p < 0.001$), the Neighbor Party Average ($p < 0.05$), the Neighbor Ideology Average ($p < 0.001$), and the National Ideological Policy Leader ($p < 0.05$). No Federal influence is present in any models for the permissive bundle.

Significant internal factors include the Democratic legislative percentage for all models with positive and significant coefficients (one at $p < 0.05$, two at $p < 0.01$, and two at $p < 0.001$), and the Democratic Governor in the National Leader model ($p < 0.05$). The only other significant internal factor is the SSI Disabled per capita with four positive coefficients (all at $p < 0.05$).

Adding a variable that captures the implementation of Legalization by Ballot Measure to the *permissive* bundle in Table 4B adds another significant coefficient—Unified Party States—and strengthens the coefficients from $p < 0.05$ to $p < 0.01$ of both the Neighbor Party Average and National Ideological Policy Leader. Democratic legislative percent is slightly lower, and the Disability per capita is essentially unchanged. The additional variable impacts the Social Ideology coefficients, which are now negative and significant (three at $p < 0.05$ and one at $p < 0.01$).

TABLE 3A Pharmaceutical bundle.

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighbor average	0.265* (0.129)				
Neighbor party average		0.0711 (0.0830)			
Neighbor ideology average			0.356** (0.132)		
Unified government same				−0.003 (0.119)	
National ideological policy leader					0.347*** (0.091)
Ogden memo era	−2.377 (6.419)	−4.127 (7.053)	−0.745 (6.217)	−4.161 (7.229)	−15.62 (8.464)
Cole memo era	14.33 (7.236)	15.85* (7.554)	16.04* (7.347)	16.57 (7.782)	0.815 (9.572)
Sessions memo era	16.74* (7.595)	18.58* (8.010)	18.48* (7.672)	19.38* (8.221)	3.934 (9.708)
Barr era	16.71 (8.508)	19.00* (9010)	18.31* (8.514)	20.33* (9.519)	4.154 (10.76)
Democratic governor	−2.192 (1.864)	−2.255 (1.826)	−2.302 (1.832)	−2.098 (1.813)	−2.998 (1.745)
Legislative democratic %	37.21** (12.72)	42.67** (11.83)	37.82** (12.90)	43.71** (11.82)	24.36 (13.63)
Social ideology	−30.32** (11.16)	−31.11** (11.19)	−26.96* (11.42)	−32.34** (11.25)	−18.62 (11.75)
Total outstanding debt	1.717 (2.355)	1.369 (2.231)	1.333 (2.323)	1.530 (2.309)	0.860 (2.358)
Administrative FTE per capita	5.313 (5.204)	4.543 (5.392)	4.358 (5.320)	4.499 (5.336)	4.659 (5.315)
College percent	0.504 (0.417)	0.555 (0.433)	0.385 (0.434)	0.546 (0.427)	0.455 (0.372)
Unemployment rate	1.075 (0.598)	1.266* (0.628)	1.103 (0.594)	1.257 (0.633)	1.377* (0.620)
Poverty rate	−0.123 (0.320)	−0.0511 (0.328)	−0.166 (0.322)	−0.413 (0.330)	−0.272 (0.321)
SSI disability rate	1.900** (0.643)	2.167*** (0.617)	1.838** (0.625)	2.194** (0.627)	2.065** (0.619)
Real income per capita	0.140 (0.530)	0.517 (0.562)	0.124 (0.491)	0.599 (0.555)	0.661 (0.606)
Constant	−66.01** (24.45)	−83.84*** (21.62)	−61.22* (23.88)	−85.08*** (21.42)	−76.55** (21.90)
N	1323	1323	1323	1323	1274
Adjusted R^2	0.55	0.54	0.55	0.54	0.57

Note: *$p<0.05$, **$p<0.01$, ***$p<0.001$ with Robust standard errors in parentheses, adjusted for clustering on states, 1994–2020. State and year fixed effects are estimated but not reported.

Fiscal bundle results

The *fiscal* bundle in Table 5A has only one significant external cue-taking coefficient—the Neighbor Ideology Average ($p<0.05$). Of the Federal Influence variables, only two coefficients across the 20

TABLE 3B Pharmaceutical bundle with ballot initiative for legalization.

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighbor average	0.297* (0.115)				
Neighbor party average		0.115 (0.0841)			
Neighbor ideology average			0.399** (0.121)		
Unified government same				0.578 (0.119)	
National ideological policy leader					0.357*** (0.0803)
Legalization by ballot	23.45*** (3.963)	28.31*** (4.142)	23.71*** (3.973)	23.10*** (4.134)	23.83*** (3.919)
Ogden memo era	−7.170 (4.808)	−9.064 (5.159)	−5.388 (4.741)	−9.763 (5.521)	−21.02** (6.038)
Cole memo era	6.816 (6.099)	8.224 (6.147)	8.652 (6.177)	8.171 (6.546)	−6.957 (6.978)
Sessions memo era	8.407 (6.275)	10.14 (6.476)	10.26 (6.301)	10.17 (6.931)	−4.615 (7.001)
Barr era	6.358 (7.023)	8.356 (7.338)	8.034 (6.996)	8.624 (8.252)	−6.392 (7.697)
Democratic governor	−1.251 (1.739)	−1.403 (1.736)	−1.364 (1.697)	−1.302 (1.748)	−1.804 (1.614)
Legislative democratic %	25.30* (11.09)	30.97** (10.2)	25.83* (10.68)	31.88** (10.09)	13.54 (9.284)
Social ideology	−31.62** (9.043)	−31.92** (9.334)	−27.87** (9.314)	−32.27*** (9.055)	−20.18 (10.69)
Total outstanding debt	1.931 (2.377)	1.460 (2.326)	1.504 (2.351)	1.695 (2.382)	0.763 (2.415)
Administrative FTE per capita	5.121 (4.949)	4.288 (5.223)	4.051 (5.034)	4.106 (5.251)	4.521 (5.002)
College percent	0.573 (0.359)	0.634 (0.366)	0.440 (0.376)	0.634 (0.364)	0.508 (0.341)
Unemployment rate	1.002 (0.621)	1.219 (0.627)	1.032 (0.616)	1.236 (0.629)	1.301* (0.574)
Poverty rate	−0.120 (0.257)	−0.0443 (0.279)	−0.168 (0.257)	−0.0268 (0.282)	−0.205 (0.272)
SSI disability rate	1.508** (0.510)	1.796** (0.520)	1.435** (0.518)	1.855** (0.535)	1.650** (0.535)
Real income per capita	0.239 (0.448)	0.706 (0.475)	0.221 (0.436)	0.748 (0.482)	0.836 (0.495)
Constant	−56.53* (26.04)	−75.87** (23.21)	−51.01 (26.20)	−78.68** (23.12)	−68.44** (23.49)
N	1323	1323	1323	1323	1274
Adjusted R^2	0.62	0.61	0.63	0.60	0.64

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ with Robust standard errors in parentheses, adjusted for clustering on states, 1994–2020. State and year fixed effects estimated but not reported.

possible are significant ($p < 0.05$). Internal influences are dominated by the positive and significant coefficients for Democratic legislative percentage across all five models (four at $p < 0.01$, and one at $p < 0.05$). The SSI Disabled per capita measure is positive and significant with three coefficients at $p < 0.05$.

TABLE 4A Permissive bundle.

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighbor average	0.428*** (0.114)				
Neighbor party average		0.0951* (0.0431)			
Neighbor ideology average			0.456*** (0.127)		
Unified government same				0.0148 (0.0631)	
National ideological policy leader					0.168* (0.0746)
Ogden memo era	2.576 (7.370)	4.798 (7.842)	4.096 (7.499)	5.170 (7.571)	2.458 (8.123)
Cole memo era	9.510 (7.588)	12.95 (8.117)	11.58 (7.846)	13.81 (7.900)	9.698 (8.592)
Sessions memo era	10.92 (7.910)	15.23 (8.427)	13.08 (8.159)	15.99 (8.181)	10.48 (9.052)
Barr era	10.93 (9.509)	16.16 (9.636)	13.44 (9.715)	17.17 (9.364)	13.29 (10.62)
Democratic governor	−1.787 (1.029)	−2.066 (1.070)	−1.991 (1.025)	−2.005 (1.013)	2.215* (1.020)
Legislative democratic %	20.44* (8.183)	29.58*** (7.975)	24.62** (8.603)	31.13*** (8.00)	23.55** (8.508)
Social ideology	−16.25 (8.141)	−14.26 (8.96)	−11.26 (8.529)	−15.68 (9.334)	−6.679 (8.988)
Total outstanding debt	0.212 (1.335)	−0.787 (1.542)	−0.442 (1.488)	−0.620 (1.591)	−0.789 (1.479)
Administrative FTE per capita	3.703 (3.495)	2.700 (3.865)	2.634 (3.549)	2.434 (3.770)	2.018 (4.068)
College percent	0.188 (0.305)	0.051 (0.359)	0.021 (0.330)	0.033 (0.358)	−0.03 (0.343)
Unemployment rate	0.587 (0.582)	0.539 (0.568)	0.538 (0.575)	0.506 (0.568)	0.549 (0.599)
Poverty rate	−0.188 (0.221)	−0.152 (0.229)	−0.194 (0.241)	−0.158 (0.224)	−0.286 (0.220)
SSI disability rate	1.165 (0.595)	1.452* (0.599)	1.179* (0.584)	1.463* (0.603)	1.436* (0.631)
Real income per capita	−0.425 (0.588)	−0.119 (0.640)	−0.358 (0.593)	−0.0964 (0.630)	−0.139 (0.663)
Constant	−22.41 (23.20)	−32.54 (24.87)	−20.84 (23.01)	−32.61 (24.61)	−29.96 (26.70)
N	1323	1323	1323	1323	1274
Adjusted R^2	0.49	0.44	0.48	0.43	0.44

Note: *$p<0.05$, **$p<0.01$, ***$p<0.001$ with Robust standard errors in parentheses, adjusted for clustering on states, 1994–2020. State and year fixed effects estimated but not reported.

Adding the Legalization by Ballot Measure to the fiscal bundle model in Table 5B shows two additional significant variables in Neighbor Average and Neighbor Party Average. No Federal Influence variables remain significant in the model. Democratic Legislative percentage has one

TABLE 4B Permissive bundle with ballot initiative for legalization.

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighbor average	0.328*** (0.0731)				
Neighbor party average		0.108** (0.0312)			
Neighbor ideology average			0.386*** (0.0818)		
Unified government same				0.117* (0.0536)	
National ideological policy leader					0.210*** (0.0562)
Legalization by ballot	23.06*** (2.584)	24.17*** (2.583)	23.45*** (2.429)	24.62*** (2.572)	23.67*** (2.524)
Ogden memo era	−1.699 (4.149)	−0.438 (4.378)	−0.716 (4.030)	−1.308 (4.543)	−3.140 (4.409)
Cole memo era	3.432 (4.262)	5.321 (4.537)	4.706 (4.226)	4.677 (4.697)	1.498 (4.598)
Sessions memo era	4.272 (4.390)	6.820 (4.693)	5.541 (4.356)	5.934 (4.890)	1.149 (4.740)
Barr era	2.695 (5.531)	5.742 (5.543)	4.130 (5.463)	4.583 (5.840)	2.529 (5.953)
Democratic governor	−0.894 (0.764)	−1.10 (0.847)	−1.036 (0.739)	−1.274 (0.817)	−0.988 (0.802)
Legislative democratic %	12.02* (5.664)	17.85** (5.364)	14.50* (5.504)	18.02** (5.361)	11.83* (5.282)
Social ideology	−17.70** (5.188)	−15.608* (5.601)	−13.53* (5.402)	−15.04* (6.245)	−6.402 (6.637)
Total outstanding debt	0.210 (0.917)	−0.615 (1.112)	−0.274 (1.056)	−0.536 (1.156)	−0.954 (1.125)
Administrative FTE per capita	3.133 (2.839)	2.435 (3.193)	2.322 (2.7360)	1.844 (3.252)	1.625 (3.221)
College percent	0.224 (0.221)	0.130 (0.244)	0.0964 (0.223)	0.129 (0.250)	0.006 (0.237)
Unemployment rate	0.516 (0.484)	0.492 (0.474)	0.481 (0.467)	0.494 (0.491)	0.442 (0.514)
Poverty rate	−0.168 (0.121)	−0.137 (0.138)	−0.176 (0.144)	−0.136 (0.133)	−0.217 (0.128)
SSI disability rate	0.884* (0.403)	1.083* (0.407)	0.866* (0.382)	1.088** (0.402)	03.982* (0.398)
Real income per capita	−0.198 (0.331)	0.036 (0.352)	−0.165 (0.331)	0.0911 (0.362)	−0.001 (0.357)
Constant	−17.66 (16.50)	−25.10 (17.19)	−15.41 (16.09)	−25.97 (17.30)	−20.02 917.790
N	1323	1323	1323	1323	1274
Adjusted R^2	0.70	0.68	0.70	0.68	0.67

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ with Robust standard errors in parentheses, adjusted for clustering on states, 1994–2020. State and year fixed effects estimated but not reported.

coefficient that decreases from $p < 0.01$ to $p < 0.05$. The Social Ideology variable coefficients increase from three coefficients significant at the $p < 0.05$ level to significant in all five models (three at $p < 0.05$ and two at $p < 0.01$).

TABLE 5A Fiscal bundle.

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighbor average	0.276 (0.137)				
Neighbor party average		0.161 (0.0835)			
Neighbor ideology average			0.403* (0.151)		
Unified government same				0.0795 (0.114)	
National ideological policy leader					0.0561 (0.0879)
Ogden memo era	−2.842 (5.002)	−2.679 (5.209)	−3.031 (5.506)	−5.230 (5.968)	−6.098 (6.077)
Cole memo era	9.576 (6.581)	11.61 (6.719)	9.405 (6.921)	9.682 (7.439)	8.260 (7.790)
Sessions memo era	13.71 (6.861)	16.14* (6.874)	13.45 (7.262)	14.18 (7.699)	12.82 (8.188)
Barr era	15.73 (8.486)	19.28* (8.113)	14.56 (9.195)	16.57 (9.805)	15.80 (9.546)
Democratic governor	0.494 (0.997)	0.327 (1.00)	0.335 (1.051)	0.273 (1.109)	0.385 (1.075)
Legislative democratic %	22.19** (8.108)	26.88** (7.807)	22.30* (8.372)	27.50** (7.923)	27.03** (8.192)
Social ideology	−25.80* (11.01)	−23.87 (11.21)	−23.26 (11.73)	−25.30* (11.68)	−26.19* (11.61)
Total outstanding debt	1.184 (1.994)	0.570 (2.089)	0.761 (2.189)	0.747 (2.293)	0.814 (2.256)
Administrative FTE per capita	−3.206 (3.333)	−4.012 (3.513)	−3.641 (3.783)	−3.709 (3.879)	−3.692 (4.00)
College percent	−0.0648 (0.253)	−0.140 (0.278)	−0.153 (0.267)	−0.164 (0.274)	−0.184 (0.272)
Unemployment rate	0.621 (0.457)	0.698 (0.478)	0.759 (0.549)	0.937 (0.593)	0.902 (0.594)
Poverty rate	0.0196 (0.246)	0.0561 (0.283)	−0.40 (0.272)	0.424 (0.291)	0.408 (0.282)
SSI disability rate	0.915 (0.489)	1.035* (0.479)	1.008 (0.536)	1.228* (0.538)	1.176* (0.543)
Real income per capita	0.666 (0.462)	0.858 (0.487)	0.780 (0.504)	1.136 (0.584)	1.133 (0.590)
Constant	−29.07 (18.41)	−35.49 (18.33)	−31.09 (20.76)	−46.24* (21.68)	44.09* (21.59)
N	1323	1323	1274	1274	1274
Adjusted R^2	0.52	0.51	0.53	0.51	0.51

Note: *$p < 0.05$, **$p < 0.01$ with Robust standard errors in parentheses, adjusted for clustering on states, 1994–2020. State and year fixed effects estimated but not reported.

Overall assessment of external cue-taking

Considering the impact of external and internal factors across the three bundles, results suggest other states' policies are influential but Federal influence is not. While Federal influence is limited to the

TABLE 5B Fiscal bundle ballot initiative for legalization.

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighbor average	0.290* (0.123)				
Neighbor party average		0.184* (0.0793)			
Neighbor ideology average			0.443** (0.141)		
Unified government same				0.133 (0.107)	
National ideological policy leader					0.0418 (0.0802)
Legalization by ballot	13.22*** (2.601)	13.31*** (2.706)	14.13*** (2.802)	13.90*** (2.774)	13.38*** (2.841)
Ogden memo era	−5.671 (4.24)	−5.516 (4.091)	−5.922 (4.633)	−8.531 (4.819)	−8.671 (5.066)
Cole memo era	5.319 (5.605)	7.337 (5.476)	4.880 (5.837)	4.672 (6.208)	4.720 (6.728)
Sessions memo era	8.987 (6.024)	11.40 (5.668)	8.40 (6.309)	8.594 (6.482)	8.868 (7.184)
Barr era	9.825 (7.630)	13.31 (6.943)	8.096 (8.193)	9.237 (8.541)	10.77 (8.346)
Democratic governor	1.028 (1.036)	0.839 (1.045)	1.039 (1.087)	0.870 (1.166)	1.072 (1.127)
Legislative democratic %	15.56* (7.329)	20.31** (6.656)	15.58* (7.234)	20.94** (6.407)	21.55** (6.952)
Social ideology	−26.67** (9.243)	−24.47* (9.389)	−24.09* (9.865)	−25.43* (10.02)	−27.46** (9.742)
Total outstanding debt	1.313 (1.720)	0.649 (1.858)	0.723 (1.967)	0.703 (2.128)	0.763 (2.083)
Administrative FTE per capita	−3.311 (3.093)	−4.137 (3.311)	−3.701 (3.418)	−3.835 (3.608)	−3.723 (3.768)
College percent	−0.0167 (0.233)	−0.0916 (0.237)	−0.117 (0.245)	−0.122 (0.242)	−0.151 (0.243)
Unemployment rate	0.586 (0.477)	0.622 (0.492)	0.703 (0.556)	0.905 (0.589)	0.871 (0.590)
Poverty rate	0.025 (0.237)	0.0634 (0.273)	−0.008 (0.253)	0.0826 (0.278)	0.0794 (0.272)
SSI disability rate	0.706 (0.401)	0.830* (03.391)	0.749 (0.433)	1.001* (0.440)	0.961* (0.459)
Real income per capita	0.738 (0.388)	0.935* (0.397)	0.853* (0.421)	1.238* (0.480)	1.238* (0.501)
Constant	−24.59 (16.16)	−31.20 (15.68)	−25.27 (18.09)	−42.28 (18.65)	−40.36* (18.78)
N	1323	1323	1274	1274	1274
Adjusted R^2	0.58	0.55	0.57	0.55	0.54

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ with Robust standard errors in parentheses, adjusted for clustering on states, 1994–2020. State and year fixed effects are estimated but not reported.

pharmaceutical bundle and is essentially null when using the Legalization by Ballot measure in the models, cue-taking from other states and internal factors have a greater impact on a state's implementation of the policy bundles.

External cue-taking is conceptualized in five different and unique measures that expand well beyond the oft-used approach to examine the social learning or economic competition prompted by neighboring states' experience with the policy. The traditional *Neighbor Average*, which captures the influence of geographically proximal states, is positive and significant for both pharmaceutical and permissive policy bundles. The geographic influence demonstrates that states are attuned to the decisions made by neighbors (or competitors) on the policy design represented by each policy bundle.

The *Neighboring States with Similar Party* control variable is significant for the permissive bundle and the fiscal bundle (with the addition of the Legalization by Ballot variable). This finding suggests that states pay attention to the actions of neighboring states but temper their own policy bundle decisions based on party similarity with those neighbors. The *Neighboring States Ideology* measure is significant for all three bundles. The effect of ideological similarity with neighboring states demonstrates that as states adopt and adapt policy bundle mixes, they are more attuned to the state policy bundles of nearby states with a similar ideological profile of their citizens.

Considering the effect of the *Same Unified Government* control, states look beyond regional neighbors at all states controlled by the same party for cues on which policies to implement. Finally, the *National Ideological Policy Leader* influence variable is significant for both the permissive and pharmaceutical bundles (see Table 6 for an overview of all external cue-taking factors). States look at national leaders for cues on policy bundle implementation, but they look more closely at states with similar ideological profiles. Overall, external cues are complex and, in the case of marijuana policy bundles, exhibit considerations of ideology, party control, and policy leadership. Together, these cues indicate that state policymaking may be more nuanced than simply playing a game of keeping up with the neighbors.

Internal forces

Policy bundle design within states points to the importance of *Democratic Legislative* representation as a persistent positive factor across all bundles (only once is the coefficient not significant out of all possible outcomes). *Citizen social ideology* also appears to be important in understanding the pharmaceutical and fiscal bundles in all models and the permissive bundle in models with the Legalization by Ballot variable. Finally, the per capita *population of those citizens receiving SSI Disability* appears to warrant further investigation as the variable is positive across the pharmaceutical bundle as expected, but also appears in both the fiscal and permissive bundles, albeit with weaker significance levels.

DISCUSSION

As states continue developing their respective cannabis policies, we notice distinctive patterns in the enabling provisions. These policies fall into three broad problem definitions: treating cannabis as a pharmaceutical product licensed and controlled by the state; a definition that creates a permissive environment for individual cultivation and possession; and one using fiscal tools for expanding state resources.

Given the continual adaptation of policies by states as they gain experience with their cannabis policies and the possibility of monitoring what other states are experiencing, we examined how this external influence manifests in a state's policy decisions. Besides internal factors of Democratic legislative composition, state citizen ideology, and the relative percentage of a state's population receiving disability benefits, we find support for external cue-taking from other states.

While considering the policy choices of neighboring states is one influence, we also find evidence that states may take a nuanced approach to how adjacent states' policies are considered. When implementing their own policy bundles, states may place more value on the cues from those neighboring states with congruent partisanship and ideology. Apart from the influence of neighboring states, states

TABLE 6 Overview of key external effects.

	External cue-taking, each modeled separately				
Model of each bundle	**Neighbor average**	**Neighbor party**	**Neighbor ideology**	**Unified government same**	**National ideological policy leader**
Pharmaceutical only	0.265*	0.071	0.356**	−0.003	0.347***
	(0.129)	(0.083)	(0.132)	(0.119)	(0.091)
Pharmaceutical	0.297*	0.115	0.399**	0.578	0.357***
	(0.115)	(0.084)	(0.121)	(0.119)	(0.080)
Legalization by ballot	23.45***	28.31***	23.71***	23.10***	23.83***
	(3.963)	(4.142)	(3.973)	(4.134)	(3.919)
Permissive only	0.428***	0.095*	0.456***	0.015	0.168*
	(0.114)	(0.043)	(0.127)	(0.063)	(0.075)
Permissive	0.328***	0.108**	0.386***	0.117*	0.210***
	(0.073)	(0.031)	(0.082)	(0.054)	(0.056)
Legalization by ballot	23.06***	24.17***	23.45***	24.62***	23.67***
	(2.584)	(2.583)	(2.429)	(2.572)	(2.524)
Fiscal only	0.276	0.161	0.403*	0.080	0.056
	(0.137)	(0.084)	(0.151)	(0.114)	(0.088)
Fiscal	0.290*	0.184*	0.443**	0.133	0.042
	(0.123)	(0.079)	(0.141)	(0.107)	(0.080)
Legalization by ballot	13.22***	13.31***	14.13***	13.90***	13.38***
	(2.601)	(2.706)	(2.802)	(2.774)	(2.841)

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ with robust standard errors in parentheses. State and year fixed effects, as well as other variables, are estimated in models but not reported.

also appear to look beyond their geographic proximity and consider what cannabis policies are being implemented by states across the nation, with particular emphasis on those states with a similar ideological composition that also lead policy adoption and adaptation.

The federal impact on state policy bundles is limited to the pharmaceutical bundle, and that finding is muted when the Legalization by Ballot characteristic is modeled. States appear to consider neighboring states' policy design parameters, but we find evidence that cross-state similarities in party and ideological composition are additional cues for states in their own policy design phase. In addition to being attuned to the similarly aligned neighboring states, we see evidence that states take cues beyond proximate influences and may be considering the efforts and experiences of those ideologically aligned states that are aggressively implementing policy bundles.

Future research opportunities on this topic could include adding measures of the effectiveness of external lobbying (notably the Marijuana Policy Project's model legislation). While their efforts are reported as focused on broad legalization efforts, we are unsure of the impact of those efforts across both successful and failed efforts as well as how their efforts specifically manifest in a state's choice and implementation of specific policy bundles. In addition, network analysis of how states take cues and utilize other states' legislation may improve our understanding of policy design.

Two observations from this study suggest future work on policy design. First, scholars should consider a more expansive definition of policy characteristics beyond merely dichotomous values of when a policy is present or not. We clearly demonstrate that policies are multi-faceted and comprise complex sets of decisions by policymakers. Second, given the post-legalization nature and continued policy-defining activity and implementation in the post-adoption period, scholars must exercise care in measuring when and how external cues and internal influences are modeled in policy design.

Delineation of the differing possible external influences suggests future research into policy diffusion should consider how states may exhibit cue-taking comprised of states who are both neighbors and policy leaders through multiple manifestations of social learning and economic competition, with particular attention to the influence of partisan and ideological congruence as important considerations for policymakers.

CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest.

DATA AVAILABILITY STATEMENT

We will make our data set available upon publication.

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REFERENCES

Bachhuber, Marcus A., Brendan Saloner, Chinazo O. Cunningham, and Colleen L. Barry. 2014. "Medical Cannabis Laws and Opioid Analgesic Overdose Mortality in the United States, 1999–2010." *JAMA Internal Medicine* 174(10): 1668–73.

Barrilleaux, Charles J., and Mark. E. Miller. 1988. "The Political Economy of State Medicaid Policy." *American Political Science Review* 82(4): 1089–1107.

Berry, Frances S. 1994. "Sizing Up State Policy Innovation Research." *Policy Studies Journal* 22(3): 442–56.

Berry, Frances S., and William Berry. 1990. "State Lottery Adoptions as Policy Innovations: An Event History Analysis." *American Political Science Review* 84(2): 395–415.

Berry, Frances S., and William Berry. 2014. "Innovation and Diffusion Models in Policy Research." In *Theories of the Policy Process*, 3rd ed., edited by P. A. Sabatier and C. M. Weible. Boulder, CO: Westview.

Berry, William D., and Brady Baybeck. 2005. "Using Geographic Information Systems to Study Interstate Competition." *American Political Science Review* 99(4): 505–19.

Berry, William D., Evan J. Ringquist, Richard C. Fording, and Russell L. Hanson. 1998. "Measuring Citizen and Government Ideology in the American States, 1960–93." *American Journal of Political Science* 42(1): 327–48.

Boehmke, Frederick J., and Richard Witmer. 2004. "Disentangling Diffusion: The Effects of Social Learning and Economic Competition on State Policy Innovation and Expansion." *Political Research Quarterly* 57(1): 39–51.

Boehmke, Frederick J. 2009. "Policy Emulation or Policy Convergence? Potential Ambiguities in the Dyadic Event History Approach to State Policy Emulation." *The Journal of Politics* 71(3): 1125–40.

Braakmann, Nils, and Simon Jones. 2014. "Cannabis Depenalisation, Drug Consumption and Crime–Evidence from the 2004 Cannabis Declassification in the UK." *Social Science & Medicine* 115: 29–37.

Bradford, Ashley C., and W. David Bradford. 2016. "Medical Marijuana Laws Reduce Prescription Medication Use in Medicare Part D." *Health Affairs* 35(7): 1230–6.

Bradford, Ashley C., W. David Bradford, Amanda Abraham, and Grace Bagwell Adams. 2018. "Association Between US State Medical Cannabis Laws and Opioid Prescribing in the Medicare Part D Population." *JAMA Internal Medicine* 178(5): 667–73.

Carley, Sanja, and Chris J. Miller. 2012. "Regulatory Stringency and Policy Drivers: A Reassessment of Renewable Portfolio Standards." *Policy Studies Journal* 40(4): 730–56.

Cambron, Christopher, Rick Kosterman, Richard F. Catalano, Katarina Guttmannova, Todd I. Herrenkohl, Karl G. Hill, and J. David Hawkins. 2017. "The Role of Self-Regulation in Academic and Behavioral Paths to a High School Diploma." *Journal of Developmental and Life-Course Criminology* 3: 304–25.

Caughey, Devin, and Chrisopher Warshaw. 2022. *Dynamic Democracy: Citizens, Parties, and Policymaking in the American States*. Chicago: University of Chicago Press.

Caughey, Devin, and Christopher Warshaw. 2016. "The Dynamics of State Policy Liberalism, 1936–2014." *American Journal of Political Science* 60(4): 899–913.

Caughey, Devin, and Christopher Warshaw. 2018. "Policy Preferences and Policy Change: Dynamic Responsiveness in the American States, 1936–2014." *American Political Science Review* 112(2): 249–66.

Cerdá, Magdalena, Aaron L. Sarvet, Melanie Wall, Tianshu Feng, Katherine M. Keyes, Sandro Galea, and Deborah S. Hasin. 2018. "Medical Marijuana Laws and Adolescent Use of Marijuana and Other Substances: Alcohol, Cigarettes, Prescription Drugs, and Other Illicit Drugs." *Drug and Alcohol Dependence* 183: 62–68.

Cerdá, Magdalena, Melanie Wall, Katherine M. Keyes, Sandro Galea, and Deborah Hasin. 2012. "Medical Marijuana Laws in 50 States: Investigating the Relationship between State Legalization of Medical Marijuana and Marijuana Use, Abuse and Dependence." *Drug and Alcohol Dependence* 120(1–3): 22–27.

Chapman, Susan A., Joanne Spetz, Jessica Lin, Krista Chan, and Laura A. Schmidt. 2016. "Capturing Heterogeneity in Medical Marijuana Policies: A Taxonomy of Regulatory Regimes across the United States." *Substance use & Misuse* 51: 1174–84.

Clark, Jill. 1985. "Policy Diffusion and Program Scope: Research Directions." *Publius: The Journal of Federalism* 15: 61–70.

Daniller, Andrew. 2019. *Two-Thirds of Americans Support Marijuana Legislation*. Pew Research Center. https://www.pewresearch.org/fact-tank/2019/11/14/americans-support-marijuana-legalization/.

de Aguiar, Rafael Barbosa, Fabiano Jorge Soares, and Luciana Leite Lima. 2023. "Mapping the Policy Design Research: A Systematic Literature Review." *Cadernos gestão pública e cidadania* 28: 1–21.

Desmarais, Bruce A., Jeffrey J. Harden, and Frederick J. Boehmke. 2015. "Persistent Policy Pathways: Inferring Diffusion Networks in the American States." *American Political Science Review* 109(2): 392–406.

Doremus, Holly. 2003. "A Policy Portfolio Approach to Biodiversity Protection on Private Lands." *Environmental Science & Policy* 6: 217–32.

Dragone, David, Giovanni Prarolo, Paolo Vanin, and Giulio Zanella. 2019. "Crime and the Legalization of Recreational Marijuana." *Journal of Economic Behavior and Organization* 159: 488–501.

Dye, Thomas R. 1966. *Politics, Economics, and the Public: Policy Outcomes in the American States*. Chicago: Rand McNally.

Edwards, J. H., and A. W. F. Edwards. 1984. "Approximating the Tetrachoric Correlation Coefficient." *Biometrics* 40: 563.

Fisk, Jonathan A., Joseph A. Vonasek, and Elvis Davis. 2018. "Pot'reneurial Politics: The Budgetary Highs and Lows of Recreational Marijuana Policy Innovation." *Politics & Policy* 46(2): 189–208.

Graham, Erin R., Charles R. Shipan, and Craig Volden. 2013. "The Diffusion of Policy Diffusion Research in Political Science." *British Journal of Political Science* 43(3): 673–701.

Gray, Virginia. 1973. "Innovation in the States: A Diffusion Study." *American Political Science Review* 67(4): 1174–85.

Gregorio, Joseph. 2014. "Physicians, Medical Marijuana and the Law." *Virtual Mentor* 16(9): 732–8.

Grossback, Lawrence J., Sean Nicholson-Crotty, and David A. M. Peterson. 2004. "Ideology and Learning in Policy Diffusion." *American Politics Research* 32(5): 521–45.

Gunningham, Neil, Peter Grabosky, and Darren Sinclair. 1998. *Smart Regulation: Designing Environmental Policy*. Oxford University Press.

Hannah, A. Lee, and Daniel J. Mallinson. 2018. "Defiant Innovation: The Adoption of Medical Marijuana Laws in the American States." *Policy Studies Journal* 46(2): 402–23.

Hayes, Marie J., and Mark S. Brown. 2014. "Legalization of Medical Marijuana and Incidence of Opioid Mortality." *JAMA Internal Medicine* 174(10): 1673–4.

Hessami, Z., and S. Resnjanskij. 2019. "Complex Ballot Propositions, Individual Voting Behavior, and Status Quo Bias." *European Journal of Political Economy* 58: 82–101.

Howlett, Michael, Ishani Mukherjee, and Jun Jie Woo. 2015. "From Tools to Toolkits in Policy Design Studies: The New Design Orientation towards Policy Formulation Research." *Policy and Politics* 43(2): 291–311.

Howlett, Michael. 2014. "From the 'Old' to the 'New' Policy Design: Design Thinking Beyond Markets and Collaborative Governance." *Policy Sciences* 47: 187–207.

Huber, John D., and Nolan McCarty. 2004. "Bureaucratic Capacity, Delegation, and Political Reform." *American Political Science Review* 98(3): 481–94.

Huber, Arthur, III, Rebecca Newman, and Daniel LaFave. 2016. "Cannabis Control and Crime: Medicinal Use, Depenalization and the War on Drugs." *The BE Journal of Economic Analysis & Policy* 16(4): 20150167.

Karch, Andrew, Sean C. Nicholson-Crotty, Neal D. Woods, and Ann O'M. Bowman. 2016. "Policy Diffusion and the pro-Innovation Bias." *Political Research Quarterly* 69(1): 83–95.

LaCombe, Scott J., and Frederick J. Boehmke. 2021. "The Initiative Process and Policy Innovation in the American States." *State Politics & Policy Quarterly* 21(3): 286–305.

Mallinson, Daniel J. 2021. "Who Are Your Neighbors? The Role of Ideology and Decline of Geographic Proximity in the Diffusion of Policy Innovations." *Policy Studies Journal* 49: 67–88.

Mallinson, Daniel. J., and A. Lee Hannah. 2020. "Policy and Political Learning: The Development of Medical Marijuana Policies in the States." *Publius: The Journal of Federalism* 50(3): 344–69.

Martins, Silvia S., Luis E. Segura, Natalie S. Levy, Pia M. Mauro, Christine M. Mauro, Morgan M. Philbin, and Deborah S. Hasin. 2021. "Racial and Ethnic Differences in Cannabis Use Following Legalization in US States with Medical Cannabis Laws." *JAMA Network Open* 4(9): e2127002.

McGinty, Emma E., Hillary Samples, Sachini N. Bandara, Brendan Saloner, Marcus A. Bachhuber, and Colleen L. Barry. 2016. "The Emerging Public Discourse on State Legalization of Marijuana for Recreational Use in the US: Analysis of News Media Coverage, 2010–2014." *Preventive Medicine* 90: 114–20.

McGinty, Emma E., Jeff Niederdeppe, Kathryn Heley, and Colleen L. Barry. 2017. "Public Perceptions of Arguments Supporting and Opposing Recreational Marijuana Legalization." *Preventive Medicine* 99: 80–86.

Milita, Kerri. 2015. "Election Laws and Agenda Setting: How Election Law Restrictiveness Shapes the Complexity of State Ballot Measures." *State Politics & Policy Quarterly* 15(2): 119–46.

Mintrom, Michael. 1997. "Policy Entrepreneurs and the Diffusion of Innovation." *American Journal of Political Science* 41: 738–70.

Mooney, Christopher Z., and Mei-Hsien Lee. 2000. "The Influence of Values on Consensus and Contentious Morality Policy: US Death Penalty Reform, 1956–82." *Journal of Politics* 62(1): 223–39.

Neeley, Grant W., and Lilliard E. Richardson, Jr. 2023. "Cannabis Policy Adaptation: Exploring Frameworks of State Policy Characteristics." *Public Administration Quarterly* 47(3): 253–83.

O'Keefe, Karen. 2013. "State Medical Marijuana Implementation and Federal Policy." *Journal of Health Care Law & Policy* 16: 39.

Pacula, Rosalie L., Mireille Jacobson, and Ervant J. Maksabedian. 2016. "In the Weeds: A Baseline View of Cannabis Use among Legalizing States and their Neighbours." *Addiction* 111: 973–80.

Pacula, Rosalie L., David Powell, Paul Heaton, and Eric L. Sevigny. 2015. "Assessing the Effects of Medical Marijuana Laws on Marijuana Use: The Devil Is in the Details." *Journal of Policy Analysis and Management* 34(1): 7–31.

Parinandi, Srinivas. 2020. "Policy Inventing and Borrowing Among State Legislatures." *American Journal of Political Science* 64: 852–68.

Pierce, Jonathan J., Saba Siddiki, Michael D. Jones, Kristin Schumacher, Andrew Pattison, and Holly Peterson. 2014. "Social Construction and Policy Design: A Review of Past Applications." *Policy Studies Journal* 42(1): 1–29.

Plotnick, Robert D., and Richard F. Winters. 1985. "A Politico-Economic Theory of Income Redistribution." *American Political Science Review* 79: 458–73.

Ritter, Alison, Michael Livingston, Jenny Chalmers, Lynda Berends, and Peter Reuter. 2016. "Comparative Policy Analysis for Alcohol and Drugs: Current State of the Field." *International Journal of Drug Policy* 31: 39–50.

Roh, Jongho, and Donald P. Haider-Markel. 2003. "All Politics is Not Local: National Forces in State Abortion Initiatives." *Social Science Quarterly* 84: 15–31.

Siddiki, Saba. 2020. *Understanding and Analyzing Public Policy Design*. Cambridge: Cambridge University Press.

Somerset, Sara Brittany. 2019. "Attorney General Barr Favors a More Lenient Approach to Cannabis Prohibition." *Forbes*. https://www.forbes.com/sites/sarabrittanysomerset/2019/04/15/attorney-general-barr-favors-a-more-lenient-approach-to-cannabis-legalization/?sh=f59c7c9c4c80.

Spill, Rorie L., Michael J. Licari, and Leonard Ray. 2001. "Taking on Tobacco: Policy Entrepreneurship and the Tobacco Litigation." *Political Research Quarterly* 54: 605–22.

Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 6: 416–24.

Van den Brink, Wim 2008. "Decriminalization of Cannabis." *Current Opinion in Psychiatry* 21(2): 122–6.

Vann, Burrel, Jr. 2022. "Direct Democracy and the Adoption of Recreational Marijuana Legalization in the United States, 2012–2019." *International Journal of Drug Policy* 102: 103583.

Volden, Craig. 2016. "Failures: Diffusion, Learning, and Policy Abandonment." *State Politics & Policy Quarterly* 16(1): 44–77.

Walker, Jack L. 1969. "The Diffusion of Innovations among the American States." *American Political Science Review* 63(3): 880–99.

Wilkinson, Samuel T., Stephanie Yarnell, Rajiv Radhakrishnan, Samuel A. Ball, and Deepak Cyril D'Souza. 2016. "Marijuana Legalization: Impact on Physicians and Public Health." *Annual Review of Medicine* 67: 453–66.

Willamette State Finance Data Center. 2020. https://willamette.edu/mba/research-impact/public-datasets/index.html.

Williams, Arthur Robin, Mark Olfson, June H. Kim, Silvia S. Martins, and Herbert D. Kleber. 2016. "Older, Less Regulated Medical Marijuana Programs Have Much Greater Enrollment Rates than Newer 'Medicalized' Programs." *Health Affairs* 35: 480–8.

Wodak, Alex, Colin Drummond, Craig Reinarman, and Peter D. A. Cohen. 2002. "Cannabis Control: Costs Outweigh the Benefits For Against." *British Medical Journal* 324: 105–8.

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