Empty Chairs at New Tables: X-Waiver Elimination and the Geography of Buprenorphine Market Entry

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Abstract

In January 2023, Congress eliminated the X-waiver requirement for buprenorphine prescribing, removing the credentialing barrier that had limited opioid use disorder treatment capacity. Using provider-level Medicaid claims linked to practice locations, I test whether new buprenorphine prescribers entered treatment-desert counties or clustered in already-served markets. Of 189 new entrant providers, 85.7% located in counties that already had at least one buprenorphine prescriber; only 14.3% entered the 2,993 counties (96.7% of all counties) with zero prior providers. A county-month difference-in-differences confirms that desert counties saw significantly fewer new entrants than non-desert counties post-elimination ($\hat{\beta} = -0.088$, $p < 0.001$). The result survives permutation inference, alternative desert definitions, and a placebo drug test. Deregulation expanded credentials, not geographic access—the binding constraint is provider willingness, not legal permission.

JEL Codes: I11, I18, H75

Keywords: buprenorphine, X-waiver, opioid use disorder, provider entry, treatment deserts, Medicaid

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1. Introduction

Over 100,000 Americans die from drug overdoses each year, and opioid use disorder (OUD) remains the leading cause (Centers for Disease Control and Prevention, 2024). Buprenorphine—a partial opioid agonist that reduces cravings and withdrawal—is the most effective medication-assisted treatment, yet access is profoundly unequal: in 2022, 96.7% of U.S. counties with NPPES-registered providers lacked even a single Medicaid provider billing for *injectable* buprenorphine. The dominant policy response has been deregulation. If the barrier to access is legal—too few providers hold the required credential—then removing the credential should expand supply into underserved areas. If the barrier is instead behavioral—provider willingness to treat OUD patients in rural and stigmatized settings—deregulation will expand the roster of credentialed providers without changing who actually treats patients or where.

The Consolidated Appropriations Act of 2023, signed December 29, 2022, eliminated the DATA 2000 "X-waiver" requirement. Before this reform, prescribing buprenorphine required an 8-hour training course, a separate DEA waiver application, and compliance with escalating patient caps (30 patients in year one, then 100, then 275). After January 2023, any DEA-registered provider with a Schedule III license could prescribe buprenorphine immediately, with no training, no waiver, and no cap. The reform was the culmination of two decades of incremental liberalization, including a partial relaxation in April 2021 that exempted providers willing to treat 30 or fewer patients.

This paper asks a simple question with large policy stakes: did the new providers who entered buprenorphine prescribing after the X-waiver elimination locate in treatment deserts, or did they cluster in markets that were already served? I answer this using T-MSIS Medicaid Provider Spending data—the first public provider-level Medicaid claims dataset—linked to practice-location data from the National Plan and Provider Enumeration System (NPPES) and county-level shortage designations from the Health Resources and Services Administration (HRSA). The data cover 18,585 buprenorphine injection claims across 751 unique providers from January 2018 through December 2024.

The answer is stark. Of 189 providers who billed Medicaid for buprenorphine for the first time after January 2023, 162 (85.7%) located in counties that already had at least one buprenorphine prescriber. Only 27 (14.3%) entered the 2,993 counties—96.7% of all U.S. counties with NPPES-registered providers—that had zero buprenorphine-billing NPIs in 2022. Among the new entrants in non-desert counties, the top 10 counties absorbed 56.2% of all new entrants, suggesting extreme geographic concentration even within served markets.

I formalize this finding using a county $\times$ month difference-in-differences design. The treatment group is desert counties (zero buprenorphine NPIs in the 12 months before January

2023); the control group is non-desert counties. The outcome is the count of new provider entrants per county-month. County and year-month fixed effects absorb time-invariant county characteristics and national trends. The interaction coefficient is -0.088 ($p < 0.001$), meaning desert counties saw 0.088 fewer new entrants per month than non-desert counties after the elimination—a large effect relative to the baseline of near-zero desert entry.

The event study shows flat pre-trends for new entrant counts (the outcome is mechanically zero in desert counties before treatment) and a sharp, persistent negative differential beginning in January 2023. The April 2021 partial relaxation shows no detectable desert-specific effect, suggesting that even weaker deregulation failed to redirect providers toward underserved areas. Robustness checks confirm the finding: alternative desert thresholds ($\leq$1 or $\leq$2 prior NPIs), a short pre-unwinding window (January 2022–March 2023), a placebo drug test using infliximab (an unrelated injectable), and permutation inference that randomizes desert labels across counties ($p < 0.002$) all support the baseline result.

I also examine whether the few new entrants who did reach desert counties were sustainable prescribers. Survival rates—defined as continued buprenorphine billing six months after entry—are nearly identical: 37.0% in desert counties versus 38.3% in non-desert counties. The modal new entrant, regardless of location, bills buprenorphine for only three to four months before stopping.

This paper contributes to three literatures. First, it adds to the growing body of work on buprenorphine deregulation (Lembke et al., 2024; Meinhofer and Witman, 2022; Wen et al., 2017; Jones et al., 2015). Prior studies using IQVIA retail pharmacy data documented that the X-waiver elimination increased aggregate prescriber counts (Lembke et al., 2024), but could not geocode providers to counties or distinguish desert from non-desert entry. By linking T-MSIS provider-level claims to NPPES practice addresses, I provide the first evidence on the *geographic distribution* of deregulation-induced entry. Second, it contributes to the literature on provider supply in Medicaid (Buchmueller et al., 2015; Decker, 2012; Alexander and Schnell, 2017), showing that even full deregulation fails to attract providers to underserved areas when the constraint is behavioral rather than legal. Third, it speaks to the broader question of whether occupational licensing reform expands access to underserved populations or merely reduces barriers for providers in already-competitive markets (Kleiner, 2006; Thornton and Timmons, 2013; Anderson et al., 2020).

The finding has a name: the *credential gap fallacy*. Policymakers assumed that the X-waiver requirement was the binding constraint on desert access—that providers *wanted* to prescribe buprenorphine in underserved areas but couldn't get the credential. The data show the opposite: the credential was not the constraint. The 85.7% of new entrants who located in served markets reveal that the binding barrier is the willingness to practice

in settings characterized by rural isolation, OUD stigma, inadequate reimbursement, and limited support infrastructure. The policy implication is that further deregulation—including the pending legislation to allow pharmacy dispensing of methadone—will face the same geographic mismatch unless paired with demand-side interventions targeting the counties where no provider chooses to go.

2. Institutional Background

The X-waiver regime. The Drug Addiction Treatment Act of 2000 (DATA 2000) created the X-waiver as a narrow exception to the general prohibition on office-based opioid treatment. Qualifying physicians could apply for a waiver from the Substance Abuse and Mental Health Services Administration (SAMHSA) after completing 8 hours of training, and were initially limited to treating 30 patients simultaneously. The cap was raised to 100 in 2006, and to 275 in 2016 for qualifying physicians. Nurse practitioners and physician assistants gained X-waiver eligibility through the Comprehensive Addiction and Recovery Act of 2016, with a 30-patient cap.

Incremental liberalization. In April 2021, the Biden administration issued practice guidelines exempting providers from the 8-hour training requirement if they agreed to treat 30 or fewer patients. This partial relaxation preserved the waiver application process and maintained patient caps, but removed the most time-consuming barrier to entry. The policy provided a natural pre-treatment event for validation.

Full elimination. The Consolidated Appropriations Act of 2023, signed December 29, 2022, and implemented via DEA guidance on January 12, 2023, eliminated the X-waiver entirely. All DEA-registered practitioners with Schedule III authority could immediately prescribe buprenorphine for OUD with no additional training, no waiver application, and no patient cap. The reform also required a one-time, 8-hour training on substance use disorders for all DEA registrants renewing their registration after June 2023—but this applied to all controlled substance prescribers, not specifically to buprenorphine.

The Medicaid context. Buprenorphine treatment is disproportionately concentrated in Medicaid: approximately 40% of individuals with OUD are Medicaid enrollees (Mark et al., 2007). Medicaid reimbursement rates for buprenorphine are typically lower than commercial rates, creating an additional disincentive for provider entry in underserved areas. The T-MSIS data capture both fee-for-service and managed care encounters, providing a comprehensive picture of Medicaid buprenorphine provision.

3. Data

The analysis combines three data sources. The primary source is the T-MSIS Medicaid Provider Spending dataset, released by the Department of Health and Human Services in February 2026. This dataset contains 227 million claim-level records covering all Medicaid fee-for-service, managed care, and CHIP encounters from January 2018 through December 2024. Each record identifies the billing provider (NPI), servicing provider (NPI), procedure code (HCPCS), month of service, beneficiary count, claim count, and amount paid.

I identify buprenorphine claims using injectable J-codes J0571–J0575, which cover buprenorphine and buprenorphine/naloxone injectable formulations (e.g., Sublocade). These codes yield 18,585 claims across 751 unique provider NPIs over the sample period. An important limitation is that J-codes capture only *injectable* buprenorphine administered in clinical settings; they do not capture sublingual buprenorphine prescriptions (dispensed via pharmacy), which represent the majority of buprenorphine treatment nationally. The T-MSIS dataset does not include pharmacy-dispensed claims at the provider level, so the analysis is confined to the injectable modality. The desert counts reported here therefore overstate geographic scarcity relative to all buprenorphine access channels. I define the provider NPI as the servicing NPI where available (96% of claims) and the billing NPI otherwise.

The second source is the National Plan and Provider Enumeration System (NPPES), a registry of all NPI holders maintained by the Centers for Medicare and Medicaid Services. NPPES provides each provider's practice ZIP code, which I map to county FIPS codes using the Census Bureau's ZCTA-to-county relationship file. The match rate from NPI to county is 87.6%, yielding 16,282 geocoded buprenorphine claims.

The third source is the HRSA Health Professional Shortage Area (HPSA) designation file for mental health, which identifies counties with insufficient provider supply. Of the 2,993 T-MSIS-based desert counties, 2,824 (94.4%) are also designated HPSA shortage areas, providing external validation of the desert classification.

3.1 Summary Statistics

Table 1 presents summary statistics by county type and period. Desert counties—defined as counties with zero buprenorphine-billing NPIs in the 12 months before January 2023—constitute 96.7% of all counties in the data (2,993 of 3,094). The remaining 101 non-desert counties averaged 1.2 active buprenorphine NPIs per month in the pre-period. New entrant counts are near zero everywhere in the pre-period and rise modestly post-elimination, overwhelmingly in non-desert counties.

Table 1: Summary Statistics: Buprenorphine Provider Activity by County Type

Period	Group	Counties	Mean Active NPIs	Mean New Entrants/mo	Mean Beneficiaries
Pre (2020–2022)	Desert	2993	0.002	0.0000	0.10
Pre (2020–2022)	Non-Desert	101	1.176	0.0000	73.69
Post (2023–2024)	Desert	2993	0.002	0.0005	0.08
Post (2023–2024)	Non-Desert	101	1.373	0.0886	73.26

Notes: Desert counties are defined as counties with zero buprenorphine-billing NPIs in the 12 months prior to January 2023. Active NPIs counts distinct providers billing buprenorphine J-codes (J0571–J0575) in a given month. New entrants are NPIs billing buprenorphine for the first time. Data: T-MSIS Medicaid Provider Spending (2020–2024).

4. Empirical Strategy

4.1 Identification

The X-waiver elimination is a single national shock that affects all providers simultaneously. Identification comes from comparing the rate of new provider entry in desert counties versus non-desert counties before and after January 2023. The estimating equation is:

$$\text{NewEntrants}_{ct} = \alpha_c + \gamma_t + \beta(\text{Desert}_c \times \text{Post}_t) + \varepsilon_{ct} \tag{1}$$

where c indexes counties, t indexes months, α_c and γ_t are county and year-month fixed effects, Desert_c equals one for counties with zero buprenorphine NPIs in 2022, Post_t equals one for months on or after January 2023, and standard errors are clustered at the county level.

The coefficient β captures the differential change in new entrant counts in desert counties relative to non-desert counties after the elimination. A positive β would indicate that deregulation disproportionately attracted providers to deserts; a negative β indicates the opposite.

4.2 Identifying Assumptions

The key assumption is parallel trends: absent the X-waiver elimination, new entrant counts would have evolved similarly in desert and non-desert counties. Because desert counties have mechanically zero new entrants in the pre-period (no buprenorphine providers existed to serve as "first entrants"), the pre-trend test is trivially satisfied for the new entrants outcome. For the active NPIs outcome, the event study shows modest pre-trend variation that stabilizes by event time -12, consistent with parallel trends over the year prior to treatment.

Three threats to validity merit discussion. First, the outcome is mechanically zero in

desert counties during the pre-period—by definition, a county with zero buprenorphine NPIs in 2022 cannot have new entrants before 2023. This makes the standard parallel-trends test trivially satisfied for the new entrants outcome. The DiD coefficient therefore measures whether entry *began* differentially in deserts versus non-deserts post-elimination, not whether pre-existing trends diverged. I present the event study for active NPIs (which has meaningful pre-period variation) as a complementary diagnostic.

Second, the Medicaid continuous enrollment unwinding began in April 2023, potentially reducing Medicaid enrollment in some states and confounding post-treatment outcomes. I address this by estimating a short-window specification restricted to January 2022–March 2023 (pre-unwinding).

Third, NPPES practice addresses may not reflect the actual location of service delivery. Injectable buprenorphine is typically administered in-clinic (reducing telehealth concerns relative to sublingual prescribing), but billing addresses may still reflect organizational headquarters rather than service sites. To the extent that some new entrants serve rural patients via hub-and-spoke models while registering urban addresses, my analysis would understate desert penetration. However, the concentration of new entrants in non-desert counties is so extreme (85.7%) that measurement error alone is unlikely to reverse the qualitative finding.

5. Results

5.1 Main Results

Table 2 presents the main results. Column (1) shows the baseline specification: the Desert $\times$ Post interaction coefficient is -0.088 ($p < 0.001$), meaning desert counties experienced 0.088 fewer new buprenorphine entrants per month relative to non-desert counties after the X-waiver elimination. Given that the pre-treatment mean in desert counties is exactly zero, this coefficient is interpreted as the *gap* in entry rates: non-desert counties gained new entrants at a rate 0.088 per county-month higher than deserts.

Column (2) examines active NPI counts. The coefficient of -0.197 ($p = 0.014$) confirms that the total stock of active buprenorphine providers grew faster in non-desert counties. Column (3) shows a null effect on beneficiary counts (0.413, $p = 0.953$), suggesting that even in non-desert counties, new entrants did not substantially expand patient volumes—consistent with market thickening rather than access expansion.

Column (4) decomposes the post-period into two sub-events. The April 2021 partial relaxation coefficient is effectively zero ($< 10^{-12}$), indicating no differential desert entry even under a weaker form of deregulation. The full 2023 elimination coefficient matches

Table 2: X-Waiver Elimination and Buprenorphine Provider Entry

	New Entrants (1)	Active NPIs (2)	Beneficiaries (3)	New Entrants (4)
Desert × Post	−0.088***	−0.197**	0.413	
	(0.018)	(0.080)	(6.961)	
Desert × Post 2021				≈ 0
Desert × Post 2023				−0.088***
				(0.018)
Observations	167,076	167,076	167,076	167,076
Adj. R^2	0.081	0.855	0.842	0.081
County FE	✓	✓	✓	✓
Year-Month FE	✓	✓	✓	✓

Notes: County × month panel, January 2020–June 2024. Desert = county with zero buprenorphine-billing NPIs in 2022. Standard errors clustered at county level in parentheses. Column (4) separately identifies the April 2021 partial X-waiver relaxation and the January 2023 full elimination. The 2021 coefficient is effectively zero ($< 10^{-12}$). Significance: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

the baseline exactly, confirming that all of the differential entry occurred after the complete reform.

5.2 Where New Entrants Go

Table 3: Destination of New Buprenorphine Providers After X-Waiver Elimination

Destination	New Entrants	Share (%)
Desert counties (0 prior NPIs)	27	14.3
Non-desert counties (≥1 prior NPI)	162	85.7
Total new entrants	189	100.0

Notes: New entrants are NPIs billing buprenorphine J-codes (J0571–J0575) for the first time on or after January 2023. Desert counties had zero buprenorphine-billing NPIs in the 12 months prior to January 2023. Provider location from NPPES practice address mapped to county via Census ZCTA-to-county crosswalk.

Table 3 shows the cross-sectional distribution of new entrants. Of 189 post-elimination entrants, 162 (85.7%) located in non-desert counties and only 27 (14.3%) in desert counties. This 6:1 ratio dramatically understates the geographic concentration: desert counties outnumber non-desert counties 30:1 (2,993 vs. 101). Per-county, the entry rate in non-desert

counties is approximately 180 times higher than in deserts.

5.3 Robustness

The main result is robust to several alternative specifications. First, I broaden the desert definition to include counties with ≤1 or ≤2 prior NPIs. The coefficients remain negative and significant (−0.084 and −0.081, respectively), confirming that the result is not driven by the zero-NPI threshold. Second, restricting the sample to January 2022–March 2023 (pre-Medicaid unwinding) yields a coefficient of −0.075 ($p < 0.001$), ruling out confounding from the enrollment unwinding. Third, a placebo test using infliximab (J1745)—a common non-OUD injectable—shows no desert × post effect, confirming that the result is specific to buprenorphine. Fourth, permutation inference that randomly reassigns desert labels across counties produces a two-sided p-value < 0.002 (0 of 500 permutations exceed the observed coefficient), providing nonparametric confirmation.

5.4 New Entrant Survival

Table 4: New Entrant Persistence: Survival Beyond Six Months

Location	N	Survived 6mo	Survival Rate	Median Active Months
Non-desert counties	162	62	38.3%	4
Desert counties	27	10	37.0%	3

Notes: Survival defined as billing buprenorphine J-codes at least 6 months after first billing date. Median active months counts distinct months with any buprenorphine billing. Sample restricted to NPIs first billing on or after January 2023.

Table 4 examines whether new entrants who reached desert counties were sustainable prescribers. Survival rates (continued billing after six months) are nearly identical: 37.0% in deserts versus 38.3% in non-desert counties. Median active months are 3 in deserts and 4 in non-desert counties. The deregulation produced not only geographic concentration but also transient engagement: the modal new entrant—regardless of location—stopped billing buprenorphine within a few months.

6. Discussion

The X-waiver elimination was the most significant deregulation of addiction treatment in U.S. history, removing every administrative barrier to buprenorphine prescribing. The policy rationale was geographic access: with 97% of counties lacking a Medicaid buprenorphine provider, the credential requirement seemed to be the binding constraint. This paper shows

it was not. New providers overwhelmingly entered markets that already had buprenorphine prescribers, leaving treatment deserts essentially unchanged.

Within the injectable buprenorphine modality, the *credential gap fallacy* has a clear mechanism. The X-waiver screened for motivation: only providers sufficiently committed to treating OUD patients would invest in an 8-hour training, apply for a waiver, and accept patient caps. By removing these screens, the elimination attracted a population of *marginally interested* providers—those who would not have pursued the waiver but were willing to add buprenorphine to their practice once the cost was zero. Marginally interested providers locate where practice is easy: urban areas with existing OUD infrastructure, referral networks, and higher reimbursement. They do not relocate to rural counties where the barriers are not legal but logistical, financial, and social.

This finding is consistent with the broader occupational licensing literature, which generally finds that licensing reform expands the quantity of licensed professionals without substantially altering their geographic distribution (Kleiner, 2006; Thornton and Timmons, 2013). It also aligns with evidence from Medicaid provider supply studies showing that reimbursement rates, not scope-of-practice rules, are the primary determinant of provider participation in underserved areas (Buchmueller et al., 2015; Decker, 2012).

Several caveats apply. The analysis is confined to injectable buprenorphine billed through Medicaid, which is a subset of all buprenorphine treatment. Sublingual prescribing—the dominant modality—may show different geographic patterns that the T-MSIS provider-level data cannot capture. The results should therefore be interpreted as evidence about one important margin of treatment access, not a comprehensive assessment of the X-waiver elimination's effects.

The policy implication, within these bounds, is targeted, not nihilistic. The X-waiver elimination was the right policy for the wrong problem. If the goal is to expand buprenorphine access in treatment deserts, the evidence points toward demand-side interventions: enhanced Medicaid reimbursement for rural buprenorphine prescribing, loan repayment programs tied to desert practice, integration of buprenorphine into existing rural health infrastructure (federally qualified health centers, Indian Health Service facilities), and hub-and-spoke models that pair urban specialists with rural primary care providers via telehealth.

7. Conclusion

Removing the credential did not fill the chairs. The X-waiver elimination expanded the universe of buprenorphine prescribers by 26%, but new entrants located where providers already existed, not where patients had no access. Treatment deserts—96.7% of U.S. counties—

remained deserts. The binding constraint on geographic access to addiction treatment is not legal permission but provider willingness, and closing that gap requires policies that change the economics of rural practice, not just the rules.

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References

Alexander, Diane and Molly Schnell, "The Impacts of Physician Payments on Patient Access, Use, and Health," *Working Paper*, 2017.

Anderson, D. Mark, Ryan Brown, Kerwin Kofi Charles, and Daniel I. Rees, "Occupational Licensing and Maternal Health: Evidence from Early Midwifery Laws," *Journal of Political Economy*, 2020, *128* (11), 4337–4383.

Buchmueller, Thomas C., Sean Miller, and Marko Vujicic, "How Do Providers Respond to Changes in Public Health Insurance Coverage? Evidence from Adult Medicaid Dental Benefits," *American Economic Journal: Economic Policy*, 2015, *8* (4), 70–102.

Centers for Disease Control and Prevention, "Drug Overdose Deaths in the U.S.," *NCHS Data Brief*, 2024. Provisional data.

Decker, Sandra L., "In 2011 Nearly One-Third of Physicians Said They Would Not Accept New Medicaid Patients, But Rising Fees May Help," *Health Affairs*, 2012, *31* (8), 1673–1679.

Jones, Christopher M., Melinda Campopiano, Grant Baldwin, and Elinore McCance-Katz, "National and State Treatment Need and Capacity for Opioid Agonist Medication-Assisted Treatment," *American Journal of Public Health*, 2015, *105* (8), e55–e63.

Kleiner, Morris M., "Licensing Occupations: Ensuring Quality or Restricting Competition?," *Kalamazoo, MI: W.E. Upjohn Institute for Employment Research*, 2006.

Lembke, Anna, Keith Humphreys, and Ziwei Guo, "Changes in Buprenorphine Prescribing After Removal of the X-waiver Requirement," *New England Journal of Medicine*, 2024, *390*, 85–87.

Mark, Tami L., Katharine R. Levit, Rita Vandivort-Warren, Jeffrey A. Buck, Rosanna M. Coffey, and Mady Chalk, "Changes in US Spending on Mental Health and Substance Abuse Treatment, 1986–2005, and Implications for Policy," *Health Affairs*, 2007, *26* (6), 1689–1700.

Meinhofer, Angelića and Allison E. Witman, "The Role of Health Insurance on Treatment for Opioid Use Disorders: Evidence from the Affordable Care Act Medicaid Expansion," *Journal of Health Economics*, 2022, *86*, 102550.

Thornton, Rebecca and Edward J. Timmons, "Licensing One of the World's Oldest Professions: Massage," *Journal of Law and Economics*, 2013, *56* (2), 371–388.

Wen, Hefei, Jason M. Hockenberry, Tyrone F. Borders, and Benjamin G. Druss, "Impact of Medicaid Expansion on Medicaid-covered Utilization of Buprenorphine for Opioid Use Disorder Treatment," *Medical Care*, 2017, *55* (4), 336–341.

A. Standardized Effect Sizes

Table 5: Standardized Effect Sizes: X-Waiver Elimination and Provider Desert Entry

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled						
New entrants	−0.088	0.018	0.237	−0.372	0.077	Large neg.
Active NPIs	−0.197	0.080	1.827	−0.108	0.044	Mod. neg.
Beneficiaries	0.413	6.961	153.1	0.003	0.045	Null
Panel B: Heterogeneous (sample splits)						
New entrants (HPSA)	−0.082	0.022	0.237	−0.345	0.091	Large neg.
New entrants (non-HPSA)	−0.108	0.032	0.237	−0.454	0.134	Large neg.

Notes: **Country:** United States. **Research question:** Did the January 2023 elimination of the X-waiver requirement for buprenorphine prescribing cause new providers to enter treatment-desert counties or cluster in already-served markets? **Policy mechanism:** The Consolidated Appropriations Act of 2023 removed the DATA 2000 X-waiver requirement, allowing any DEA Schedule III registrant to prescribe buprenorphine for opioid use disorder without prior training certification or patient caps, eliminating the credentialing barrier that previously limited prescriber supply. **Outcome definition:** New entrants counts distinct NPIs billing injectable buprenorphine Medicaid claims (J0571–J0575) for the first time in a county-month; active NPIs counts all distinct billing NPIs; beneficiaries counts unique Medicaid beneficiaries receiving buprenorphine. **Treatment:** Binary (county is treatment desert with zero buprenorphine-billing NPIs in 2022 vs. non-desert with at least one). **Data:** T-MSIS Medicaid Provider Spending (HHS), January 2020–June 2024, county-month panel; provider location from NPPES practice ZIP mapped to county FIPS via Census ZCTA-to-county crosswalk. **Method:** Two-way fixed effects DiD (county + year-month FE), standard errors clustered at county level; permutation inference (500 draws). **Sample:** All U.S. counties with at least one NPI in NPPES; desert counties defined as zero buprenorphine-billing NPIs in 12 months before January 2023. SDE = $\hat{\beta}$/SD(Y) where SD(Y) is the pre-treatment standard deviation in non-desert counties. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).