

The Effect of the Dependent Coverage Provision of the Affordable Care Act on Opioid Use and Abuse

By

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Background

- The opioid epidemic is the largest and fastest growing drug problem in the United States.
- From 1999 to 2017 more than 400,000 people have died from an overdose involving any type of opioid (CDC 2018)
- Almost 218,000 people have died from an overdose related to prescription opioids.
- In 2017 alone, 17,029 people died from an overdose related to prescription opioids. (National Institute on Drug Abuse)
- Center for Disease Control and Prevention: “The worst drug epidemic in U.S. history”

Introduction

- In 2016, 3.3 million people reported having misused opioid pain relievers.
- About 7.1% (234,000) were individuals of ages 18-25 (SAMHSA, 2017)
- The economic burden of the epidemic was estimated to be around \$78 million in 2013 (Florence, 2016)
 - healthcare, criminal justice costs and loss of productivity

Definition

- **Misuse:**

- Using opioid pain relievers that were not prescribed to the individual.
- The individual took pain relievers **only** for the experience or feelings caused by using the drug.

Substance Abuse and Mental Health Services Administration

Motivation

- The unprecedented increase of the epidemic has coincided with a series of expansions in health insurance coverage under the ACA.
- Is there a causal relationship between these two events?
- This study uses the ACA's Dependent Coverage Provision as a quasi-natural experiment to estimate the impact of extending insurance coverage on prevalence of non-medical use of opioids among young adults.
 - Highest percentage of opioid misusers and uninsured individuals.
 - Substance use disorders peak at young adulthood.

Dependent Coverage Provision

- “Expand health insurance coverage to populations with historically limited access to health services.”
- Early provision of the ACA - Implemented in September 2010.
- Allows young individuals to remain as dependents under their parents’ health insurance plans until they turn 26 years of age.
- Prior to implementation, loss of coverage peaked at 23 years of age and close to 40%.

Conceptual Framework

Hypothesis

- Ex-ante, the effect of gaining insurance coverage on opioid misuse is ambiguous.

1. Increase in the prevalence of opioid misuse

- Gains in Insurance coverage increases access to opioid prescriptions creating a potential incentive for moral hazard.
 - For example, "Doctor shopping" practices.

2. May reduce the need for opioids through multiple mechanisms:

- Improvements in overall health
- New source of payment for substance use treatment. Change in settings.
 - Historically, specialty care addiction treatment programs financed by government and other public sources.
- The ACA requires insurance plans to offer coverage for SUD as one of the 10 essential benefits.

Relevant Literature

- Wettstein (2019), estimates the impact of the Young Adult provision on opioid related mortality.
 - 2000-2016 Multiple cause of death database
 - 1 percentage point increase in coverage reduced opioid mortality among young adults by 2.5/100,00 or 19.8%
- Powel et al. (2015) used the introduction of Medicare Part D to estimate the effects of the differential increased supply of opioids in states with larger proportion of elderly individuals on overdose deaths among individuals NOT eligible for benefits
 - A 10% increase in opioid medical distribution leads to a 7.4% in opioid related deaths.
- Saloner et al. (2014); Saloner et al (2018); Meinhoffer & Witman (2018) found that increase access to insurance coverage by the ACA increase treatment utilization for SUD and OUD treatment.

Methods

Methodology

- Non-linear Difference-in-Differences (DD) design.
- **Pre-expansion:** 2008-2009, **Post-expansion:** 2011-2013.
- **Treated Group:** 22-25 year olds, **Control Group:** 26-29 year olds.
- Logit Regression Analyses.
- Sign and magnitude of treatment effect is NOT as easily derived as in linear DD.
- Puhani (2012): Not as simple cross-difference but a difference between cross differences.

Methodology

- Consider a potential outcome framework :

$$E[Y] = \Lambda(\beta_0 + \beta_1 Treat + \beta_2 Post + \beta_3 (Treat * Post) + X\theta)$$

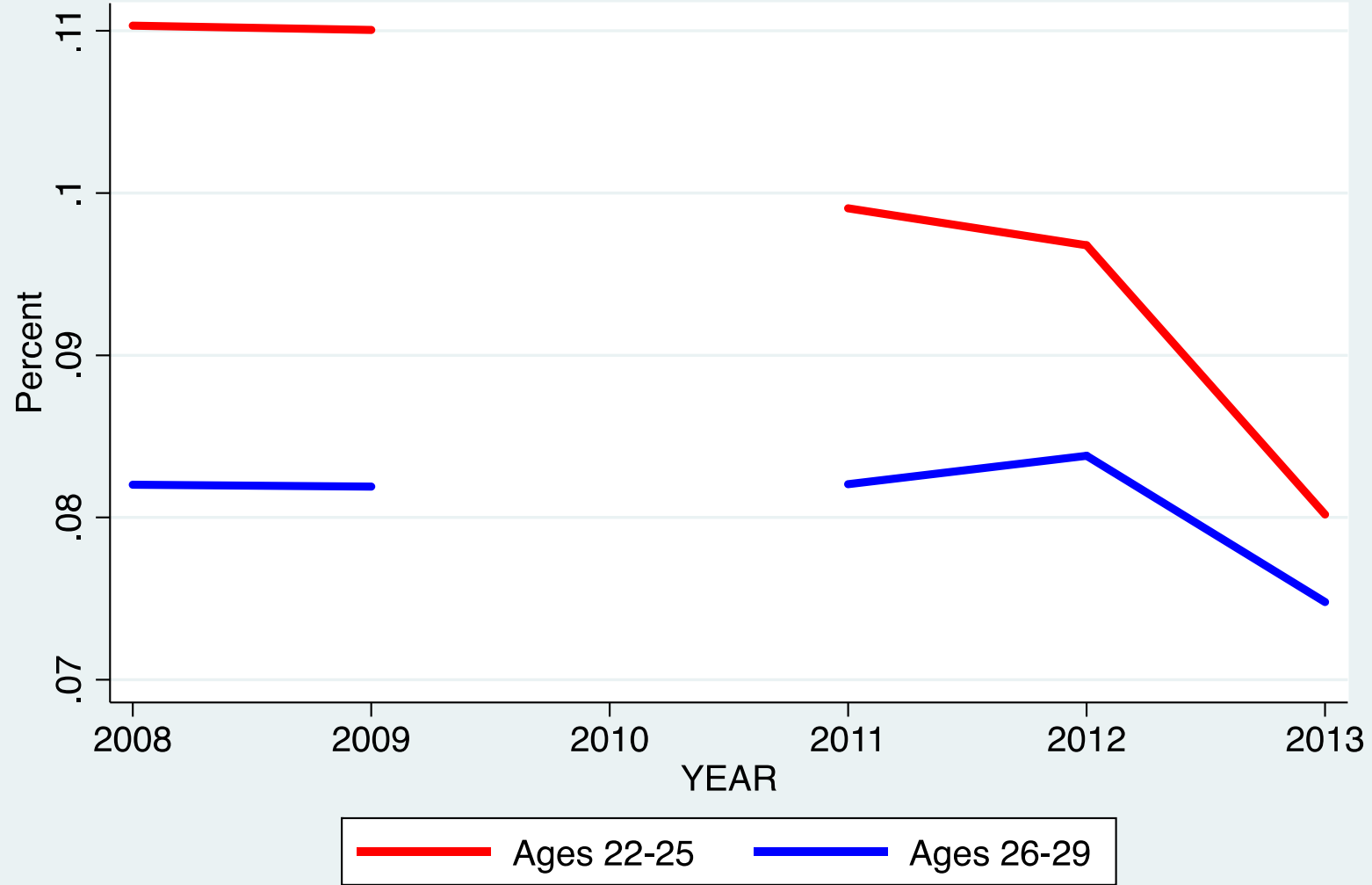
$$\tau = E[Y^1 | Treat = 1, Post = 1, X] - E[Y^0 | Treat = 1, Post = 1, X]$$

Where Y^1 and Y^0 denote potential outcomes with and without the treatment policy.

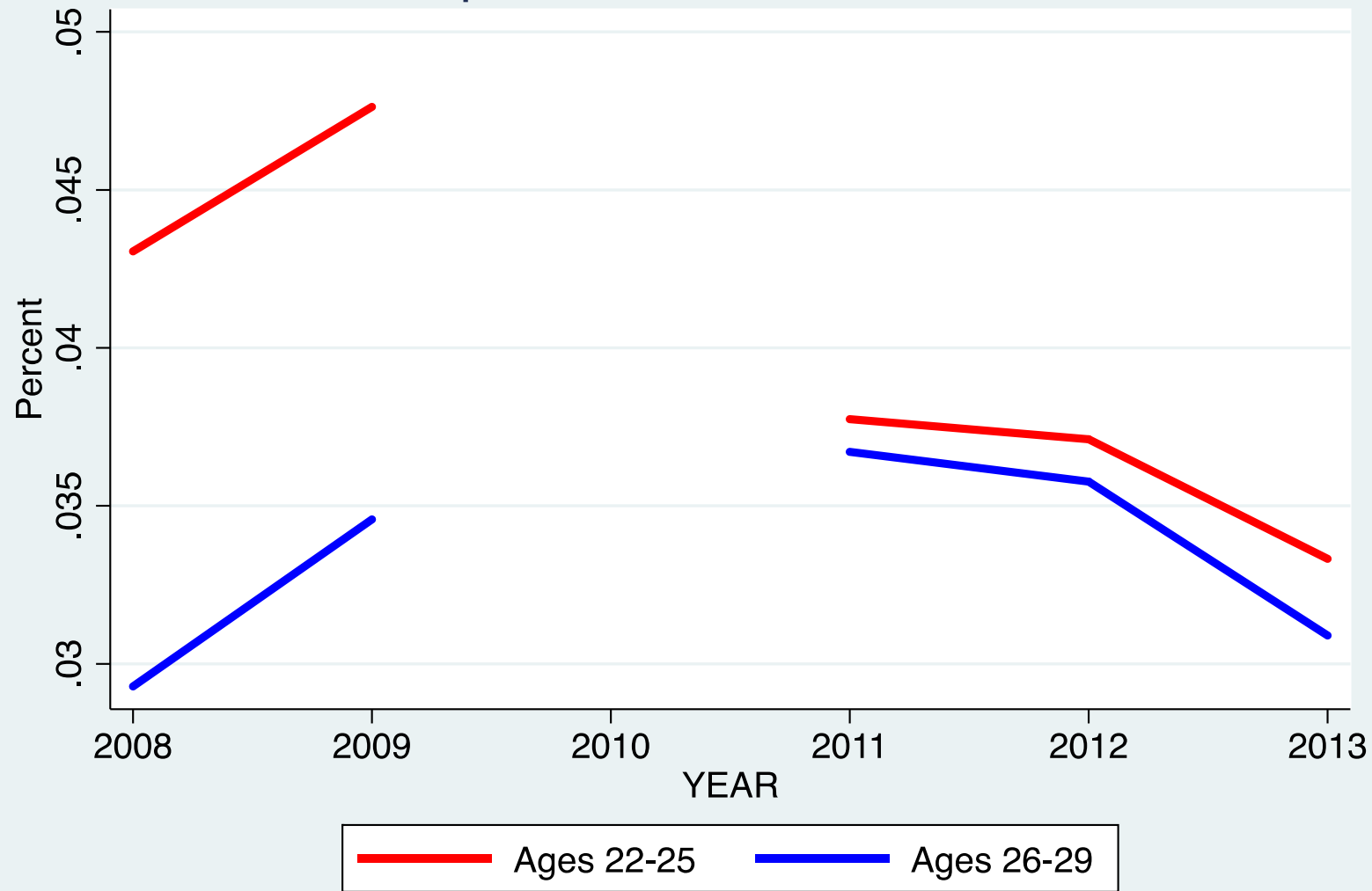
$$\tau = \Lambda(\beta_0 + \beta_1 + \beta_3 + X\theta) - \Lambda(\beta_0 + \beta_1 + \beta_2 + X\theta)$$

Regression specification controls for AGE and YEAR fixed effects and errors are clustered by AGE and YEAR.

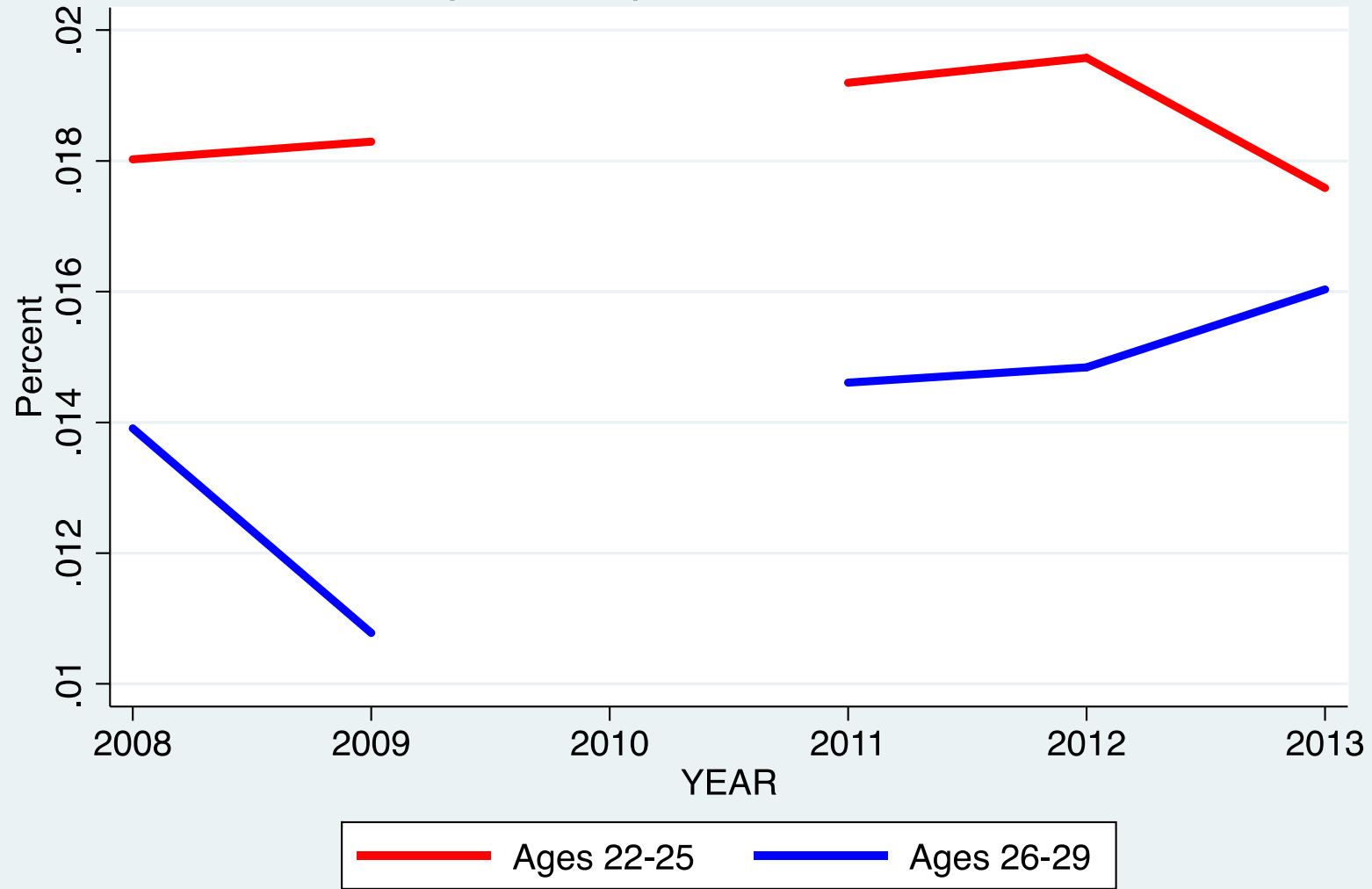
Opioid Misuse - Past Year



Opioid Misuse - Past Month



Opioid Dependence & Abuse



Data

Data

- Pooled data from the 2008-2013 National Survey on Drug Use and Health (NSDUH).
 - Excluding 2010 and 2014.
- Cross-sectional, nationally representative survey of non-institutionalized individuals in the U.S.
- Conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA).

Data

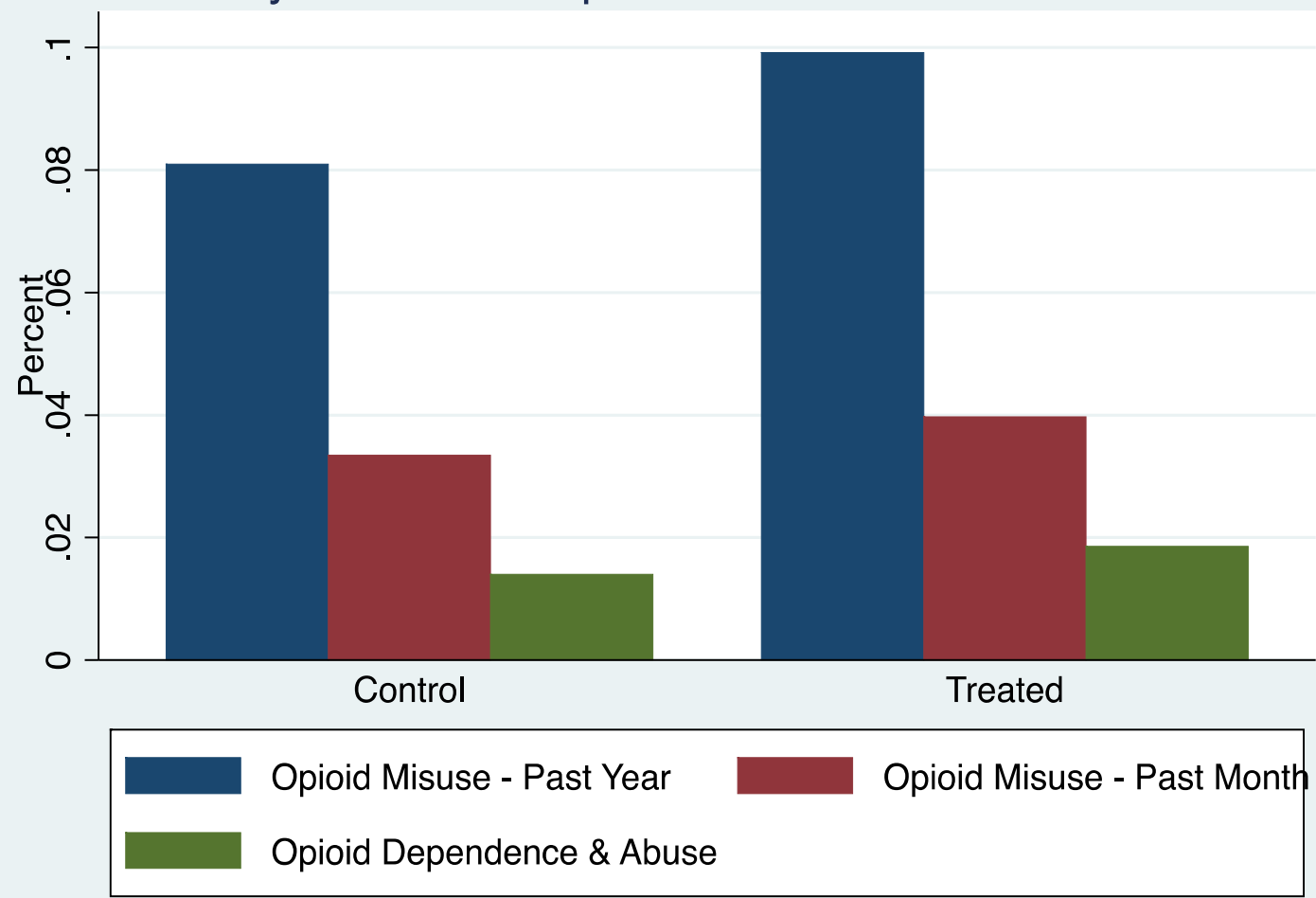
- Collects information on individuals' demographics and insurance status.
- Provides detailed information on individual's non-medical use and abuse of prescription opioids.
- Assess symptoms of opioid use disorders (Dependence and abuse)
 - Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV)
- Provides information on specific location settings in which SUD treatment was received.

Outcomes

- Health Insurance Status: Any Insurance, Private Insurance and Uninsured.
- Opioid Use Disorder outcomes: Past-Year Misuse, Past-Month Misuse and Opioid Dependence & Abuse.
- Location Settings for SUD Treatment:
 - **Inpatient:** Overnight at hospital or in a residential rehabilitation facility.
 - **Outpatient:** Non-residential rehabilitation facility, mental health center, private doctor's office.
 - SUD includes other illicit drugs such heroin, cocaine, other prescription drugs.
- Treatment at Emergency Room and opioid treatment overall.

Summary Statistics

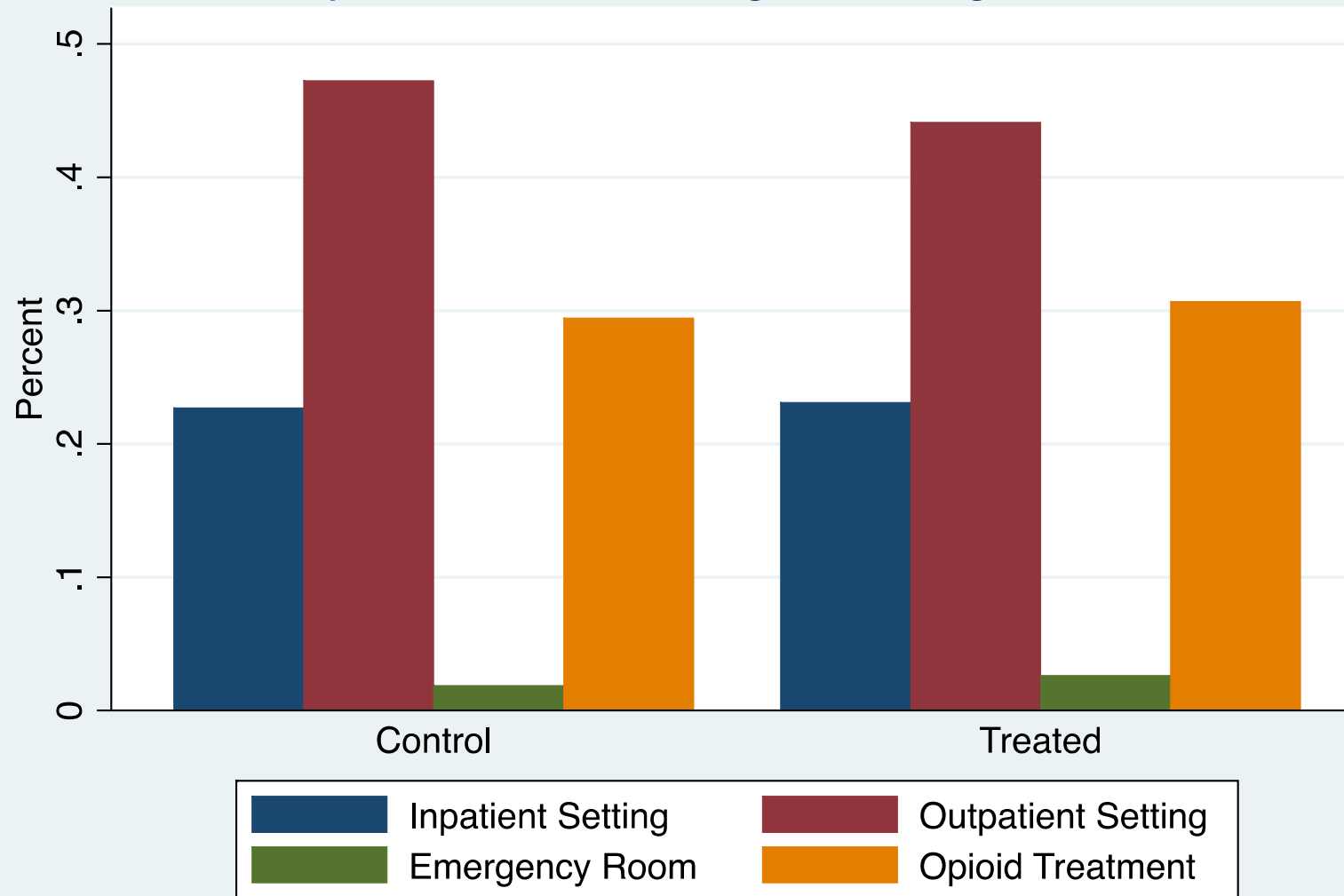
Summary Statistics - Opioid Use Disorders Outcomes



Summary Statistics – Opioid Use Disorders

	(1)	(2)	(3)	(4)
	Control	Treated	Control	Treated
	2008-2009	2008-2009	2008-2013	2008-2013
Misuse Past Year	0.082	0.110	0.081	0.099
Misuse Past Month	0.032	0.045	0.033	0.040
Dependence/Abuse	0.012	0.018	0.014	0.019
Observations	5417	17925	13265	45727

Summary Statistics - Settings for Drug Treatment



Summary Statistics – Settings for Drug Treatment

	(1) Control 2008-2009	(2) Treated 2008-2009	(3) Control 2008-2013	(4) Treated 2008-2013
Inpatient	0.165	0.204	0.227	0.232
Outpatient	0.451	0.393	0.472	0.443
Emergency Room	0.045	0.068	0.064	0.071
Opioid Treatment	0.203	0.236	0.294	0.307
Observations	133	529	326	1245

Summary Statistics - Demographics

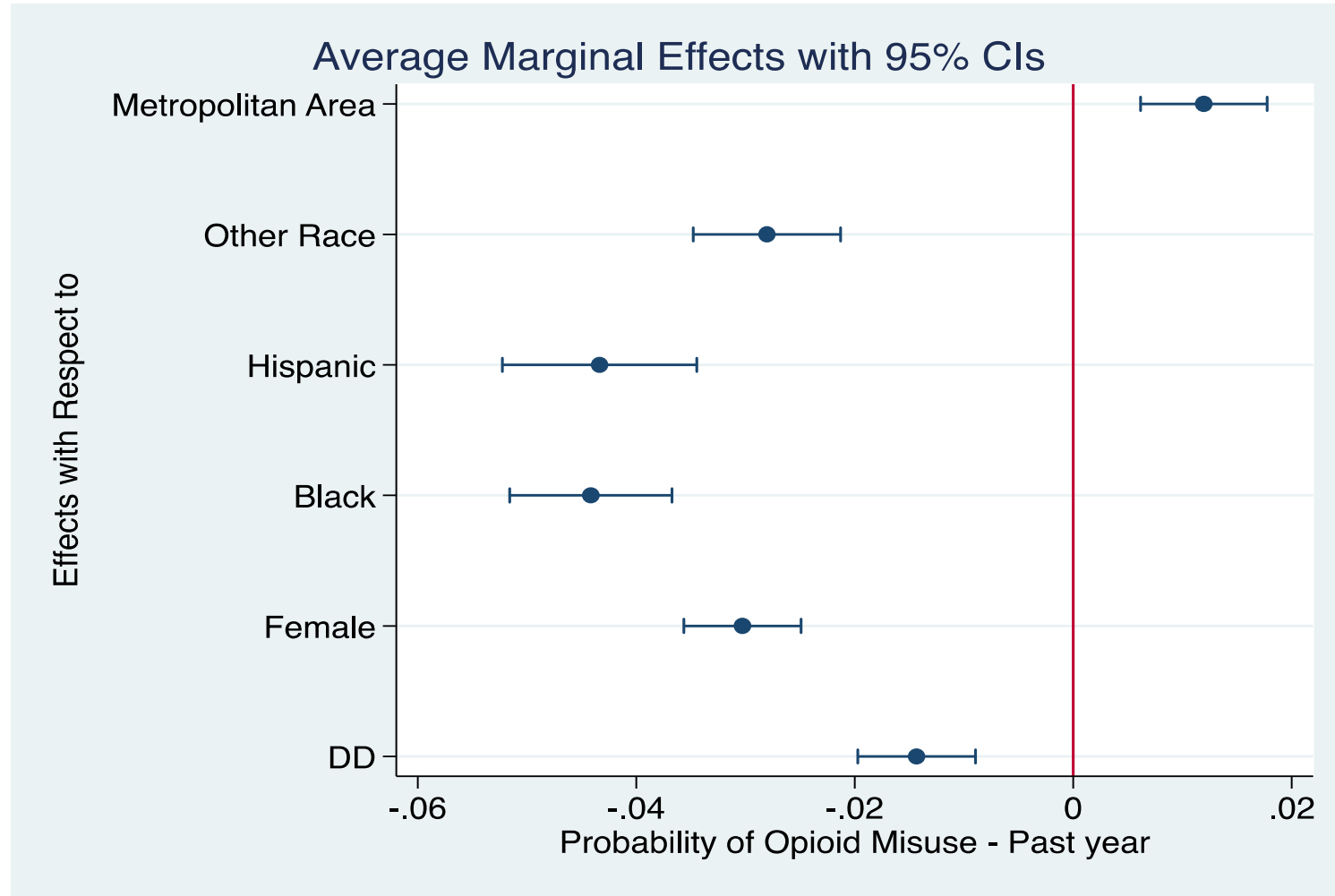
	(1)	(2)	(3)	(4)
	Control	Treated	Control	Treated
	2008-2009	2008-2009	2008-2013	2008-2013
Female	0.539	0.534	0.536	0.535
Black	0.123	0.127	0.124	0.133
Hispanic	0.200	0.180	0.191	0.177
Other Race	0.095	0.094	0.099	0.096
Metropolitan Area	0.807	0.794	0.806	0.796
Married	0.414	0.223	0.397	0.206
Less than High School	0.152	0.151	0.145	0.134
High School	0.283	0.295	0.271	0.297
Some College	0.264	0.301	0.273	0.308
College or Above	0.301	0.253	0.311	0.261
Below Poverty Threshold	0.172	0.222	0.188	0.248
Observations	5422	17885	13277	45619

Regression Results

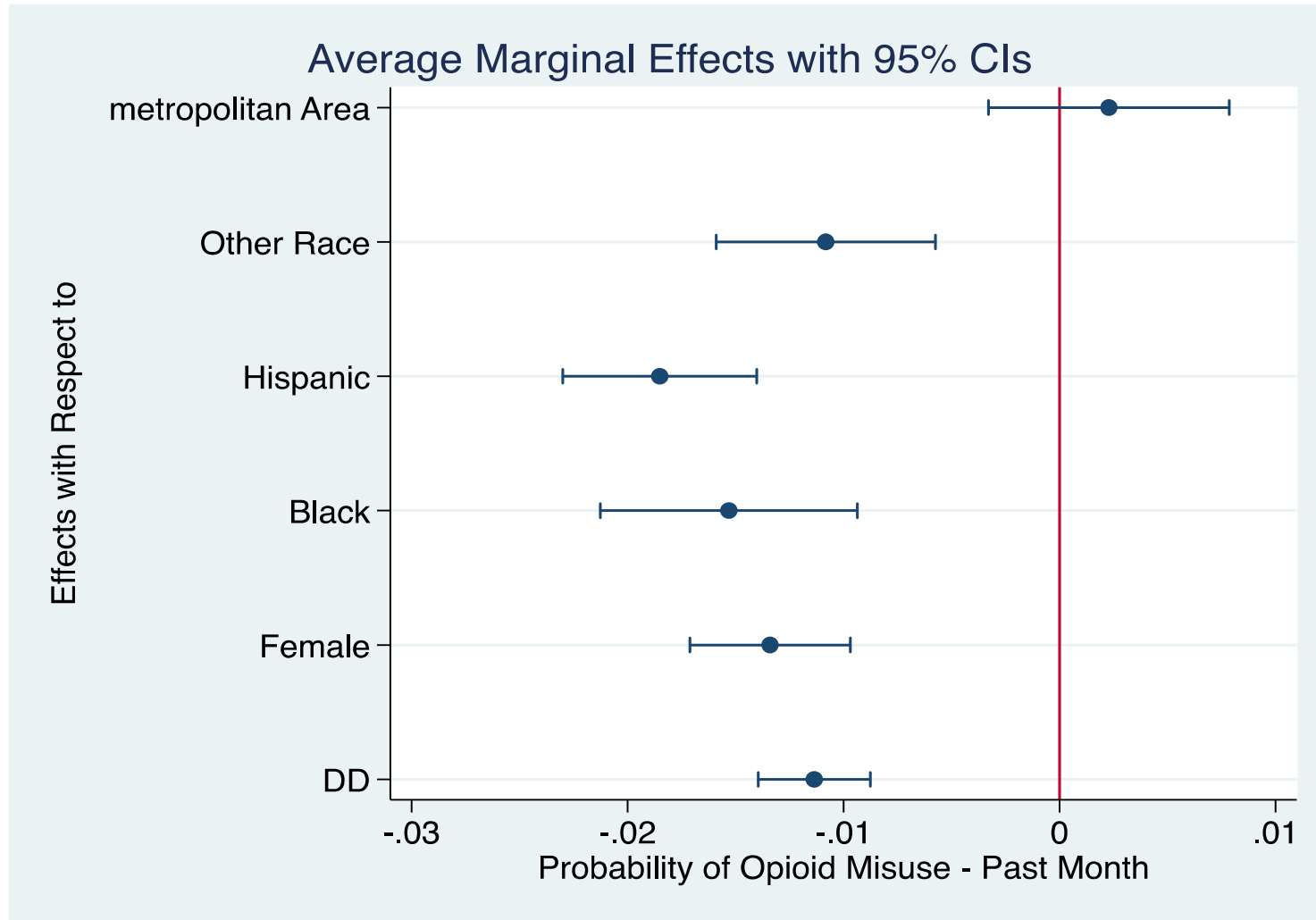
Results – Opioid Use Disorders Outcomes

- Relative to adults aged 26-29, past - year misuse declined by 1.4 percentage points (12.7%) after implementation.
- Relative to adults aged 26-29, past-month misuse declined by 1.1 percentage point (24.44%) after implantation.
- The share of young adults categorized as opioid dependents and abusers declined by 3.0 percentage points (16.67%)
 - This effect is significant only at the 10% level.

Effect of the Young Adult Provision on Past Year Misuse



Effect of the Young Adult Provision on Past Month Misuse



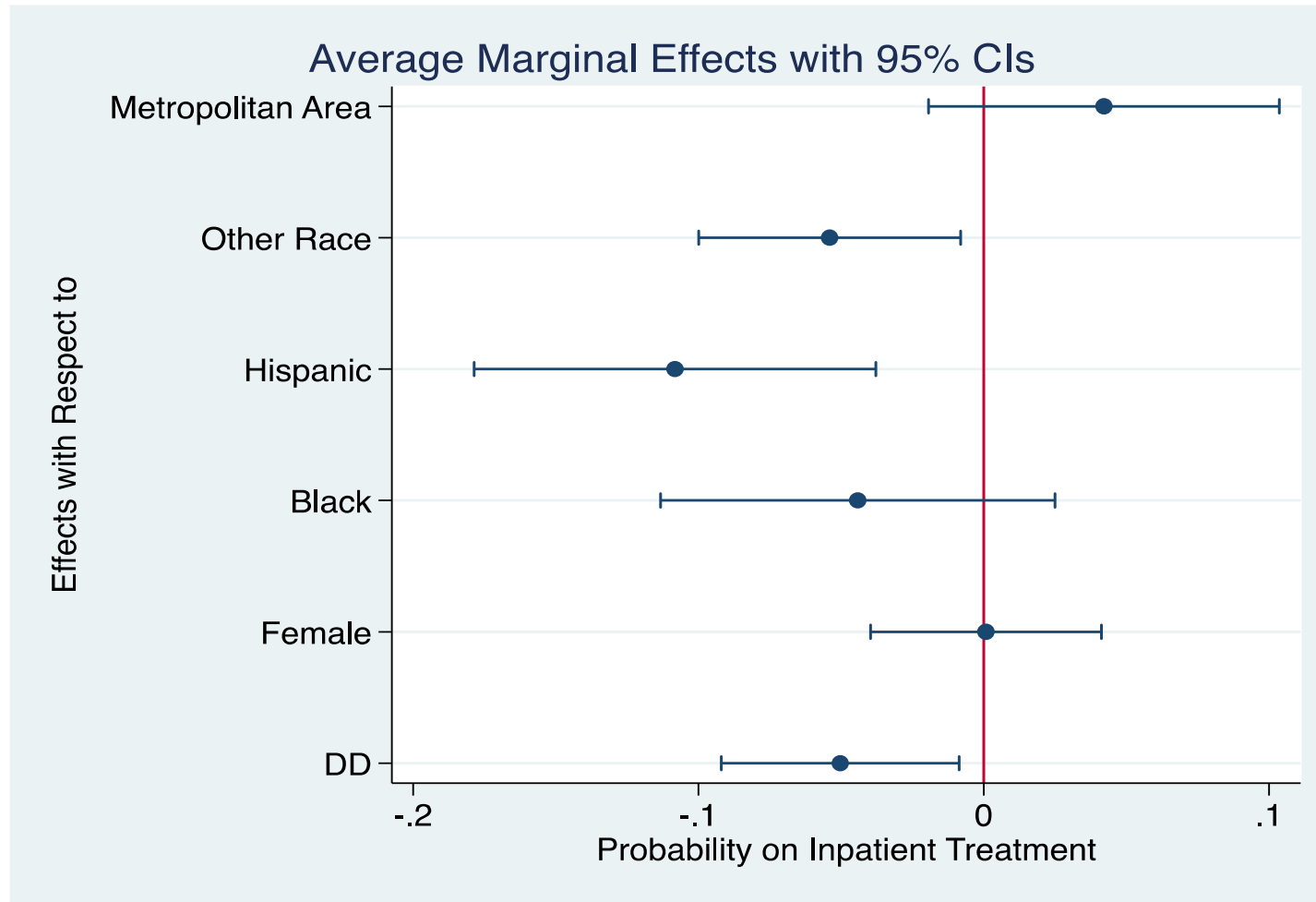
Effect of the Young Adult Provision of Opioid Use Disorders

	(1) Pain Reliever Misuse Past Year	(2) Pain Reliever Misuse Past month	(3) Dependence & Abuse
DD	-0.014*** (0.003)	-0.011*** (0.001)	-0.003* (0.002)
Female	-0.030*** (0.003)	-0.013*** (0.002)	-0.005*** (0.001)
Black	-0.044*** (0.004)	-0.015*** (0.003)	-0.019*** (0.002)
Hispanic	-0.043*** (0.005)	-0.019*** (0.002)	-0.014*** (0.003)
Other Race	-0.028*** (0.003)	-0.011*** (0.003)	-0.007*** (0.002)
Metropolitan Area	0.012*** (0.003)	0.002 (0.003)	0.000 (0.002)
Observations	58992	59068	59068

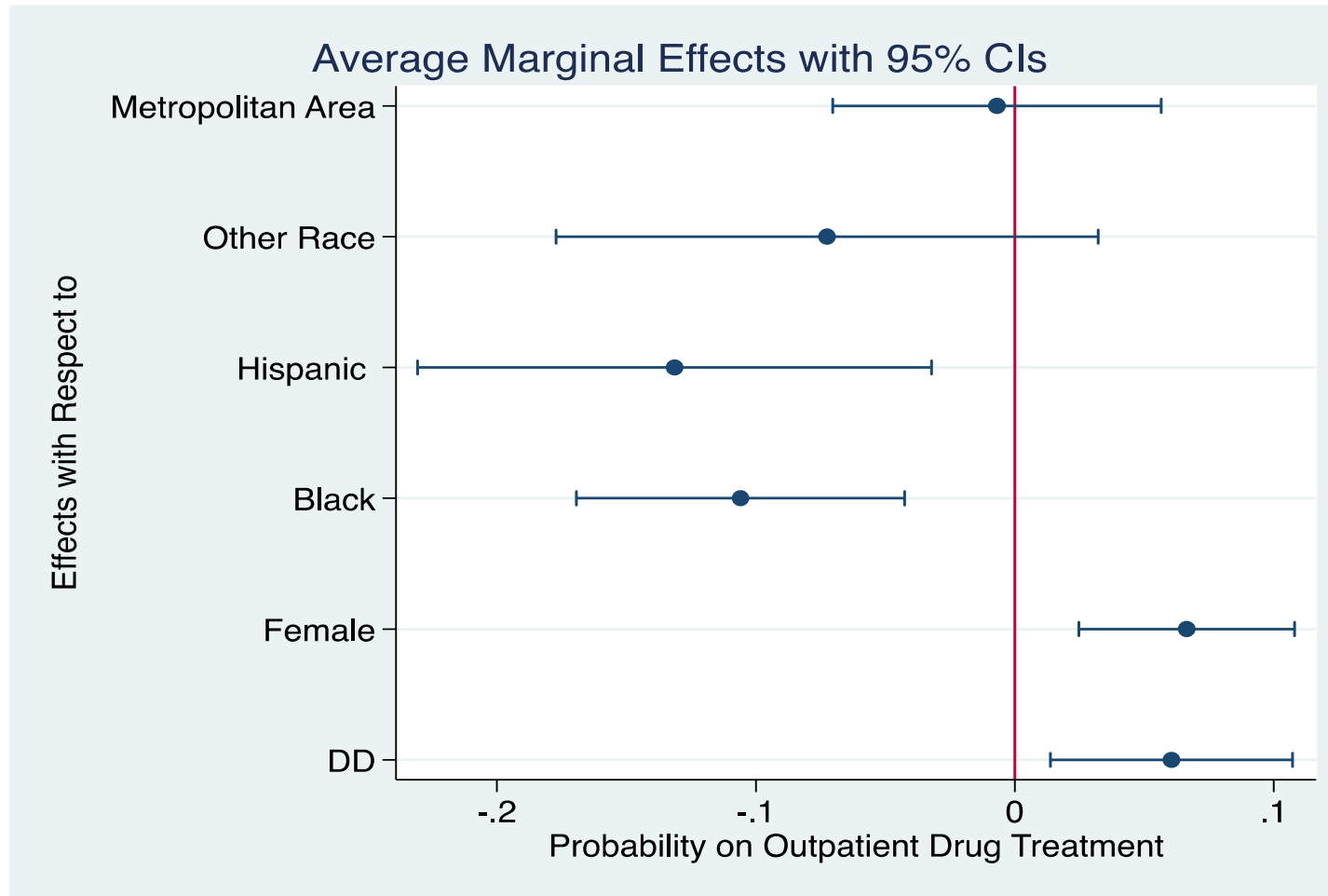
Results – Settings for Drug Treatment

- Young adults are 5 percentage points less likely to receive inpatient treatment (24.49%) relative to older adults.
- Young adults 6.1 percentage points more likely to receive outpatient treatment (15.5%) relative to older adults.
- ER treatment and treatment for Opioid Use Disorders were not statistically significant.

Effects of Young Adult Provision on Inpatient Treatment Settings



Effects of Young Adult Provision on Outpatient Treatment Settings



Effect of the Young Adult Provision on Treatment Settings for Substance Use Disorders

	(1)	(2)	(3)	(4)
	Inpatient	Outpatient	Emergency Room	Opioid Treatment
DD	-0.050** (0.021)	0.061** (0.024)	-0.013 (0.009)	-0.016 (0.031)
Female	0.001 (0.021)	0.066*** (0.021)	0.014*** (0.005)	0.085*** (0.020)
Black	-0.044 (0.035)	-0.106*** (0.032)	-0.031** (0.013)	-0.339*** (0.054)
Hispanic	-0.108*** (0.036)	-0.131*** (0.051)	-0.007 (0.005)	-0.196*** (0.029)
Other Race	-0.054** (0.023)	-0.073 (0.053)	0.001 (0.008)	-0.113** (0.048)
Metropolitan Area	0.042 (0.031)	-0.007 (0.032)	0.016** (0.007)	0.010 (0.018)
Observations	1577	1577	4515	1571

Discussion

- The Dependent Coverage Provision achieved its goal of increasing the amount of insured young adults
 - The likelihood of young adults having "Any Type" of health insurance coverage increased by 6.4 percentage points (9.18%) relative to older adults.
 - Private health insurance coverage increased by 6.7 percentage points (13.05%) for Young Adults.
 - Offset by a 6.4 percentage points (21.1%) decline in uninsured young adults

Discussion

- The exogenous gain of insurance coverage may have caused a decline in the prevalence of opioid misuse and the share of young adults diagnosed as dependents and abusers.
 - Wettstein (2019): The Provision is associated with a decline in opioid related mortality.
- Mechanisms: Findings suggest a plausible substitution effect caused by the exogenous gain in health coverage.
- Overall, the provision appears to have mitigated the epidemic, both by reducing the number of individuals misusing opioids and by shifting patients to more appropriate care.