

# Insurance and Welfare: Causal Effects of the Affordable Care Act

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## Abstract

This paper studies the causal effects of Medicaid expansion under the Affordable Care Act (ACA). We find statistical significance on estimates for insurance coverage, poverty rates, health outcomes, and out of pocket insurance payments, with a particular focus on racial disparities. Using data from the IPUMS Current Population Survey (CPS) for the years 2012 and 2016, we apply a two-way fixed effects difference-in-differences (TWFE DiD) methodology to estimate the causal impact of the ACA's Medicaid expansion. Our analysis reveals that, while Medicaid expansion increased coverage across the population, African Americans experienced more than double the effects in reduction in poverty and out-of-pocket healthcare expenses compared the rest of the country. Despite this, access to Medicaid remained less equitable for African Americans, with only half of the effect in the increase of enrollment relative to the general population. Additionally, we observe that Medicaid expansion did not significantly crowd out private or group insurance coverage. Our findings are robust to controls, time and state fixed effects, two way clusters, and maintain themselves in a multi period setting. We also estimate a heterogeneous design that implies less pronounced effects throughout time for the African American population.

**JEL Codes:** I13, I14, I18.

**Keywords:** Affordable Care Act, Medicaid, Poverty, Healthcare Inequality.

# 1 Introduction

The [Affordable Care Act \(ACA\)](#) was one of the most important healthcare reforms in US history. Implemented in 2010, its main goal was to increase the number of people covered by insurance and to make it more affordable and secure. The ACA also aimed to reduce inequalities in healthcare access ([Gaffney and McCormick, 2017](#)). One of the flagship measures of the ACA was a Medicaid expansion, which extended eligibility to adults under 65 with incomes up to 138% of the federal poverty level. By 2016, 25 states had adopted the Medicaid expansion, with 14.5 million individuals enrolled. Given that this expansion was not universal, we find in this policy a natural experiment, which enables us to find the causal effect of Medicaid using a difference-in-differences approach. This event study has been previously used by [He and Barkowski \(2020\)](#), [Freen et al. \(2017\)](#), [Gruber and Sommers \(2019\)](#), and others. However, the expansions did not stop there. By 2024, 41 states in the United States expanded Medicaid. Previous evidence suggests varied outcomes ([Antonisse et al., 2018](#)). There are several concerns regarding Medicaid's crowd-out effect on private insurance. Similarly, the findings on perceived health and clinical outcomes do not appear to lead to the same conclusions. These findings highlight the complex consequences involved in analyzing the effects of Medicaid expansion.

This study contributes to the existing literature by examining the effects of Medicaid expansion on insurance and welfare: insurance coverage, poverty rates, and self-reported health perception between 2012 and 2016. Following ([Zhang et al., 2013](#)), ([Snowden and Graaf, 2019](#)), and ([Derenoncourt and Montialoux, 2021](#)), we focus on racial inequality amongst these outcomes. Our main result, using the [IPUMS Current Population Survey](#) and applying a two-way fixed effects (TWFE) difference-in-difference estimate to the first wave of expansions, suggests that Medicaid access was slightly unequal for African Americans and the rest of the country. However, we also find more *intensity* in poverty and out of pocket insurance payments reduction for African Americans, with a higher effect on self reported health perception as well. Our secondary result presents a negligible reduction in group and private insurance. This suggests that insurance firms and employers weren't negatively affected by the improvement of consumer welfare.

This paper is organized as follows. We do a brief literature review in [Section 2](#), relating it to our work. [Section 3](#) presents the data and the empirical strategy. We present our results in [Section 4](#), and discuss further issues in [Section 5](#). [Section 6](#) concludes. We also present a small appendix that supplements the paper.

## 2 Literature Review

Despite the extensive literature on the subject, there is not always consensus on the effects of the Medicaid expansion. It is quite straightforward that the ACA has increased insurance coverage for households. As shown by [Courtemanche et al. \(2017\)](#), the full ACA increased the proportion of residents with insurance by 5.9 percentage points compared to 2.8 percentage points in states that did not expand Medicaid. However, when breaking down access to coverage by subgroups and examining the effects on health and other forms of insurance, the results become more nuanced, revealing the complexity of analyzing this policy. First, the substitution effect leading to a decline in private insurance is not consensual ([Guth et al., 2020](#); [Antonisse et al., 2018](#)). Indeed, some frameworks find evidence of crowd-out on private insurance ([Courtemanche et al., 2017](#); [Kaestner et al., 2017](#)), when other papers do not ([Frean et al., 2017](#)). Digging into health outcomes, [Baicker and Finkelstein \(2011\)](#) find that health perception is improved whereas the clinical health outcomes do not confirm this improvement. The improvement in self-reported health and happiness reflects individuals feeling less stressed as a result of having insurance that reduces risk and financial strain.

However, it is legitimate to question whether the effects are homogeneous across the population. Given that poverty disproportionately affects certain social groups, Medicaid expansion targets a specific segment of the population whose statistical distribution does not proportionally reflect that of the overall population. For instance, African Americans constitute a larger share of the population living below the federal poverty line. This is particularly highlighted in the study of [Donohue et al. \(2022\)](#). The complexity of Medicaid highlights the importance of considering demographic, sociological, and economic factors in our analysis. It is also important to highlight the heterogeneity among U.S. states. California, for example, is particularly well-equipped with healthcare services compared to other states. Therefore, it will be essential to account for these disparities as well. Our work aims to contribute to the existing literature on the effects of Medicaid by providing additional insights and analysis.

## 3 Data and Empirical Strategy

For this work, we used the [IPUMS Current Population Survey \(CPS\) ASEC 2012 and 2016](#) datasets, focusing only on individuals aged between 27 and 64 in order to exclude those who might be covered by their parents' insurance or by Medicare. Our sample consists of 180,303 observations. We present in [Table 1](#) a difference in means of the sample.

Table 1. Difference in Means

	All Units	Treatment	Control	Difference
Black	0.12 (0.33)	0.15 (0.36)	0.10 (0.30)	0.05*** (32.96)
Female	0.52 (0.50)	0.52 (0.50)	0.52 (0.50)	0.00 (0.72)
Employment	0.95 (0.23)	0.95 (0.22)	0.94 (0.23)	0.01*** (7.33)
Education	13.21 (3.11)	13.08 (2.96)	13.30 (3.20)	-0.21*** (-14.39)
Health Status	3.72 (1.06)	3.69 (1.08)	3.74 (1.05)	-0.05*** (-10.65)
Marital Status	2.44 (2.02)	2.35 (1.96)	2.50 (2.07)	-0.14*** (-15.09)
Medicare	0.04 (0.20)	0.05 (0.21)	0.04 (0.20)	0.00*** (4.69)
Medicaid	0.12 (0.32)	0.09 (0.28)	0.14 (0.35)	-0.05*** (-35.37)
Private	0.71 (0.45)	0.70 (0.46)	0.72 (0.45)	-0.02*** (-10.34)
Group	0.63 (0.48)	0.62 (0.49)	0.64 (0.48)	-0.03*** (-11.33)
ln Income	10.20 (1.55)	10.16 (1.55)	10.24 (1.55)	-0.08*** (-10.19)
ln Wage	10.47 (1.00)	10.42 (0.99)	10.50 (1.01)	-0.08*** (-14.86)
ln MOOP	7.57 (1.59)	7.63 (1.58)	7.53 (1.60)	0.10*** (13.37)
ln CS Due	8.37 (0.89)	8.37 (0.86)	8.37 (0.92)	-0.01 (-0.24)
ln CS Recieved	7.98 (1.21)	7.99 (1.21)	7.97 (1.22)	0.02 (0.38)
Observations	180303	73831	106472	180303

Sample: CPS ASEC 2012 and 2016

Note: The table presents means of individual characteristics. We estimate differences between individuals in states that expanded their ACA compared to those who didn't. MOOP stands for monhtly out of pocket insurance payments. CS stands for child support that was either due or actually recieved.

\* = Significant at 10% level; \*\* = Significant at 5% level; \*\*\* = Significant at 1% level.

The identifying assumption for the Difference-in-difference is the following : Absent of the ACA, the state with and without expansion would have experienced the same change in our outcome variables This assumption assumes the parallel trend between treatment and control groups taking into account clustering and fixed effects. We estimate then, the following TWFE Difference-in-Differences as outlined in (Wooldridge, 2021):

$$\mathbb{P}[\text{Poor}_{ijst} = 1] = \alpha_i + \text{ACA}_{st}\delta + \mathbb{X}_{ijst}^T\beta + \psi_j + \psi_t + \psi_s + \varepsilon_{ijst} \quad (1)$$

Where  $\mathbb{P}[\text{Poor}_{ijst} = 1]$  probability of individual  $i$ , in industry  $j$ , in state  $s$  in period  $t$  being below the poverty line. For each of our models, the dependent variable changes, but the specification stays the same. Where  $t$  is a binary variable for either 2012 or 2016.  $\text{ACA}_{st}$  is the Medicaid expansion that varies in state  $s$  and time  $t$ .  $\delta$  measures the ATE of the DiD, and is the coefficient of interest in all of our tables.  $\mathbb{X}_{ijst}$  is a vector of controls: gender, years of schooling, age, age squared, marital status and the natural log of yearly income.  $\psi_j$ ,  $\psi_t$ , and  $\psi_s$  are industry, time and state fixed effects.

## 4 Results

Our findings in Table 2 suggest an unequal access in the medicaid expansion for African Americans. While the sample and the rest of the country had an ATE, that is an increase in the probability of being enrolled in Medicaid, of approximately 4 percentage points after the treatment, while African Americans only had an increase of about half: 2 percentage points. For insurance, Table 3 finds that all else equal, there is a decrease of less than 1 percentage point in the probability of being privately insured or being group insured. We present our main result in Table 4. We find that the effect on the probability of being below the Poverty Line is more than 1.5 percentage points for African Americans, compared to less than 1 percentage points for the rest of the sample. These findings suggest that despite its unequal access, the expansion had a more intense effect on African Americans in welfare outcomes (Zhang et al., 2013). This is also true for health perception down in 0.03 units for everyone <sup>1</sup>, and down 0.04 for African Americans. For the natural logarithm of out of pocket insurance payments w find a reduction of 9 log points for African Americans, more than twice compared to the rest of the sample. We also find an increase in child support received for 20 log points  $\uparrow$  in the sample. The lack of observations for this variable in the CPS survey impede a separation of the sample.

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<sup>1</sup>This variable is constructed such that an increase implies a worse health perception.

Table 2. ACA Effect on Medicaid Membership

	All Sample		Non AA		African American	
	(1)	(2)	(1)	(2)	(1)	(2)
ACA × 2012-2016	0.042*** (0.005)	0.037*** (0.004)	0.046*** (0.006)	0.040*** (0.004)	0.024*** (0.009)	0.019** (0.008)
Observations	164,987	164,987	145,251	145,251	19,736	19,729
Controls	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
State FE	N	Y	N	Y	N	Y
County FE	N	Y	N	Y	N	Y
Industry FE	N	Y	N	Y	N	Y

Source: CPS ASEC 2012 and 2016

Note: Individual-level controls are gender, years of schooling, age, age squared, marital status and the natural log of yearly income. All columns include robust errors clustered by industry. Column (1) includes baseline controls and time fixed effects. Column (2) also includes state, county, and industry fixed effects. We repeat this estimation for the whole sample (All Sample), non african americans (White) and african americans (African American).

\* = Significant at 10% level; \*\* = Significant at 5% level; \*\*\* = Significant at 1% level.

Table 3. Medicaid Expansion Effect on Insurance

	Private			Group		
	(1)	(2)	(3)	(1)	(2)	(3)
ACA × 2012-2016	-0.010*** (0.004)	-0.008** (0.004)	-0.008** (0.004)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)
Observations	164,987	164,987	164,987	180,303	180,303	180,303
Controls	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
State FE	N	Y	Y	N	Y	Y
Industry FE	N	N	Y	N	N	Y

Source: CPS ASEC 2012 and 2016

Note: Individual-level controls are gender, years of schooling, age, age squared, marital status and the natural log of yearly income. All columns include robust errors clustered by industry. Column (1) includes baseline individual level controls and time fixed effects. Column (2) adds state fixed effects. Column (3) adds industry fixed effects. We repeat this analysis for two dependent variables: Private and Group Insurance.

\* = Significant at 10% level; \*\* = Significant at 5% level; \*\*\* = Significant at 1% level.

Table 4. Welfare Effects of the ACA

	All Sample		Non AA		African American	
	(1)	(2)	(1)	(2)	(1)	(2)
ACA × 2012-2016						
Poverty	-0.005** (0.002)	-0.006** (0.002)	-0.002 (0.002)	-0.004* (0.002)	-0.018*** (0.006)	-0.021*** (0.007)
Health Perception	-0.029*** (0.010)	-0.027*** (0.009)	-0.030*** (0.011)	-0.022** (0.011)	-0.033 (0.022)	-0.046** (0.022)
Payments	-0.052*** (0.014)	-0.047*** (0.016)	-0.048*** (0.015)	-0.038** (0.016)	-0.107** (0.049)	-0.089* (0.053)
Child Support	0.209* (0.114)	0.234** (0.114)				
Baseline	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
State FE	N	Y	N	Y	N	Y
Industry FE	N	Y	N	Y	N	Y

Source: CPS ASEC 2012 and 2016

Note: Individual-level controls are gender, years of schooling, age, age squared, marital status and the natural log of yearly income. All columns include robust errors clustered by industry. Column (1) includes baseline individual level controls and time fixed effects. Column (2) adds state fixed effects and industry fixed effects. There are four regressions estimated: the effect on the probability of being below the poverty line, health perception, natural log of out of pocket insurance payments and natural log of child support received. We do this analysis for the whole sample (All Sample), non african-americans (Non AA) and african americans (African American) except for the natural log of child support recieved, as there are not enough observations to separate the sample.

\* = Significant at 10% level; \*\* = Significant at 5% level; \*\*\* = Significant at 1% level.

## 5 Further Discussion

This approach encounters a number of limitations. First, the limited number of years makes this a short run analysis. We account for this in a Multiple-Period setting highlighted in (Callaway and Sant’Anna, 2021), with the same treatment in Table 5. This estimation is also robust for 2-Way Clustering (Cameron et al., 2011). However, our analysis does not take into account the progressiveness of the expansion that has been ongoing up until 2023. We do a staggered DiD estimation in Table 6. Another problem resided in the variables, for instance: health status is self-reported. This can lead to measurement error. There is also

possible Omitted Variable Bias (OVB) in our estimation given that we cannot account for individual fixed effects like in a panel.

## 6 Conclusion

This paper studies the causal effects of Medicaid expansion under the Affordable Care Act (ACA). We find statistical significance on estimates for insurance coverage, poverty rates, health outcomes, and out of pocket insurance payments, with a particular focus on racial disparities, as outlined in (Derenoncourt and Montialoux, 2021). Using data from the IPUMS Current Population Survey (CPS) for the years 2012 and 2016, we apply a two-way fixed effects difference-in-differences (TWFE DiD) methodology to estimate the causal impact of the ACA’s Medicaid expansion (Wooldridge, 2021). Our analysis reveals that, while Medicaid expansion increased coverage across the population, African Americans experienced a more pronounced reduction in poverty and out-of-pocket healthcare expenses compared the rest of the country, which is defined as all of the other racial groups. Despite this, access to Medicaid remained less equitable for African Americans, with a smaller increase in enrollment relative to the general population. Additionally, we observe that Medicaid expansion did not significantly crowd out private or group insurance coverage. Our findings are robust to controls, time and state fixed effects, two way clusters, and maintain themselves in a multi period setting. We also estimate a heterogeneous design that implies a less pronounced effects throughout time for the African American population.

We plan to elaborate our causal methods in future research, and explore more robust event study specifications that account for the heterogeneity of this policy. An example of this would be a triple difference (Olden and Møen, 2022). Other interesting avenues for research include the effect on earnings and racial wealth inequality.



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# Appendix

Table 5. Welfare Effects of the ACA: Multiple Time Periods

	All Sample		Non AA		African American	
	(1)	(2)	(1)	(2)	(1)	(2)
ACA × 2012-2024						
Poverty	-0.002 (0.002)	-0.002 (0.003)	-0.002 (0.002)	-0.001 (0.003)	-0.011** (0.005)	-0.010** (0.004)
<i>N</i>	518,070	518,070	456,445	456,445	61,621	61,621
Health Perception	-0.019*** (0.007)	-0.022 (0.013)	-0.014* (0.008)	-0.020 (0.016)	-0.039** (0.019)	-0.033 (0.024)
<i>N</i>	518,070	518,070	456,445	456,445	61,621	61,621
Payments	-0.004 (0.011)	-0.007 (0.027)	-0.007 (0.011)	-0.014 (0.026)	0.030 (0.037)	0.033 (0.062)
<i>N</i>	495,180	495,180	438,104	438,104	57,072	57,072
Baseline	Y	Y	Y	Y	Y	Y
Time FE	Y	Y	Y	Y	Y	Y
State FE	Y	N	Y	N	Y	N
Industry FE	Y	Y	Y	Y	Y	Y
hastwowayclus	Y	Y	Y	Y	Y	Y

Source: CPS ASEC 2012 and 2016

Note: Individual-level controls are gender, years of schooling, age, age squared, marital status and the natural log of yearly income. All columns include robust errors clustered by industry. Column (1) includes baseline individual level controls and time fixed effects. Column (2) adds state fixed effects and industry fixed effects. There are four regressions estimated: the effect on the probability of being below the poverty line, health perception, natural log of out of pocket insurance payments and natural log of child support received. We do this analysis for the whole sample (All Sample), non african-americans (Non AA) and african americans (African American) except for the natural log of child support recieved, as there are not enough observations to separate the sample.

\* = Significant at 10% level; \*\* = Significant at 5% level; \*\*\* = Significant at 1% level.

Table 6. Staggered Treatment: Time Aggregation

	All Sample			African American		
	(1)	(2)	(3)	(1)	(2)	(3)
2014	-0.001 (0.003)	-0.008 (0.017)	-0.034 (0.029)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)
2016	-0.003* (0.003)	-0.036 (0.028)	-0.023 (0.028)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)
2018	-0.006 (0.004)	-0.033* (0.018)	0.040 (0.051)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)
2020	-0.006 (0.005)	0.008 (0.022)	-0.033 (0.037)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)
2022	-0.004 (0.003)	-0.019 (0.022)	-0.013 (0.041)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)
2024	-0.002 (0.003)	-0.016 (0.019)	-0.048 (0.035)	-0.007* (0.004)	-0.006 (0.004)	-0.007* (0.004)

Source: CPS ASEC 2012, 2014, 2018, 2020, 2022, and 2024.

Note: This table estimates a heterogeneous Difference-in-Differences design, and presents the time aggregation for the treatment. We present the estimates for welfare effects. We separate between the whole sample and African Americans in the sample. Column (1) presents estimates for poverty reduction. Column (2) presents estimates for self reported health perception. Column (3) presents results for out of pocket column payments. RA estimate using `hdidregress`. \* = Significant at 10% level; \*\* = Significant at 5% level; \*\*\* = Significant at 1% level.

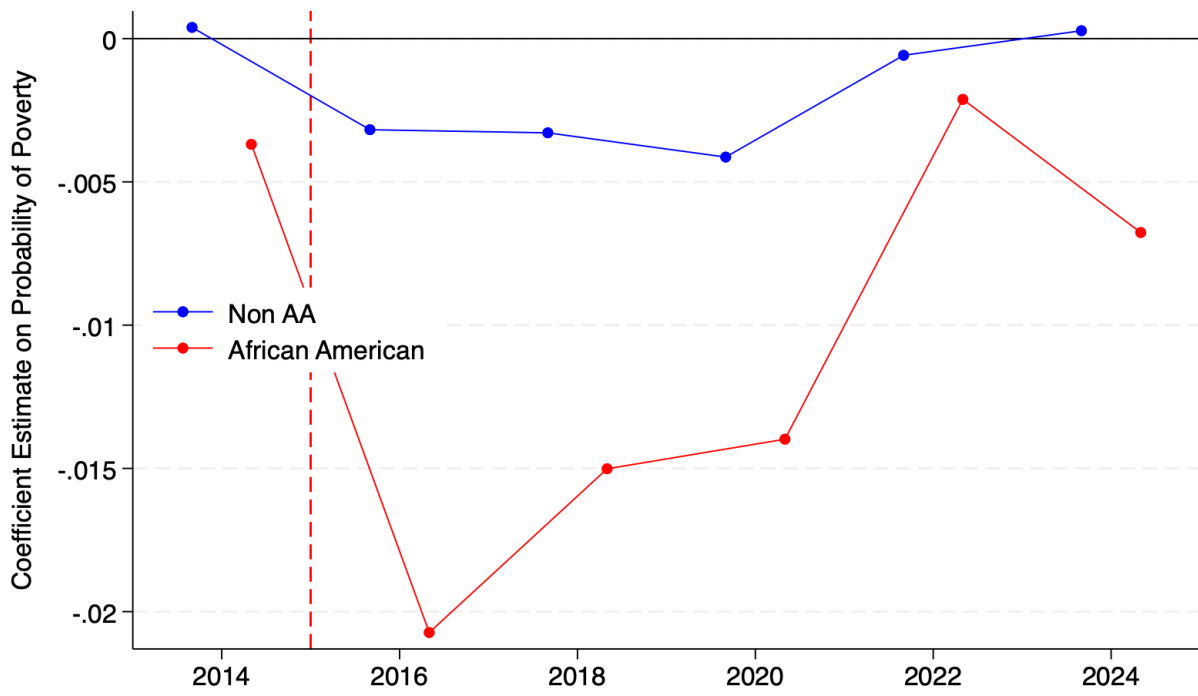
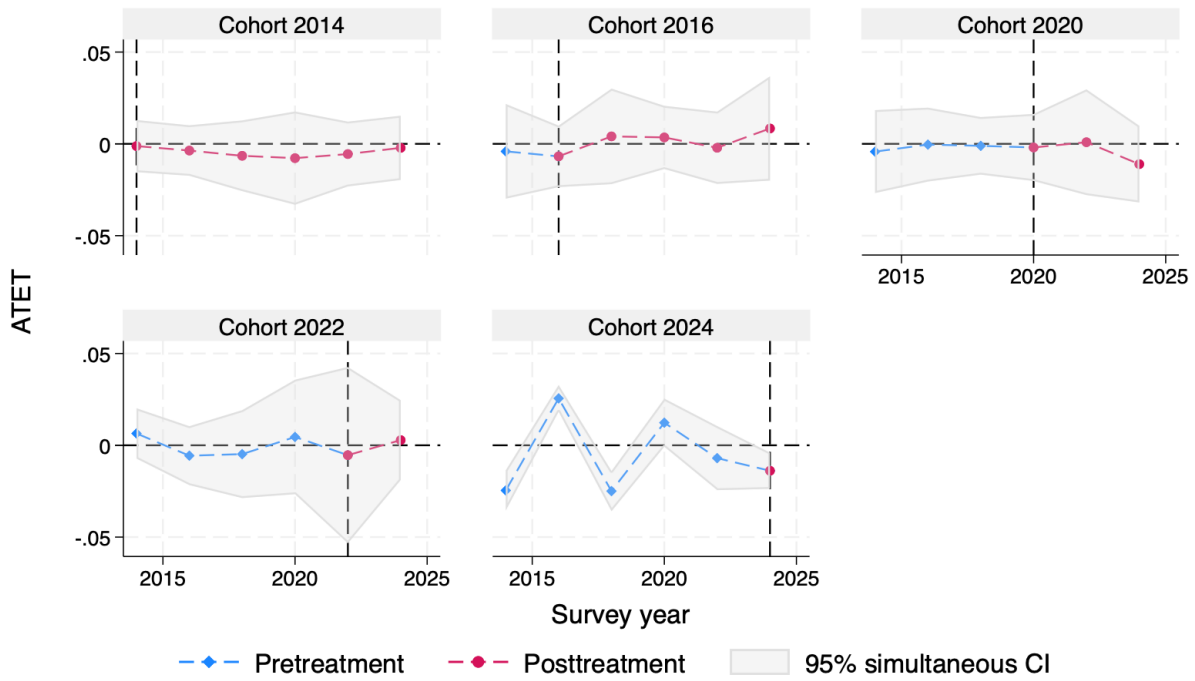


Figure 1. Racial Inequality in Poverty Reduction



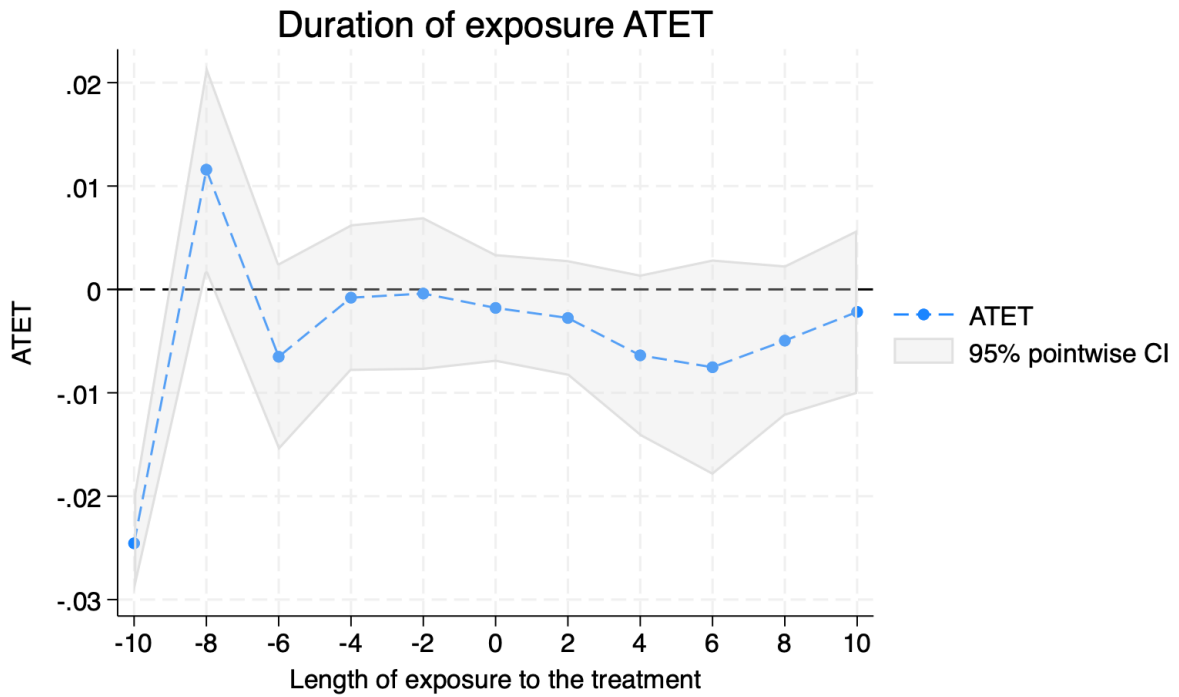
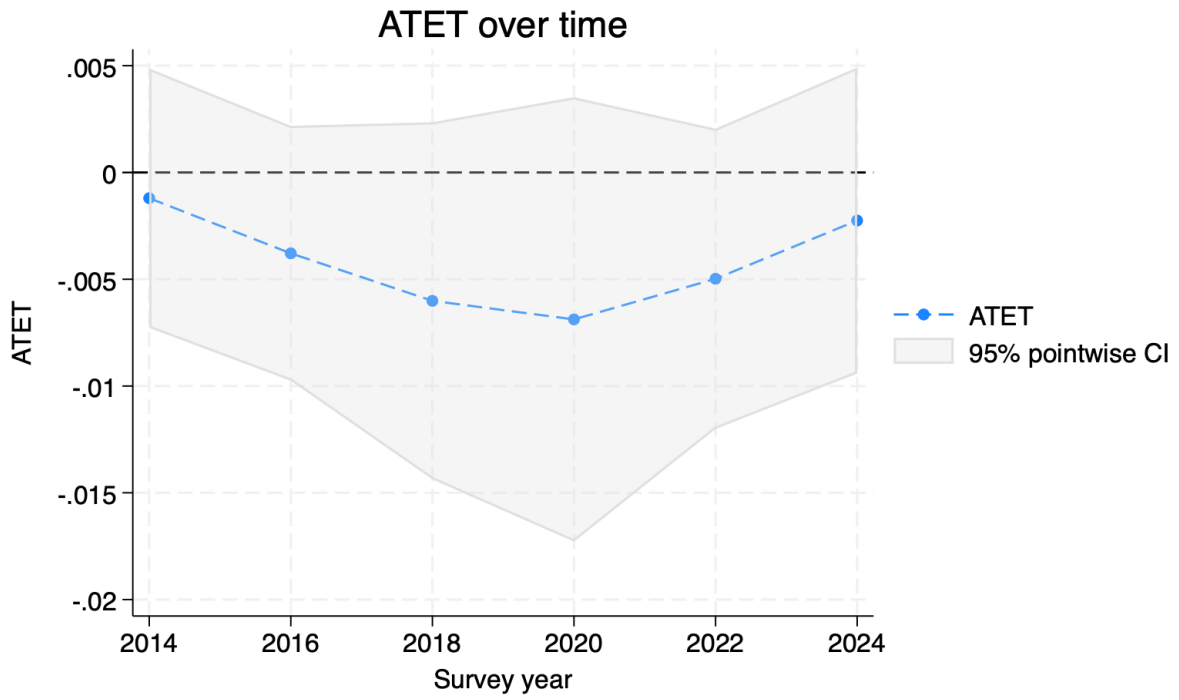
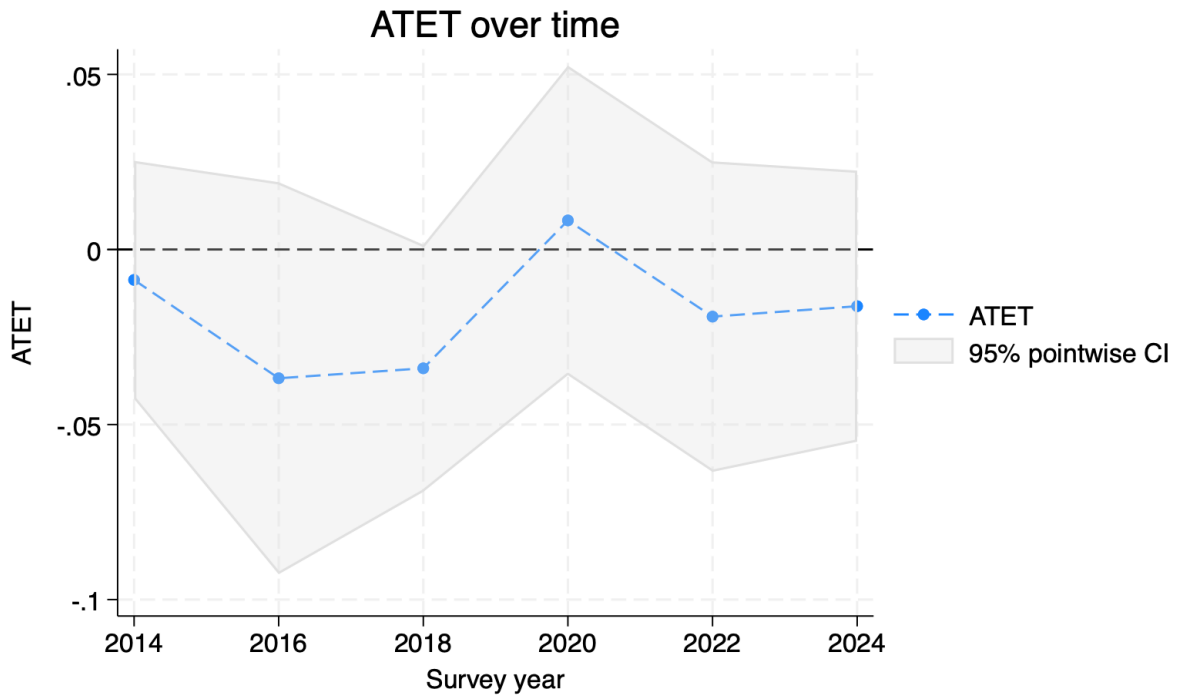
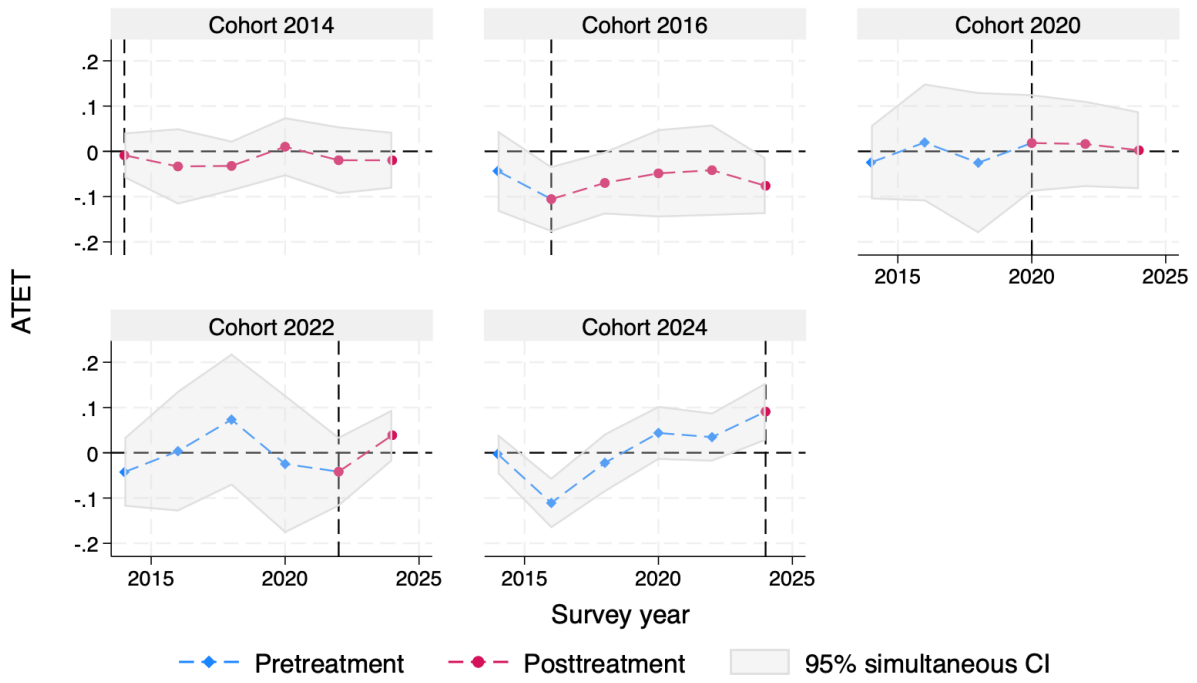


Figure 2. Heterogeneous DiD on Poverty



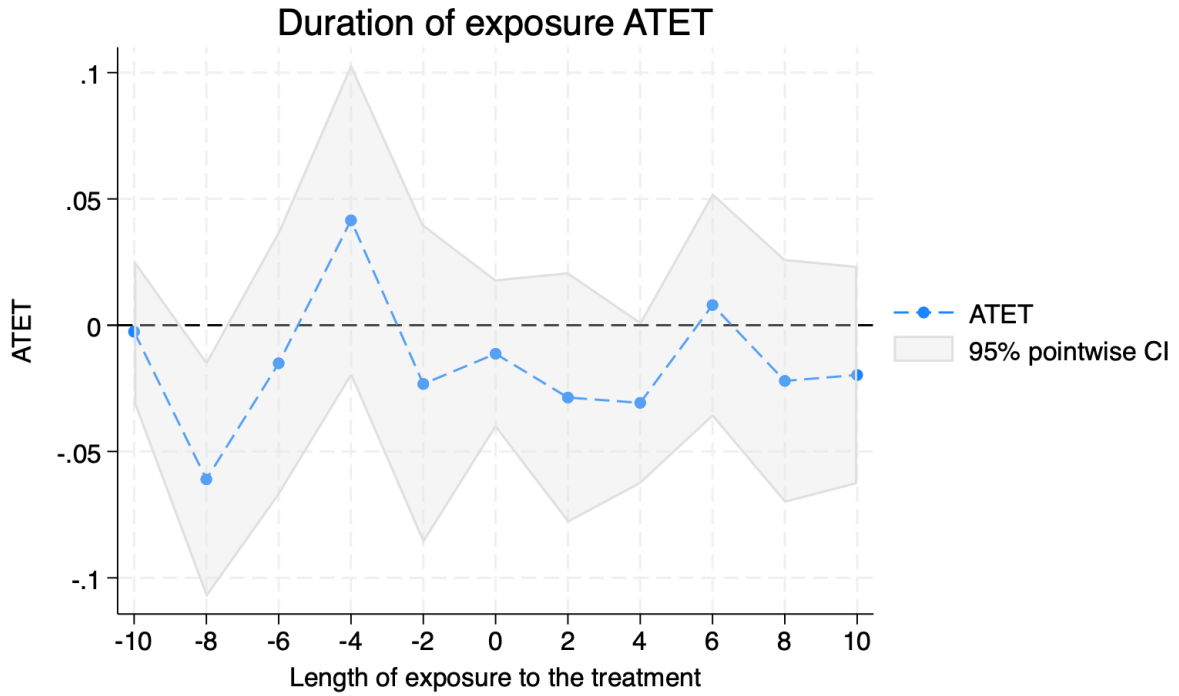
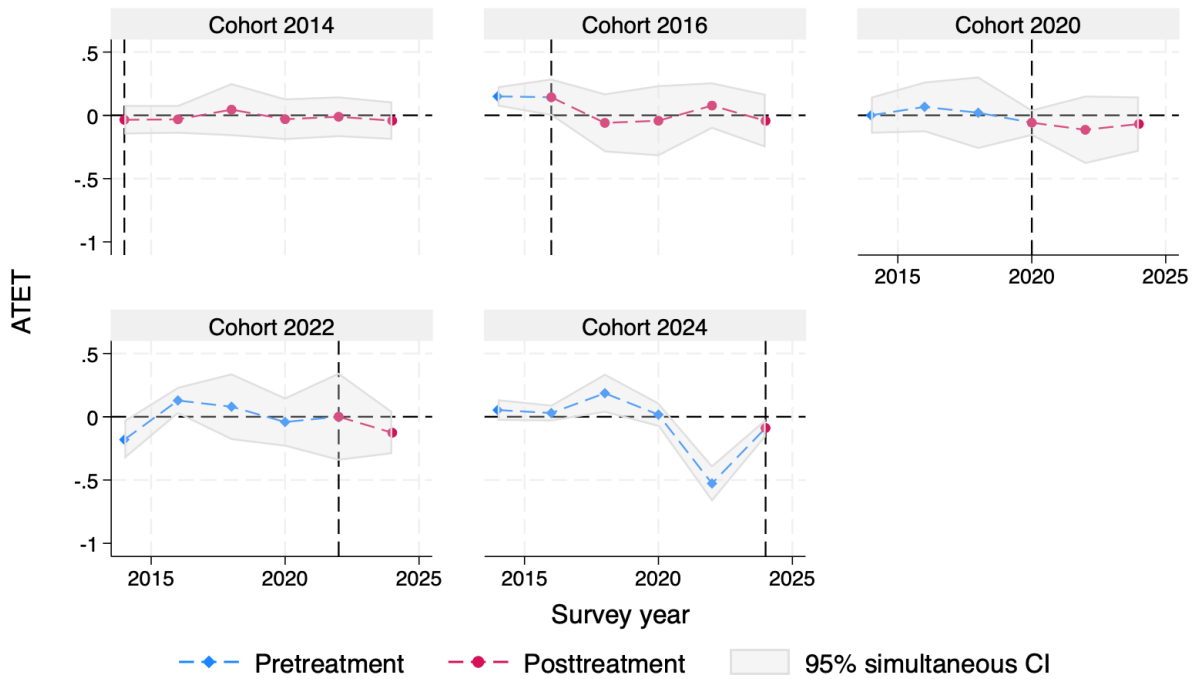


Figure 3. Heterogeneous DiD on Out of Pocket Payments





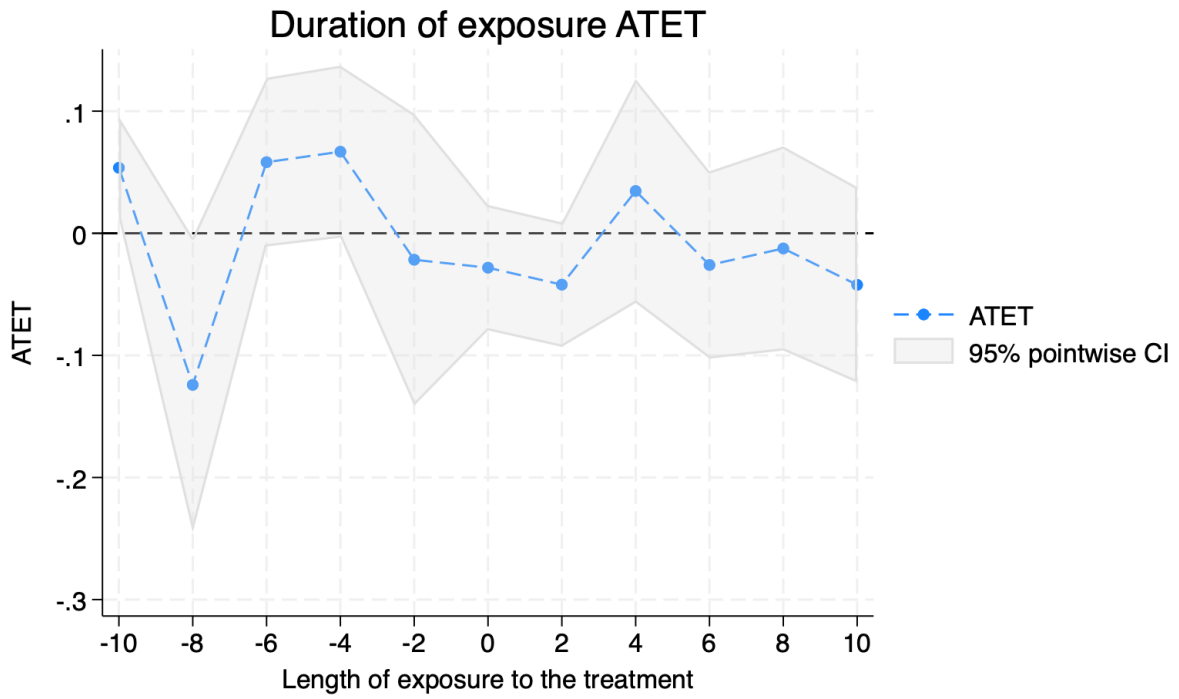
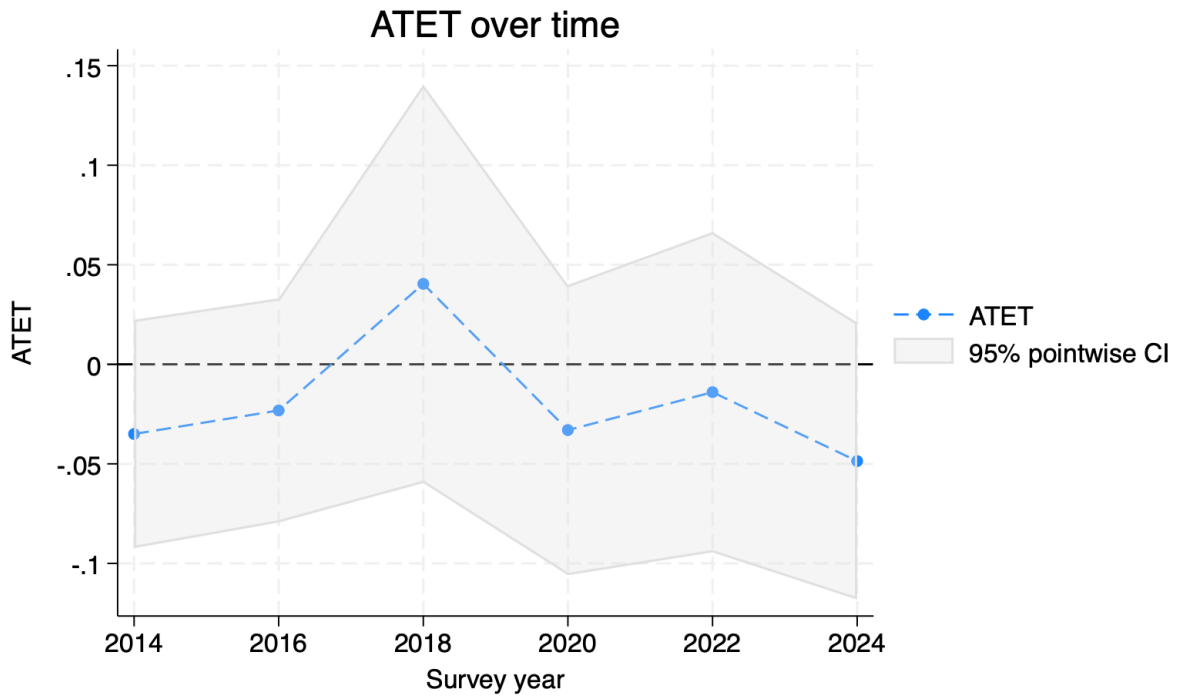
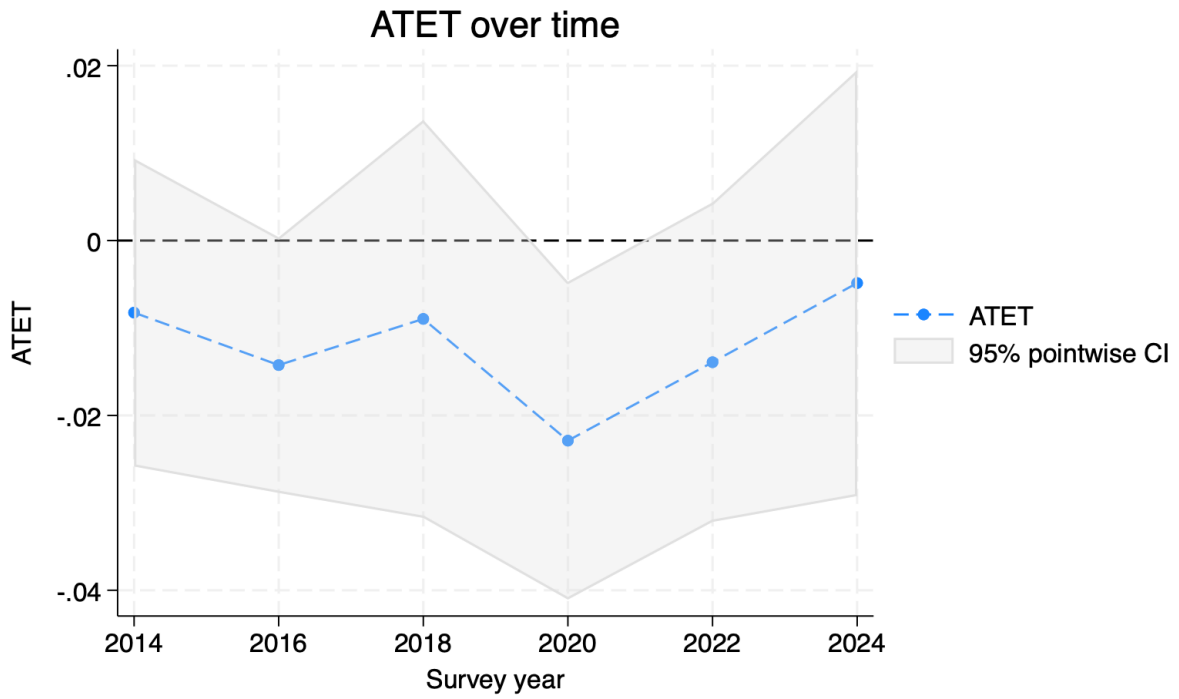
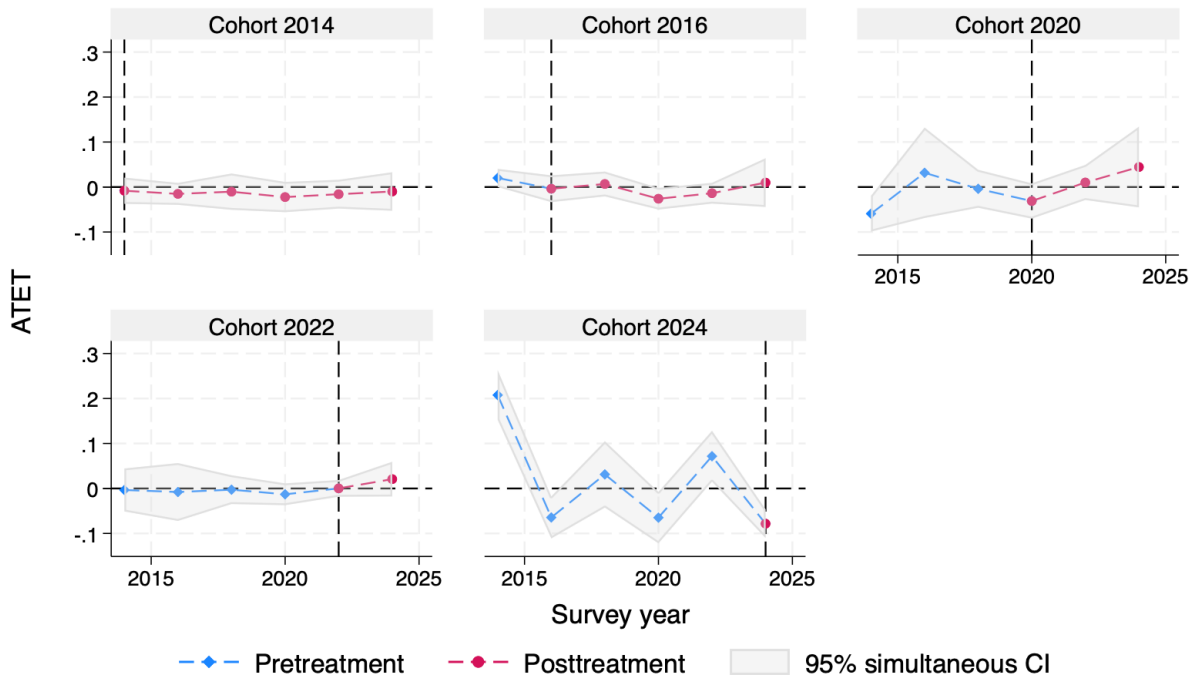


Figure 4. Heterogeneous DiD on Self Reported Health Perception



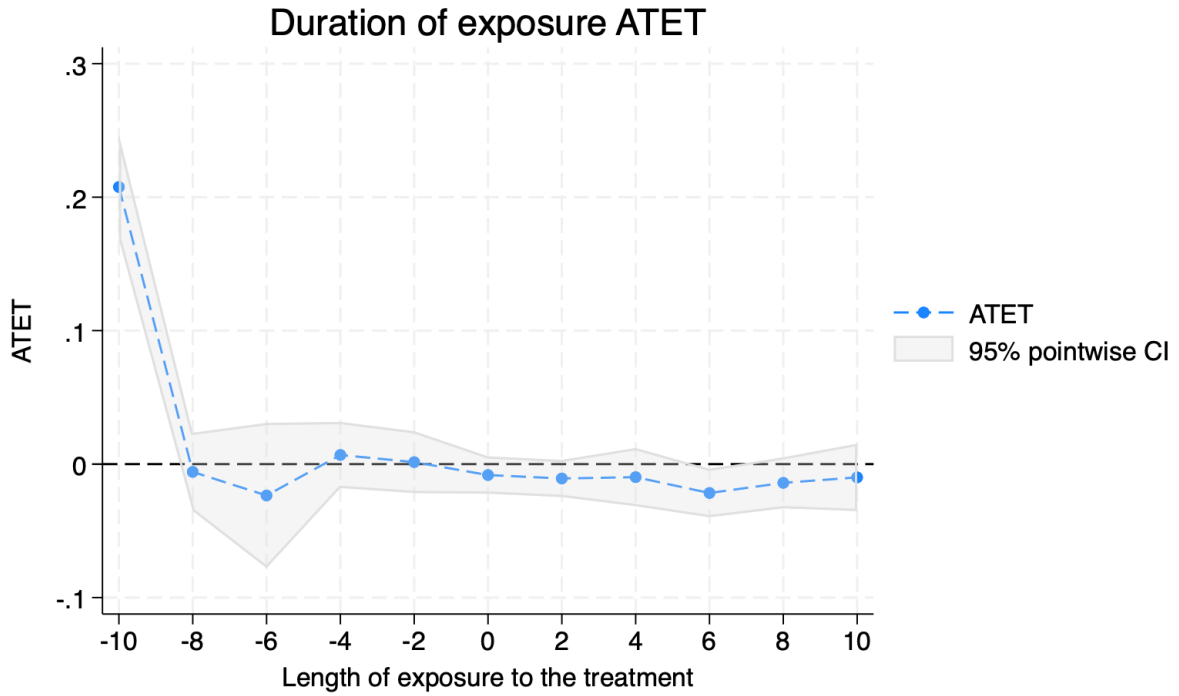
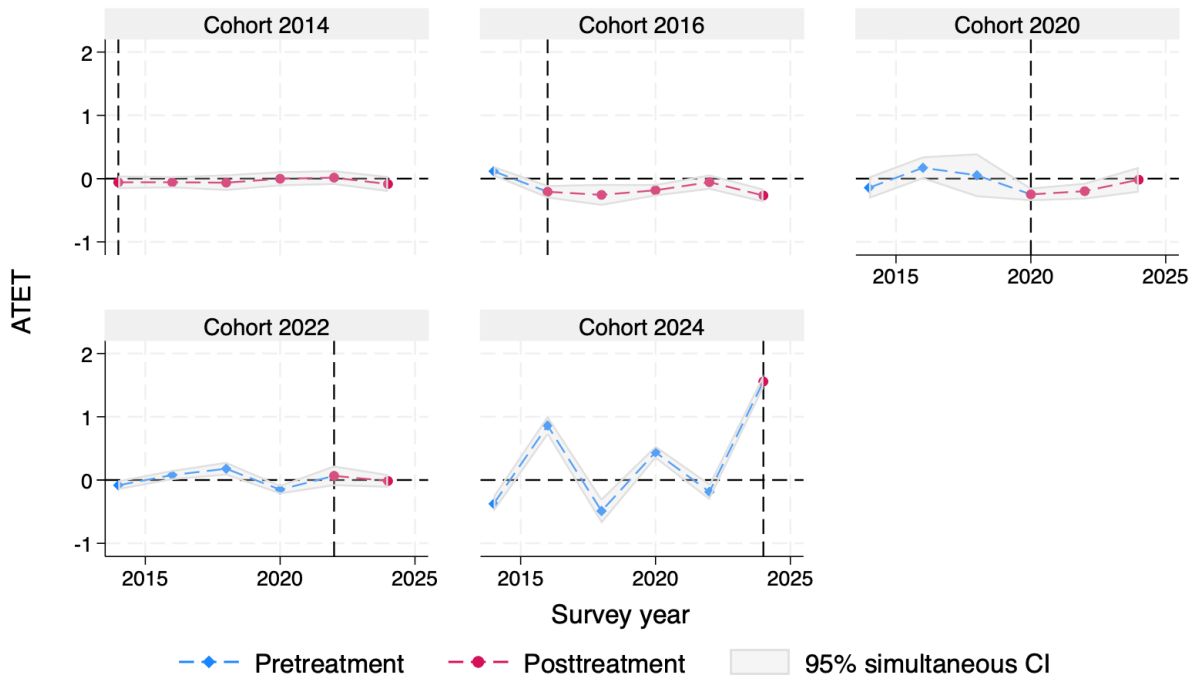


Figure 5. Heterogeneous DiD on Poverty: African Americans



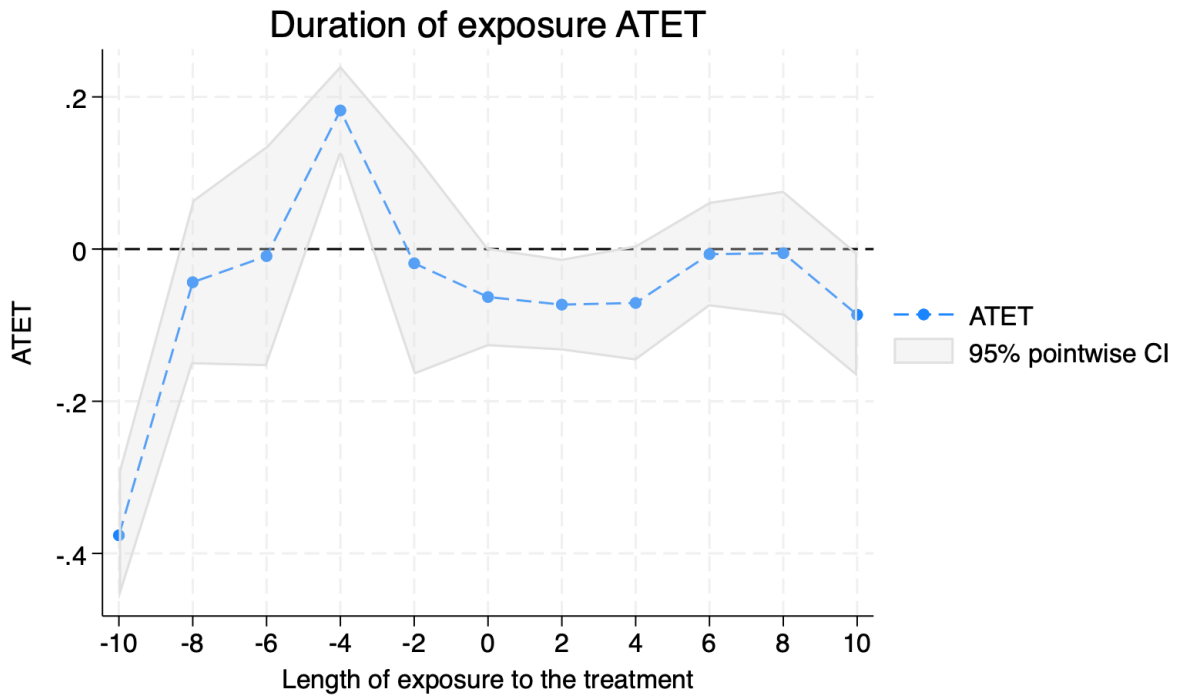
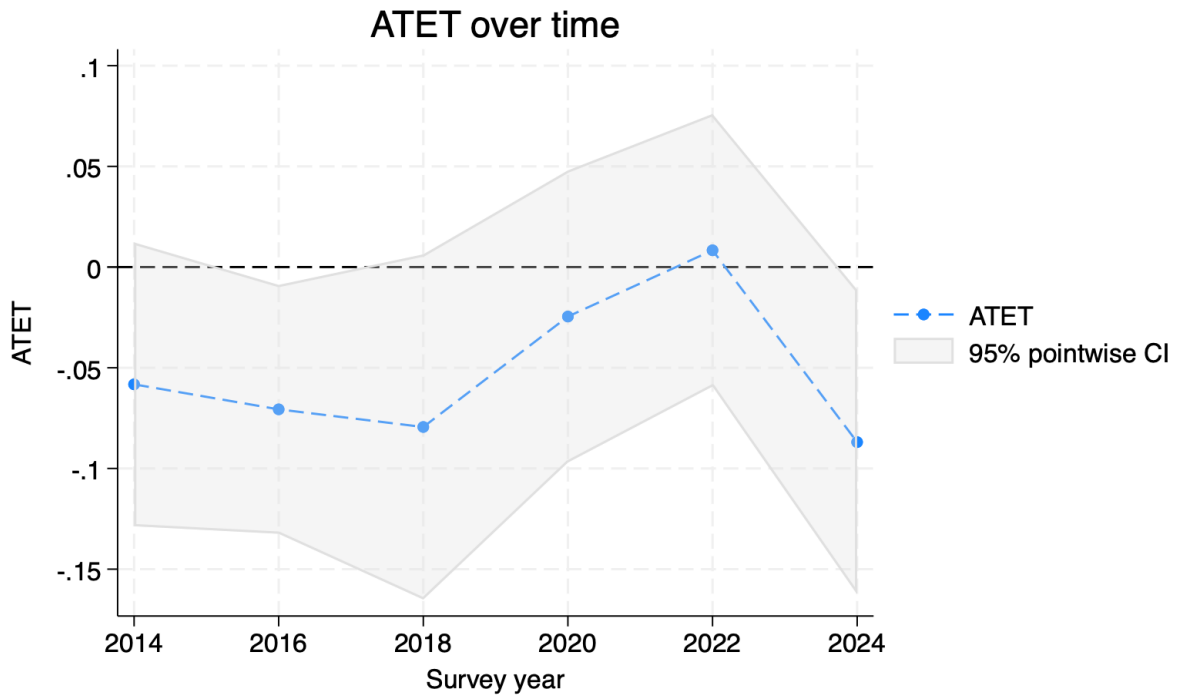
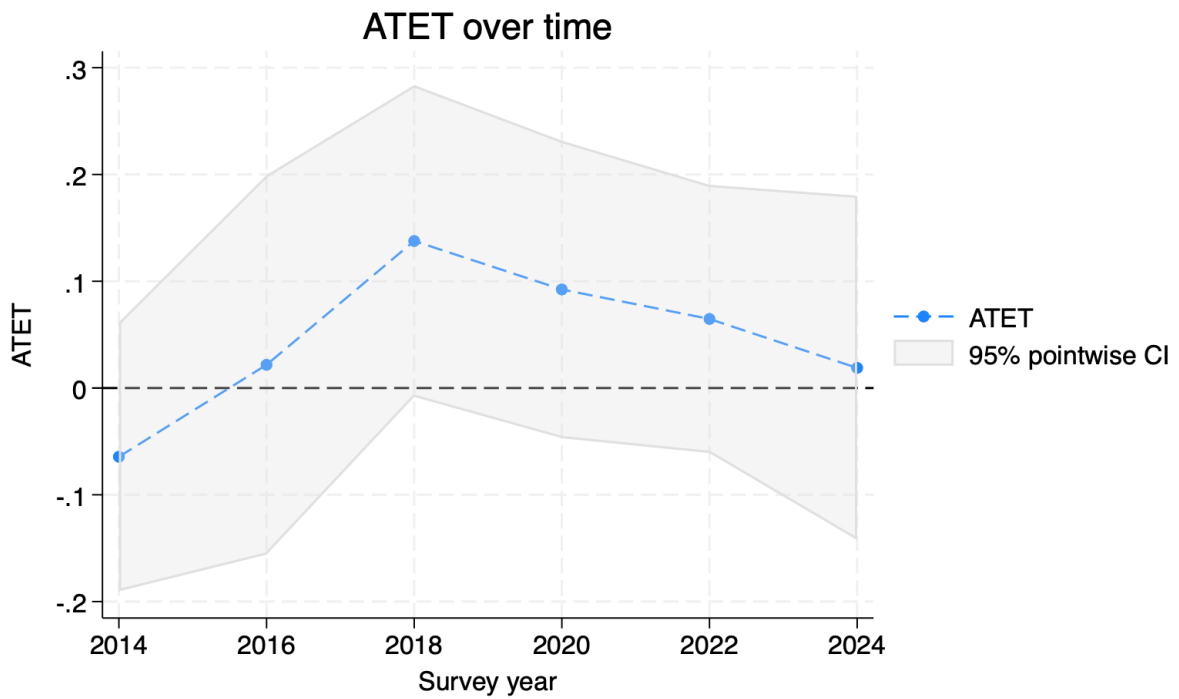
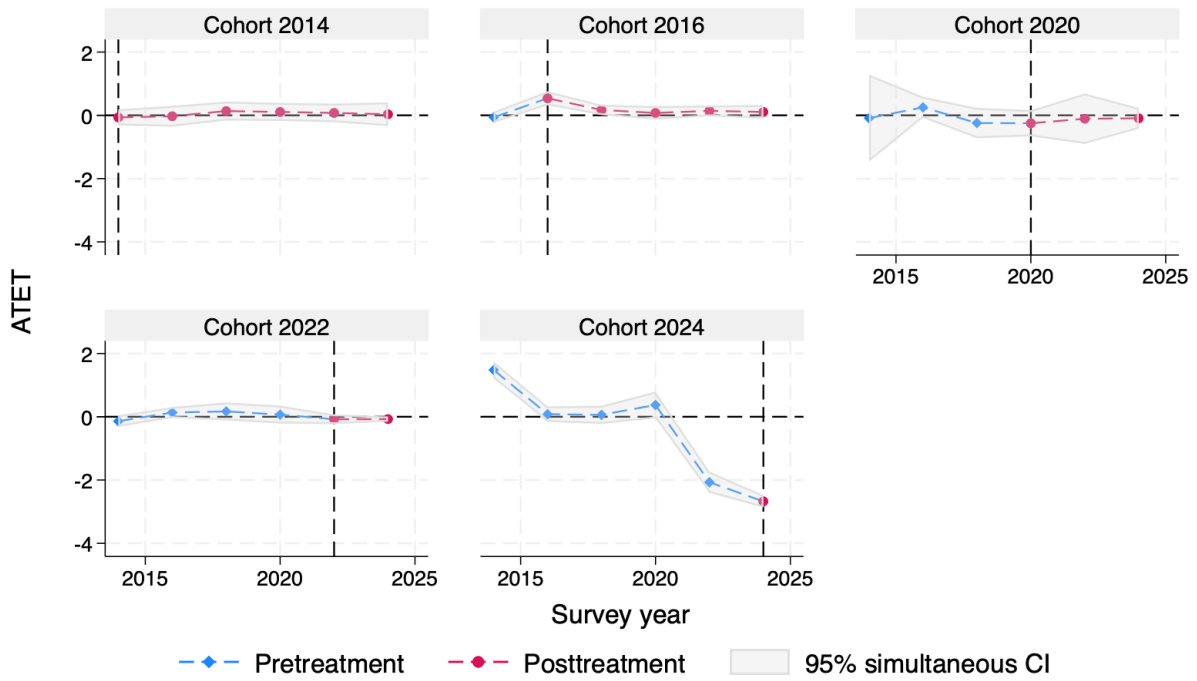


Figure 6. Heterogeneous DiD on Out of Pocket Payments: African Americans



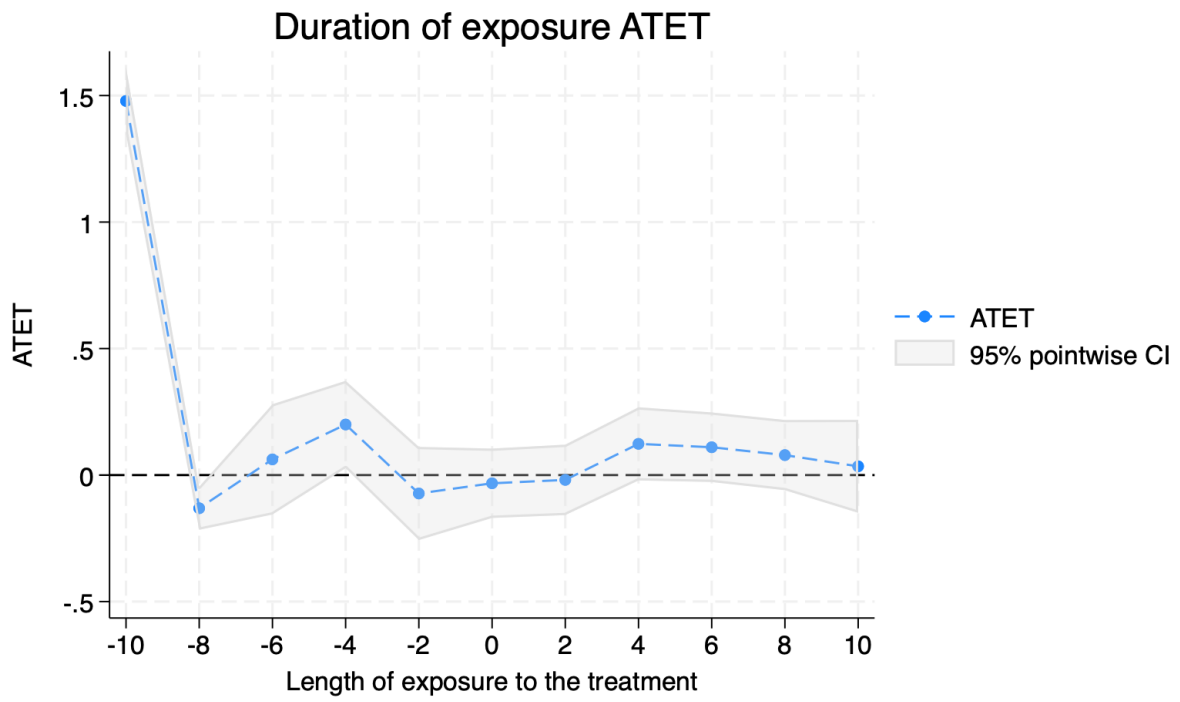


Figure 7. Heterogeneous DiD on Self Reported Health Perception: African Americans