

Plot Appendix - The Impact of Single Sales Factor Apportionment on State Tax Revenues: Short- and Long-Run Effects

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Appendix Overview

This appendix presents short-run and long-run Synthetic Difference-in-Differences (SDID) plots for each state that adopted Single Sales Factor Apportionment (SSFA). These plots correspond to the results discussed in Section 7 of the main paper. The arrow indicates the estimated treatment effects of SSFA on state corporate income in both the short and long run. The vertical dashed line marks the effective year of the policy change.

The figures were generated using the `synthdid` R package (Arkhangelsky et al., 2021)¹ for estimation and visualization, and I used the `five_thirty_eight` plot theme to enhance clarity. This appendix contains plots for all relevant states, presented in chronological order by their year of SSFA implementation, starting with Nebraska in 1988 and ending with Missouri in 2020.

¹The package is available at <https://github.com/synth-inference/synthdid>.

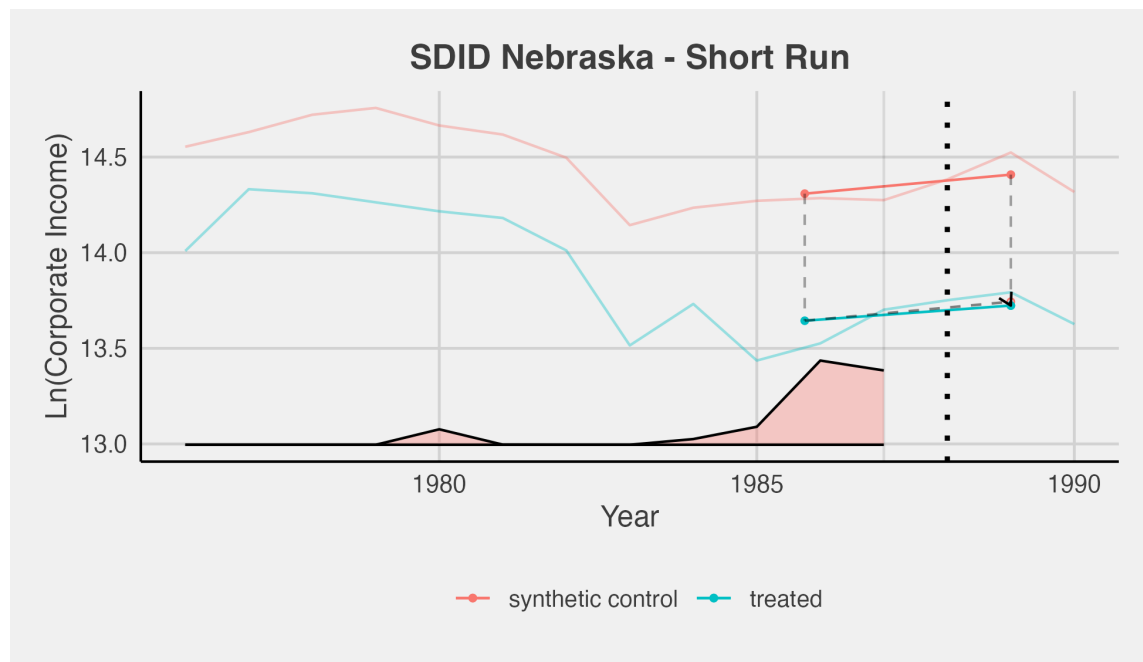


Figure 1: SDID SR Plot for Nebraska

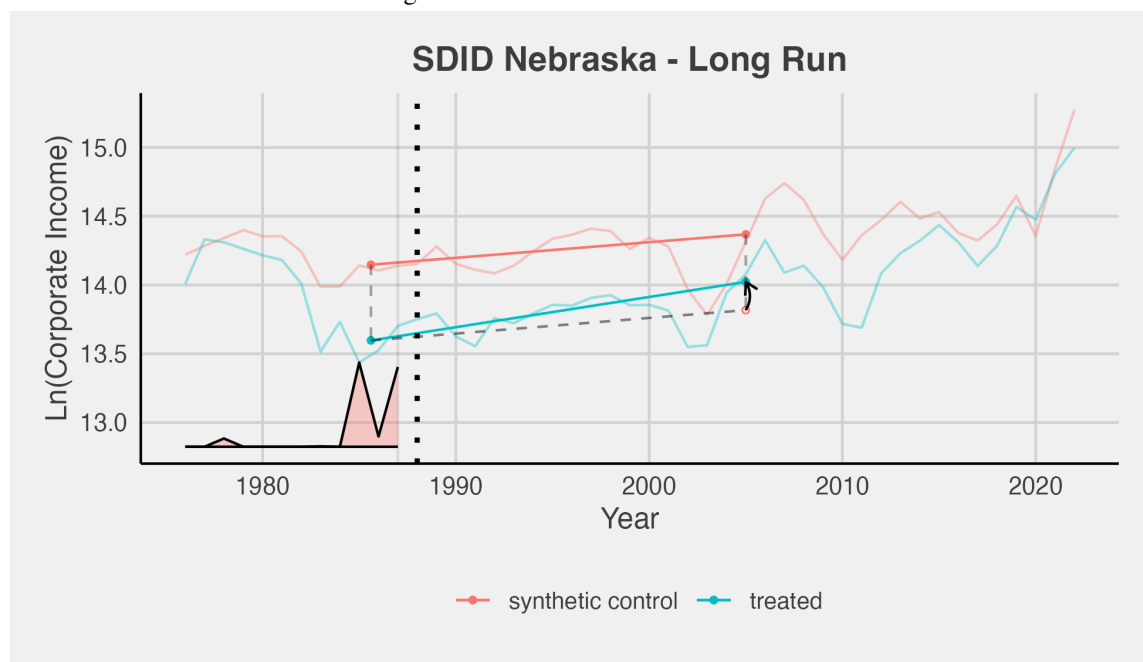


Figure 2: SDID LR Plot for Nebraska

Figure 3: Comparison of Short and Long Run SDID Plots for Nebraska. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Nebraska, highlighting the shifts in corporate income over time.

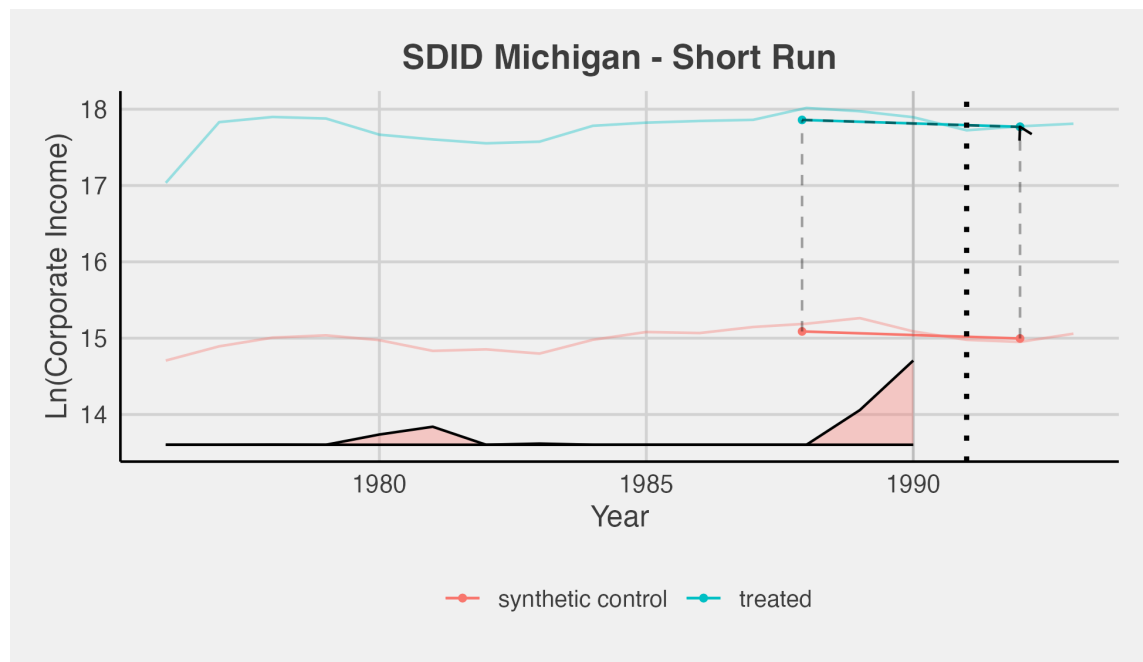


Figure 4: SDID SR Plot for Michigan

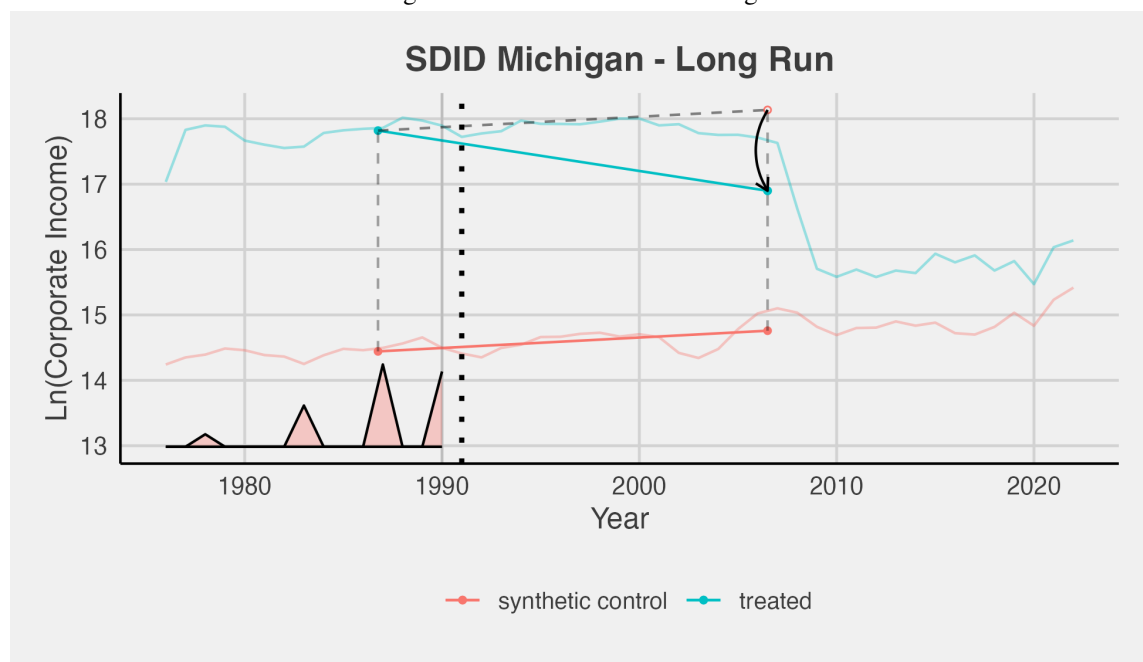


Figure 5: SDID LR Plot for Michigan

Figure 6: Comparison of Short and Long Run SDID Plots for Michigan. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Michigan, highlighting the shifts in corporate income over time.

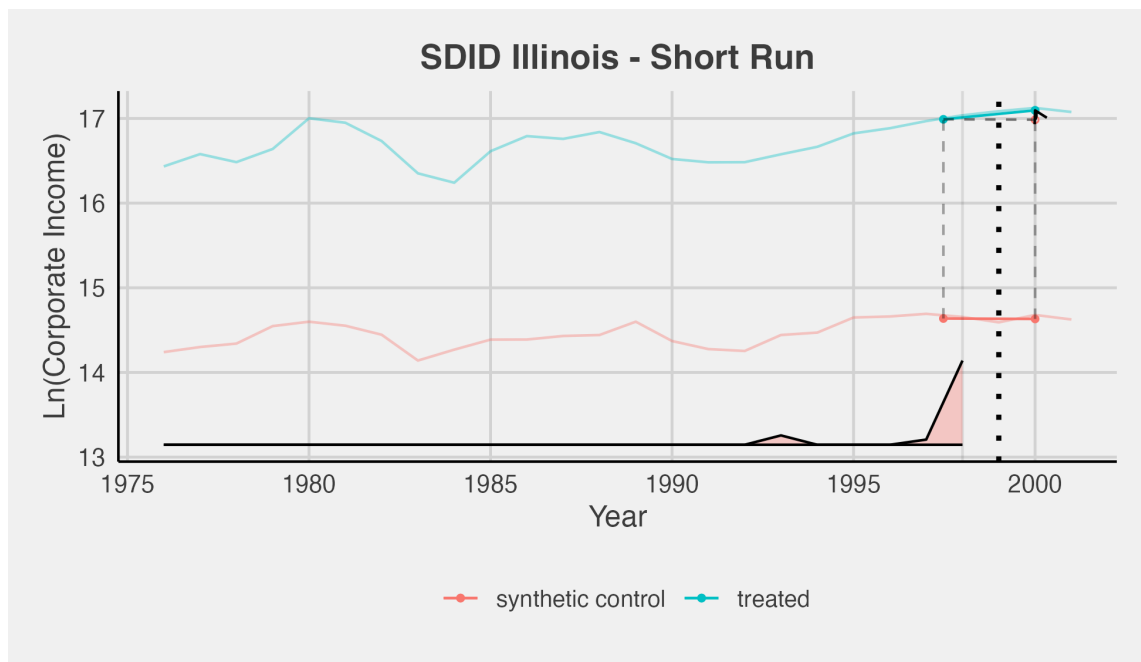


Figure 7: SDID SR Plot for Illinois

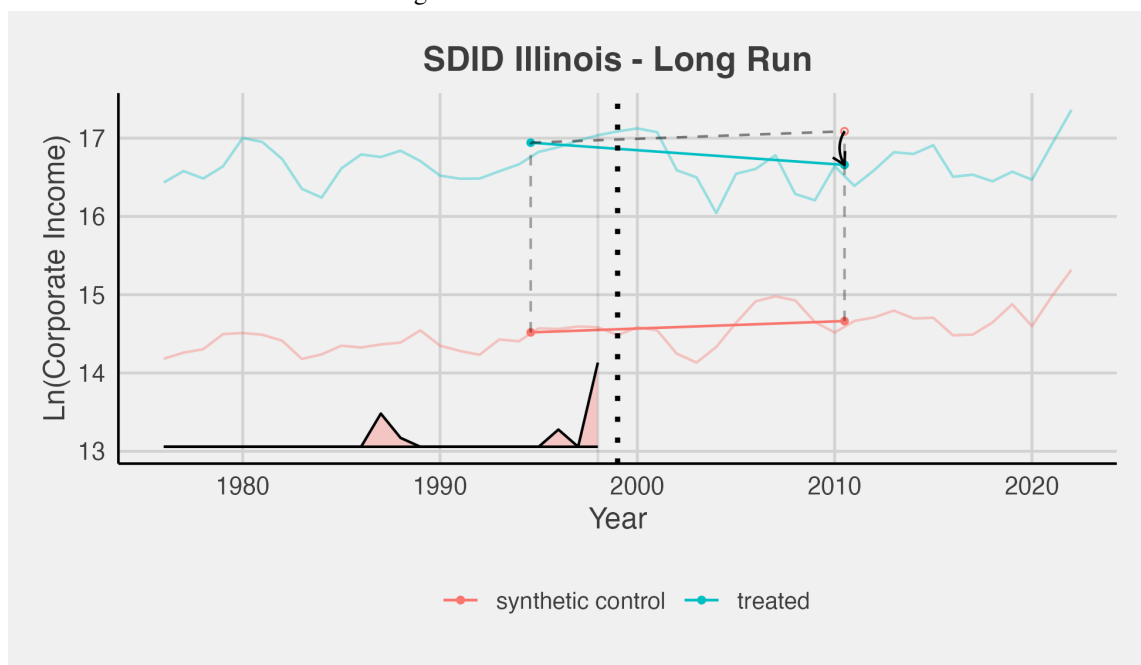


Figure 8: SDID LR Plot for Illinois

Figure 9: Comparison of Short and Long Run SDID Plots for Illinois. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Illinois, highlighting the shifts in corporate income over time.

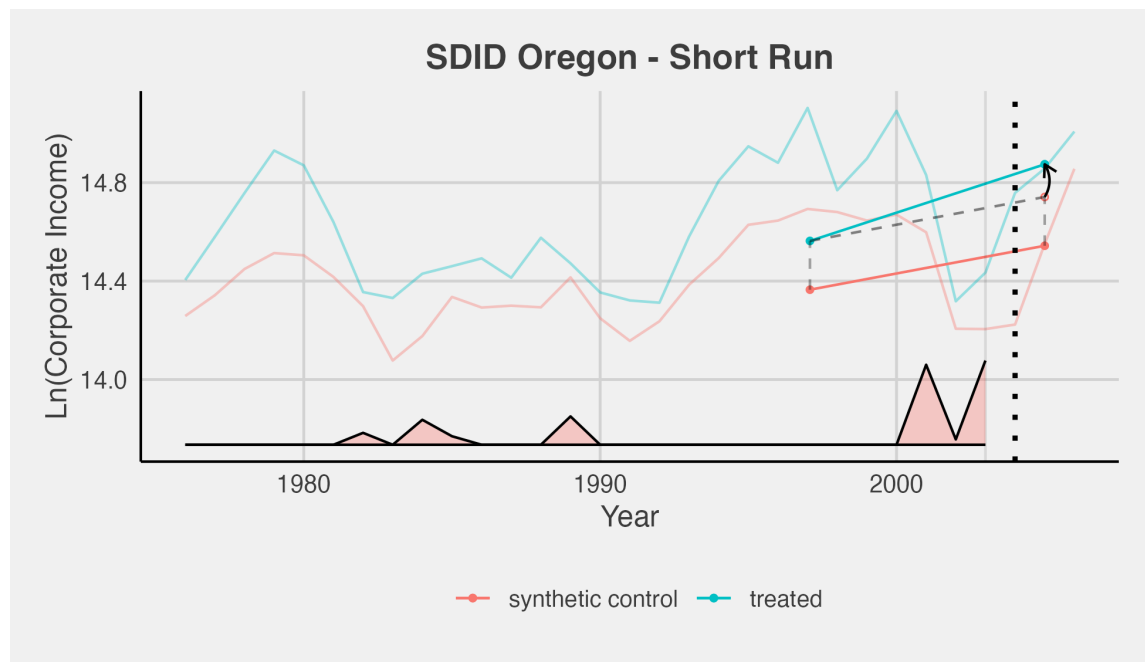


Figure 10: SDID SR Plot for Oregon

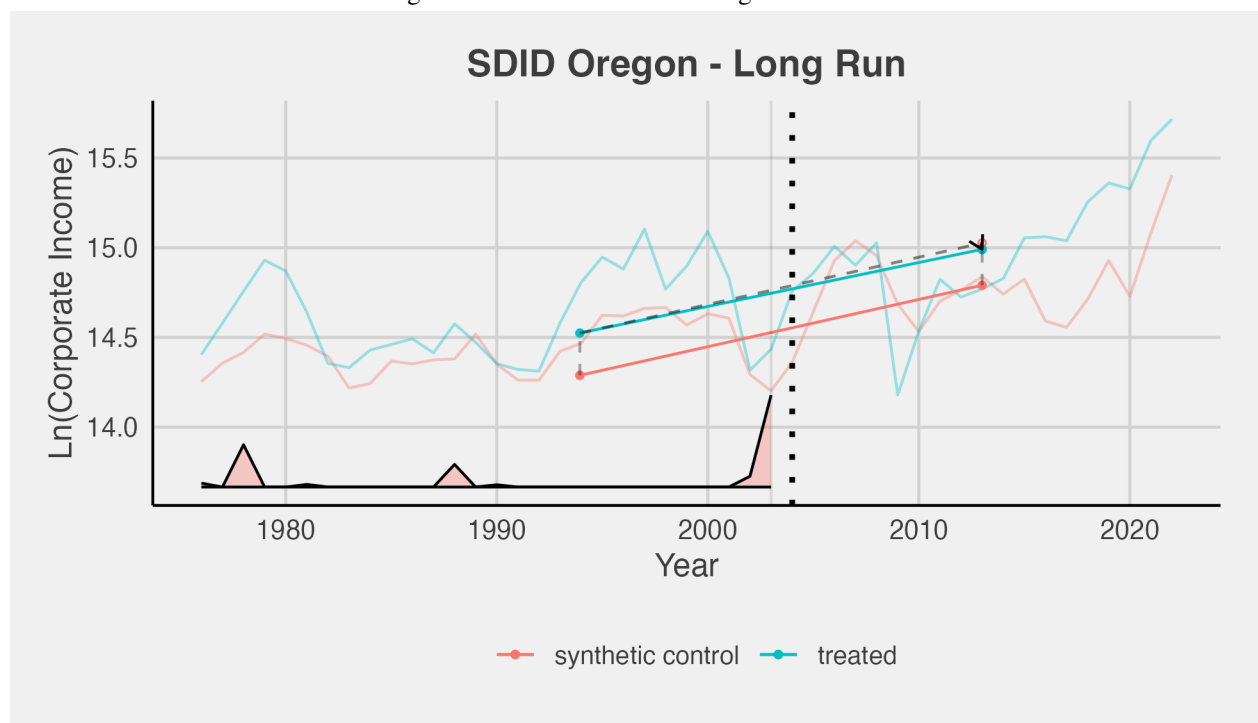


Figure 11: SDID LR Plot for Oregon

Figure 12: Comparison of Short and Long Run SDID Plots for Oregon. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Oregon, highlighting the shifts in corporate income over time.

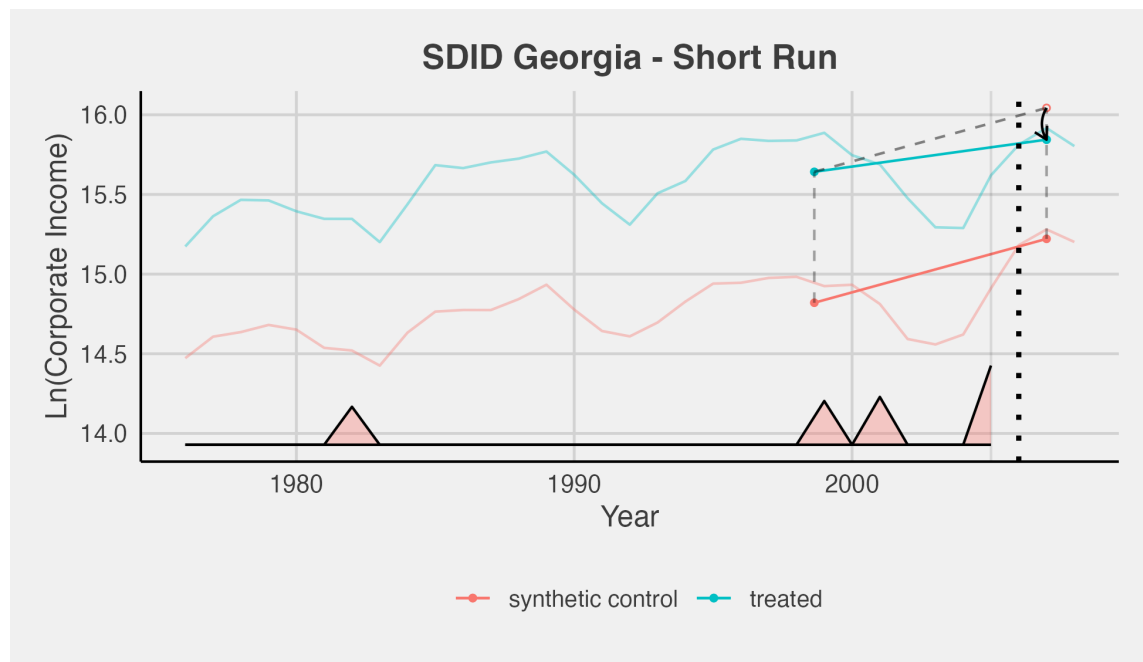


Figure 13: SDID SR Plot for Georgia

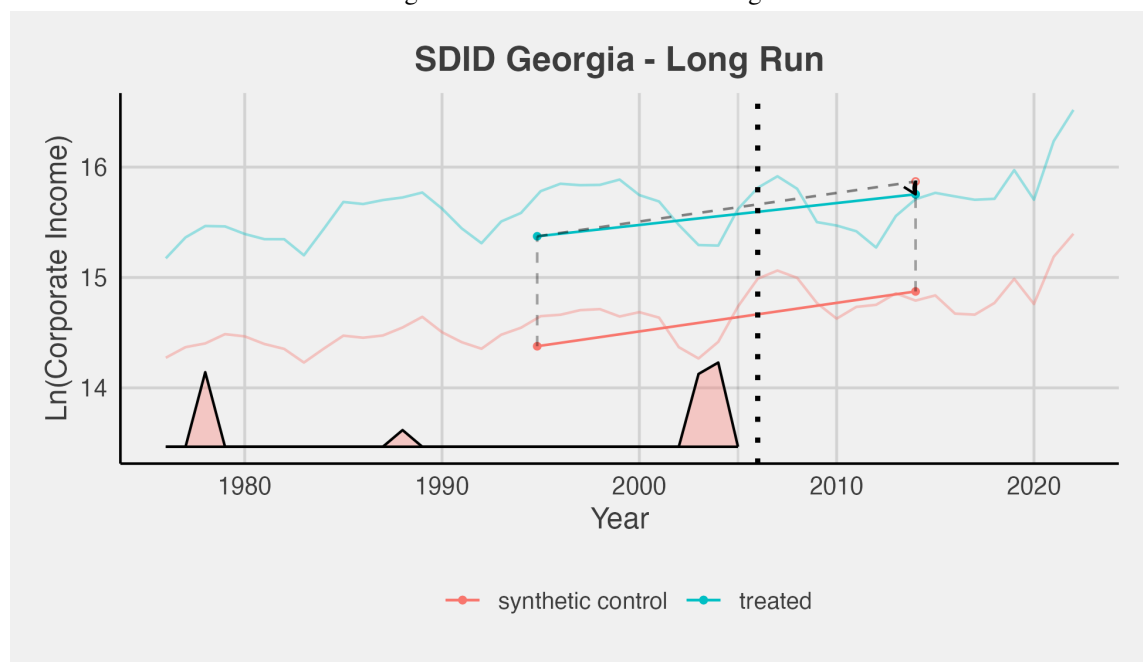


Figure 14: SDID LR Plot for Georgia

Figure 15: Comparison of Short and Long Run SDID Plots for Georgia. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Georgia, highlighting the shifts in corporate income over time.

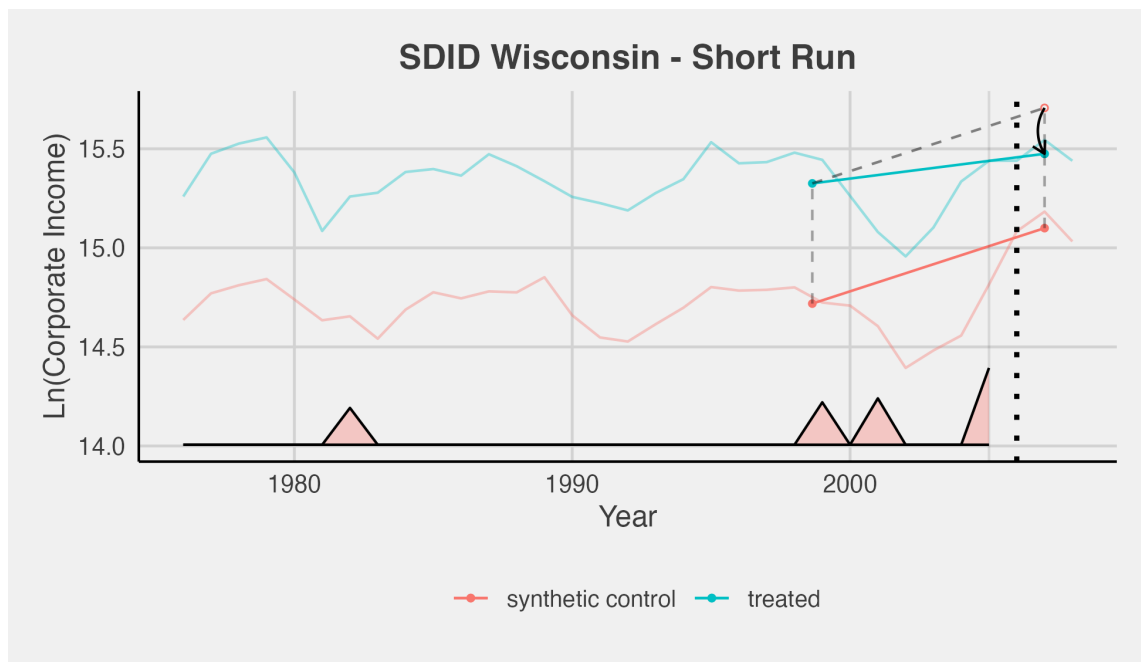


Figure 16: SDID SR Plot for Wisconsin

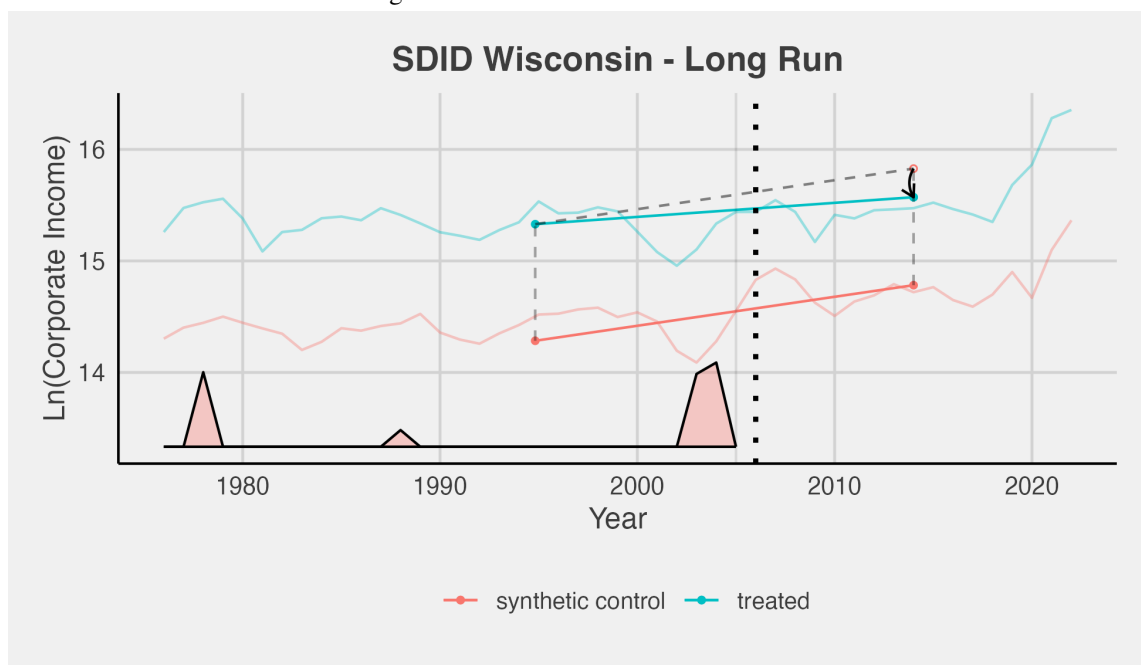


Figure 17: SDID LR Plot for Wisconsin

Figure 18: Comparison of Short and Long Run SDID Plots for Wisconsin. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Wisconsin, highlighting the shifts in corporate income over time.

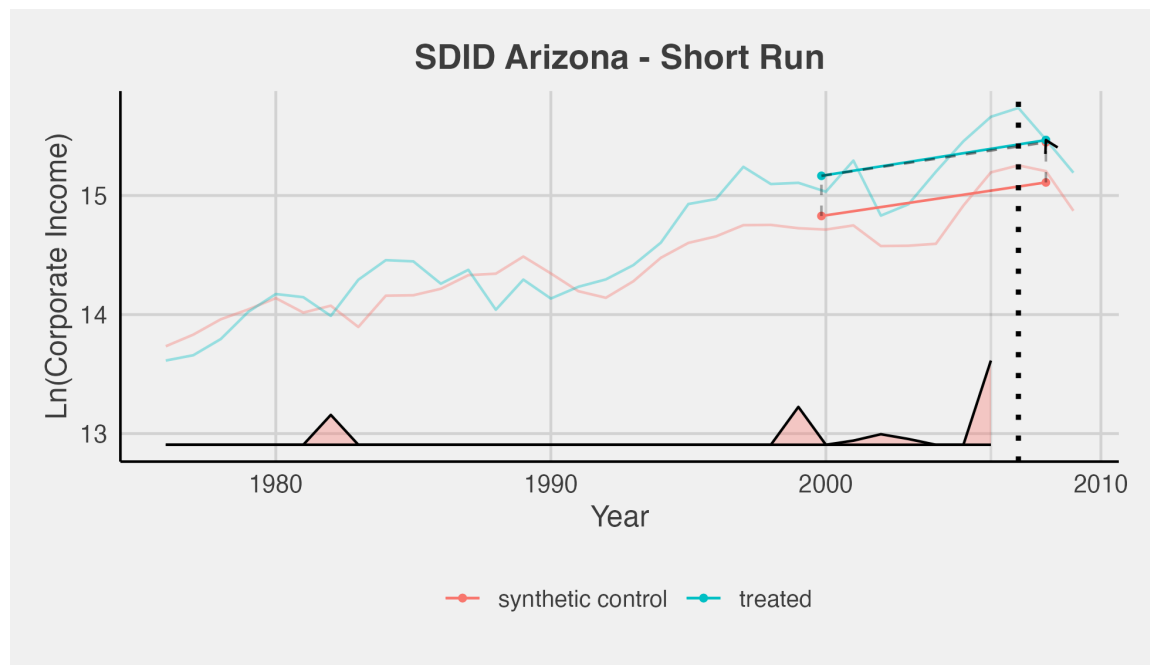


Figure 19: SDID SR Plot for Arizona

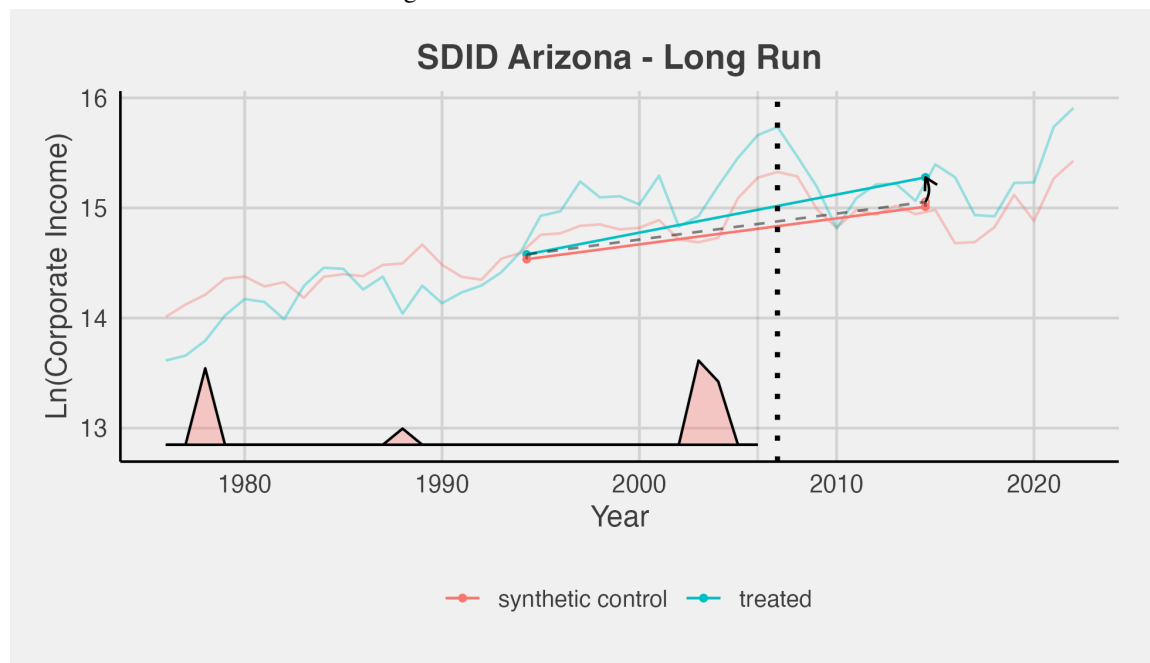


Figure 20: SDID LR Plot for Arizona

Figure 21: Comparison of Short and Long Run SDID Plots for Arizona. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Arizona, highlighting the shifts in corporate income over time.

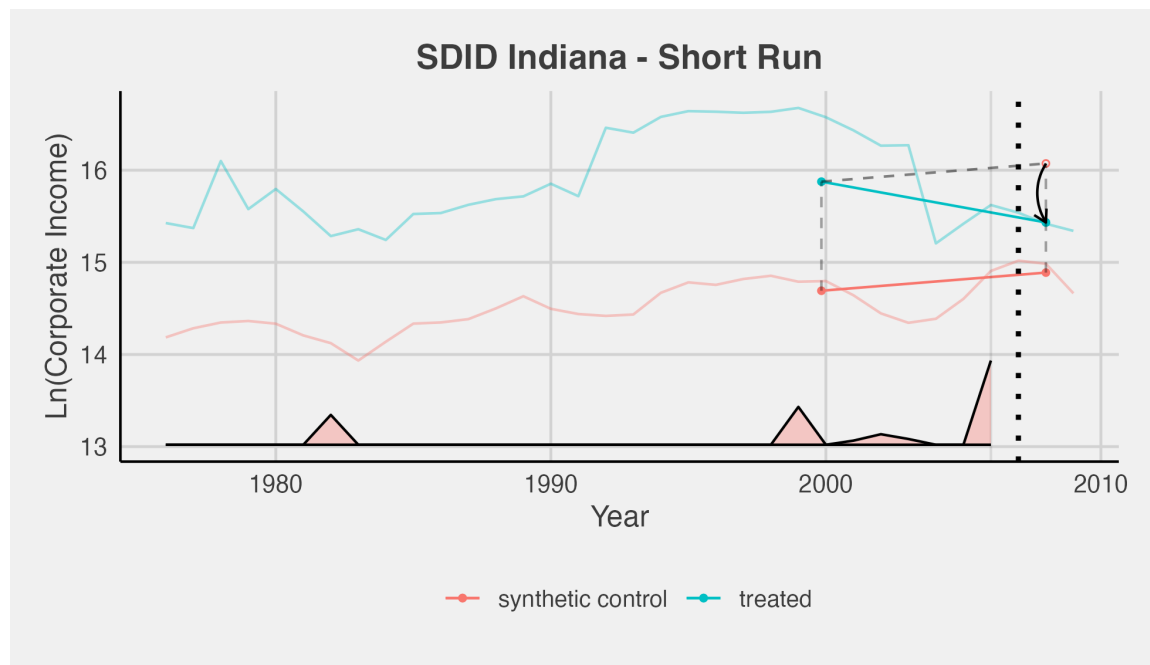


Figure 22: SDID SR Plot for Indiana

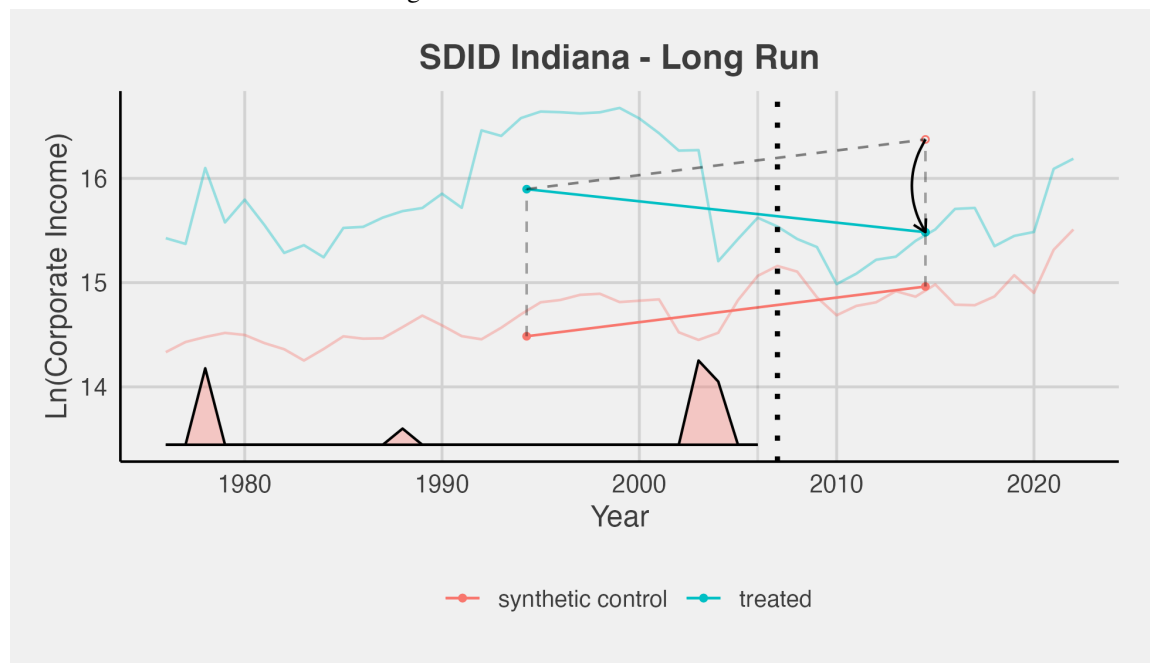


Figure 23: SDID LR Plot for Indiana

Figure 24: Comparison of Short and Long Run SDID Plots for Indiana. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Indiana, highlighting the shifts in corporate income over time.

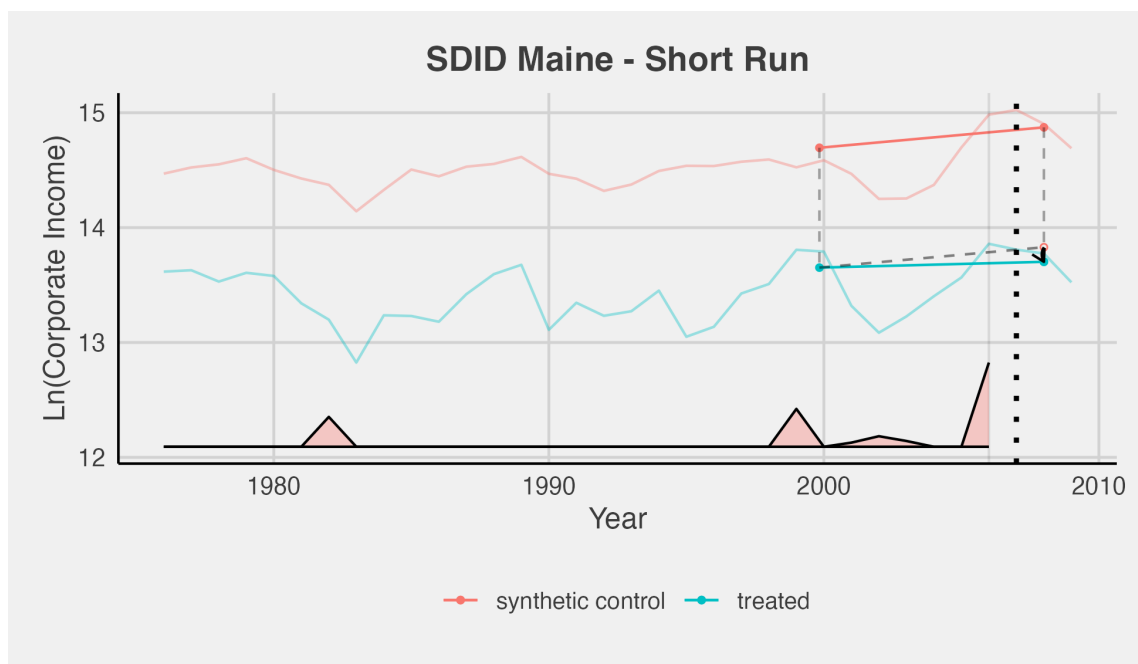


Figure 25: SDID SR Plot for Maine

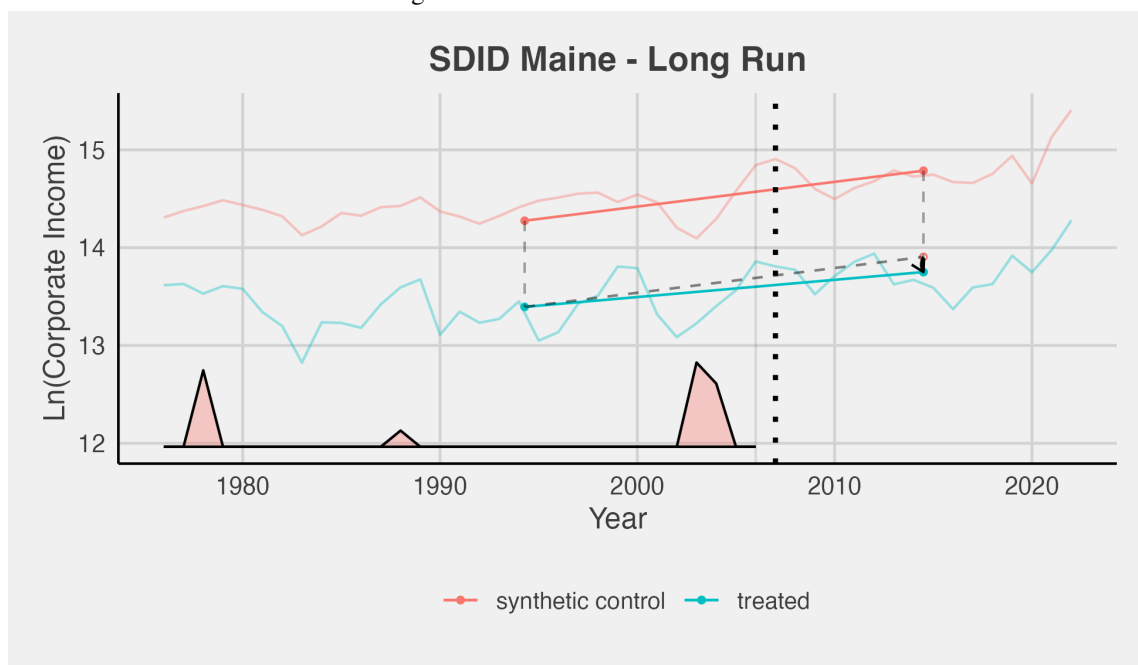


Figure 26: SDID LR Plot for Maine

Figure 27: Comparison of Short and Long Run SDID Plots for Maine. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Maine, highlighting the shifts in corporate income over time.

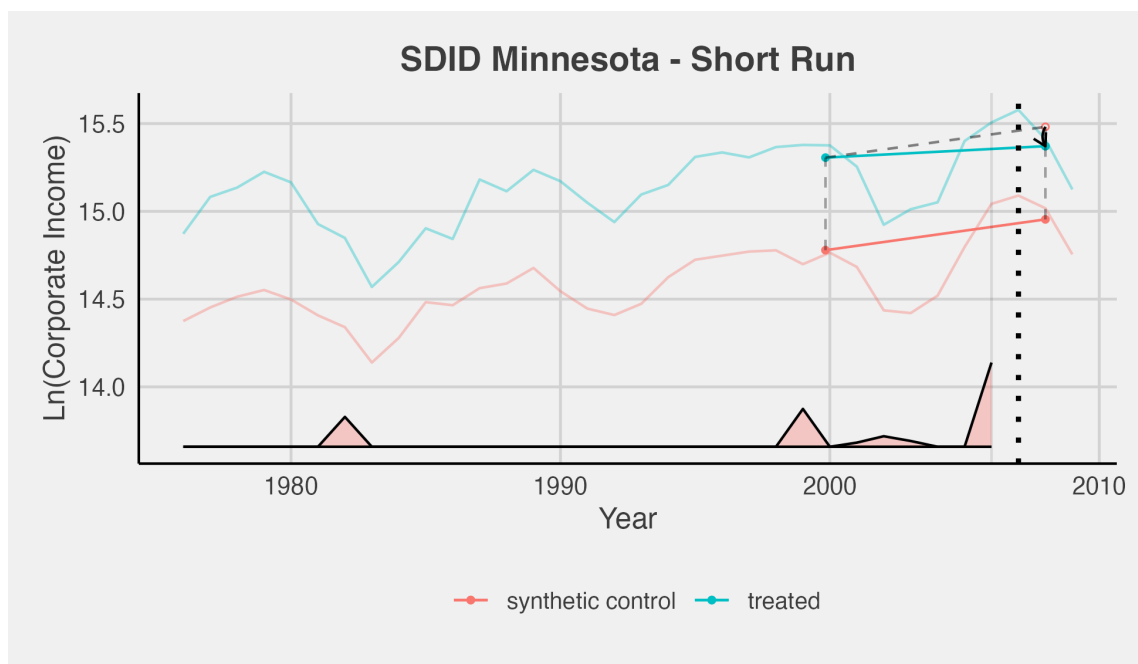


Figure 28: SDID SR Plot for Minnesota

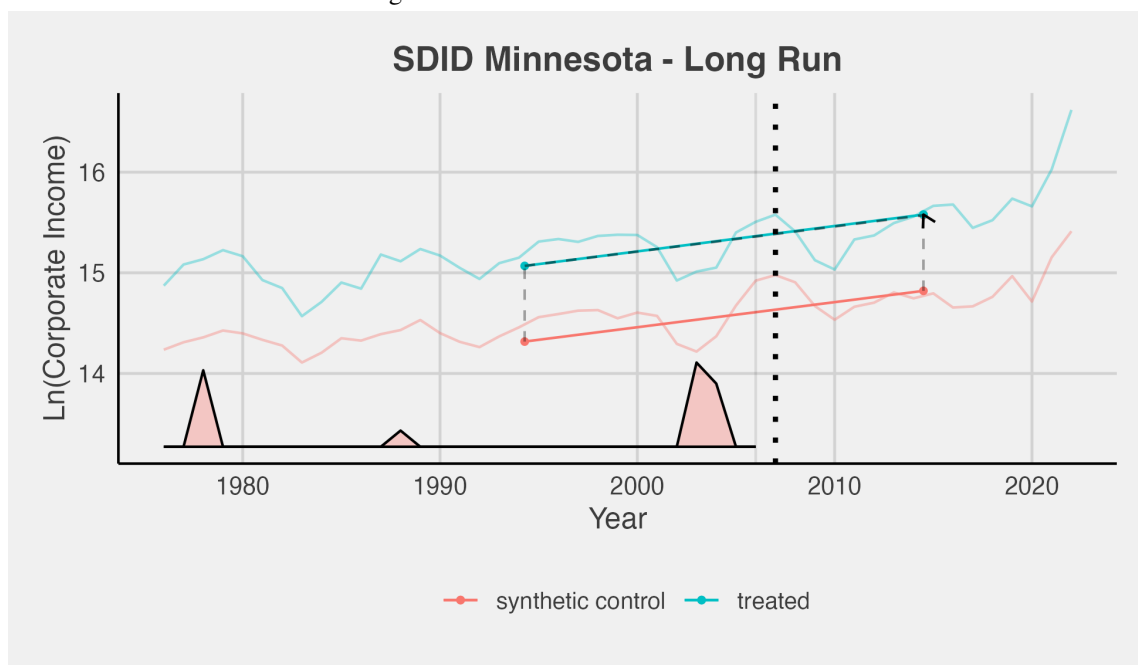


Figure 29: SDID LR Plot for Minnesota

Figure 30: Comparison of Short and Long Run SDID Plots for Minnesota. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Minnesota, highlighting the shifts in corporate income over time.

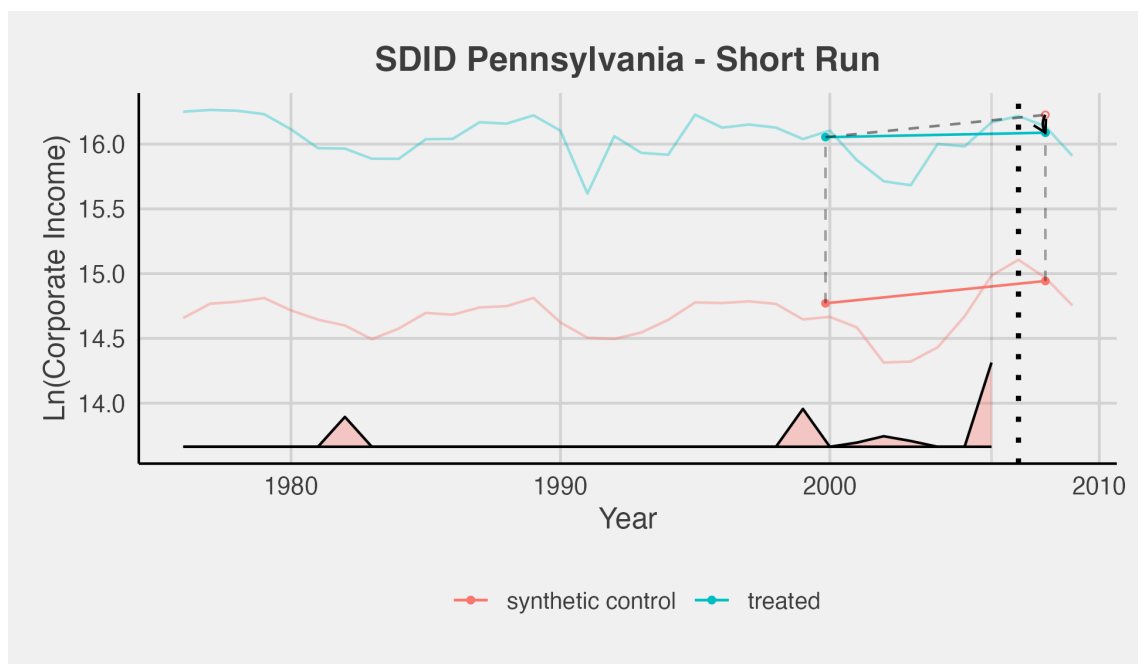


Figure 31: SDID SR Plot for Pennsylvania

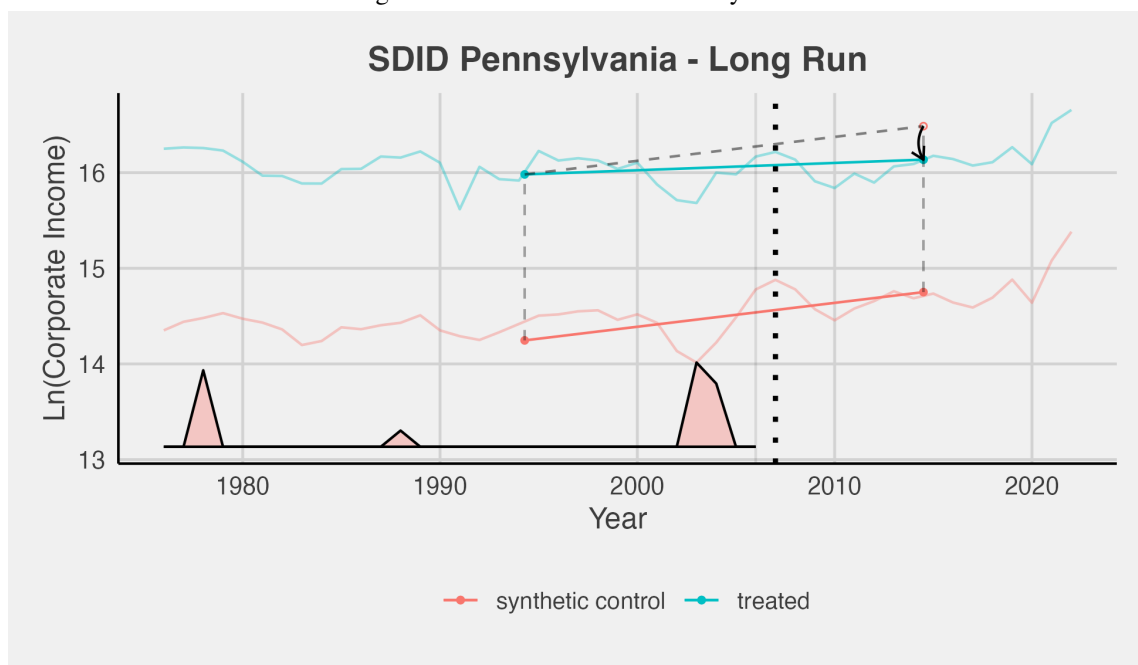


Figure 32: SDID LR Plot for Pennsylvania

Figure 33: Comparison of Short and Long Run SDID Plots for Pennsylvania. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Pennsylvania, highlighting the shifts in corporate income over time.

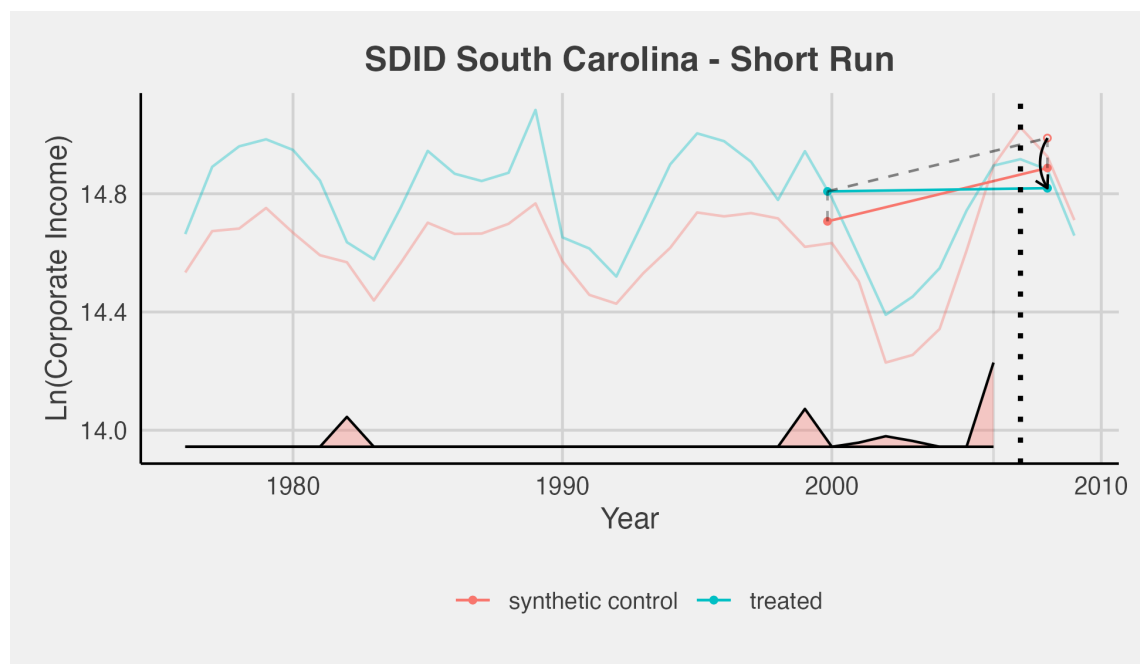


Figure 34: SDID SR Plot for South Carolina

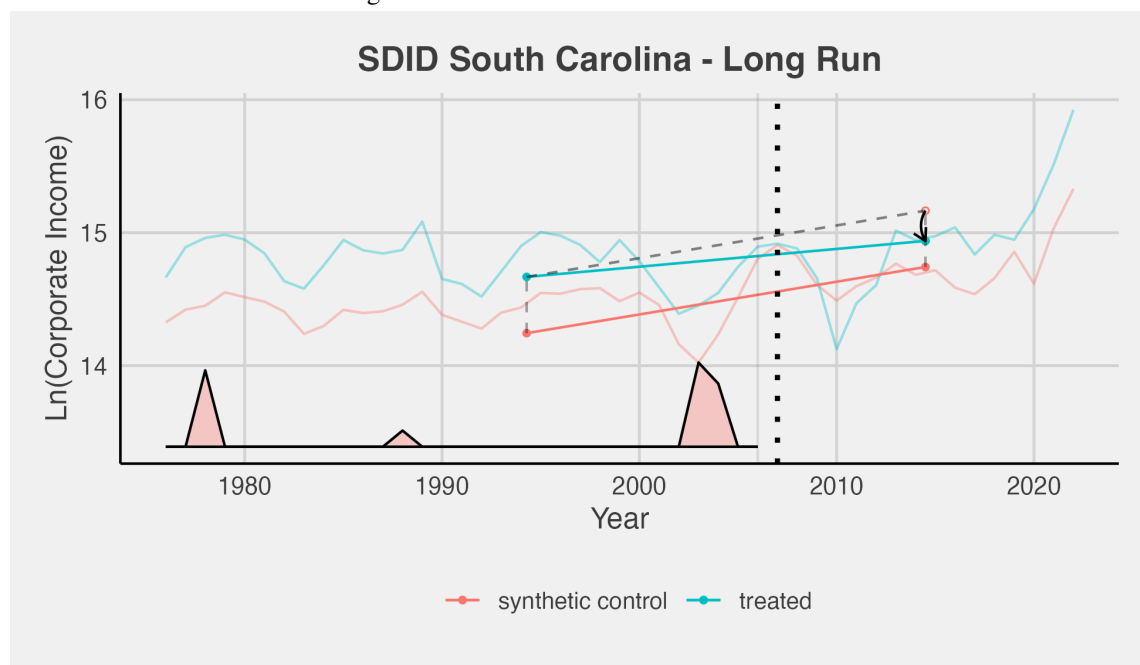


Figure 35: SDID LR Plot for South Carolina

Figure 36: Comparison of Short and Long Run SDID Plots for South Carolina. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for South Carolina, highlighting the shifts in corporate income over time.

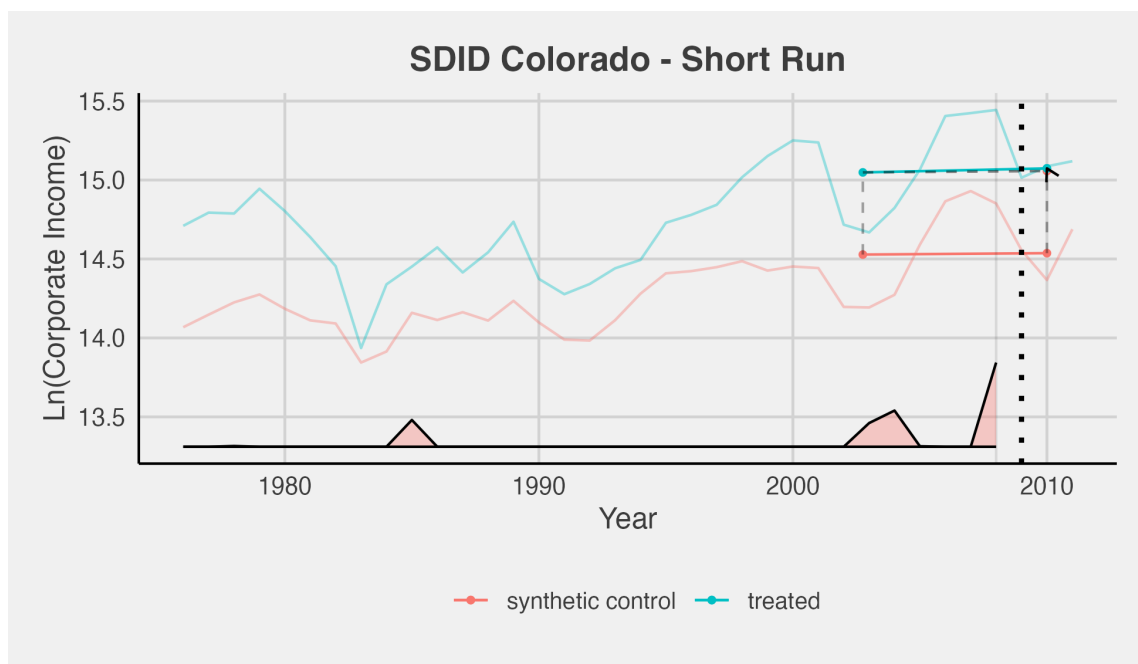


Figure 37: SDID SR Plot for Colorado

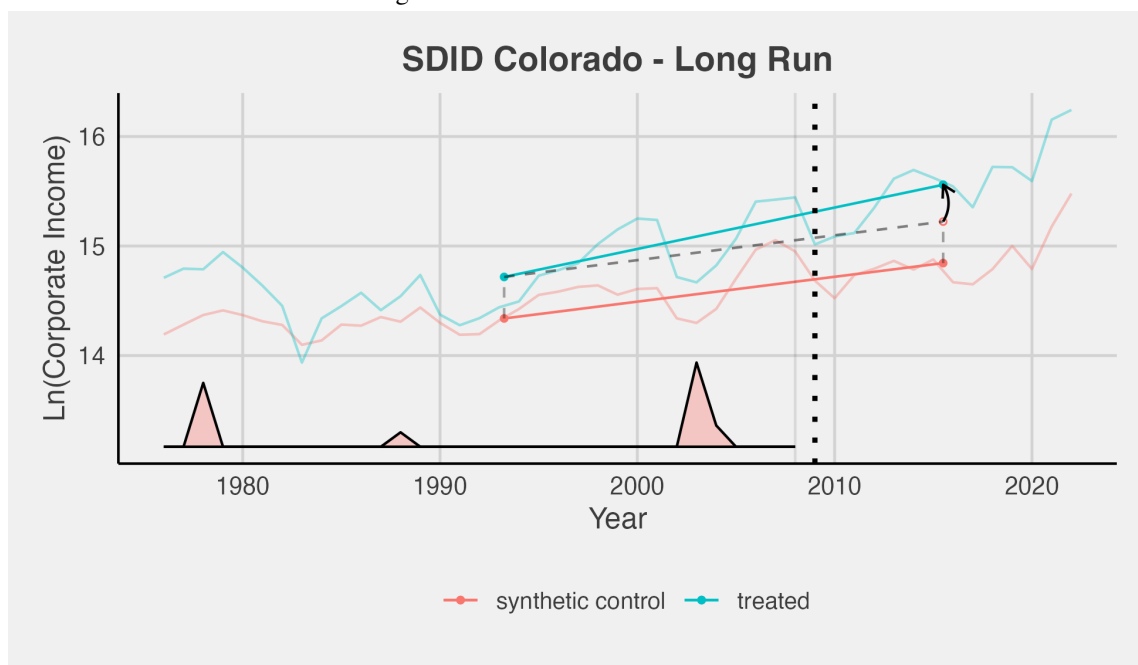


Figure 38: SDID LR Plot for Colorado

Figure 39: Comparison of Short and Long Run SDID Plots for Colorado. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Colorado, highlighting the shifts in corporate income over time.

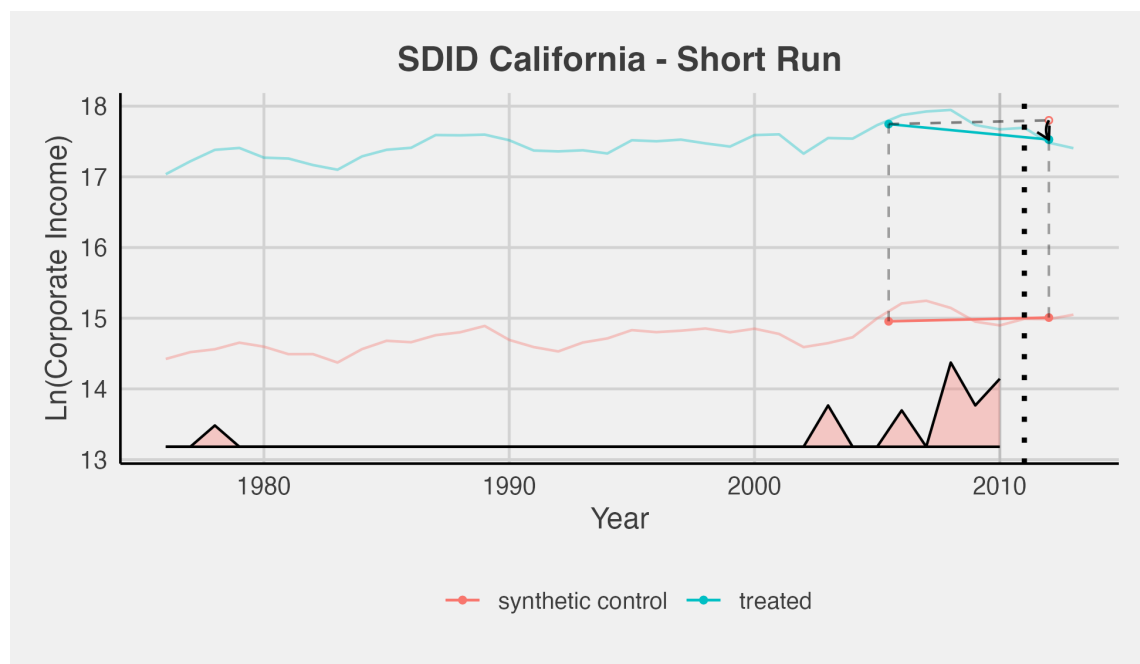


Figure 40: SDID SR Plot for California

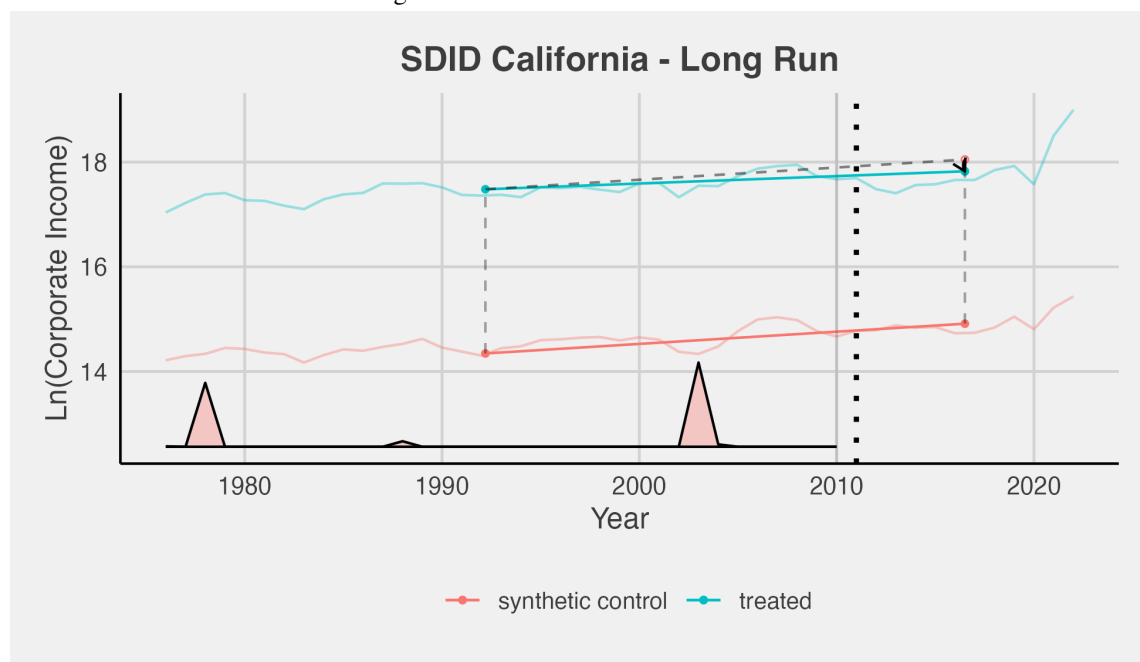


Figure 41: SDID LR Plot for California

Figure 42: Comparison of Short and Long Run SDID Plots for California. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for California, highlighting the shifts in corporate income over time.

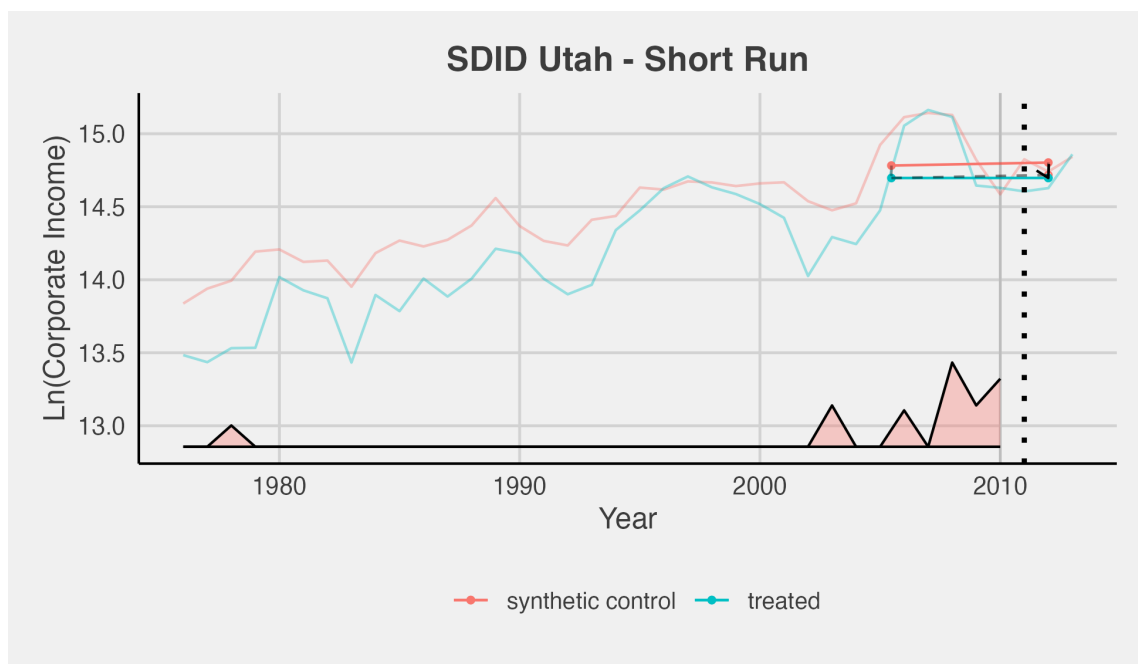


Figure 43: SDID SR Plot for Utah

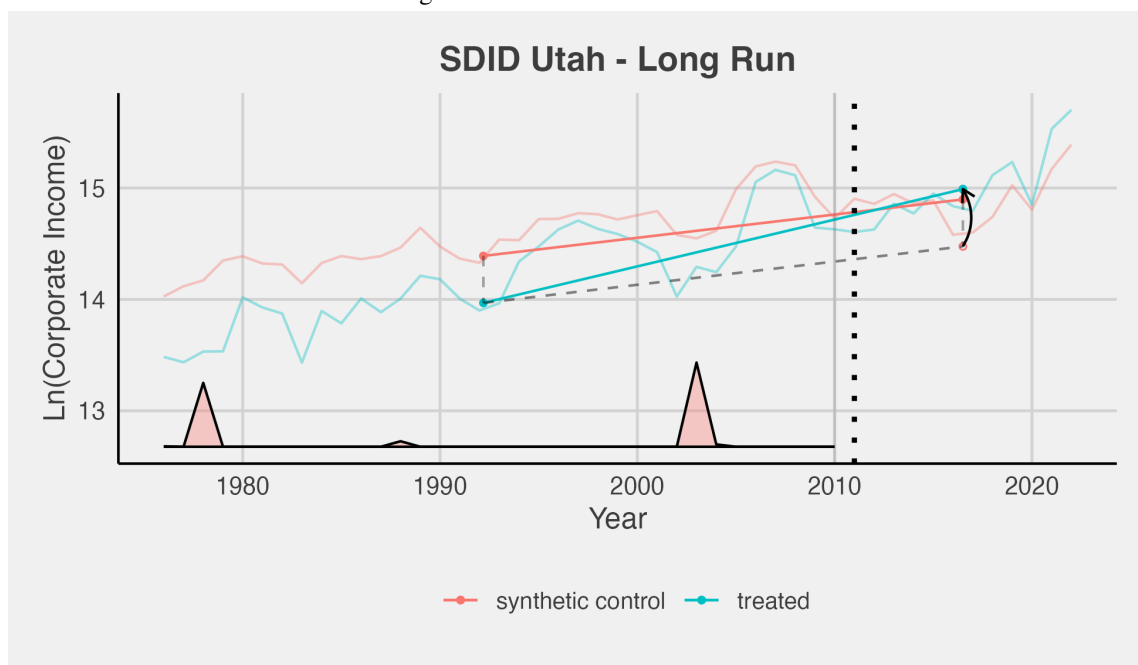


Figure 44: SDID LR Plot for Utah

Figure 45: Comparison of Short and Long Run SDID Plots for Utah. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Utah, highlighting the shifts in corporate income over time.

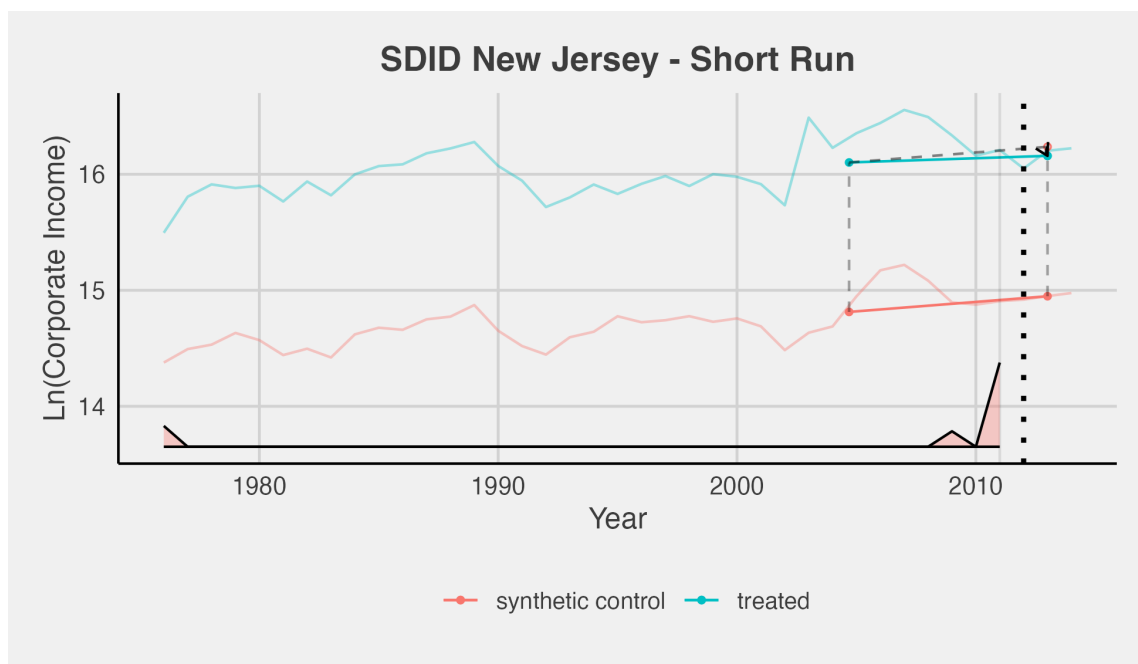


Figure 46: SDID SR Plot for New Jersey

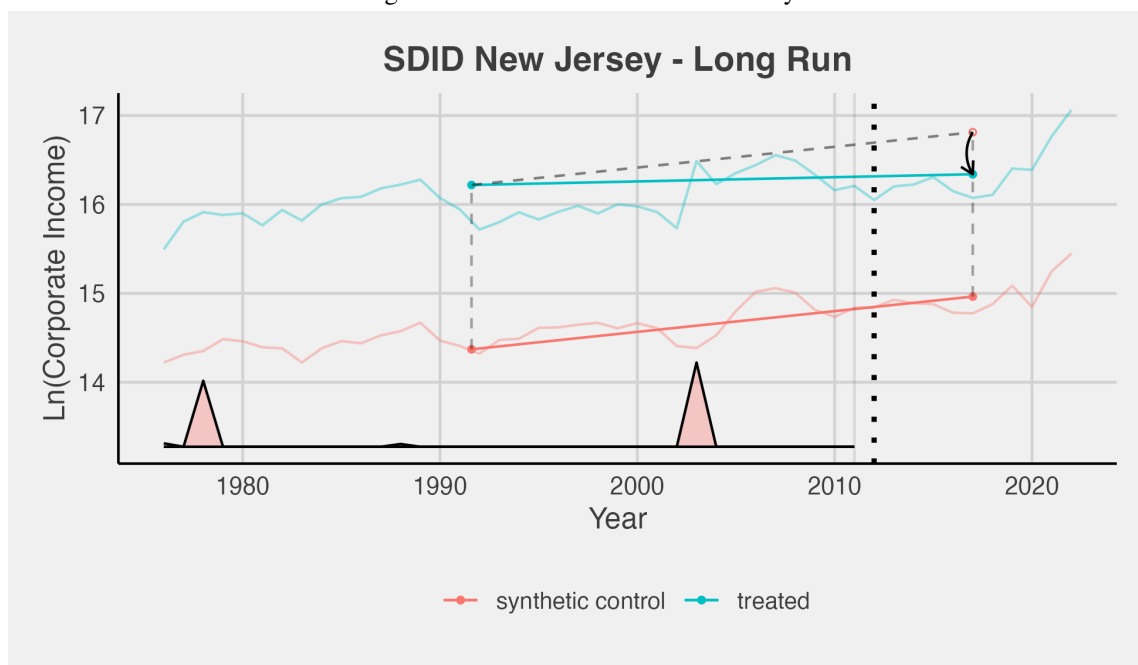


Figure 47: SDID LR Plot for New Jersey

Figure 48: Comparison of Short and Long Run SDID Plots for New Jersey. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for New Jersey, highlighting the shifts in corporate income over time.

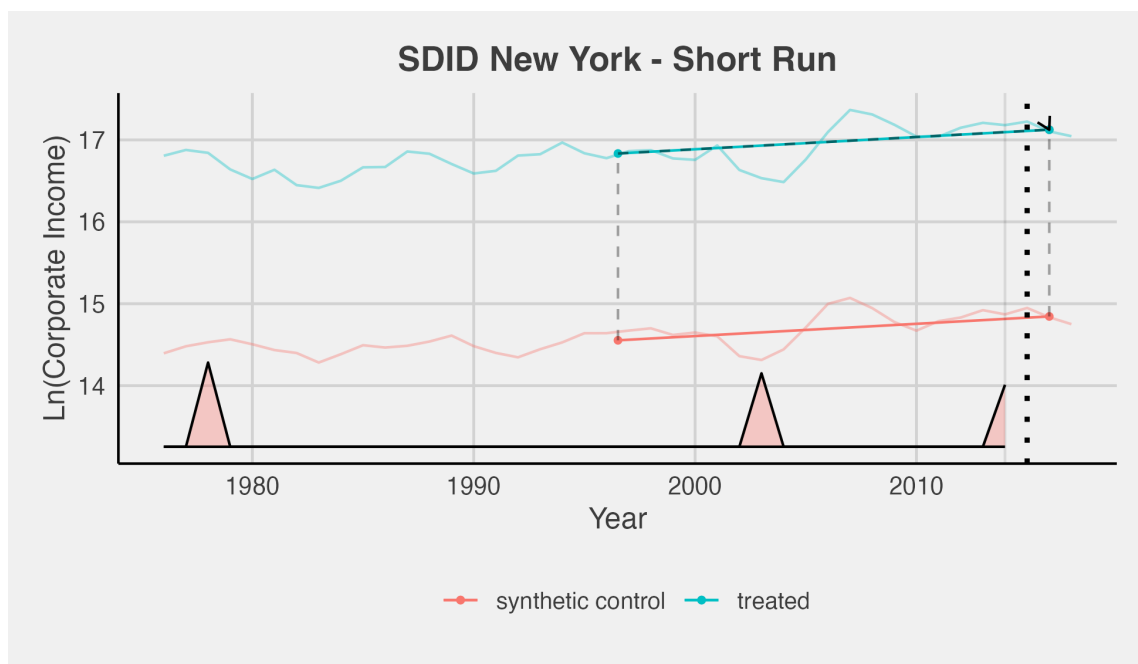


Figure 49: SDID SR Plot for New York

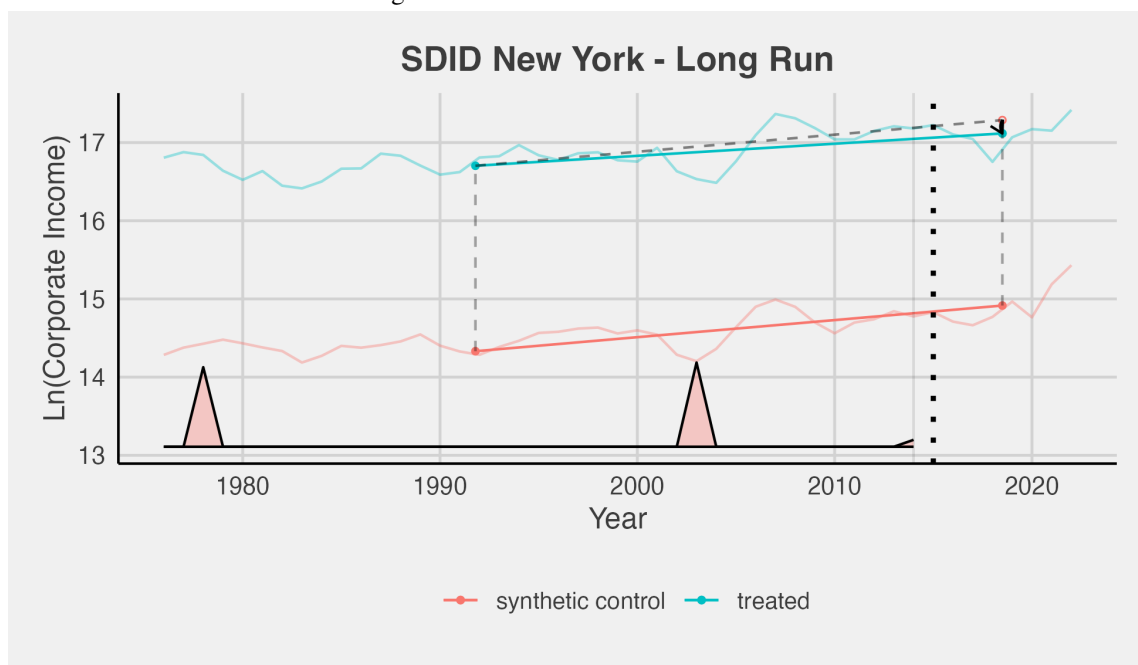


Figure 50: SDID LR Plot for New York

Figure 51: Comparison of Short and Long Run SDID Plots for New York. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for New York, highlighting the shifts in corporate income over time.

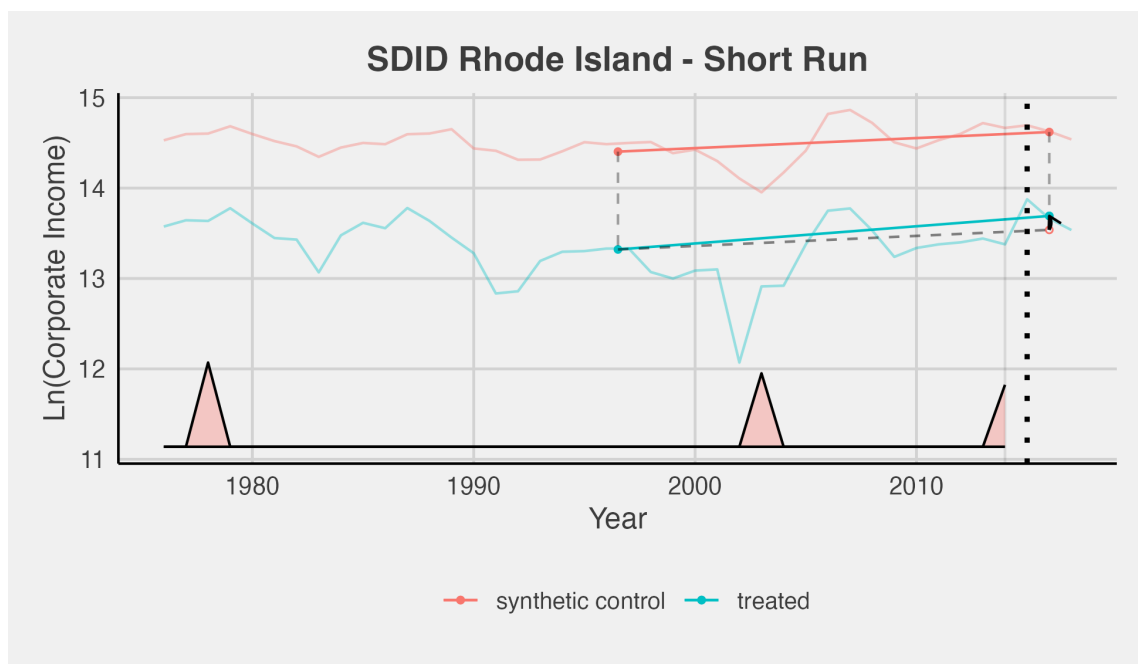


Figure 52: SDID SR Plot for Rhode Island

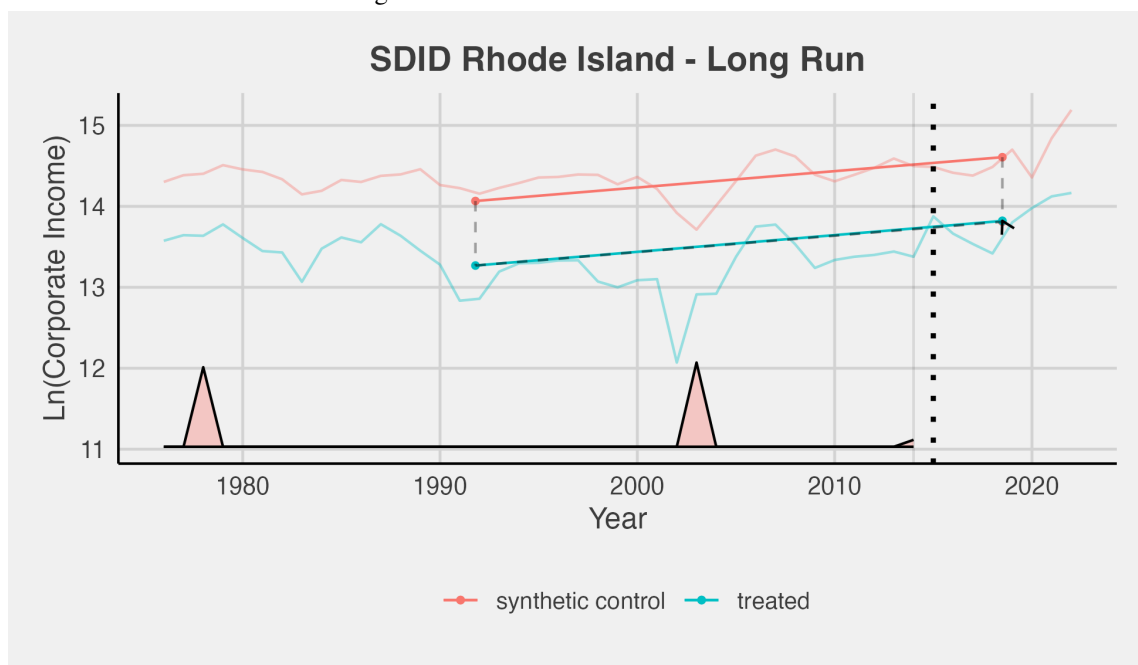


Figure 53: SDID LR Plot for Rhode Island

Figure 54: Comparison of Short and Long Run SDID Plots for Rhode Island. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Rhode Island, highlighting the shifts in corporate income over time.

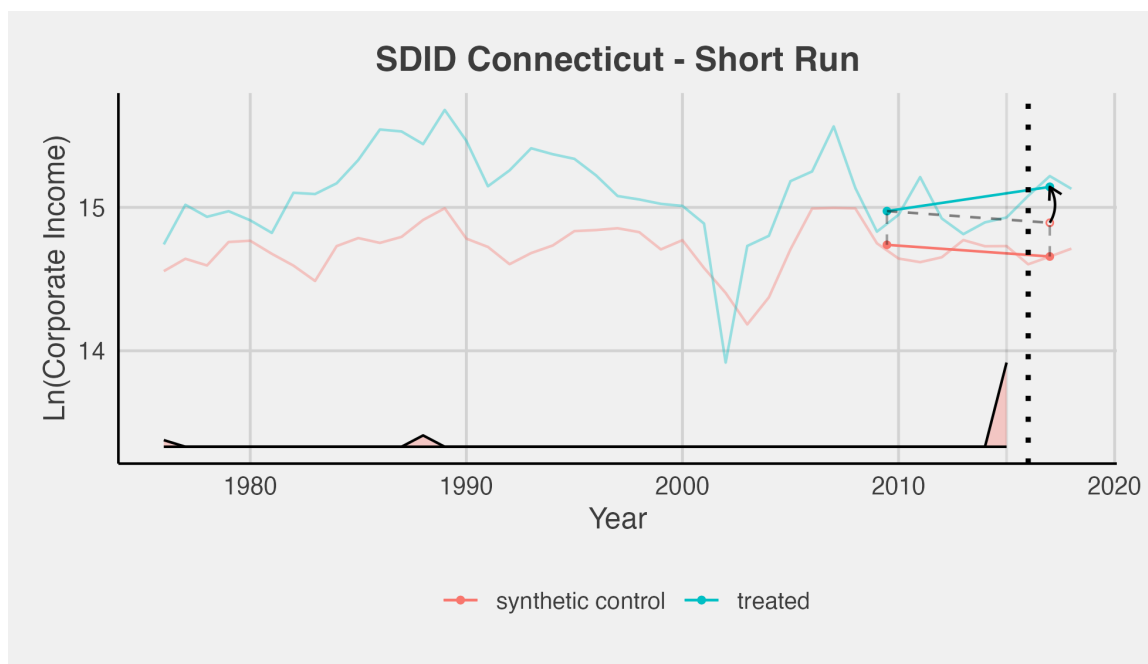


Figure 55: SDID SR Plot for Connecticut

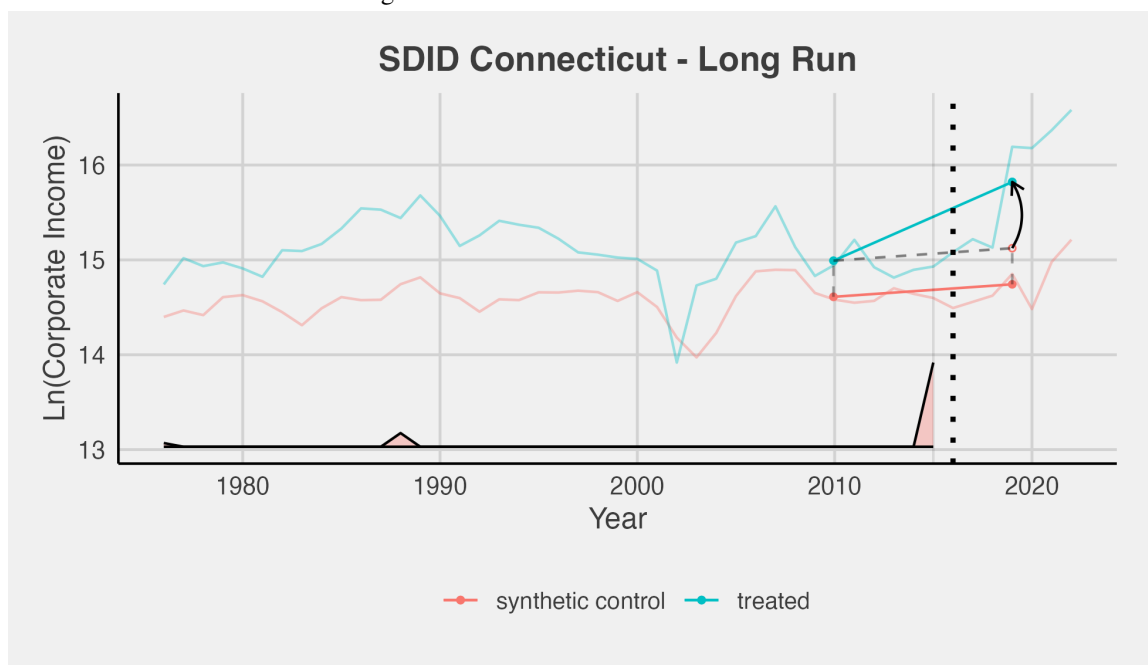


Figure 56: SDID LR Plot for Connecticut

Figure 57: Comparison of Short and Long Run SDID Plots for Connecticut. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Connecticut, highlighting the shifts in corporate income over time.

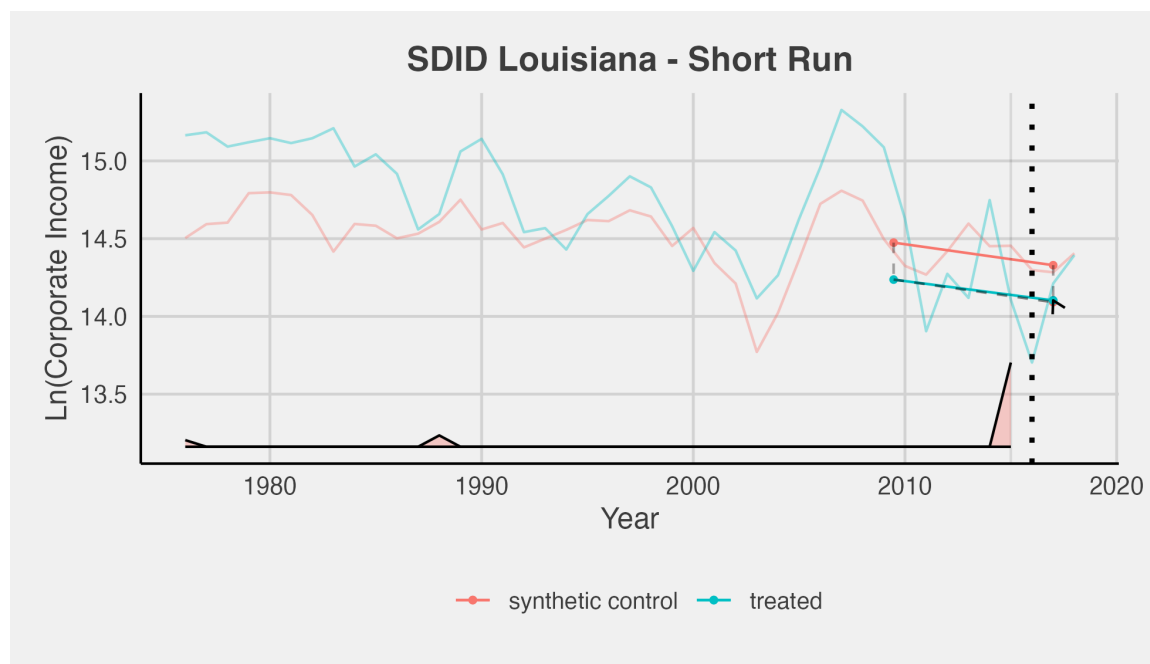


Figure 58: SDID SR Plot for Louisiana

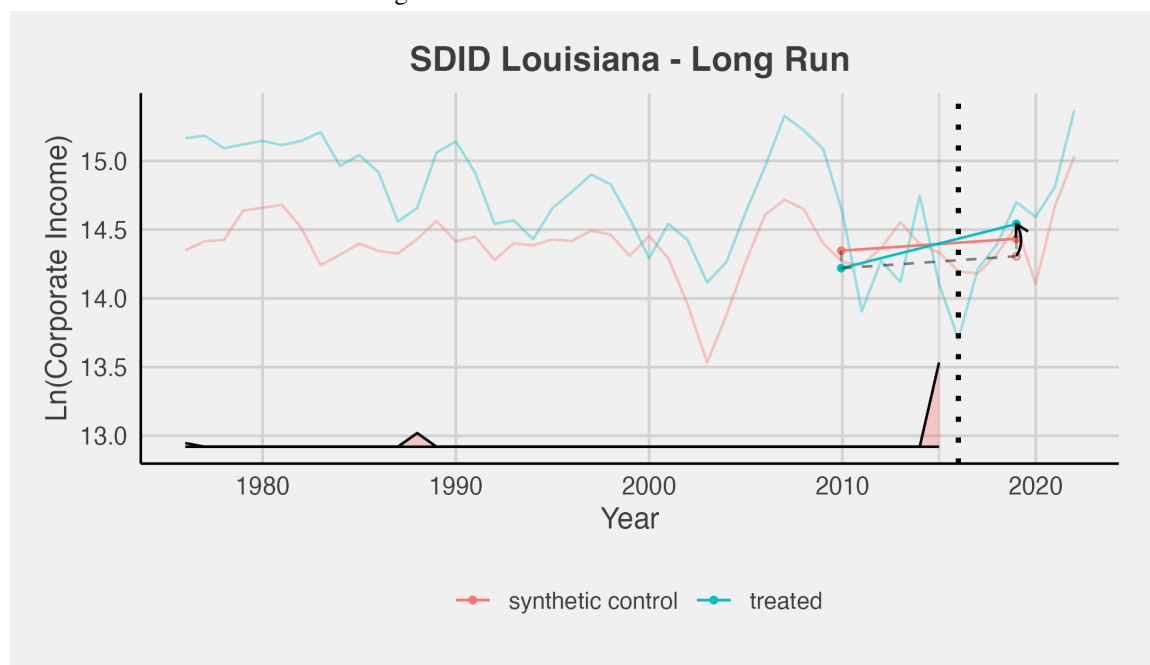


Figure 59: SDID LR Plot for Louisiana

Figure 60: Comparison of Short and Long Run SDID Plots for Louisiana. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Louisiana, highlighting the shifts in corporate income over time.

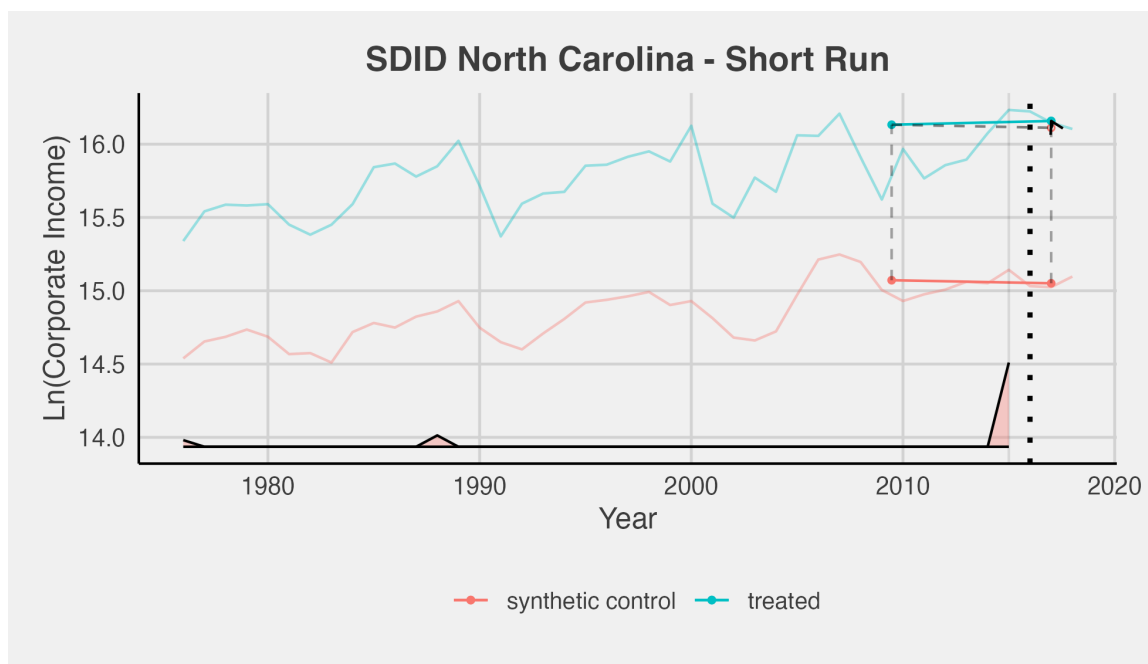


Figure 61: SDID SR Plot for North Carolina

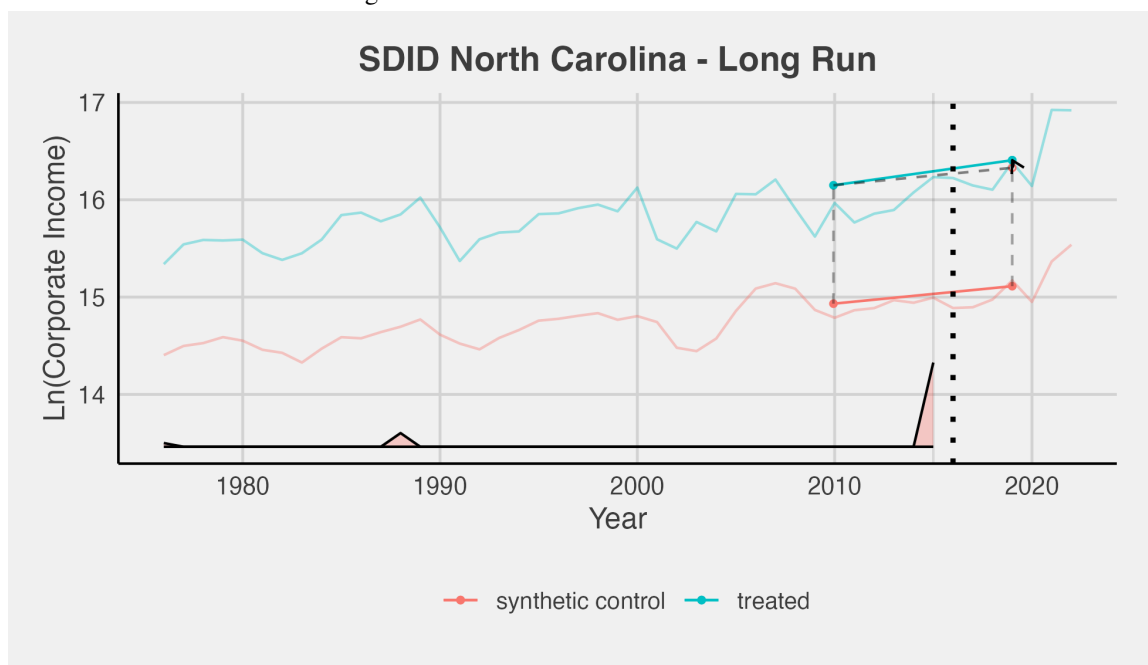


Figure 62: SDID LR Plot for North Carolina

Figure 63: Comparison of Short and Long Run SDID Plots for North Carolina. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for North Carolina, highlighting the shifts in corporate income over time.

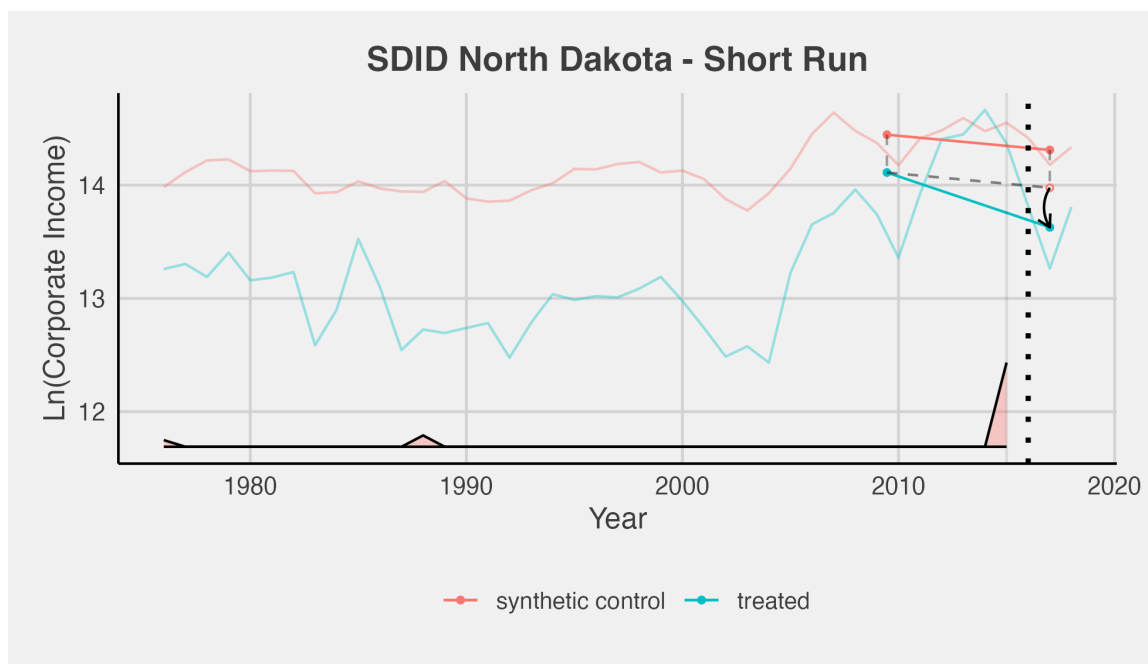


Figure 64: SDID SR Plot for North Dakota

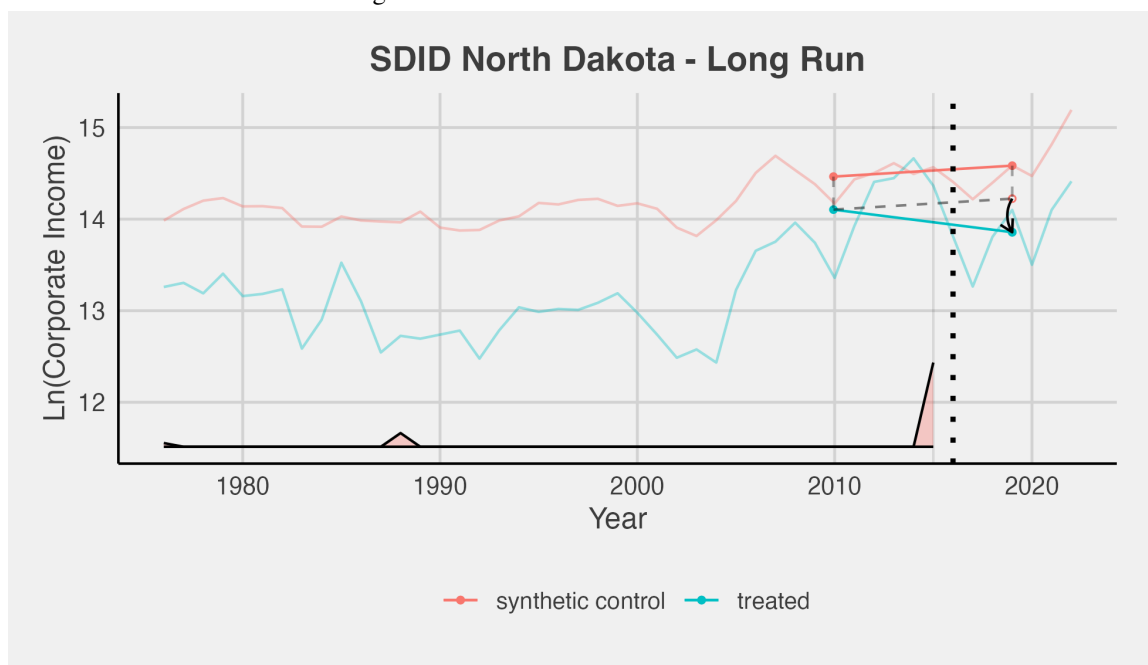


Figure 65: SDID LR Plot for North Dakota

Figure 66: Comparison of Short and Long Run SDID Plots for North Dakota. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for North Dakota, highlighting the shifts in corporate income over time.

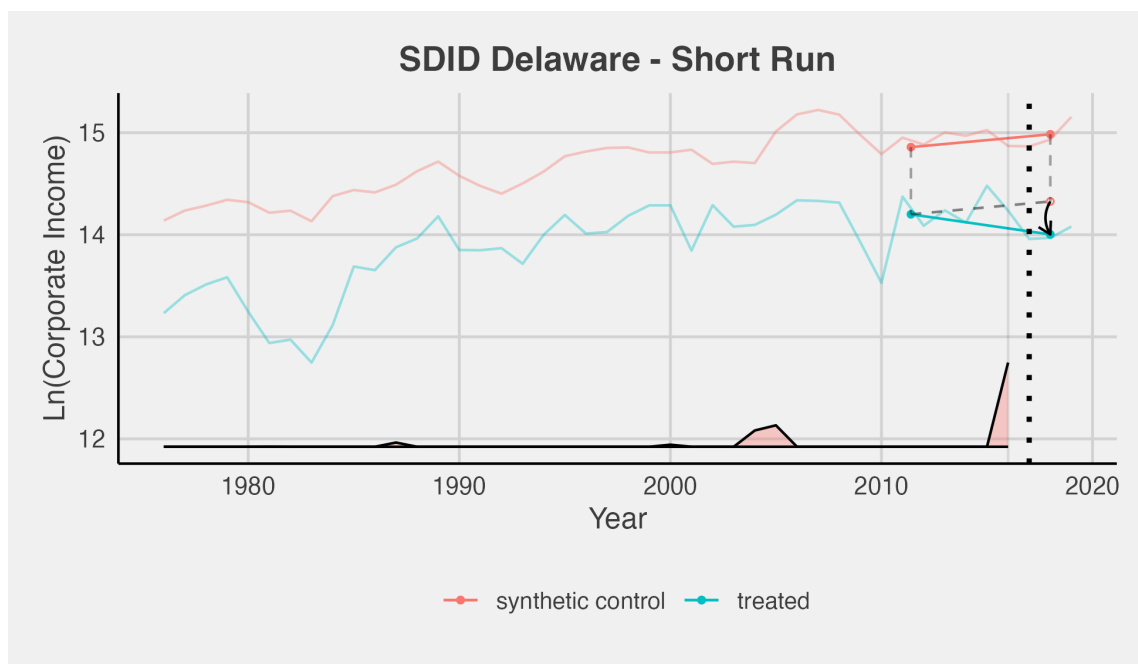


Figure 67: SDID SR Plot for Delaware

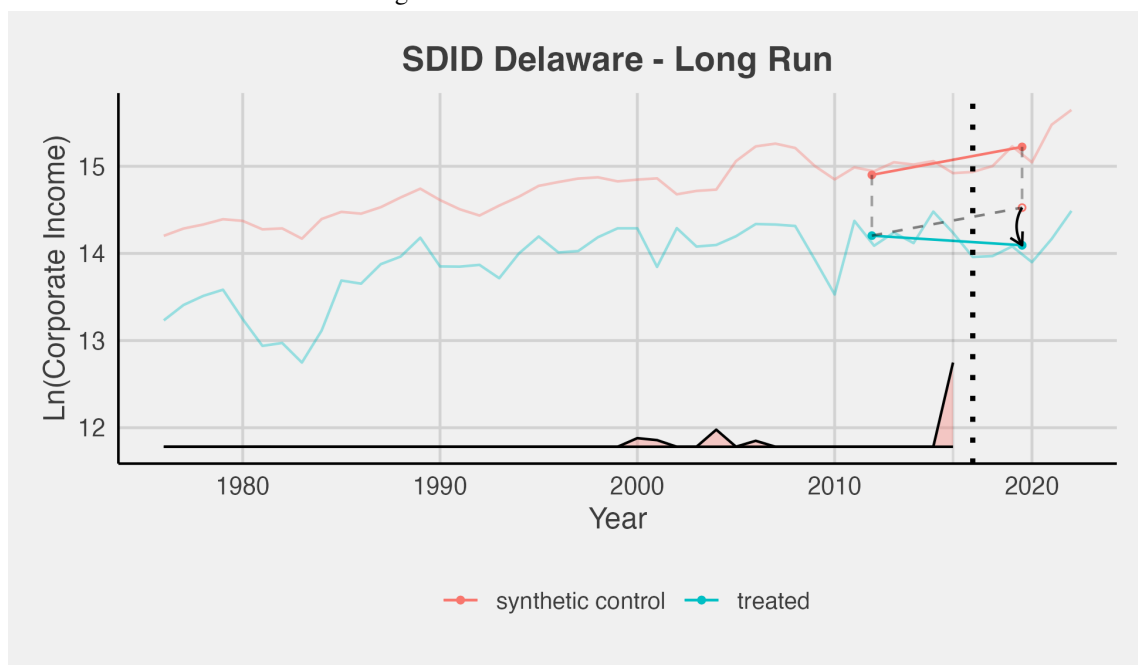


Figure 68: SDID LR Plot for Delaware

Figure 69: Comparison of Short and Long Run SDID Plots for Delaware. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Delaware, highlighting the shifts in corporate income over time.

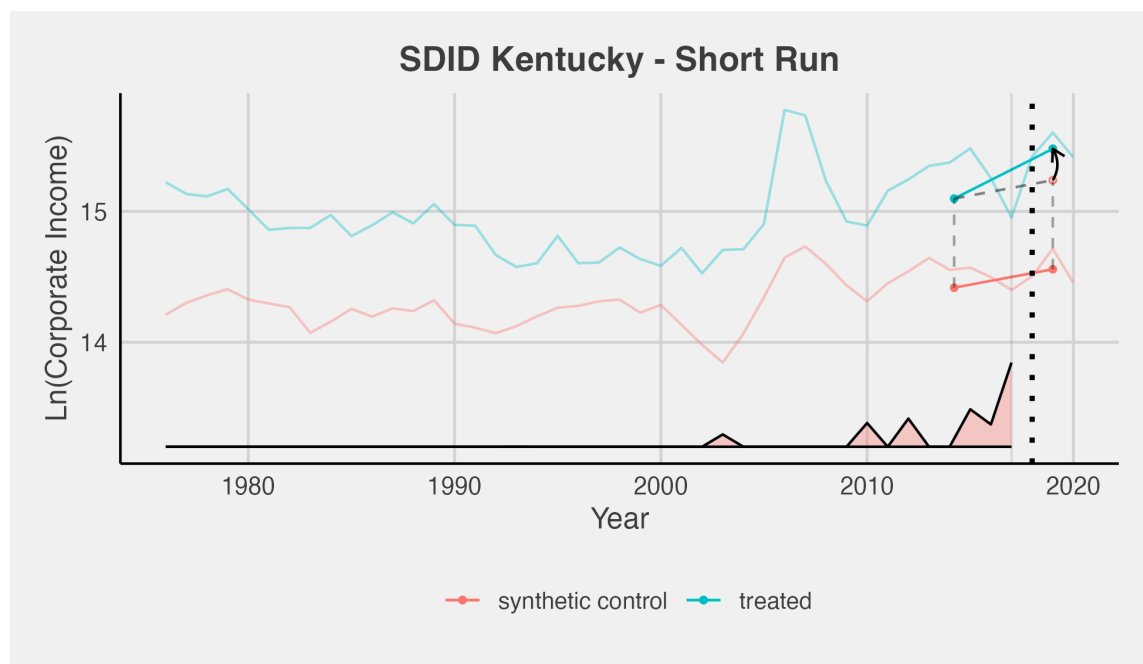


Figure 70: SDID SR Plot for Kentucky

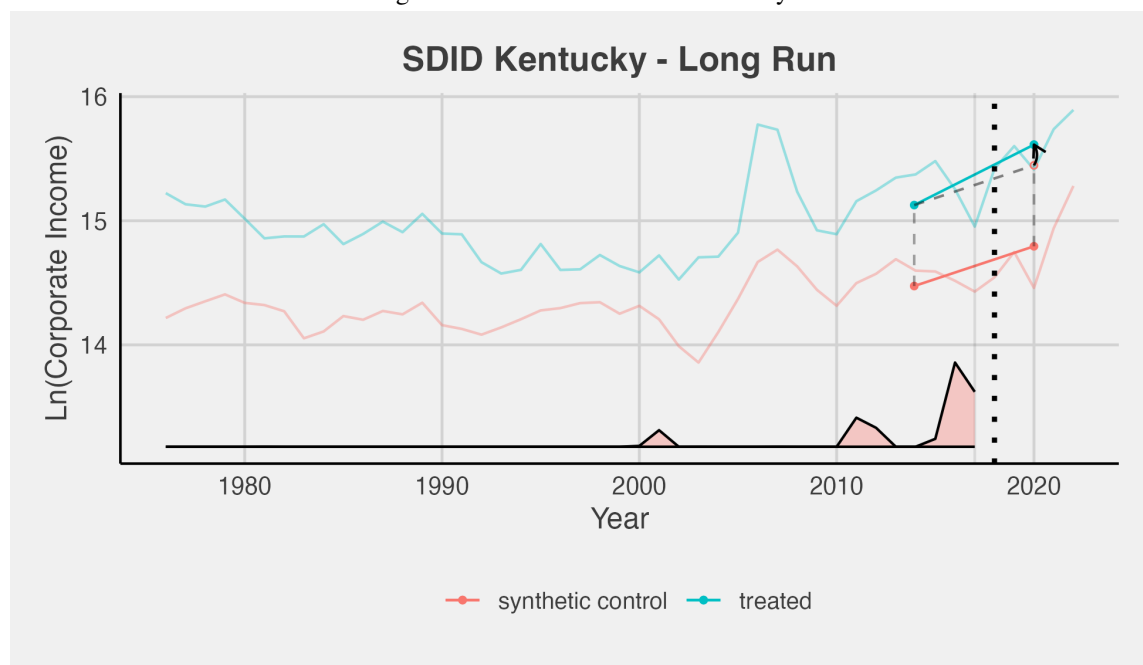


Figure 71: SDID LR Plot for Kentucky

Figure 72: Comparison of Short and Long Run SDID Plots for Kentucky. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Kentucky, highlighting the shifts in corporate income over time.

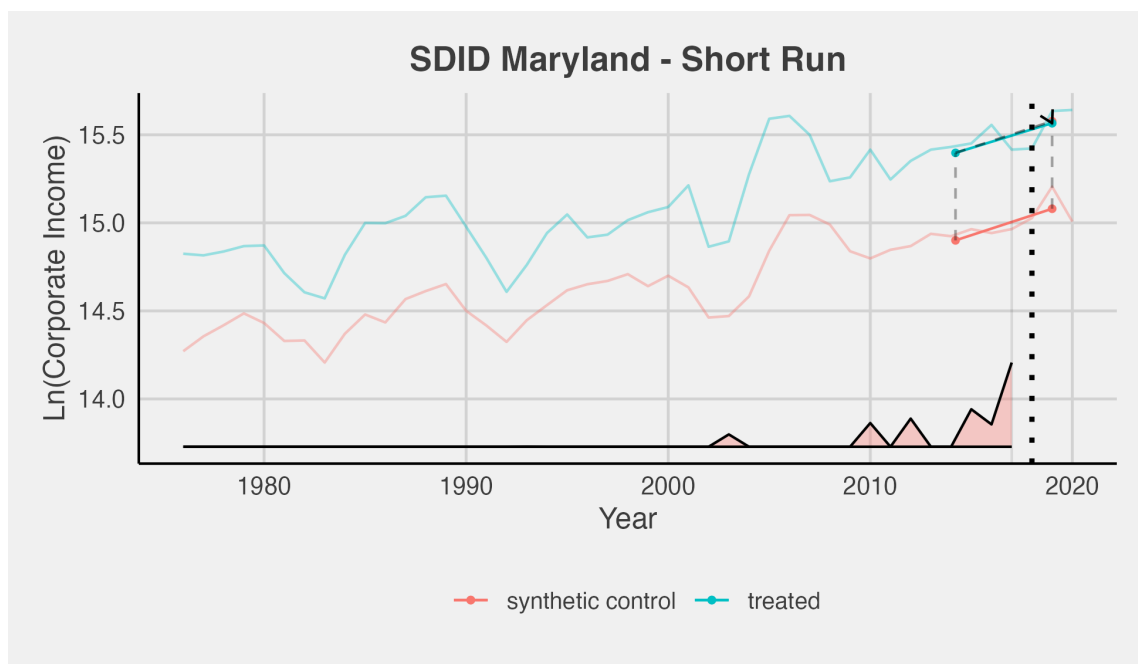


Figure 73: SDID SR Plot for Maryland

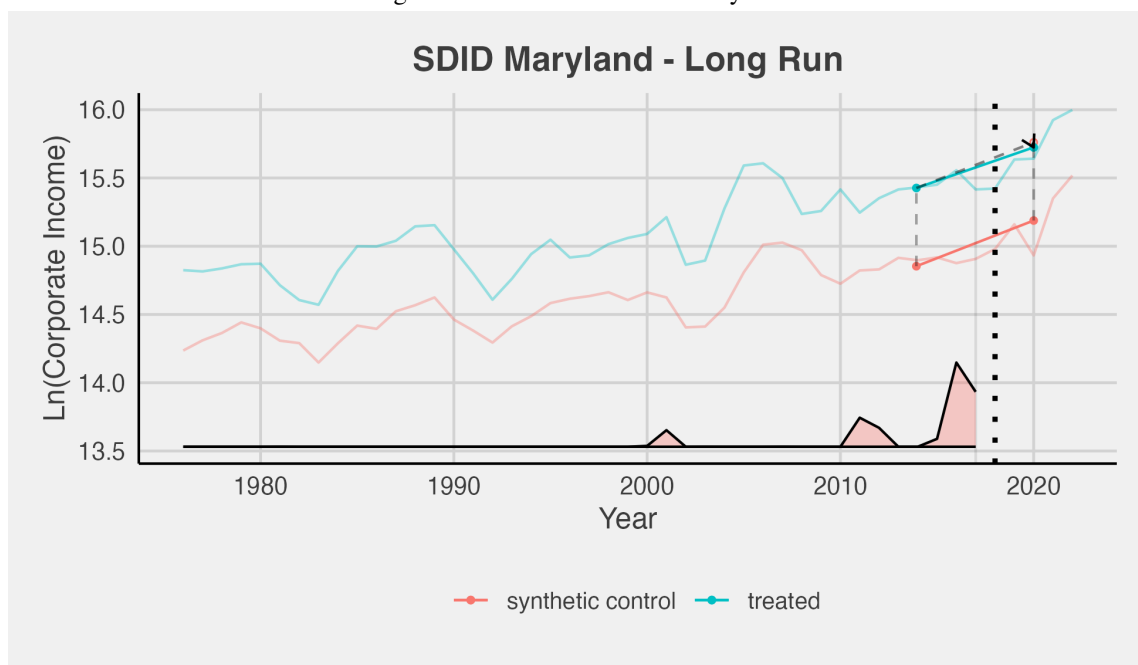


Figure 74: SDID LR Plot for Maryland

Figure 75: Comparison of Short and Long Run SDID Plots for Maryland. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Maryland, highlighting the shifts in corporate income over time.

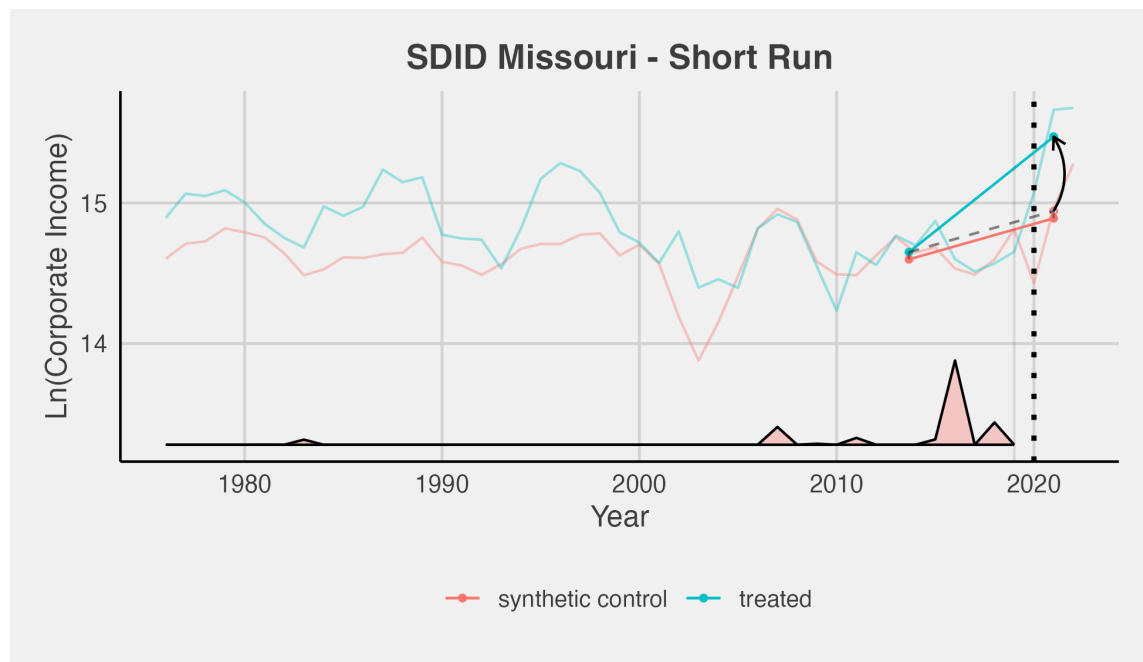


Figure 76: SDID SR Plot for Missouri

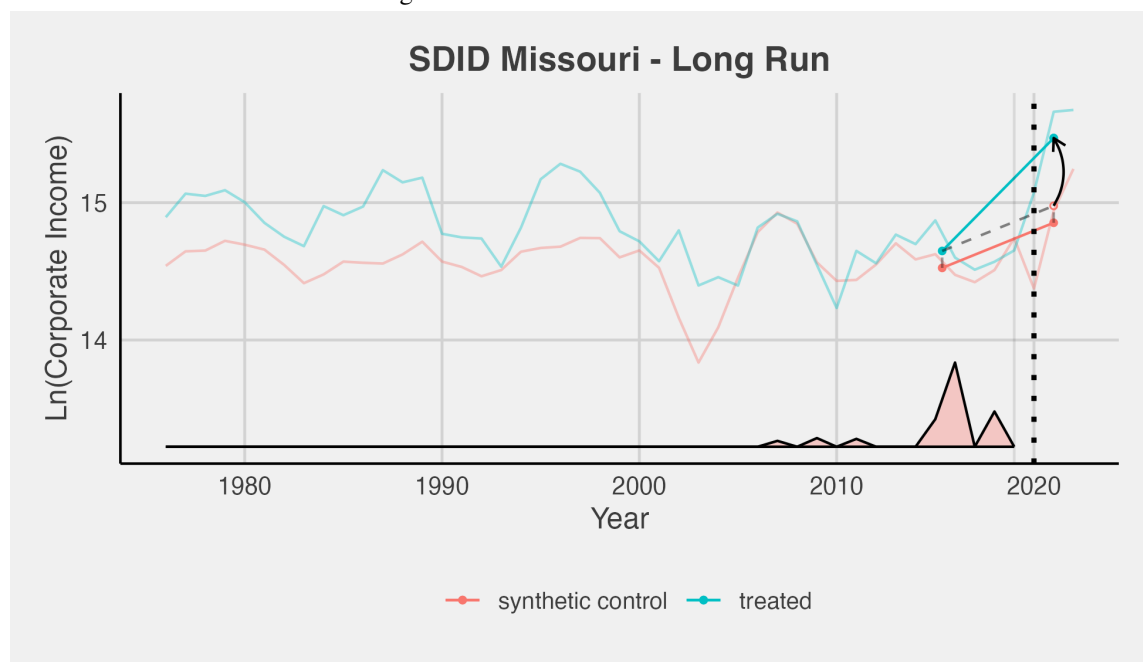


Figure 77: SDID LR Plot for Missouri

Figure 78: Comparison of Short and Long Run SDID Plots for Missouri. The arrow indicates the treatment effect in each plot, while the vertical dashed line marks the year when the treatment became effective. These figures show the comparison between the short-run and long-run synthetic difference-in-differences (SDID) point estimates for Missouri, highlighting the shifts in corporate income over time.