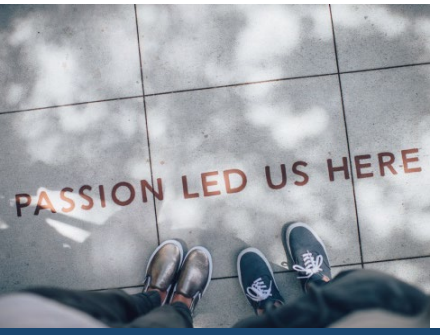

Lab 9: The Long-Run Causal Effects of HOLC "Redlining"

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OPPORTUNITY INSIGHTS

Lab 9: The Long-Run Causal Effects of HOLC "Redlining"

- In Empirical Project Part 2, many of you noticed that upward mobility for children born in the 1980s appears to be related to HOLC maps from the 1930s
- In this lab, we will develop research designs to estimate the causal effect of the HOLC maps on long-run outcomes
- Following Aaronson et al. (2021) we will exploit a threshold at 40,000 residents that determined which cities had HOLC maps drawn in the 1930s
- Data on 53 cities with populations between 30,000 and 50,000 in 1930 Census
- The outcome we will focus on is homeownership rate measured in the 1910 Census through 2010 Census

Key Lessons from Lab 9

- Substantive question: Does having HOLC "redlining" maps *cause* lower homeownership rates?

- Contrast regression discontinuity design (RDD) with differences in differences (DD)

- Key methodological tools:

  1. Binned scatter plots to assess the parallel trends identification assumption needed for diff in diff to be as good as a randomized experiment

  2. Quantifying causal effects with differences in differences using four conditional means, which is the same as running a linear regression

  3. Review of binned scatter plots for regression discontinuity design

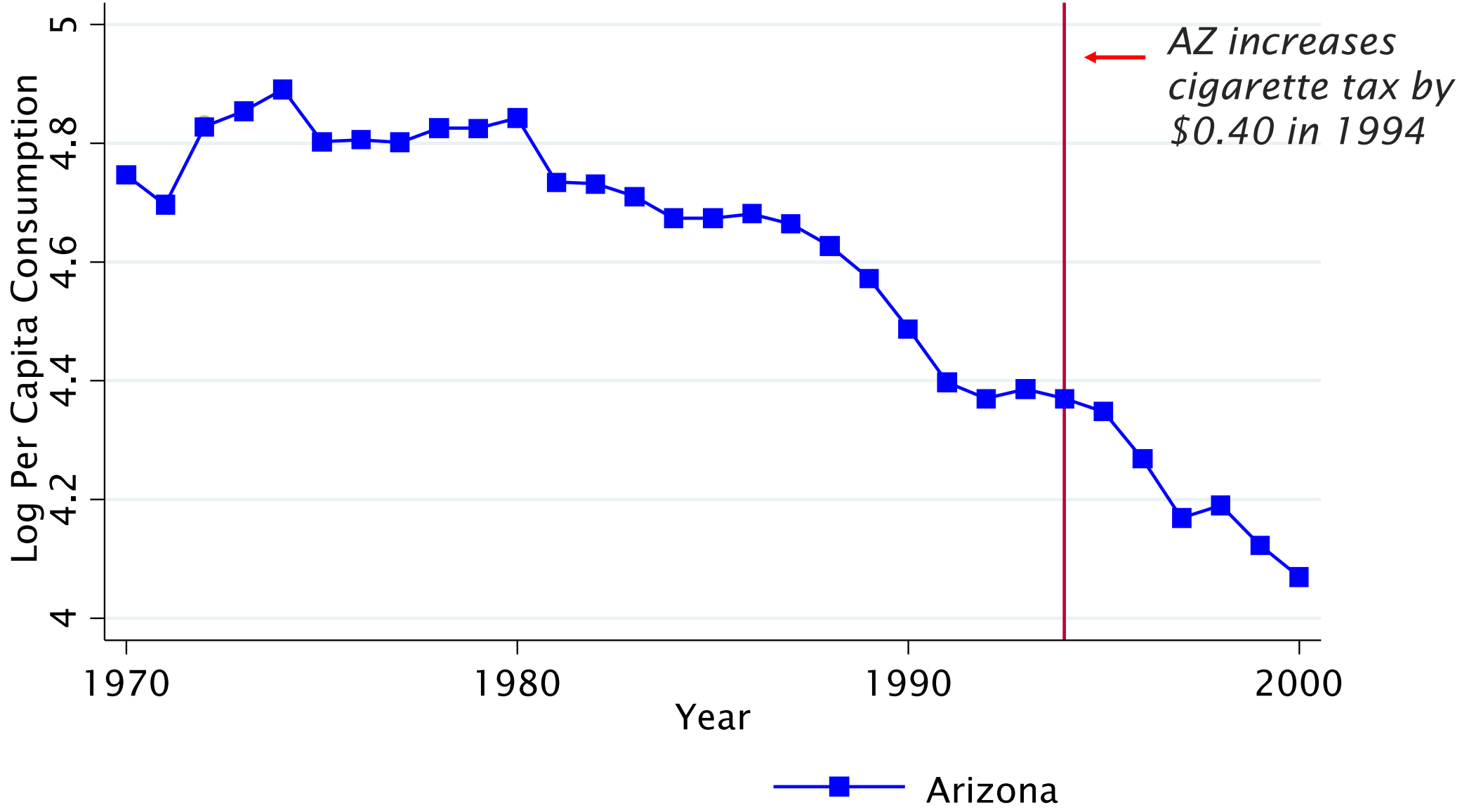
  4. Review of linear regression for RDD to quantify discontinuity at threshold

Differences in Differences

- **Differences in differences** is a powerful quasi-experimental method for estimating causal effects in observational data
  - Observe outcomes *both* before *and* after a policy change
  - Observe outcomes for *both* an affected group *and* an unaffected group
- **Identification Assumption:** Parallel Trends
  - In the absence of the treatment, the outcome *would have* changed by the same amount in the treatment group and control group
  - We assess whether this is plausibly satisfied using binned scatter plots

Do Cigarette Taxes Reduce Smoking?

Cigarette Consumption in Arizona and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5a

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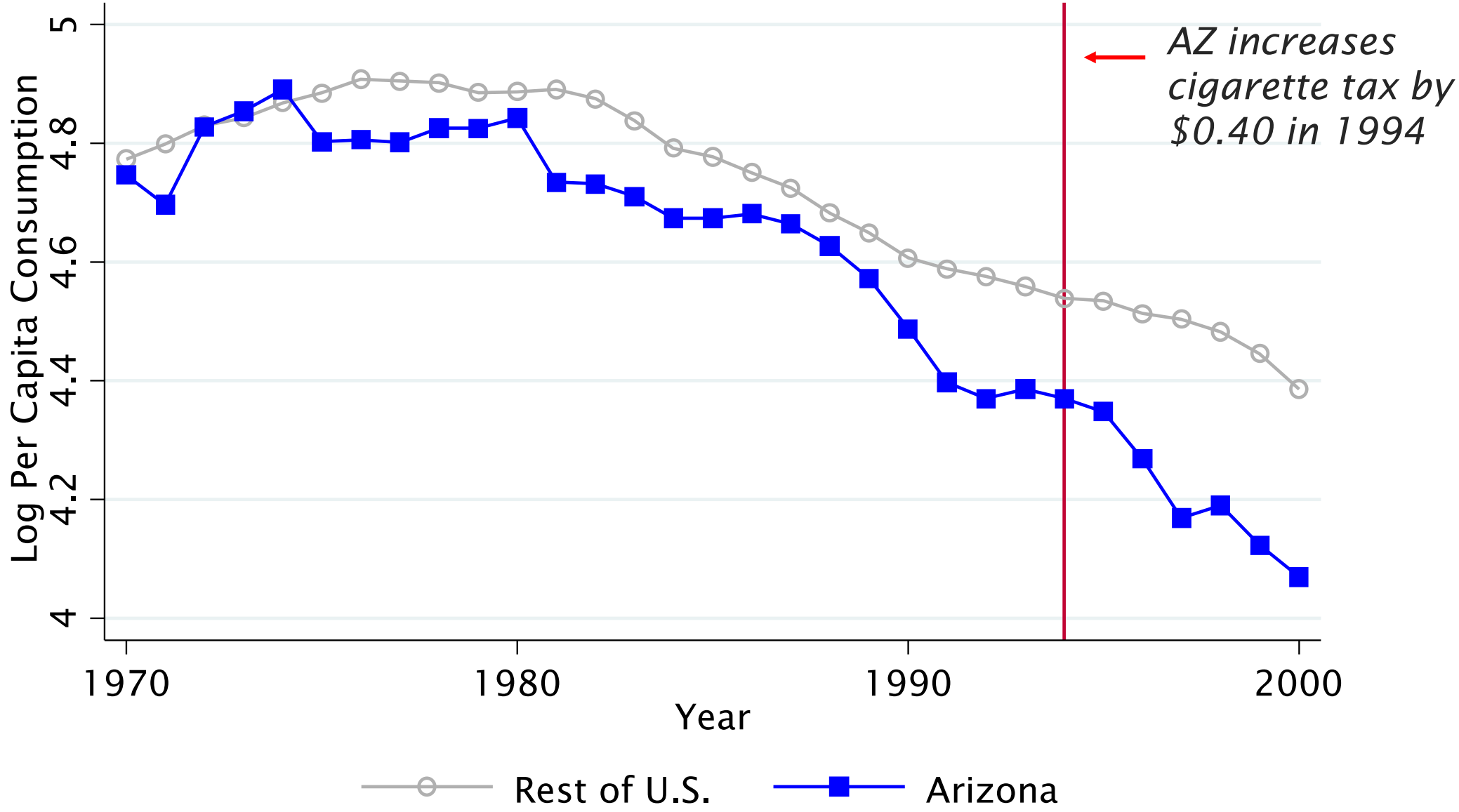
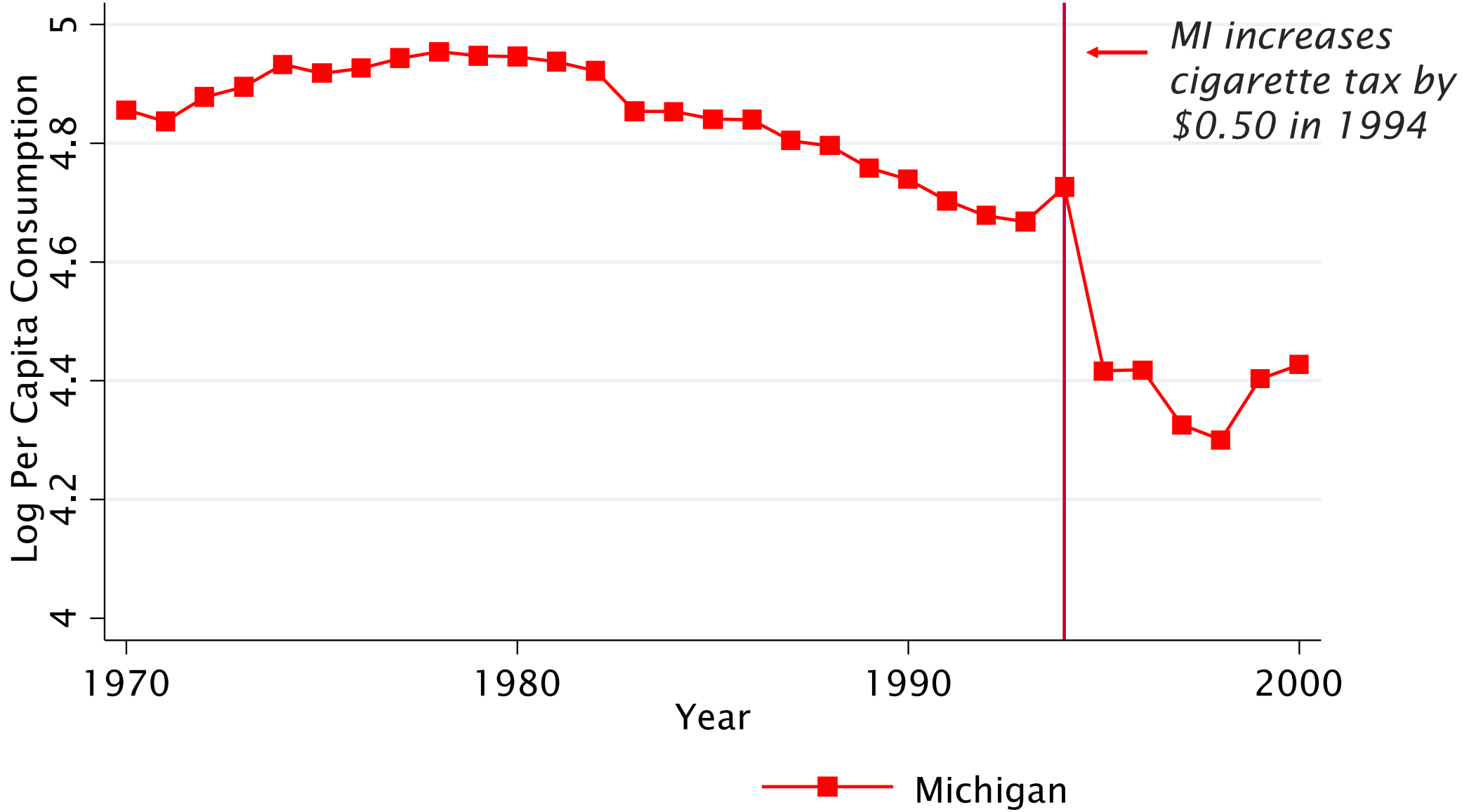
Cigarette Consumption in Arizona and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5a

Do Cigarette Taxes Reduce Smoking?

Cigarette Consumption in Michigan and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5b

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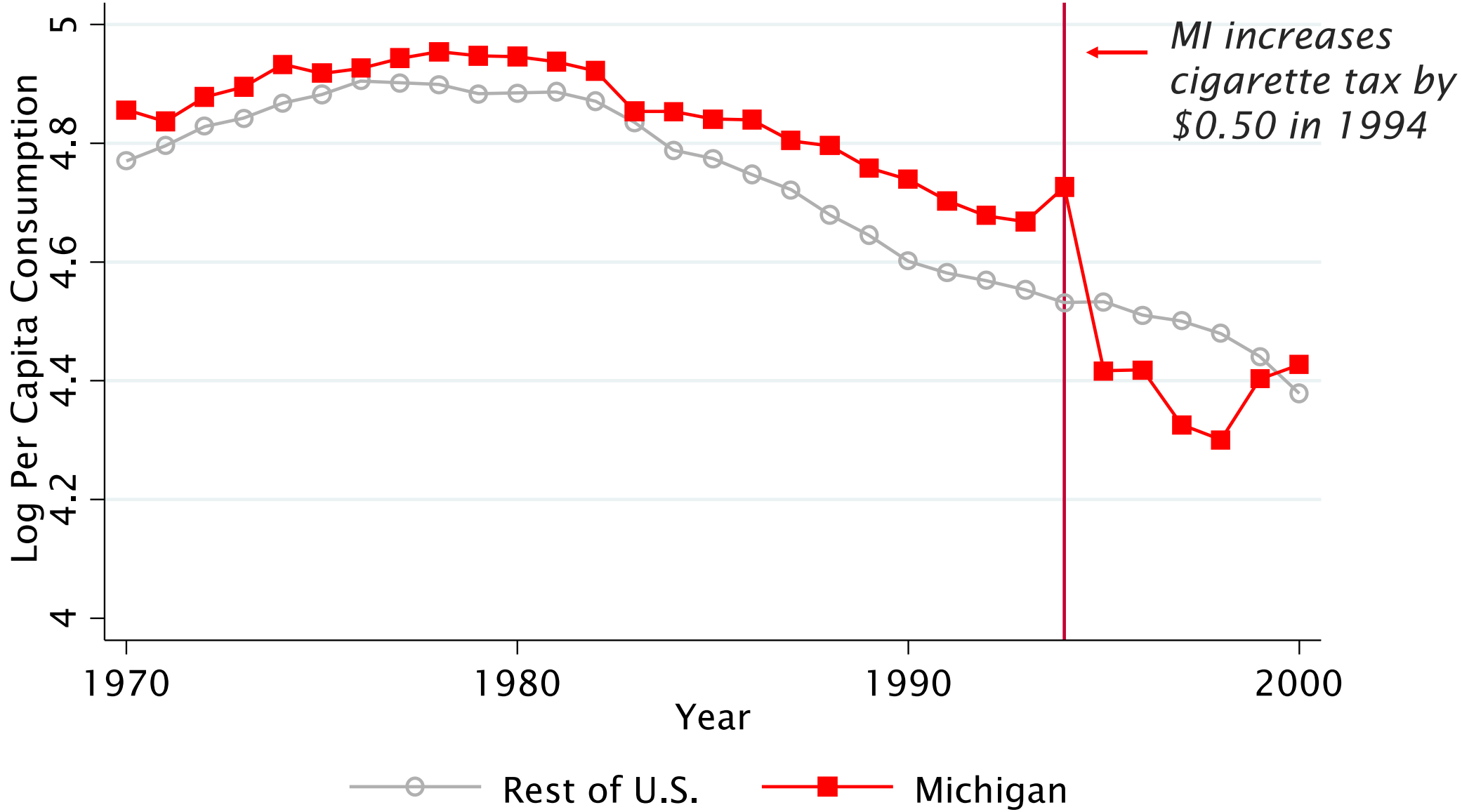

Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5b

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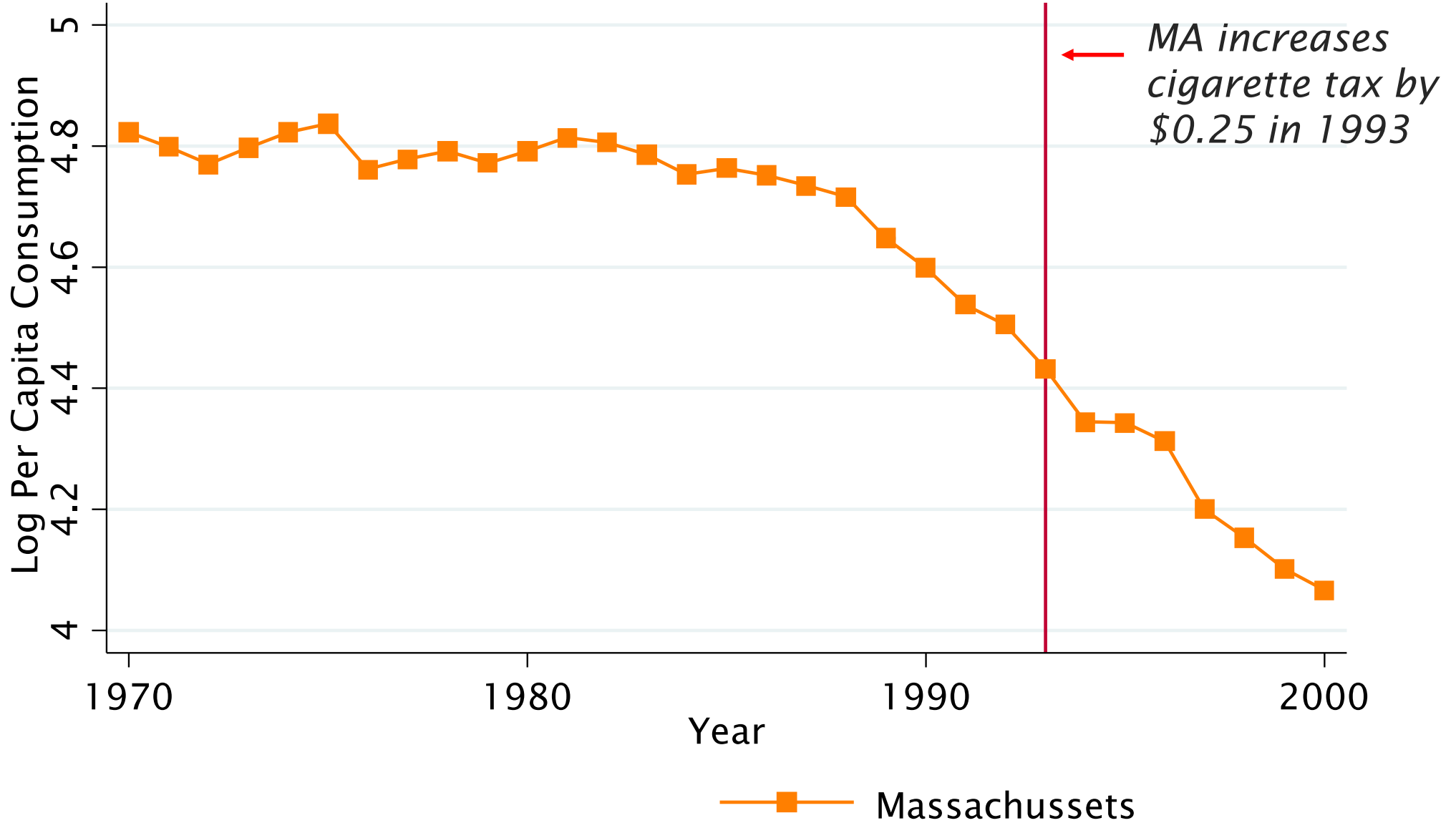
Cigarette Consumption in Massachusetts and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5c

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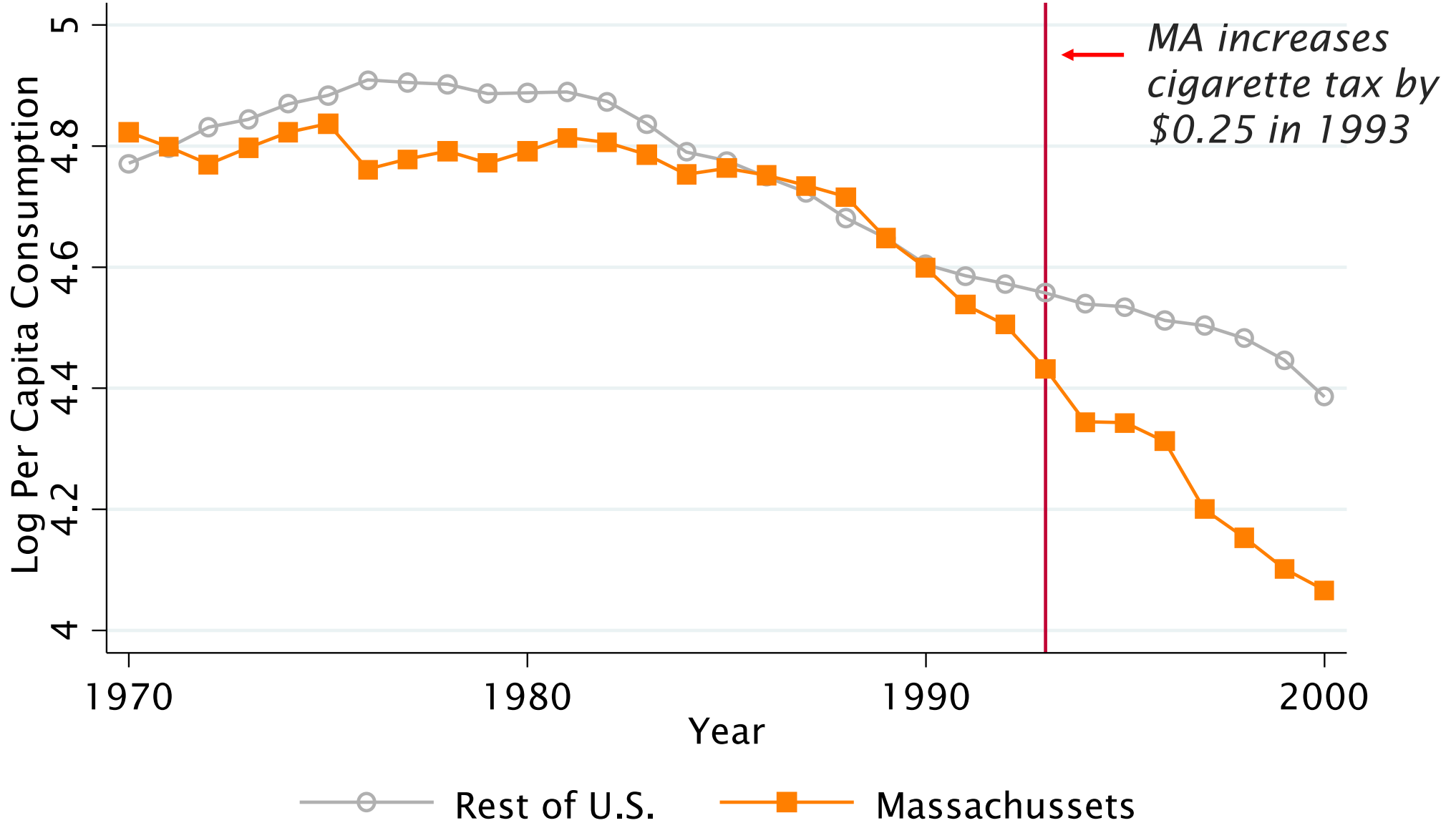
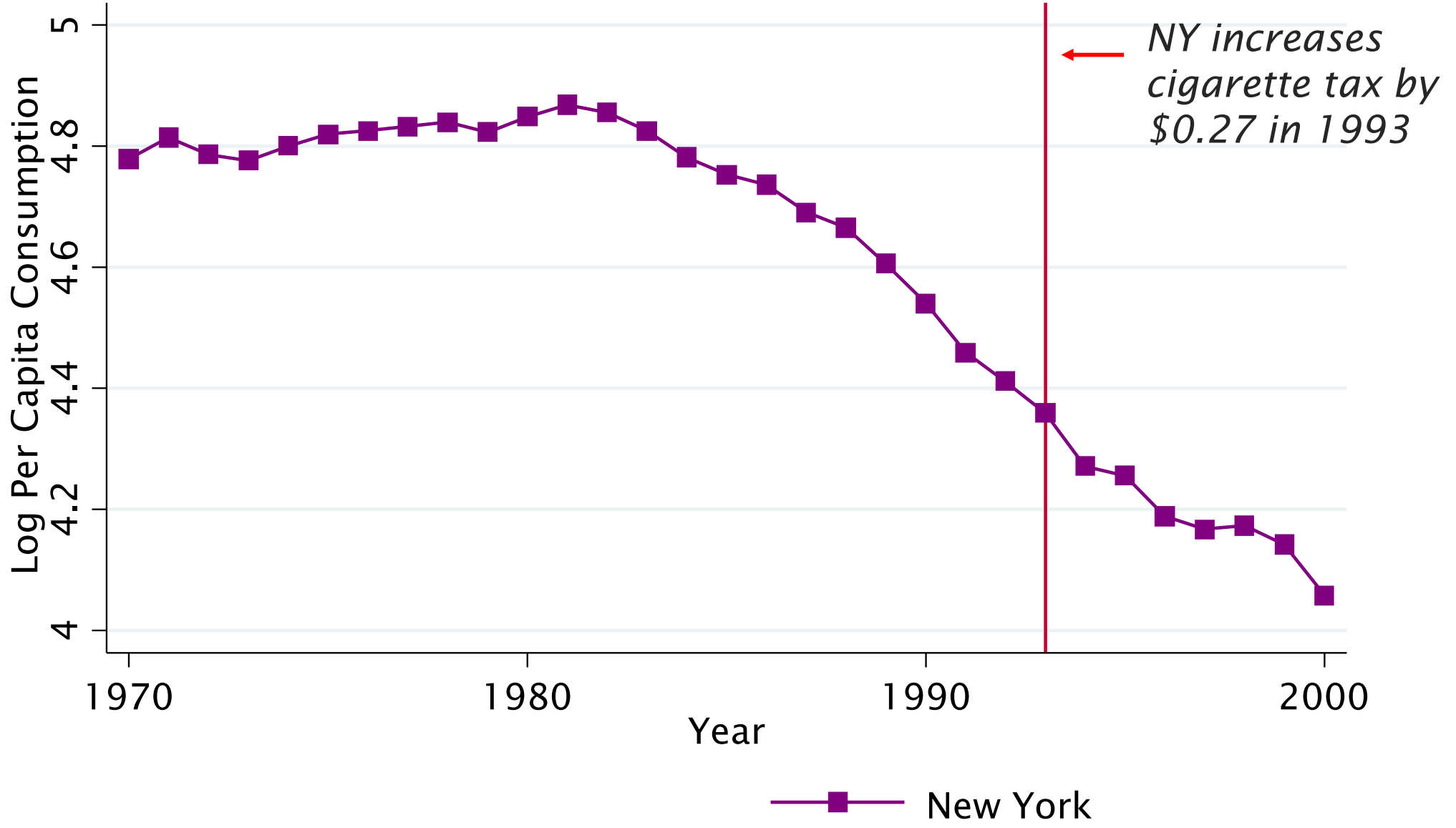
Cigarette Consumption in Massachusetts and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5c

Do Cigarette Taxes Reduce Smoking?

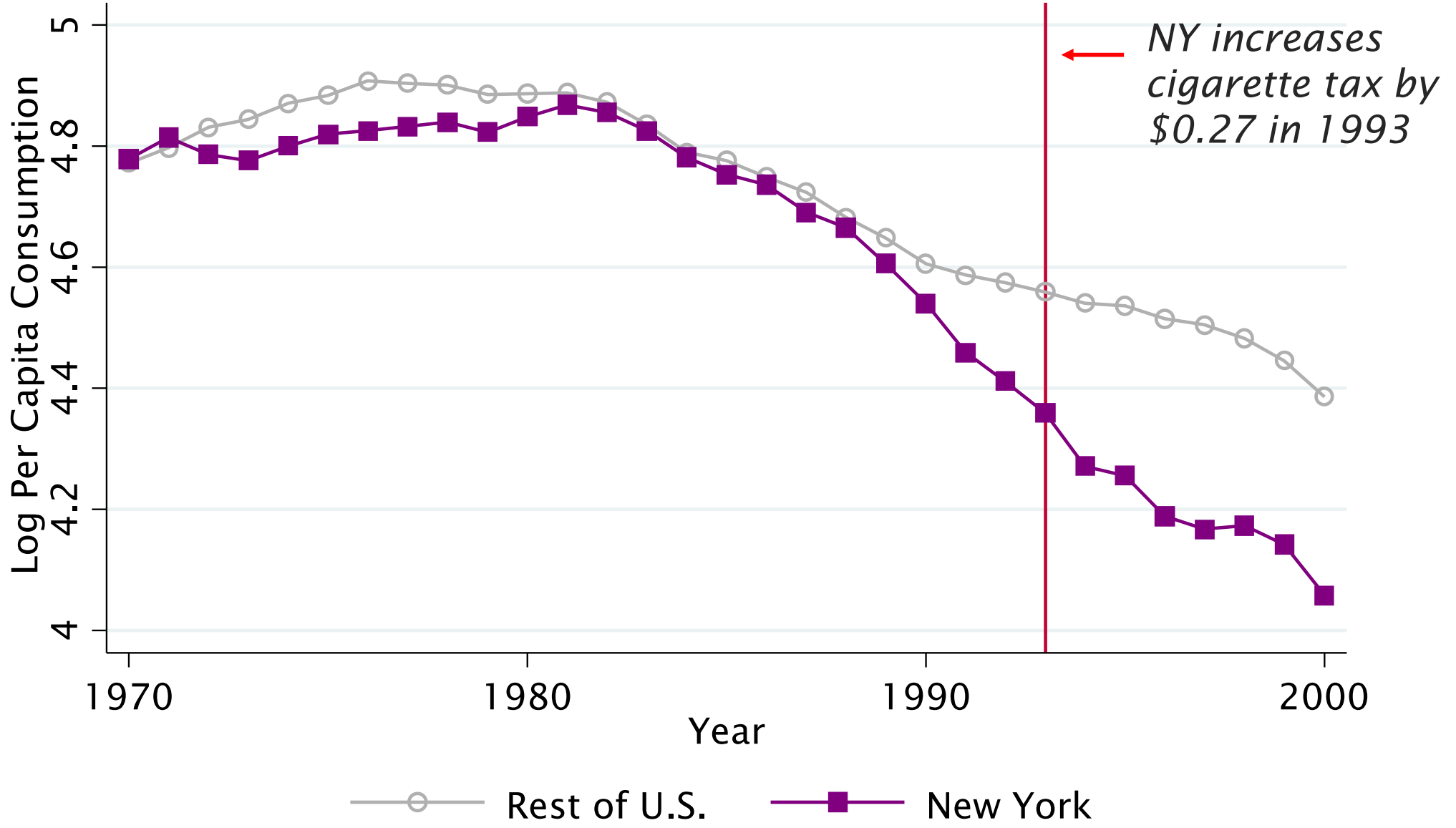
Cigarette Consumption in New York and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5d

Do Cigarette Taxes Reduce Smoking?

Cigarette Consumption in New York and rest of the U.S.



Source: Bruich 2018 replication of Evans, Ringel, and Stech (1999) Figure 5d