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**Working Paper**

## Still no reform effect, just overfitted control functions and inflated precision

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No. 249  
DISCUSSION PAPER SERIES

# Still no reform effect, just overfitted control functions and inflated precision

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Johanna Rickne

**This paper responds to:**

Ciacci, R.. 2025. Re-analysis of Adema et al. (2025a). *I4R Discussion Paper Series* No. 248. Institute for Replication.

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## I4R DISCUSSION PAPER SERIES

I4R DP No. 249

### **Still no reform effect, just overfitted control functions and inflated precision**

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## **Still no reform effect, just overfitted control functions and inflated precision**

*Joop Adema (University of Innsbruck), Olle Folke (Uppsala University), and  
Johanna Rickne (Stockholm University)\**

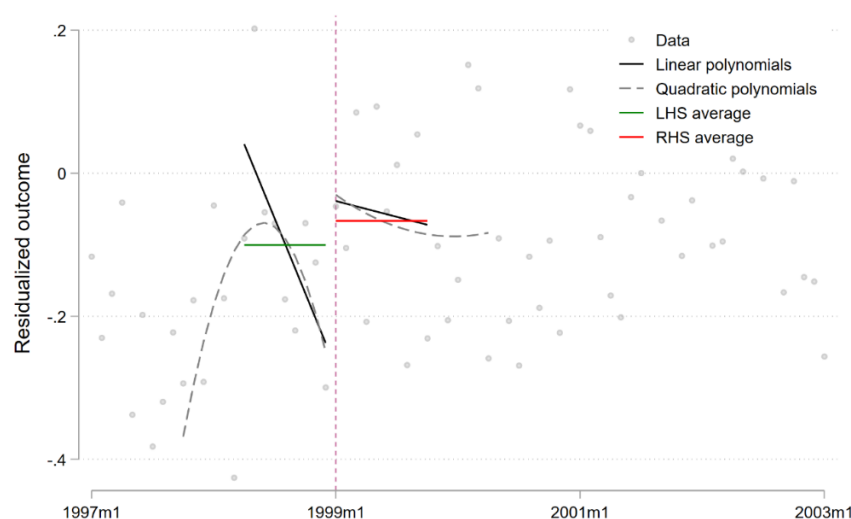
### **Abstract**

In his comment on our replication of Ciacci (2024), Ciacci (2025b) again finds large and statistically significant treatment effects on rape from Sweden's ban on sex purchases. These estimates derive from overfitted control functions and incorrect clustering in the regression discontinuity in time analysis. We show how this happens and conclude that the comment does not alter the prior conclusions in the replications of the original article (Adema et al. 2025; Ciacci 2025).

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The Swedish reform to ban sex purchases was implemented in 1999 at the national level. All regions received the same treatment at the same time. This gives a single cluster of treated observations and insufficient variation in the data for estimating a Regression Discontinuity in Time (RDIT).

In addition to the fundamental problem with statistical precision in Professor Ciacci's analysis, the outcome (rape) does not actually jump upward in the treatment year (Adema et al. 2025). His response to our replication continues to demonstrate that one can find a treatment effect even under this challenging circumstance. Figure 1 shows how this happens in his new preferred analysis. The estimations use data for a narrow window around the reform, which makes the control functions bend toward data points close to the threshold to give the illusion of a treatment effect. This happens for both the specification with linear control functions and a 9-month time window, and the specification with nonlinear control functions and a 15-month window (columns 1 and 2 of Table 1).



**Figure 1.** Overfitted control functions in the author's response to Adema et al. (2025).

Some robustness tests provide further evidence. Figure 1 shows how the control functions bend toward a particularly low values immediately to the left of the threshold. A “donut” restriction dropping the closest month to each side of the threshold makes the treatment effect smaller and flips the in the specification using second order polynomials of the forcing variable. The treatment effect goes to zero as we increase the size of the data window from the threshold.

Professor Ciacci's response to our replication presents a new analysis, showing a significant treatment effect driven by overfitted control functions and incorrect clustering. It does not alter the conclusions reached in the replications of Ciacci's original article (Adema et al. 2025; Ciacci 2025).

## References

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