Research question, in brief: Did Ohio’s passage of a constitutional amendment protecting a woman’s right to abortion improve mental health (as measured by PHQ-4 scores)?

Below are results from weighted difference-in-difference models; the data come from the Household Pulse Survey, and the treated group is Ohio in both models. Treatment time is November 2023, when Ohio passed a constitutional amendment protecting abortion. Model 1’s comparison group is all other states, Model 2’s comparison group is states that passed a constitutional amendment *after* Ohio (in 2024).

A graph with numbers and lines

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As you can see, the results are significant for both models.

However, the “raw” data (weighted averages of PHQ-4 scores per state/time) looks like this, with a blue line for Ohio and a red line marking treatment time:

A graph of a graph showing a line of a graph

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AI-generated content may be incorrect.The gut reaction I have to this is: oh no, the effect isn’t “real,” because *everybody’s* PHQ-4 score went down for some reason at the treatment time. The HPS changed “phases”/“cycles” at this point from Phase 3 to Cycle 4 – I couldn’t find any documentation that said they changed the study population or survey procedure, only that some of the questions asked were different (not any that I use), but that doesn’t mean they didn’t. So, my models are just picking up *everybody’s* improvements in PHQ-4 scores for some mystery reason, or new measurement error.

But, thinking it over more, my intuition says that this *shouldn’t* matter – it shouldn’t make a “false positive” more likely, because the difference-in-differences model is comparing Ohio *to the other states in the model*, not just Ohio post-treatment vs. pre-treatment. So, the only way it would make a false positive is if whatever is driving down scores for everybody drives down Ohio’s scores *in particular*. Which, kind of, is the argument I’m making – regardless of what larger trends existed in PHQ-4 scores nationally, Ohio’s passage of this constitutional amendment conferred a marginal benefit on its female citizens.

Is this reasoning correct? If so, how can I frame this in the paper in a convincing way? If not, any suggestions for how to proceeed?