Reviewer's report

Title: Association between unemployment rates and prescription drug utilization in the United States, 2007-2010

Version: 3 Date: 30 October 2012

Reviewer: Tim Bruckner

Reviewer's report:

Major Compulsory Revisions:

The Authors responded to most of my points, but one important interpretational caveat remains: the issue of temporal autocorrelation in both unemployment rate and drug sales not captured by state mean or quarter-year indicator variables. This autocorrelation remains a rival explanation that their approach cannot exclude. As an example, Catalano et al (Paediatr Perinat Epidemiol. 2005 Nov;19(6):413-20) plot monthly dispensations of anxiolytics in Sweden over 200+ months. I acquired their raw data series and, using time-series methods (ARIMA), found (1) trend; (2) Moving Average parameter at lag 1 month; (3) Autoregressive parameters at 3 and 12 months. Of course, the temporal "signature" of your drugs in the US will differ, but the point is that these variations are "scheduled" and are thought of as independent of economic performance. Moreover, state unemployment rates exhibit autocorrelation other than annual trend and quarterly seasonal effects.

For this reason, I recommend the inclusion of the following text (either in the Methods or Conclusion):

"Our within-state estimates then gauge how variation in relative economic deprivation within a state, associated with the recession, relates to drug utilization. Whereas our methods remove annual and quarterly temporal patterns in drug utilization, this approach does not remove confounding due to other well-characterized temporal patterns in both drug utilization and unemployment (e.g., calendar effects, autoregressive "memory" across quarters, or oscillations)."

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests