Infant Mortality and the Repeal of Federal Prohibition

1. What is the main question?

The authors try to find the connection between the repeal of federal prohibition and infant mortality. The possible mechanism behind this is that the repeal of federal prohibition would potentially increase maternal alcohol consumption. According to medical literature, maternal alcohol consumption would compromise infant immune systems and reduce birth weight, which increase the chance of subsequent infant death. The authors also point out the importance of cross-border policy externalities, that is, after repeal of federal prohibition, it is not only the county that repealed would be affected by the policy, but also its neighbor. Another main question in this paper is trying to test the significance of such the externalities.

2. Why should we care about it?

Federal prohibition laws on the production, sale, and transportation of alcohol during 1920 to 1933 has caused the great impact on economic and society in the U.S, though there is little economic research about it. Besides historical interest, understanding the effect of policies toward alcohol restriction is still important nowadays, and cross-border policy externalities should be taken into consideration when implement such a policy.

3. What is the author's answer?

The authors refer the counties that allow for the sale of alcohol as "wet" counties, and the counties that chose to continue with alcohol prohibition as "dry" counties. Besides this, the authors also distinguish dry counties that has at least one wet neighbor county as "dryish" counties. The finding is that the counties that became wet would increase baseline infant mortality by 4%, or 2.4 additional infant deaths per 1000 live births in 1934. And the dryish status would raise baseline infant mortality by 4.7%, or 2.82 additional infant deaths per 1000 live births in 1934.

4. How did the author get there?

To apply difference-in-difference method and deal with heterogeneous treatment effect, the authors try to pair counties into "triad", which consists of one county with dryish status, one nearby county with wet status, and one nearby "bone dry" county as the control county. The advantage of using triad is that the nearby county can act as good control and can allow triad-specific time trends in analysis. Due to low numbers of births and discrete nature of mortality rates, the authors implement a binomial fixed effect model, which treats each birth as a Bernoulli random variable. In this structure, the response variable is the number of infant deaths, and the treatment variable are county-year level indicators of whether or not a county is wet and whether or not a county is dryish. For infant mortality, the authors specify the probabilities as given by the logit function, and estimate this fixed effect binomial model by MLE. The estimated treatment effect would approximately equal to the elasticity of the probability of infant death with respect to treatment.