

Bar Talk

Informal Social Networks, Alcohol Prohibition, and Invention

BY MICHAEL ANDREWS, UNIVERSITY OF MARYLAND, BALTIMORE COUNTY

The COVID-19 pandemic—and the ensuing mix of lockdowns, stay-at-home orders, and the dramatic rise of remote work—drove home the value of face-to-face social interactions. Scholars have long recognized that these kinds of interactions are important drivers of economic growth that facilitate the transmission and recombination of ideas that lead to innovation. Scholars have further postulated that the settings in which social interactions occur are important for the transmission of ideas, but few studies have quantitatively assessed the importance of social settings for innovation; even fewer studies look at how social networks evolve as the settings in which people interact are forced to change. My research addresses these gaps and focuses on the importance of *informal* social networks for innovation.

Informal social networks—interactions that take place outside the formal structure of settings such as the workplace, that have no agenda, and that involve combinations

of interactions among close friends, acquaintances, and strangers—are especially difficult to study because data on these kinds of interactions often do not exist. Furthermore, people choose with whom they interact; inventive people may enjoy getting together, perhaps over a coffee or beer, but that does not mean their conversations caused them to invent. While virtually unstudied, informal social networks are likely important because individuals spend a large portion of their time in informal settings, and interactions in these settings may lead to ideas that are distinct from, but complementary to, those that occur in formal settings.

I investigated a massive disruption of informal social networks from U.S. history: state-level alcohol prohibition. The role of bars as gathering places is well-known, and examples of innovations first articulated in bars are plentiful, including the first electronic digital computer, MRI machines, and Discovery Channel's Shark Week. In the decades prior to the enactment of prohibition laws, saloons



Editor, **JEFFREY MIRON**, Harvard University and Cato Institute.

were even more important as social hubs than bars are today, with a large share of the population spending a large fraction of their nonworking hours there. With the passage of prohibition, states shut down these social hubs, disrupting the informal social networks that were based there and forcing people to find other venues in which to interact. I studied how inventive activity, measured by the filing of patents, changed following these prohibition-induced social network disruptions.

I examined the imposition of state prohibition laws, which spread throughout the United States at different times over the first two decades of the 20th century prior to the enactment of federal prohibition in 1920. Before state-level prohibition, counties within each state could determine for themselves whether to allow saloons. When state-level prohibition laws went into effect, local social networks in counties that had already outlawed saloons (the already dry counties) were relatively unaffected, while local social networks in counties that previously allowed saloons (the previously wet counties) were massively disrupted. I compared changes in patenting in wet counties after the start of state prohibition with changes in patenting in dry counties.

A natural concern is that the same changes in social and cultural views that led to the adoption of prohibition laws occurred within wet counties and affected invention. For example, states became more likely to adopt prohibition laws as their populations became increasingly religiously conservative. Prior research suggests that more religiously conservative communities are less open to new ideas and thus produce fewer inventions. Any change in patenting after the introduction of prohibition laws may therefore be picking up changes in religious conservatism or other social and cultural changes rather than the effect of prohibition-induced social network disruption.

I minimized this concern by examining county prohibition statuses and alcohol-related voting results over time to focus my analysis on counties that had persistent views of alcohol and saloons; the idea is that if counties had many opportunities to change their laws to reflect changing local cultural views but did not do so, social and cultural attitudes in these counties were likely largely consistent over time. When restricting attention to these counties with consistent local laws, one can be confident that any change in that county's prohibition status was driven by changes in the

statewide law rather than changes in underlying cultural views in the county.

I found that patenting dropped by 13–35 percent in wet counties relative to dry counties after prohibition was imposed. This effect varied over time; patenting fell most dramatically in the first few years after prohibition before roughly returning to the pre-prohibition level within five or six years. This pattern is consistent with the reconstruction of informal social networks as individuals forged new informal connections over time.

Of course, prohibition could have affected invention through many channels beyond disrupting informal social networks. I performed several analyses that support the interpretation that my results are driven by the disruption of saloon-based informal networks.

First, I investigated several events in which statewide prohibition laws were brought to a vote in statewide referendums but in which the referendums failed to pass; failed referendums had no effect on patenting in the wet counties relative to the dry counties. I similarly found no effect after the passage of temperance education laws, which mandated teaching the evils of alcohol in public schools and were seen as preludes to prohibition but did not actually close saloons. These results suggest that closing saloons, rather than simply increasing anti-alcohol sentiment, drove the decline in patenting after the passage of prohibition.

Second, the drop in patenting following prohibition was largest for individuals belonging to groups that frequented saloons, namely men; there was virtually no drop in patenting for women, who were excluded from saloon-based informal networks.

Third, I exploited the fact that even among counties with the same prohibition status, saloons were likely a more important social hub in some counties than others. The drop in patenting was larger among wet counties with a higher number of bartenders per capita in the years before prohibition and smaller among wet counties with more readily available substitutes to saloons, such as barbershops. I also found no evidence that the results were driven by a decline in alcohol-related patenting, that the population changed after prohibition differently in wet counties than in dry counties, that wet counties experienced economic downturns or rises in violent crime after prohibition, or that changes in alcohol consumption explain the decline in patenting.

As informal social networks were rebuilt following prohibition, did individuals connect with the same individuals in new venues, or did they interact with new people and become exposed to different sets of ideas? In other words, was it possible to transport the same social network from the saloon to the speakeasy—perhaps after some time passed and individuals learned where it was safe to imbibe—or did the structure of informal social networks change following their disruption?

I investigated these questions by observing how the identities of inventors and their collaborators changed after prohibition. Individuals who obtained patents before prohibition saw a decline in their patenting in wet counties relative to dry counties after prohibition and, in contrast to overall levels of county patenting, patenting by these specific inventors did not rebound within five years. This suggests that the individuals who were able to use the preexisting informal social network to facilitate invention before prohibition struggled to use new informal networks in the same way. By examining co-patenting behavior, I found that individuals with prior patents struggled to find new collaborators after prohibition but that they continued to invent with their prior collaborators at similar rates.

I also found evidence that the changing structure of informal social networks influenced the direction of inventive activity. After prohibition, inventors with prior patents in wet

counties were less likely to patent in the same technologies in which they had previously patented relative to inventors in dry counties. Moreover, after prohibition, all inventors in wet counties were less likely to produce patents in the narrow technologies that used to be most common in that county. These patterns were not driven by a shift away from or toward any specific technologies, as might occur if wet counties shifted away from alcohol-related inventions, but rather there was more churn in the types of technologies produced when prohibition forced local informal social networks to change.

While alcohol prohibition is unlikely to be resurrected as a policy today, the results in this study contain broad lessons about the consequences of disrupting social networks that are relevant to our experience with the pandemic and beyond. The first lesson is clear: disrupting informal social networks has large negative effects on innovation. But while disrupting informal interactions is costly, these results also show that people are resilient and find ways to build new social networks over time.

NOTE

This research brief is based on Michael Andrews, “Bar Talk: Informal Social Networks, Alcohol Prohibition, and Invention,” June 25, 2023.



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