

Vienna 2019 Abstract Submission

Title

The Role of Craft Breweries in Expanding (Local) Hops Production

I want to submit an abstract for:

Conference Presentation

Corresponding Author

Elizabeth Dobis

E-Mail

edobis@psu.edu

Affiliation

Pennsylvania State University

Co-Author/s

Name	E-Mail	Affiliation
Neil Reid	neil.reid@utoledo.edu	University of Toledo
Claudia Schmidt	cschmidt@psu.edu	Pennsylvania State University
Stephan Goetz	sgoetz@psu.edu	Pennsylvania State University

Keywords

Craft Breweries, Hops, Count Panel Model

Research Question

Is the growth and spatial dispersion of hops farming related to the increase in craft breweries?

Methods

Descriptive Statistics, Count Panel Regressions

Results

Preliminary results indicate that there is a positive, statistically significant effect of breweries on the number of hops farms in a state.

Abstract

ABSTRACT:

In recent decades the number of craft breweries in the United States has increased dramatically, with the result that by 2017, there were 6,266 such establishments (Brewers Association, 2018a). Craft beer accounts for 23.3 percent of all beer sales in the United States (Brewers Association, 2018b). Demand for craft beer is driven by beer drinkers (mainly young consumers) who are attracted by the greater diversity of beer styles offered by craft brewers (McLaughlin et al., 2016). Importantly, demand for craft beer also reflects a renewed interest in supporting local economies through the purchase of locally made products. Flack (1997, 49) suggests that craft breweries represent a “rejection of national, or even regional culture, in favor of something more local.” In a similar vein, Schnell and Reese (2014, 168) argue that that craft breweries are partly a response to the “smothering homogeneity of popular, national culture” and the desire on the part of increasing numbers of people to

“reestablish connections with local communities, settings, and economies.”

While the breweries producing craft beer are locally owned, most of the ingredients that comprise the beer are imported from other states. Indeed, often the water is the only local ingredient, with the hops, barley, and yeast coming from elsewhere. In recent years, however, there has been growing interest in increasing the local content of craft beer by incorporating more locally grown ingredients. This has been particularly true of hops. Beyond consumer preference, policy may also influence the demand for local inputs. For example, farm breweries in New York must currently obtain 20 percent of their inputs from the state, and by 2024 the requirement will be 90 percent.

The center of the American hop industry is the Pacific Northwest states of Washington, Oregon, and Idaho. Until recently, all American hops were grown in these three states. With increased demand for locally grown ingredients, however, the number of states growing hops currently stands at 29 states (Hop Growers of America, 2018). This increased spatial dispersion of hops growers has largely occurred in the last ten years and corresponds, we hypothesize, with an increase in the number of craft breweries. According to NASS data from the early 20th Century, this trend represents a shift of hops production back to places of historical production in New England, as well as an unprecedented shift of hops production to new regions.

The dynamic changes occurring in the craft brewing and hops growing markets lead to the question: is the growth and dispersion of hops farming related to the increase in craft breweries? Essentially, we are interested in whether increasing demand for local hops results in more local production, both by existing and new growers. To analyze the relationship between the spatial expansion of hops production and craft brewery growth, we first assume that the hops grown in these new locations are being purchased locally by brewers within the same state. Using this assumption, we analyze whether the number of hop farms in a state is related to the number of craft breweries, over the twenty years from 1997 to 2017, holding constant other factors hypothesized to contribute to increased numbers of growers. Higher numbers of growers in a region could also enhance local competition for supplying brewers (and raise quality, although we do not test for this here). Our work contributes to the expanding literature on local breweries and their local supply chains, including earlier work that examines the determinants of craft breweries expansion (Malone and Lusk, 2016).

We estimate a fixed effects count panel model with the specification:

$$\text{Hops}_{st} = \alpha + \phi \text{Breweries}_{s(t-1)} + X_{s(t-1)} \beta + \theta_s + \varepsilon_{st}$$

where Hops_{st} is the number of hops producers in state s at time t , $\text{Breweries}_{s(t-1)}$ is the number of breweries in state s at time $t-1$, $X_{s(t-1)}$ is a matrix of variables describing state-level factors that influence hops production such as latitude, rainfall, temperature, and input prices, and θ_s are state fixed effects. The model utilizes hops production data from the Census of Agriculture and breweries data from Reference USA, resulting in a five-year panel analyzed over four time periods.

The dependent variable and geographic areal unit chosen for our model are determined largely by data limitations and may not be intuitive, given our research question. Ideally, the relationship between the demand for local hops from craft brewers and the supply of hops from local farmers would be measured by the acres of hops harvested in a state. However, in states with fewer than four farms, or one dominant producer, this value is suppressed to prevent identifying specific farms. Therefore, we use the number of farms growing hops as a proxy for the local supply of hops, as this value is never suppressed. This has the important advantage of allowing us to focus on local clustering; in the firm location and cluster literatures, the number of establishments rather than total production matters for competition (e.g., Goetz 1997; Goetz, Deller and Harris, 2007). As for the geographic areal unit, while the state level may seem too large to analyze “local” production of beer and hops, smaller geographical areal unit such as counties are too disaggregated to capture trends. Additionally, craft breweries are primarily located in urban areas, which may span several counties, and source their hops from surrounding counties where there is land area to grow the hops. In this case, using county-level data would not capture the “local” relationship between brewers and growers.

As proof of concept, we estimated several cross-sectional Poisson regression models using our main variables of interest as well as the latitude of each state’s centroid to roughly control for environmental factors. We find that there is a positive, statistically significant effect of breweries on the number of hops farms in a state. Given this

preliminary confirmation of our hypothesis, we estimate the full model described above and present the subsequent results. We also highlight a number of policy recommendations for expanding local hops production, such as the potential role of university extension services, as well as the limits to such policies.

REFERENCES:

Brewers Association. 2018a. "Number of Breweries" Brewers Association
<https://www.brewersassociation.org/statistics/number-of-breweries>.

Brewers Association, 2018b. "National Beer Sales & Production Data" Brewers Association
<https://www.brewersassociation.org/statistics/national-beer-sales-production-data>.

Flack, W. 1997. "American microbreweries and neolocalism: 'ale-ing' for a sense of place" *Journal of Cultural Geography* 16(2): 37-53.

Hop Growers of America. 2018. USA Hops 2017 Statistical Report. https://www.usahops.org/img/blog_pdf/105.pdf.

Goetz, S. J. 1997. "State- and county-level determinants of food manufacturing establishment growth: 1987-93" *American Journal of Agricultural Economics* 79: 838-850. doi: 10.2307/1244425.

Goetz, S.J., S. Deller and T. Harris, eds. 2009. *Targeting Regional Economic Development* UK: Routledge/Taylor and Francis Group.

Harlow, S. 2018. "Vermont grower 'hops' to it on former dairy farm" *American Agriculturist* Retrieved from <https://www.farmprogress.com/crops/vermont-grower-hops-it-former-dairy-farm>.

Malone, T. and J.L. Lusk. 2016. "Brewing up entrepreneurship: Government intervention in beer" *Journal of Entrepreneurship and Public Policy* 5(3): 325-342.

McLaughlin, R.B., N. Reid, and M.S. Moore. 2016. "Inter-metropolitan location patterns of commercial craft brewing in the United States" *Studies in Regional Science* 46(1): 115-129.

Pete, J.S. 2016. "NWI Hops Farms Blossom as Craft Beer Booms" *Northwest Indiana Times*. April 9. Retrieved from https://www.nwitimes.com/business/local/nwi-hops-farms-blossom-as-craft-beer-booms/article_1b07650c-a5a5-53b6-b408-ce5fb9e7bfc5.html.

Schnell, S.M. and J.E. Reese. 2014. "Microbreweries, Place, and Identity in the United States, In Mark Patterson and Nancy Hoalst-Pullen" *The Geography of Beer* Dordrecht: Springer, pp. 167-187.

Privacy

- The Role of Craft Breweries in Expanding (Local) Hops Production
- By using this form you agree with the storage and handling of your data by this website.