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Get a Room: How Tax Policy of Airbnb Affects Tax Revenues for State and Local Governments

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Abstract

Tourism is a major generator of tax revenue in Pennsylvania. This paper analyzes the debate on how to increase lodging tax revenues with the entrance of Airbnb into the accommodation market. The hotel industry argues that Airbnb should face the same tax regulations as hotels, whereas Airbnb advocates for voluntary collection agreements with state and local governments. The hypothesis is that strict tax regulation of Airbnb rentals generates higher occupancy tax revenues. This study analyzes Gettysburg data on occupancy rates of hotels and Airbnb listings and annual occupancy tax revenues of Adams County where Gettysburg is located. The empirical analysis finds that Airbnb's rising popularity in Gettysburg has had an insignificant impact on Adams County occupancy tax revenues despite the current voluntary collection agreement. The paper tentatively rejects the hypothesis and instead suggests that Pennsylvania's current proposed legislation of taxing Airbnb rentals like hotels may not increase tax revenues.

Introduction

Airbnb is growing in the state of Pennsylvania--so are the arguments as to whether the home-sharing platform should be held to the same regulatory standards as hotels. Lodging taxes are a particularly hot topic in the debate. Airbnb is part of the sharing economy where travelers can seek out alternative accommodations provided by ordinary people deemed "hosts". Properties rented out by hosts typically include single private bedrooms, apartments, and even entire houses. In 2018, approximately 14,200 Pennsylvania Airbnb hosts made \$122 million, \$21.2 million of that generating tax revenue for the state according to an announcement from Airbnb (Finnerty, 2019). A common argument presented by hoteliers is that enforcing stricter regulations on Airbnb will level the playing field between the home-sharing platform and traditional lodging. Current legislation sitting in the State House that would take a step in doing so. House Bill 787, sponsored by State Representative Doyle Heffley, would require all Airbnb operators to register with the state. Hosts would also have to share their rental information, including income, with their local county treasury department (O'Laughlin, 2019).

Tax revenues generated from lodging play an important role for state and local governments as the revenues help to finance the use of infrastructure and services by visitors as well as the marketing efforts by tourism agencies. These efforts may include the advertising and promotion of an area on social media or the publication of visitor guides. The promotion of areas as tourist destinations leads to income generation in industries beyond lodging. Pressure on lawmakers from hoteliers is mounting as Airbnb has begun to sign controversial voluntary collection agreements with state and local governments. Under these agreements, the company remits occupancy taxes to local taxing authorities on behalf of hosts. Critics of the agreement state that under these agreements, it is impossible to verify if the amount remitted is correct since Airbnb revenues are unknown. Proponents, however, argue that the agreements allow for areas to capture additional tax revenue during periods of high demand. Understanding how Airbnb affects tax generation may either justify or refute the need for stricter tax policy targeting Airbnb and other home-sharing platforms.

Theory and Hypothesis

The hotel industry argues that by enforcing Airbnb tax regulation, occupancy tax revenues will increase because of the losses that currently result from the voluntary collection agreements. A cost and benefit analysis of how Airbnb's expansion affects the economy references a study done by AllTheRooms.com in 2016 that forecasts a loss of $440 million in revenue for subnational governments due to the failure of Airbnb to ensure the full remittance of lodging taxes (Bivens, 2019, p. 17). The study referenced by the author does not, however, explain if the loss is per subnational government or aggregated across these governments.

Airbnb, on the other hand, argues that the company is already generating tax revenue for states and local governments under the current established framework of voluntary tax agreements. Evidence supporting this draws from the current agreement Airbnb has with the city of Los Angeles where the company remits 14 percent, tax revenue collections are significantly greater than originally anticipated by city officials. Airbnb brought in $13 million in tax revenues in the first five months of the tax collection in 2016, when city officials expected $5.8 million to be generated over an entire year (Schiller & Davis, 2017, p. 11). A similar agreement with Pennsylvania has yielded comparable results. After Airbnb signed an agreement with the state that they would remit occupancy taxes of six percent on behalf of hosts using the home-sharing platform, Revenue Secretary Eileen McNulty stated that the agreement was estimated to generate nearly $1 million in new tax revenue (Lloyd, 2016). Airbnb announced in 2018 that it provided $21.2 million in tax revenue to the state (Finnerty, 2019). The estimate compared with the actual tax revenue generation shows that the taxation of Airbnb under a lax policy results in revenues exceeding previous predictions.

The tested hypothesis is that hotel tax revenue generation is negatively affected by Airbnb's entrance into the accommodation market in Gettysburg. This destination was selected specifically because the scholarly literature on Airbnb focuses on major metropolitan areas in the United States. Gettysburg, known for its historic Civil War Battlefields, is a major tourist destination that lies in the countryside of Pennsylvania. Figure 1 shows a graph of occupancy tax revenue totals spanning from January 2010 to October 2019. The totals are adjusted for inflation calculated using the Consumer Price Index Base 1982-1984. A significant spike occurs in the summer of 2013, which can be attributed to events commemorating the 150th anniversary of the Battle of Gettysburg. The hypothesis is tested using a model to determine how hotel occupancy rates, Airbnb occupancy rates, and the busy tourist season affect occupancy tax revenues.

Methodology

The dataset for the regression model consists of a time series of hotel, Airbnb, and tax revenue data from October 2014 to October 2019. The hotel data come from the STR Destination Reports for Gettysburg. STR Destination Reports are a subscription that hotels industry wide purchase to analyze trends within their market. A Property Performance Report for Gettysburg from Airdna provides the Airbnb data. Airdna is a data analysis service which provides performance metrics for Airbnb hosts to use to evaluate their position in their market. The average occupancy rates of each listing type was averaged together for each month to provide an overall occupancy rate for Airbnb properties. A dummy variable represents the busy season. Dummy variables are used in regression analysis when a one-time systemic event occurs or to represent a category which cannot be quantified. In this model, a 1 indicates where the hotel occupancy rate for a given month reached 65 percent or higher and 0 otherwise. The dataset for the regression model has 61 observations. The regression was completed using the Ordinary Least Squares technique.

Discussion

Before evaluating the regression output, it is important to first consider the validity of the model for which there is a descriptive statistic called the Adjusted R-Squared. The Adjusted R-Squared output for this model is .9248. Typically for a model to be considered a good fit for a data sample using time series data, the result should be at least .8, therefore this model has validity. Table 1 shows the P-Value results for each variable tested. Using a five percent confidence level, according to this sample only the hotel occupancy rates have a statistically significant effect on occupancy tax revenues. To support the argument that stricter tax regulation of Airbnb would increase tax revenues due to current losses generated through voluntary collection agreements, a negative coefficient would be expected on the Airbnb occupancy rates variable and the variable would be significant. The regression output data of this study are contradictory. Not only are Airbnb occupancy rates statistically insignificant, but the coefficient on the variable is positive. Furthermore, the value of the coefficient can be interpreted to mean that for every one percent increase in Airbnb occupancy rate, occupancy tax revenues increase $580.61 in this model. Based on this statistical evidence, the hypothesis of this study is tentatively rejected.

The busy season dummy variable is also statistically insignificant in this model. The Ramsey RESET test can be used to determine if the model has omitted variables. The test on this model shows that there are omitted variables, meaning that the model is missing other variables that could impact occupancy tax revenues. This presents both a limitation to this study as well as an opportunity for future research. Some possible omitted variables which could be investigated include severe weather events and structural shifts in supply, i.e. construction of new hotels.

The data used in the regression also present some limitations to this study. The occupancy tax revenues are not disaggregated for Gettysburg Borough alone where the hotels and Airbnb listings are found. Instead, the totals are generated from Adams County as a whole, therefore the revenue totals may be inflated. Furthermore, the data in the STR Destination Reports are self-reported by participating hotels, therefore there are questions both about the integrity of the data and if all hotels in Gettysburg generating occupancy tax revenues are represented in the reports. Obtaining more data, including data from Airbnb's initial entrance into the lodging market in Gettysburg, is also recommended for improving the validity of this study's results. Applying this model to other regions and comparing the results with those of this study presents another opportunity for future research.

Conclusion

Due to the evidence provided empirically from the regression model, the hypothesis of this project is tentatively rejected. The paper creates several new insights. The paper formalizes the basic arguments in support of relaxed enforcement of taxation of Airbnb rentals which exist entirely in the non-scholarly literature. The paper presents both sides of the argument regarding taxation regulation for short-term rentals which has yet to be done in the literature. This study also contributes new knowledge regarding tourist destinations outside of major metropolitan regions with the analysis of the Gettysburg area. Lastly, the results of the project challenge the status quo that the current voluntary tax collections are leading to a loss of tax revenues.

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Author's Note

This article is a modification of the original research paper written to summarize the findings for a general audience. For a more complete and technical analysis of the results as well as details of the research process, please contact the author.

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Appendix

Regressed Variables as a Function of Occupancy Tax Revenues	Coefficients	P-Values (Statistically significant at 5% level if <.05)
Hotel Occupancy Rate	4716.877	0.000
Airbnb Occupancy Rate	580.6107	0.125
Busy Season Dummy Variable	16613.8	0.252

Table 1: Ordinary Least Squares regression output.

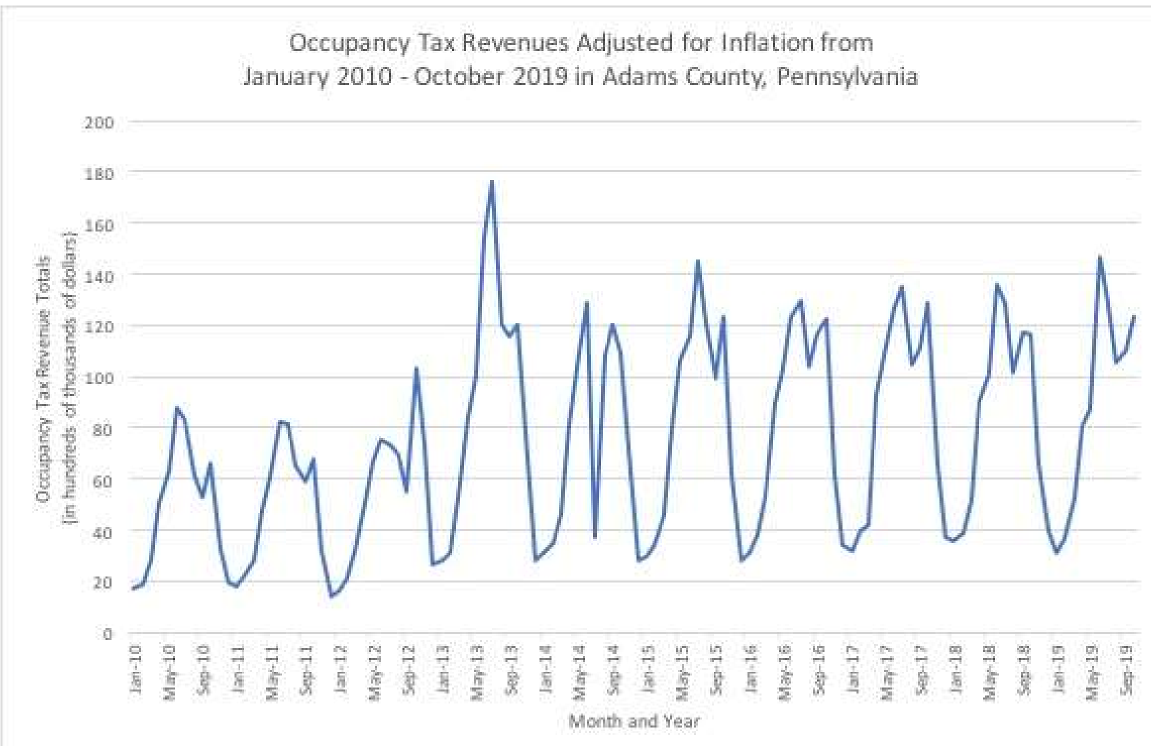

Figure 1: Occupancy rate tax revenues adjusted for inflation generated from January 2010 - October 2019 in Adams County, Pennsylvania. Source: Adams County Controller Office.

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