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## Effect of sharing economy on tourism industry employment



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What should we do when we wish to stay in a house in a travel destination? Purchasing real estate properties is unrealistic for most people. At present, online platforms have been designed through which people can lend their idle resources. Individuals can search for lenders on such platforms and then rent an idle resource that they require from its owner. Through this process, a new economic phenomenon, known as sharing economy, is born. A prominent example of sharing economy in the tourism industry is demonstrated by Airbnb, which enables owners to offer their unoccupied houses or rooms for short-term rentals. Renters can obtain accommodations at lower prices from Airbnb than from hotels in most cities (Permalink, 2013). Hence, Airbnb offers a double win to both owners and renters; that is, owners can earn extra income by renting out their unused houses or rooms, while renters can book accommodations at lower costs.

However, Airbnb has raised several concerns for governments. For example, establishing the legality of Airbnb operations through existing laws and policies is a complicated issue. Questions on the legitimacy of Airbnb has led to controversies in several cities (Bort, 2014; Brustein, 2014). An important question for governments is how sharing economy will change the tourism industry. Zervas, Proserpio, and Byers (2014) claimed that Airbnb was taking over the role of low-end hotels. Given that Airbnb room owners do not need to employ workers, the social unemployment rate may increase because of the closure of such low-end hotels. However, the entry of Airbnb may actually benefit the entire tourism industry because visitors who choose Airbnb accommodations spend more

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days traveling (Airbnb, 2014). Consequently, the market size of the tourism industry expands from the increase in the number of visitors. For example, more restaurants are required to satisfy the increase in food demand brought by the tourist influx. Hence, employment opportunities in the tourism industry are provided to unemployed residents. Based on the aforementioned points, whether Airbnb will benefit the tourism industry remains an open question. The present study aims to evaluate the effect of the entry of sharing economy on employment in the local tourism industry.

To explore this issue, we first gathered data from the Airbnb website, particularly on listing data for Idaho, USA. The tourism industry of this state outranks its other industries in terms of revenue (Infoplease, 2015) and continues to experience a remarkable increase (Johnson, 2014). Hence, investigating the effect of the entry of sharing economy on the local tourism industry of Idaho is vital. A total of 657 distinct listings for Idaho were collected and aggregated by county.

We then retrieved the county-level annual tourism employment data for the period of 2009–2013 from the Idaho Department of Labor and regard the information as the dependent variable. Given that population size may affect employment in the tourism industry, we consider county population as a control variable. Based on the collected information, we constructed county-year panel data covering the period of 2009–2013 to explore the effect of the entry of sharing economy on employment in the tourism industry. Finally, we proposed a fixed-effect linear model, as follows:

$$Employment_{i,t} = \beta_0 + \beta_1 Listing_{i,t} + \beta_2 Listing_{i,t}^2 + \beta_3 Population_{i,t} + \theta_i + \varepsilon_{i,t}, \tag{1}$$

where *i* represents the county and *t* represents the year. *Employment* is the logarithm-transformed annual employment rate in the tourism industry, *Listing* is the number of existing Airbnb listings in the county at the end of a certain year, *Population* represents the population of a county, *θ* identifies unobserved heterogeneity across counties, and *ε* is the random error term. The quadratic term for *Listing* is included to evaluate the marginal effect of Airbnb's entry as indicated in previous research (Liu & Park, 2015; Mudambi & Schuff, 2010).

As modified Wald test indicates the existence of heteroskedasticity ( $\chi^2_{44} = 50507.87$ , *p* value = 0.000), a robust standard error is used to address this problem (Baltagi, Bresson, & Pirotte, 2006). Meanwhile, the Wooldridge test result indicates no autocorrelation ( $F(1, 43) = 0.229$ , *p* value > 0.1). Table 1 shows that the entry of sharing economy is positively correlated with tourism industry employment, as denoted by the significant and positive *Listing* (coefficient = 0.005, *p* value < 0.1). However, given that *Listing*<sup>2</sup> is negative and significant (coefficient = -0.00004, *p* value < 0.1), the marginal effect of the entry of sharing economy decreases with increasing Airbnb listings. We further demonstrate the results through a 3D chart (Fig. 1).

A robustness test was conducted on three alternative models. The first model replaces *Listing* with its one-period lagged term. The second model uses the mean of the listings for the current and previous years to replace *Listing* (called *MeanListing*). Finally, we replace *MeanListing* with its one-period lagged term in model (3). The regression results of these models are presented in Table 2. The results exhibit the robustness of our main model because all *Listings* are positively significant and all quadratic terms are negatively significant.

**Table 1**  
Effect of sharing economy on employment in the tourism industry.

	Coef.	Robust std. err.
Listing	0.005 <sup>***</sup>	0.0024
Listing <sup>2</sup>	-0.00004 <sup>*</sup>	0.00002
Population	1.711 <sup>***</sup>	0.6321
R-square	0.117	
F test	117.71 (p-value = 0.000)	
Number of obs.	220	
Number of groups	44	

\*\*\* *p* < 0.01.  
\*\* *p* < 0.05.  
\* *p* < 0.1

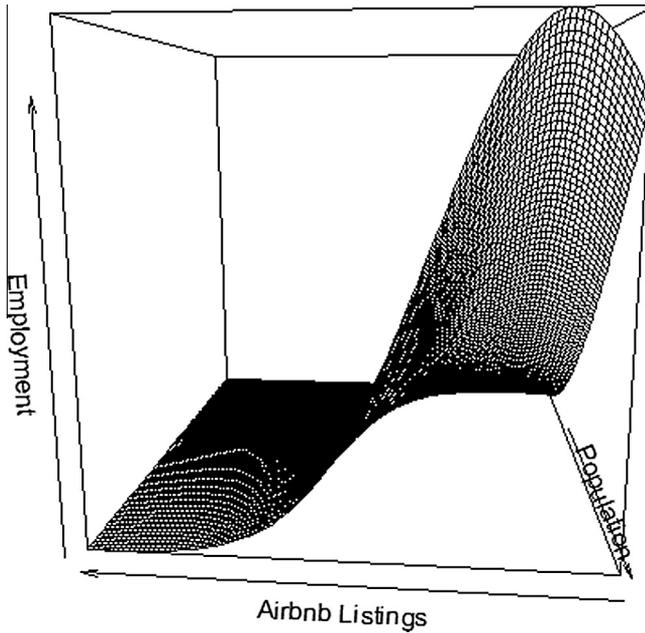


Fig. 1. Relationship among employment, listings, and population

Table 2

Robustness test of the effect of sharing economy.

	(1)	(2)	(3)
Listing(-1)	0.008(0.0034)**		
Listing(-1) <sup>2</sup>	-0.0001(0.00006)**		
MeanListing		0.006(0.0030)**	
MeanListing <sup>2</sup>		-0.00006(0.0003)*	
MeanListing(-1)			0.011(0.0042)**
MeanListing(-1) <sup>2</sup>			-0.0002(0.00001)**
Population	1.764(0.6250)***	0.1732(0.6290)***	1.760(0.6242)***
R-square	0.119	0.119	0.118
F test	361.36***	247.71***	252.22***
# of obs.	220	220	220
# of groups	44	44	44

Robust standard errors are enclosed in parentheses.

- \*\*\*  $p < 0.01$
- \*\*  $p < 0.05$
- \*  $p < 0.1$ .

The results suggest that the entry of sharing economy benefits the entire tourism industry by generating new job positions as more tourists would come due to the lower accommodation cost. However, since low-end hotels are being shocked and replaced by Airbnb (Zervas et al., 2014), the marginal effect decreases as the size of sharing economy increases. Employees in low-end hotels would lose their jobs, while Airbnb houses do not need to hire any workers. Therefore, the marginal effect of Airbnb decreases along with the replacement of low-end hotels.

This research makes two contributions. First, to our knowledge, this study is the first to investigate the effect of the entry of sharing economy on the tourism industry at the macro-economic level. Previous studies have mainly focused on individual-level effects (Zervas et al., 2014) or on general social

aspects (Malhotra, Alstyne, & Marshall, 2014). Second, our study identifies both the benefits and potential drawbacks of sharing economy. By contrast, previous studies have focused only on either the positive (Cervero, Golub, & Nee, 2007; Martin, Shaheen, & Lidicker, 2010) or negative (Malhotra et al., 2014; Zervas et al., 2014) side.

The current study also offers several direct implications for government policies. Our results show that sharing economy, at certain developmental stages, plays an important role in solving the unemployment problem. Therefore, the government should formulate appropriate policies for its regulation. However, given that sharing economy also has a negative side, the government must not simply allow its entry but also formulate policies that will allow its entry in stages to ensure that the society will be benefited. If the government loses control over sharing economy, then its drawbacks will emerge and negatively affect the society.

This study has some limitations. First, given the limited data, our study was performed based on 220 observations only. Gathering additional data in future studies would be appropriate. Second, we must include additional control variables in the model to minimize the influence of unobserved effects, although our selection of the fixed-effect model already partially addresses this issue. Third, we only investigated the effect of sharing economy in Idaho, which is a tourism industry-oriented state. Future studies should include other states to increase understanding of the effect of the entry of sharing economy.

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