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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:

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

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 $Listing^2$ 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 *Listing*s 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*	0.0024
$Listing^2$	−0.00004*	0.00002
Population	1.711**	0.6321
R-square	0.117	
F test	117.71(p-value = 0.000)	
Number of obs.	220	
Number of groups	44	

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