

NATIONAL UNIVERSITY SYSTEM  
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SHORT-TERM RENTALS  
IN THE CITY OF SAN DIEGO:  
AN ECONOMIC IMPACT ANALYSIS

October 2015

## Purpose

This report assesses the economic and fiscal impacts of the short-term vacation and home-sharing industries on the City of San Diego and examines the relationship between the short-term and long-term rental markets in certain San Diego neighborhoods.

## Key Findings

- As of July 1, 2015, there were approximately 6,100 short-term rental units in the City of San Diego.
- From July 1, 2014 through June 30, 2015, short-term rentals in San Diego generated an estimated \$110.3 million in lodging revenue and another \$86.4 million in other visitor-related spending.
- These expenditures created a total economic impact of \$285 million and supported 1,842 jobs.
- Assuming only modest positive growth in the short-term rental market, the industry could generate \$12 million or more in transient occupancy taxes in FY 2015–16 and at least \$5 million in sales and use taxes.
- San Diego’s hotels have seen increases in both occupancy rates and revenue per available room since 2010.
- Few landlords would financially benefit from converting units suitable for long-term rentals into short-term ones.

**Table 1. Summary of economic and fiscal impacts, short-term rentals, City of San Diego,**

Metric	Value*
Number of short-term rentals as of 7/1/2015	6,116
Direct rental income	\$110,316,000
Additional spending	\$86,400,000
Transient occupancy tax	\$11,583,000
Total sales and use tax	\$4,850,000
City share of sales tax	\$340,000
Jobs (direct and indirect)	1,842
<b>Total economic output (direct and indirect)</b>	<b>\$285,000,000</b>

\*Dollar figures rounded to nearest 1,000 where applicable.

## **Introduction: San Diego and the Short-Term Rental Market**

Short-term rentals are becoming more important in the US tourism industry.<sup>1</sup> One estimate puts the size of the domestic vacation rental market at \$100 billion.<sup>2</sup> Another finds that the number of people that have used a short-term rental has doubled in less than four years.<sup>3</sup> Much of this growth can be attributed to new technology, which is changing the industry and providing new and efficient means for consumers to access alternative accommodations. Online marketplaces like Airbnb and VRBO (Vacation Rentals by Owner) significantly decrease the time it takes to find lodging and facilitate connections between hosts and travelers. These websites allow both parties to leverage the power of peer-to-peer reviews so that travelers can find accommodations that work for them and hosts can have some assurances about the people they are allowing to stay in their properties.

These marketplaces have allowed a tremendous number of new hosts to enter the hospitality industry. It is now much easier for people to rent out a room or a secondary unit on a casual basis. Residents who leave town temporarily can derive revenue from what otherwise would be their empty home. Meanwhile, individuals looking for alternative travel experiences and accommodations have many more options and can rent with much greater confidence.

## **NUSIPR's Approach**

In the summer of 2015, a coalition of short-term property managers and online vacation rental services asked the National University System Institute for Policy Research (NUSIPR) to estimate the economic and fiscal impact of short-term rentals on the City of San Diego's economy.<sup>4</sup> This report describes our analysis of five key aspects of this issue:

- the health of the local tourism economy, looking at two metrics: occupancy rate and revenue per available room.
- the estimated number of short-term rentals, their rental prices, and their rate of use.
- the estimated additional, non-lodging spending generated by short-term renters.
- the total economic impact associated with short-term rentals and how much revenue the industry could generate for the city.

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<sup>1</sup> For an overview of the literature on vacation homes and rentals, see Colin Michael Hall and Dieter K. Müller, eds., *Tourism, Mobility, and Second Homes: Between Elite Landscape and Common Ground* (Clevedon, UK: Channel View Publications, 2004).

<sup>2</sup> Dennis Schaal, "How the Vacation Rental Land Grab Stacks Up: HomeAway vs. Priceline vs. Airbnb," *Skift*, April 4, 2015, <http://skift.com/2015/04/07/how-the-vacation-rental-land-grab-stacks-up-homeaway-vs-priceline-vs-airbnb/>.

<sup>3</sup> Johanna Jainchill, "Big Growth Expected in Vacation Rental Market," *Travel Weekly*, June 5, 2011, <http://www.travelweekly.com/travel-news/hotel-news/big-growth-expected-in-vacation-rental-market>.

<sup>4</sup> For examples of economic impact reports on this subject in other locations, see "The Local Economic Impact of Participating Coachella Valley Short Term Rentals" and "The Local Economic Impact of Participating Short Term Rentals in Chicago." Both can be found at <http://www.txp.com>.

- the financial benefits, if any, those owners could hypothetically derive from converting their properties from long-term to short-term rentals.

### **Tourism and San Diego's Economy**

Tourism is a vital part of San Diego's economy. The hospitality industry in San Diego County directly employs more than 170,000 workers and is responsible for nearly 10 percent of gross regional economic output.<sup>5</sup> An estimated 33.1 million people visited San Diego in 2013 (the most recent year reported), and taxes on lodging expenditures are one of the most significant sources of municipal revenue, totaling more than \$180 million in the City of San Diego in fiscal year 2015.<sup>6</sup>

Since the 2008 economic downturn, strong recoveries in markets within a day's drive of San Diego, such as Las Vegas, Los Angeles, Phoenix, and Tucson have helped contribute to record-breaking occupancy rates in San Diego during peak summer months. Efforts by both the San Diego Tourism Authority and the San Diego Convention Center have resulted in a strong rebound in both the convention and leisure segments. The San Diego region is poised to open several new hotels in 2016, reflecting investor confidence in the region's hospitality industry.<sup>7</sup> While there are some concerns on the horizon, such as continued uncertainty over convention center expansion and investments in competitor markets, most prognosticators have opined that the hospitality industry is economically healthy and poised for significant growth over the next four years.<sup>8</sup>

The lodging industry in particular has seen a robust rebound. In 2014, San Diego hotels were occupied for 11.3 million room nights and generated \$1.65 billion in room revenue. Hotel occupancy rates in the City of San Diego have grown from 68.4 percent in 2010 to 76.7 percent in 2014 (see figure 1). Occupancy rates are even higher during peak summer months, reaching nearly 90 percent in July. Revenue per available room, a figure that measures both occupancy rates and average room rates, increased 22.1 percent from 2010 to 2014, growing from \$84.72 in 2010 to \$103.52 in 2014 (inflation-adjusted to 2010 dollars) (see figure 2).

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<sup>5</sup> San Diego Tourism Authority, "2015 Tourism Industry General Facts," available to download at <http://www.sandiego.org/industry-research.aspx>.

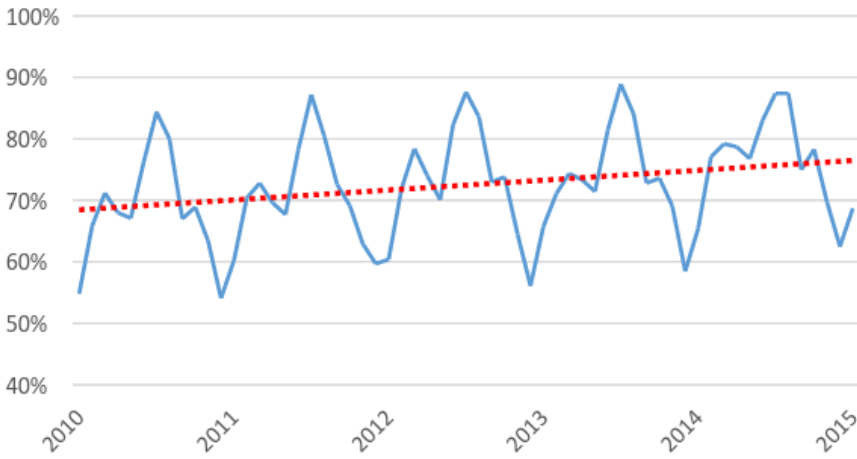
<sup>6</sup> City of San Diego Fiscal Year 2015 Budget; correspondence with City of San Diego's Office of the Treasurer, July 10, 2015.

<sup>7</sup> 10News Digital Team, "Groundbreaking Thursday for New San Diego Waterfront Hotels," ABC 10News KGTV San Diego, May 8, 2014, <http://www.10news.com/news/groundbreaking-thursday-for-new-san-diego-waterfront-hotels>.

<sup>8</sup> Tourism Economics, "San Diego Travel Forecast 2015,"

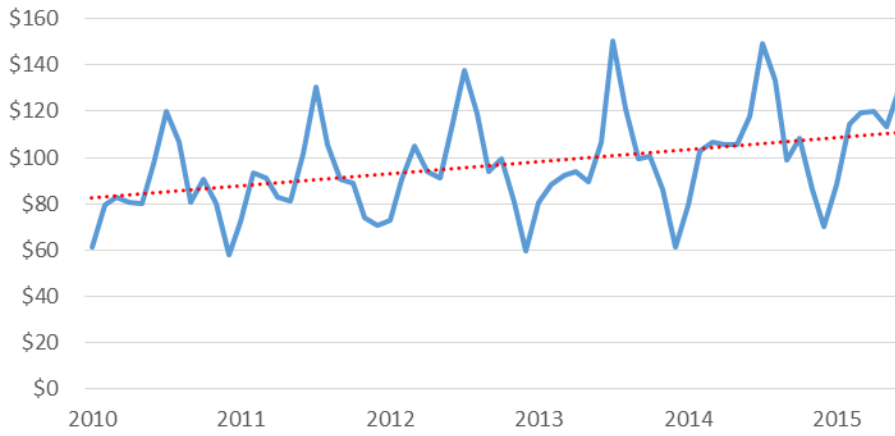
<http://www.sandiego.org/~media/de4c030ef66346098689f76cff318bc7/sdcvb%20forecast%20final%20draft%2007162015.pdf>.

**Figure 1. Hotel occupancy rate, City of San Diego, 2010–2015**



Source: San Diego Tourism Authority.

**Figure 2. Revenue per available room, City of San Diego, 2010–2015 (2010 dollars)**



Source: San Diego Tourism Authority.

## **San Diego's Short-Term Rental Industry**

San Diego's short-term rental industry, an important segment of the city's hospitality sector, is extremely varied. Short-term rentals range from shared accommodations where the host is present to coastal estates to downtown condominiums that are rented out during the week and used by local owners as a pied-à-terre on the weekends. Units often have cooking facilities and multiple bedrooms. Many are located outside of tourism hubs. They offer a unique alternative to traditional hotels and are especially attractive to travelers who value authentic experiences, who are traveling with larger families, or who are visiting San Diego for an extended time.

While the policy debate about this form of lodging has generated significant attention in recent months, there have been short-term rentals in San Diego for decades. What has changed is websites like VRBO and Airbnb have allowed new kinds of participants to enter the hospitality space, particularly individuals using their primary residence to host guests.

Short-term rentals are a small industry compared with the much larger hotel and motel industry. Our best estimate is that short-term rentals in the City of San Diego generated 456,000 room nights in 2014–2015, while hotels and motels hosted guests for 11.3 million room nights. The San Diego Tourism Authority estimated that in 2013, for every one visitor using non-hotel accommodations, more than ten used a hotel or motel. While short-term vacation rentals are an important and growing segment of the industry, they remain a niche segment in the region's overall hospitality sector.<sup>9</sup>

### **Estimating Direct Short-Term Rental Expenditures**

To calculate the industry's economic impact, it is first necessary to estimate the size of the short-term rental inventory and the revenue it generates over a given twelve-month period. To do this, we first collected data on the total inventory of short-term rentals, including neighborhood location and pricing data, from both Airbnb and VRBO for June 30–July 2, 2015. We excluded from further analysis any property listed as requiring a minimum stay of at least 30 days as well as “event properties” with an average nightly rate exceeding \$5,000. The former kind of property is unavailable for shorter stays and is thus exempt from requirements to collect transient occupancy taxes. The latter properties may not be occupied by overnight guests (instead being used as an event venue) and are only infrequently rented. Since we used two datasets, we then individually checked a sample of properties to eliminate double counting. The data were then further segmented into three categories: whole units, private bedrooms in a shared unit, and units in which guests share a common space.

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<sup>9</sup>. See San Diego Tourism Authority, “Industry Facts”; <http://www.sandiego.org/industry-research.aspx>.

**Table 2. Estimated short-term rental inventory, San Diego, July 2015**

	Total units
Whole home	4,734
Private room	1,271
Shared room	111

Source: NUSIPR calculations of Airbnb and VRBO.com inventory.

We also broke the inventory down by neighborhoods. . We defined beach neighborhood as those directly bordering the Pacific Ocean and/or Mission Bay.<sup>10</sup> Downtown neighborhoods are those likely to be heavily affected by conventions and business travel.<sup>11</sup>

**Table 3. Neighborhood location of short-term inventory, September 2015**

Category	Whole-home units	Shared units	Total housing units (SANDAG 2014 Data Profile)	% of short-term rentals compared to total units
Beach neighborhoods	2,576	396	70,081	4.2
Downtown neighborhoods	562	94	24,399	2.7
Bankers Hill/Hillcrest	230	92	23,157*	1.4
Mission Valley	44	14	12,052	>1.0
Clairemont	30	40	32,918	>1.0
Other/unknown	1,292	615	372,271	>1.0
	<b>4,734</b>	<b>1,251</b>	<b>534,878</b>	<b>Average: 1.1</b>

Source: NUSIPR calculations and SANDAG.

Note: The totals for shared units in tables 2 and 3 do not match due to different timing in data collection. Table 2 data were gathered in early July; table 3 data were gathered at the start of September. The discrepancy demonstrates the flux in the short-term rental market: properties are listed due to seasonality of demand and changes in hosts' personal circumstances.

\* SANDAG's Community Planning Area Profile "Uptown" was used to calculate the total number of housing units in Bankers Hill/Hillcrest.

The data suggest an important dichotomy in the market. More than 54 percent of the inventory for whole units is located in the beach communities. More than 66% are located in either the beach or downtown communities. These neighborhoods have long been the focus of San Diego's visitor industry and are the ones that also contain a significant number of the city's hotel and motel properties that

<sup>10</sup> The neighborhoods we classified as beach communities are Ocean Beach, Pacific Beach, Mission Beach, Bay Park, Bay Ho, La Jolla, La Playa, Sunset Cliffs, Point Loma Heights, Loma Portal, and Torrey Pines.

<sup>11</sup> The neighborhoods we classified as downtown communities are Harbor, East Village, Gaslamp, Columbia-Core, Little Italy, and Horton Plaza.

target leisure travelers. That ratio is reversed with respect to shared units: more than 60 percent are outside of the beach and downtown neighborhoods. The data seem to support the claim that shared accommodations are significantly different with respect to price, location, and experience than traditional lodging. It would be valuable in future research to examine trends in this distribution and growth rates in different short-term rental submarkets.

Like San Diego’s traditional hotel industry, the short-term vacation rental industry is both highly seasonal and differentiated. Units that are rented more frequently during the peak summer season see demand drop off significantly during the winter. Rates of use vary significantly from suburban studio apartments to condominiums in beach communities to coastal estates.<sup>12</sup> To estimate usage rates, we obtained data segmented by category and price point from vacation rental management companies and national vacation rental websites.

**Table 4. Room nights and revenues: San Diego short-term rental inventory, 2015**

Listing type	Number of listings	Average number of room nights rented per year	Total room nights rented	Average rental rate, June 2014–July 2015 (\$)	Estimated gross revenue (\$)
Whole home	4,734	80.7	382,000	270.50	103,330,000
Private room	1,271	56.5	71,800	94.71	6,800,000
Shared room	111	27.2	3,025	61.49	186,000
<b>Total</b>	<b>6,116</b>	<b>74.7</b>	<b>456,825</b>	<b>241.50</b>	<b>110,316,000</b>

Source: NUSIPR calculations. \*Estimated Gross Revenues rounded to the nearest \$1000.

In addition to spending on lodging, visitors using short-term rentals spend money on food, beverages, entertainment, and transportation when they visit San Diego. To calculate that spending, we used the most recent visitor profile produced by the San Diego Tourism Authority. Based on a 2013 survey of San Diego visitors, it estimates that leisure travelers staying in “accommodations other than hotels” spend \$189.12 per party, per day.

<sup>12</sup> “Rates of use” refers to the ratio of days rented to days available.



**Table 5. Estimated non-lodging spending by short-term lodgers, City of San Diego, 2015\***

Category	Spending per group per night (\$)	Total (\$)	Subject to state and local taxes
Meals and beverages	79.44	36,288,192	yes
Retail (nonfood)	38.97	17,801,496	yes
Entertainment	15.60	7,126,080	no
Local transportation	14.56	6,651,008	no
Groceries/misc.	40.55	18,523,240	no
<b>Total</b>	<b>189.12</b>	<b>86,390,016</b>	<b>n/a</b>

Source: San Diego Tourism Authority and NUSIPR calculations.

\* The category used by the San Diego Tourism Authority is “other lodgings,” which includes short-term rentals and camping. It estimates that campers make up only 10 percent of this group.

Combining the figures for tables 4 and 5 indicates that short-term renters generated an estimated \$196.7 million in spending during the twelve months ending in September 2015.

### **Estimating Total, Indirect, and Induced Economic Impact**

Economic impacts from short-term vacation rentals extend beyond the immediate direct expenditures. Hosts take the income they receive and spend it on other goods and services. This spending and the jobs it creates are *direct* economic impacts. As short-term lodgers buy food, groceries, and other goods and services from San Diego businesses, these establishments, in turn, buy goods and services from their suppliers. In this way, an initial expenditure’s impact multiplies. This secondary spending and the jobs it creates are *indirect* and *induced* economic impacts. As such, the estimated \$196.7 million in spending associated with short-term rentals in the City of San Diego—\$110.3 million in lodging expenditures (table 4) and \$86.4 million in non-lodging expenditures (table 5)—supported a total of 1,841 jobs and had a total economic impact of \$285 million (table 6). The majority of this activity is concentrated in the economic sectors most closely associated with tourism such as food services, arts, entertainment, and retail trade.<sup>13</sup> These effects are measured at the county level.

<sup>13</sup> Economic impact is estimated as a gross amount. A calculation of net economic impact would require estimating the amount of activity that is shifted away from traditional hotels and to the short-term rental market. Given high occupancy rates during the peak season, we believe most of the activity during at least the summer months can be considered a net addition to the city’s economy, but a full estimation of this effect is beyond the scope of this study and would require detailed survey information from several hundred users of short-term rentals.

**Table 6. Economic impacts, short-term rentals, San Diego County, 2014–2015\***

	Total output (\$ millions)	Employment
Direct effect	170.2	993
Indirect effect	18.9	115
Induced effect	96.0	734
<b>Total effect</b>	<b>285.1</b>	<b>1,842</b>

IMPLAN is not well suited to estimate how proprietor income would be distributed in the cities throughout San Diego County since there is no information on which jurisdictions San Diego County hosts reside in. Thus, we chose to model the economic impacts at the county level. Economic impacts for just the city would be lower because the smaller the geography of the economic unit, the faster a dollar “leaks out” and no longer contributes to local economic activity. However, given the city’s role as the region’s economic center, it is likely that a significant share (70%–80%) of the indirect and induced impacts would accrue to the city.

### **Gross Fiscal Impact<sup>14</sup>**

Most of the positive fiscal impacts associated with short-term rentals come from the remittance of transient occupancy taxes (TOT). Rental revenues of \$110 million for stays of less than 30 days equates to \$11.6 million in TOT. Over the past year, the city has taken steps to increase the number of short-term rental hosts who are properly registered with the city and to increase hosts’ awareness of their obligations to collect and remit TOT. In early 2015, the city treasurer reached out to property owners who were not claiming the homeowner tax credit on properties in the City of San Diego to inform them of the city’s relevant TOT and rental property ordinances. In July 2015, Airbnb began voluntarily collecting and remitting the TOT due on behalf of hosts using the Airbnb site. Property management companies have for several years helped owners meet their tax obligations.<sup>15</sup> Assuming that the short-term rental market continues to grow and remittance rates continue to increase, it is likely that this market segment could generate over \$12 million in TOT revenues in 2015–2016.<sup>16</sup>

In addition to TOT, revenues are generated from non-lodging related spending and from the indirect and induced economic impacts. Short-term vacation renters and their local hosts purchase goods and services in the city. The workers who benefit from the indirect and induced impacts also spend money.

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<sup>14</sup> The calculations here are for the gross revenues the city realizes. Since short-term renters do put additional demands on city services, a full net revenue calculation would require calculating these impacts, a task beyond the scope of this study and requiring significant effort by city staff and departments.

<sup>15</sup> See, for example, Zoe Schaver, “Big Companies, Not Homeowners, Run Biggest Share of Short-Term Rentals,” *Voice of San Diego*, August 3, 2015 <http://www.voiceofsandiego.org/topics/economy/big-companies-not-homeowners-run-biggest-share-of-short-term-rentals/>.

<sup>16</sup> One way that cities have increased compliance rates is by offering an amnesty program to encourage hosts to register their properties. See, for example, New York City (<http://rules.cityofnewyork.us/content/section-1-26-bed-and-breakfast-amnesty-program>), Marin County, California (<http://www.marinij.com/general-news/20130910/marin-supervisors-unveil-bed-tax-amnesty-program>), and Tampa, Florida (<http://www.bizjournals.com/tampabay/stories/2010/06/07/daily39.html>).

Much of this spending creates positive local fiscal effects, but only some of this spending is taxable. For example, visitor surveys suggest that short-term renters spend significant sums on groceries and entertainment, which are generally exempt from California’s sales and use tax. In addition, local jurisdictions receive only about 1 cent out of every 8 cents of the sales tax collected on each taxable dollar spent, with the rest flowing to the state’s general fund and to regional transportation programs like *TransNet*.

In addition, some spending by short-term renters occurs outside the city’s boundaries and does not directly benefit the city’s treasury. To account for this spending, we assumed that 50 percent of taxable sales occur outside the city. This assumption is very conservative but reflects the popularity of major leisure visitor attractions like Legoland, Del Mar Racetrack and Fairgrounds, Baja, and the north coastal communities, all of which are outside city limits. After making these adjustments, we estimate that the City of San Diego annually receives \$340,000 in sales taxes associated with short-term rentals.

**Table 7. Summary of fiscal impacts from short-term rentals, 2014–2015**

Revenue source	Estimated amount (\$)
Direct spending: TOT impacts	11,600,000
Direct spending: sales and use tax (all)	4,900,000
Direct spending: city’s share of sales and use tax*	311,000
City’s share of sales tax impacts from indirect and induced effects	27,400

Source: NUSIPR calculations.

\* Includes the city’s allocation of sales tax as well as its “triple-flip” allocation. We also estimated the city’s share of Proposition 172 public safety tax.

### **Incentives to Convert Long-Term Rentals to Short-Term Rentals**

One concern about short-term rentals is that new marketing channels may motivate some property owners to convert housing stock from long-term to short-term rentals. Such conversions, if widespread, could worsen San Diego’s affordable housing shortage. Critics have also alleged that widespread conversions are threatening neighborhood quality of life as investors are said to be buying up multiple properties and converting them to de facto hotels.

We examined the financial incentives for conversion by calculating the average number of days that a unit would have to be rented as a short-term rental to be more profitable than a long-term rental in six submarkets and then comparing this number to actual short-term rental data.<sup>17</sup> We chose

<sup>17</sup> This is an approach similar to that used by Dr. Paavo Monkkonen in a recent report, “Housing & the Airbnb Community in the City of Los Angeles,” September 2015, <http://publicpolicy.airbnb.com/wp-content/uploads/2015/09/HousingtheAirbnbCommunityintheCityofLosAngeles.pdf>.

neighborhoods outside of San Diego’s traditional tourist areas—neighborhoods suggested as ones where investors have incentives to convert multifamily units to short-term rentals and thus change a community’s character. To measure rents, we used Rent Jungle, a website that tracks rents at the local level. Table 8 lists the average rent in six San Diego submarkets as of August 2015. These ranged from an average of \$2,046 a month for apartments in Bay Park to \$1,353 for an apartment in City Heights (column A). Next, we obtained from Airbnb the average nightly income derived for “whole unit” short-term rentals in these particular submarkets (column B). Column C calculates the break-even point, expressed in nights rented, where it would make sense for an owner to convert a unit from a long-term to a short-term rental. Beyond this number of room nights, an owner would make more by renting out the unit for the average short-term rental rate. Below this number of room nights, owners would be better off renting their units long term. We then determined how many units in the submarket exceeded that number (column D) and the percentage of the submarket inventory that exceeded that threshold (column E).

**Table 8. Analysis of short-term vs. long-term vacation rentals in six submarkets, City of San Diego, August 2015**

	A	B	C	D	E	F
	Average monthly rent for long-term rental	Average nightly income for short-term rental (\$)	Days of short-term rental to equal long-term rental income	Number of whole-home with more nights rented above long-term rental feasibility	% whole-home units with more nights rented above long-term rental feasibility	Sample size
San Diego, all	1,905	166	138	220	8.0	2,766
Kensington/Hillcrest	1,905	117	196	<5	<5	95
Linda Vista/Bay Park	2,046	137	180	<5	<5	27
North Park	1,592	119	160	<25	12	175
Clairemont	1,709	142	145	n/a	n/a	<25 listings
City Heights	1,353	118	138	n/a	n/a	<25 listings
Mid-City	1,408	143	119	5	<10	57

Source: NUSIPR; Airbnb.

Citywide, only 8 percent of the Airbnb inventory exceeds the rental frequency (138 days or more a year) where it would make sense to convert from a long-term to a short-term rental. We found similarly low rates in Linda Vista/Bay Park and Kensington. There is more pressure to consider conversion in a neighborhood like North Park, but even there, eight out of nine properties in the short-term inventory would have made more money for the owner as long-term rentals. At least with respect to the type of inventory most commonly managed by Airbnb and in the neighborhoods outside of traditional tourism hubs, it seems more profitable to lease out suitable units to long-term renters.

### Conclusions

Short-term rentals have a significant economic impact on San Diego. They generated more than \$196 million in direct spending over the last twelve months and supported more than 1,800 jobs. Looking forward, if the industry is allowed to continue to grow, if the city clarifies its rules and regulations, and as more hosts come to understand a streamlined system, short-term rentals could generate nearly \$12

million in revenue for the City of San Diego in 2015–2016. Finally, comparing average monthly income for long-term rentals with short-term vacation rental income in several neighborhoods not near traditional tourist hubs suggests few owners would benefit from converting traditional rental properties into vacation rentals.

## **Appendix A. Methodology for Estimating the Gross Revenues Generated by Short-Term Rentals in the City of San Diego**

There are currently only imprecise estimates for the size of San Diego’s short-term rental market.<sup>18</sup> Interviews with property managers and searches of websites indicated that hosts enter and exit the market multiple times over the course of any one year and that they often list the same property on more than one short-term vacation rental site to maximize exposure. Simply taking snapshots of a website or the city’s current TOT certificate database likely gives a misleading impression as to the size and character of the market.

From June 30 through July 2, 2015, we collected data on the total inventory listed, location, and pricing from both the Airbnb and VRBO websites. The property management companies we interviewed indicated that almost all short-term rental properties available in San Diego are listed on one or both of these sites. We excluded from further analysis any property listed as requiring a minimum stay of at least 30 days as well as “event properties,” which we defined as having an average nightly rate exceeding \$5,000. Airbnb gave us information on the inventory listed on its website as of July 1, 2015. It sorted this inventory into three categories consistent with its business operations—whole unit rentals, private bedrooms, and shared bedroom accommodations—and gave us mean and median rental rates and mean and median usage rates for both the peak and nonpeak seasons.

To eliminate duplicate listings, we randomly selected 150 properties listed on VRBO in Mission Beach, La Jolla, and downtown. These neighborhoods represent approximately 42 percent of the VRBO listings in the city. We then attempted to find similar whole-home listings on Airbnb and compared pictures to confirm matches. We found a 21.5 percent overlap between the units listed on VRBO and the “whole units” on Airbnb. We did not find a single instance in these 150 properties of “shared” units (private rooms or shared rooms) on VRBO. To be conservative, we assumed that 25 percent of VRBO short-term rentals are also listed on Airbnb and adjusted our figures accordingly.

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<sup>18</sup> Correspondence with the City of San Diego’s Office of the Treasurer, July 10, 2015, and City of San Diego, “Comparative Information on Short-Term Rentals,” Office of the Independent Budget Analyst Report no. 15-15, April 17, 2015, [http://www.sandiego.gov/iba/pdf/reports/2015/15\\_15\\_150417.pdf](http://www.sandiego.gov/iba/pdf/reports/2015/15_15_150417.pdf).

**Table 9. Estimated inventory, short-term rentals, San Diego, July 2015**

	VRBO as of July 1, 2015	Airbnb as of July 1, 2015	Total
Whole home	2,100*	2,634	4,734
Private room	n/a	1,271	1,271
Shared room	n/a	111	111
<b>Grand total</b>	<b>2,100</b>	<b>4,016</b>	<b>6,116</b>

\*Adjusted to avoid double counting properties listed on both sites.

Privacy concerns and business practices preclude getting direct data on rental rates and usage for individual units. In the case of VRBO, the majority of hosts use the site like a bulletin board or newspaper classified ad. Hosts pay a listing fee to VRBO to market their property, and the website facilitates the initial contact between the host and the prospective guest. After that, the private parties handle the specifics of the rental arrangement without further involvement by VRBO. So, for the bulk of its listings, VRBO does not know whether the unit ultimately was rented, how much the host charged, or the length of the stay.

Airbnb has a different business model. It facilitates connections between hosts and travelers and handles transaction activity. In return, it receives a booking fee based upon a percentage of the rental fee. Given privacy agreements with hosts listing rentals on the site, however, Airbnb cannot provide data on individual properties.

To estimate nightly rental rates for the properties, our first step was collecting data from the VRBO website. To estimate peak season rates, we collected rental price information for the last week in July. For nonpeak season rates, we examined rental prices for the first week in March, before most spring break vacations. To estimate usage, we interviewed vacation management companies and asked them to provide usage rates for both peak and nonpeak periods at a number of different price points corresponding to the distribution of prices throughout the entire VRBO whole-home inventory. We adjusted the usage figures downward by 15 percent to account for potential sampling bias since it is likely that units listed with a professional management company are rented out more frequently than units rented out by individuals. Without this adjustment, figures for economic impact and projected fiscal impacts would be significantly higher.

We were able to collect more detailed information from Airbnb, which gave us information about peak and nonpeak median and mean values for usage and mean and median rental rates for the three kinds of listings in its inventory. There was a strong “right-hand” skew to some of the data with respect to price and usage. To be conservative, we used a midpoint between the mean and median values for estimated rental rate. While not ideal, we believe this approach is optimal given limitations in the data available.



## Appendix B. IMPLAN and Economic Impact Analysis

To estimate the total economic impact from short-term lodging in the City of San Diego, we used IMPLAN, one of the most commonly used input-output models for studying regional economic impacts.<sup>19</sup> IMPLAN uses data collected by the US Census Bureau to construct a model of a state's or region's economy. By breaking the economy into several hundred constituent parts, IMPLAN can estimate how a change in demand in one sector causes a cascading series of changes in others. It then aggregates those changes into estimations of changes in employment, output, and tax revenue.

For this project, we broke down the spending by short-term lodgers into lodging expenditures and five categories of non-lodging expenditures: food and beverage, retail, zoos and museums (entertainment), local transportation, and groceries. To estimate the economic impact of the former, we modeled short-term lodging revenue as "proprietor income." This is a more conservative approach than assigning that revenue to IMPLAN categories such as "bed and breakfasts" or "non-hotel accommodations." Treating rental income as "proprietor income" assumes significant amounts of sweat equity by hosts operating short-term rentals and very conservatively estimates the amount of direct employment that short-term rentals create.

IMPLAN also distinguishes between direct, indirect, and induced impacts. Direct impacts can be thought of as the immediate production changes associated with the initial change in demand. The immediate economic consequence for employment at the zoo when someone buys a zoo ticket is an example of a direct economic effect.

Indirect effects are the result of changes in supply chains as businesses react to changes in demand. Once the initial change in demand is felt, the suppliers of the first business are asked to provide additional supplies and services. In turn, they themselves purchase goods and services, and these changes continue to create other changes in demand, similar to how a pebble dropped in a pond causes a series of ripples to spread out.

Finally, induced effects refer to changes in the economy associated with changes in household expenditures caused by the direct impact. Workers at the zoo go out and spend additional wages earned as a result of the initial change in demand, which, in turn, affects overall economic output.

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<sup>19</sup> <http://www.implan.com>.

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