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The rise of the sharing economy: guesthouse boom and the crowding-out effects of tourism in Lisbon

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ABSTRACT. At the urban scale, tourism activities can compete for spaces formerly used by housing and rendering opposing and, yet, differently structured economic consequences. We apply a multi-regional input-output model to assess the economic impacts of guesthouses boom in Lisbon city. This is particularly poignant since the supply of guesthouse units has risen from 100 in 2010 to more than 10 thousand units in 2018. We find that Lisbon guesthouses were responsible by creating a total of more than 29,400 jobs nationwide and by increasing the national GDP by 0.5%. At the regional level, only about 50% of the positive economic impacts of tourism were retained by Lisbon—the rest is split between the city’s suburbs and the rest of the country. A major cause of the altered regional distribution of gains has been the displacement of residents to the periphery.

Keywords: Crowding-Out; Guesthouses; Historic Downtown; Metropolitan Area; Multi-Regional Input-Output; Sharing Economy

1. Introduction

Colomb and Novy (2017) highlight a new debate in the use of tourism as an economic development strategy. That is, at least in the industrialized countries, there is a growing sentiment among urban residents that they are becoming victims of their cities’ success in luring tourists. It has long been recognized that tourism can generate jobs, cause cities to improve infrastructure and diversify their economic bases. And it is almost equally well-known that the jobs created in tourism’s name tend not to pay well and the goods sold to tourists tend not to be produced locally or other negative externalities (Fainstein and Gladstone, 1999; Neuts et al., 2012). The recently recognized spate of angst from urban residents, however, largely emanates from a different source—locals fears that they are being “crowded out” of favored activities and locations. The main outcry arises from downtowns that have become even more congested in an effort to “house” tourists while locals are being pressured to relocate, often to the urban periphery. This is leading local, regional or national authorities to apply policy measures that aim to limit or, even, downsize the number of guesthouses in some tourism destination cities (Gladstone and Préau, 2008; Coldwell, 2017; Nieuwland and van Melik, 2018; Hajibaba and Dolnicar, 2018). For some authors Lisbon is also an example of this trend in urban tourism (Malheiros et al., 2013; Ascenção, 2015; Gravari-Barbas and Guinand, 2017).

During the last decade, ‘guesthouses’ have arisen as a new dimension of urban tourism. In this work, a “guesthouse” is any one of various types of independent short-term accommodation supplies — tourist apartments, small dwellings and local lodging — used for vacations and temporary stays. Guesthouses are quite distinct from the more-traditional commercial accommodations offerings. While hotels are usually entire or significant parts

of large buildings, guesthouses can be an individual dwelling or floor of a building. Thus, Lisbon guesthouses tend to have an average lodging capacity of 5.2 rooms, and its hotels have an average capacity of 234 guest rooms per establishment. The latter also tend to supply a wider array of services (e.g., pool, gymnasium, restaurants, bar) to their customers.

The growth of ‘guesthouses’ has been felt in Portugal, particularly in its capital city, Lisbon. According with National Tourism Registration (NTR, 2018)¹, by the end of 2017, Portugal already had more than 51 thousand guesthouses in its records with the city of Lisbon representing 20% of them. Table 1 presents the figures relative to the increase in the Lisbon guesthouses capacity.

Table 1. Boom in Lisbon guesthouses lodging capacity and ‘conventional’ hotels lodging capacity, nights spent and occupation rate rise between 2010 and 2016.

Insert Table 1 here

Accordingly, Lisbon’s guesthouse supply increased more than 30-fold between 2010 and 2017 and continue to rise in the beginning of 2018. Theoretically speaking, the increase in the supply of guesthouse rooms should have deteriorated demand for ‘conventional’ hotel rooms. Empirical evidence for other touristic destinations (Zervas et al., 2017; Xie and Kwok, 2017) also has supported that outcome. In Lisbon, the opposite happened. As shown in Table 1, the tourism boom in Lisbon has been such that the traditional hotel industry also has been thriving rather well. Indeed, between 2010 and 2016 the number of nights spent by tourists in conventional hotels within Lisbon increased from approximately 6 million to more than 11 million, while the available capacity in hotels grew from 35,000 to more than 50,000 places in 2016. This, together, with the increasing demand for guesthouses means that the tourism sector went through an extraordinary expansionary period with natural repercussions in the Lisbon and the Portuguese economy.

Zervas et al. (2017) and Juul (2017) suggest that this recent spate of tourism is due to the escalation of the sharing economy, facilitated by the online platforms (Guttentag, 2015; Oskam and Boswijk, 2016; Gutiérrez et al., 2017), although Lisbon’s historical reputation for lower costs and board vis-à-vis other major cities of Western Europe might also be responsible (Wade, 2017; Prentice, 2018) combined with the general upswing since 2009 in household incomes worldwide.

Given this backdrop, motivation for the present work is clear. It comprises performing the regional and national economic impact assessment of guesthouses in light of its crowding-out effect. To do this, we apply a multiregional input-output model (MRIO) to the growth and employment effects of guesthouses activity in Lisbon. The main contribution is the first application of this kind of model to the growth and employment effects of guesthouses activity. The model can capture the change in linkages between industries and households, and among the three different regions: the city, the rest of its metropolitan area and the nation. To better integrate demographic changes motivated by suburbanization and residents crowding-out we have extended the traditional MRIO model with a ‘simplified’

¹ The NTR centralizes information and make available for consultation on projects and tourism companies operating in the country and abroad and is an integrated collection of tourism in Portugal. This online registration and information is available in <https://rnt.turismodeportugal.pt/RNT/ConsultaAoRegisto.aspx>

commuting satellite account (Ferreira et al., 2018). Commuting matters because we expect it intensifies as a result of the assumed relocations and because it will ultimately determinate the population distribution and economic activity in Lisbon Metropolitan Area.

Finally, three scenarios are examined. Scenarios 1, 2 and 3 illustrate the benefits of a strong rise in non-residents tourism, which can be offset by the crowding-out of residents. A first scenario describes the economic impacts of guesthouse activity alone—a so-called-baseline case. The second and third scenarios assume, separately, that as a result of tourism activity two distinct central-city household groups – either workers or pensioners – leave and move to the periphery.

2. Guesthouse boom and Scenario Analysis

The aim of this work consists of assessing the economic impacts of tourism in Lisbon by focusing on the 2010-2017 guesthouse boom through scenarios analysis. The idea is to balance, in part, the possible effects of the crowding-out of some residents who presently live in the city's center. So, on one hand it is known that tourism can render important local, regional and even national economic benefits. But, we also enter into the ledger that its possible deleterious demographic and economic effects. Herein, we confine the analysis to the impact of new guesthouses, which compete by space with the residents' houses, and disregard any potential rise (or loss) in demand for conventional hotel accommodations.

Namely for the purpose of the economic assessment, we start by analyzing the guesthouse boom in the city of Lisbon proper. This is the Scenario 1, which is the baseline against which the others are contrasted. It addresses the impact of the increased guesthouse activity in Lisbon by assuming no one leaves the municipality. Thus, even though additional lodging units are added to the city center, this scenario assumes inhabitants of Lisbon are not displaced and remain in the city. Only nonresident occupation of guesthouses is exogenous. In the particular case of Lisbon, domestic guests tend to be residual (INE, 2018) and, according to our model specification, their demand (endogenously) responds to variations in the final demand (and national output, consequently).

The numbers that we use are based on AirDNA data. Although NTR is an official source, in 2017, AirDNA only recognizes that 5,353 guesthouses receive visitors in Lisbon. The discrepancy is caused by mandatory registration in the NTR and by the high probability that non-started businesses are likely overrepresented since entrepreneurs must register in the system before applying for public benefits or other subsidies that are sometimes available for remodeling and refurbishing buildings. Accordingly, 5,353 new guesthouses are approximately equivalent to a 29,000 in the maximum number of individuals that these establishments can house. Then, also departing from AirDNA's website, we estimate the occupancy rate for guesthouses. We know 83% of guesthouses units are occupied when they are available but only 40% of this supply is in the market more than ten months. About 15% of the supply is open between seven and nine months. Another 19% of the supply is available between four and six months, and 26% of the supply is available for less than three months per year. In annual terms, this suggests that occupancy rate is roughly 49%.

This is about 10 points below the occupancy rate of ‘conventional’ hotels.² Also, departing from official statistics (INE, 2018), we estimate that 81% of citywide lodging guests are non-Portuguese visitors. That is, 4.5 million room-nights were consumed by foreigners at Lisbon’s new guesthouses.

Outside of accommodation spending, tourism expenditures per capita are assumed equal regardless of whether tourists stay in guesthouses or conventional hotels. That is, we assume any saving in accommodations are spent on the likes of food and gift items. The spending per person per room-night at guesthouses is deemed to be just less than 25% less than for the similar accommodations in conventional hotels by using data from the Lisbon Tourism Observatory (2017) and the AirDNA platform. Thus, we estimate the new “final demand” of foreigner guesthouse visitors in Lisbon to be about €980 million per year in 2010 prices.

Now, let’s say we can all agree that tourism yields positive economic consequences. The rise of guesthouses in central Lisbon, however, raises questions about possible limits to and, hence, negative effects of tourism in historic urban neighborhoods. The arguments run from them being merely seeds of gentrification to harming the environment by radically altering urban areas, so that they gain a more unsustainable form through suburbanization and enhanced commutation.

In the case of Lisbon, the trends between suburbanization and downtown abandonment are clearly interconnected. Decades of questionable planning and poorly thought-out housing policies (Ferreira, 2016) have led to significant population losses. Rent control, which was introduced to central Lisbon in the late 1960s (Malheiros, 2000) and the fact that new residential construction has mostly occurred at the peripheries are prime representations of the lack of appropriate policies (Ferreira, 2016). Indeed, the population in historical central Lisbon is today about 25% of what it was in 1941 (INE, 2012). This turned central Lisbon into an area with a heavy concentration of deteriorated buildings and elderly people (Balsas, 2007). In 2011, its share of inhabitants over 65-years old was 27% while in the greater Lisbon Metropolitan Area it was below 18% (INE, 2012). Its share of vacant properties (15.6%) was also above that nationwide (12.6%). So, residents started to depart from central Lisbon decades ago. The guesthouse phenomenon kicked off as residents were abandoning central Lisbon in a flurry.

Figure 1. Guesthouse location in the Lisbon Municipality

Insert Figure 1 here

Figure 1 is a map of Lisbon’s “*freguesias*”, the smaller administrative area, Portuguese that compares the distribution of guesthouses within the Lisbon municipality to the share of vacant dwellings in the 2011 Census. The map highlights how guesthouses largely arose in the *freguesias* with large numbers of vacant dwellings. In spite of this, the new demand for guesthouses is placing an upward pressure on housing prices. The resulting price surge has

² The guesthouses occupancy rate in Lisbon is actually one of the highest among European capitals. This is because Lisbon’s guesthouses are mainly full houses rented by tourists and not so much a shared house. Using the method described above the occupancy rates in London, Barcelona and Stockholm are 27.3%, 34.2% and 27.9%, respectively (AirDNA, 2018).

two major consequences in those specific areas. First, newcomers who might prefer to live in historic Lisbon opt instead to purchase cheaper housing at the periphery.³ Second, existing residents opt to consider selling or converting their former homes into guesthouses to secure a new source of income. This is a main characteristic of gentrification – housing (and living) in specific urban areas becomes “inaccessible” to its inhabitants. So, the tourism (and guesthouse) boom and soaring housing prices has escalated the on-going exodus via a crowding-out process.

This is the context for the second and the third scenarios. The Scenario 2 strictly focuses on changing the commuting status of working households. That is, some Lisbon workers stop living in the inner city but continue to work in Lisbon. Thus, a share of the new commuters’ salaries continues to be spent in Lisbon but much of their expenditures shift to the suburbs where they now live. The residential locations of new commuters are distributed between the Rest of the Lisbon Area and the Rest of the Country based on the commuting patterns of current Lisbon workers.

There also is the possibility that the exodus affects the elderly more particularly. Recall there was a relatively high share of them in downtown Lisbon. This form the basis of Scenario 3. But pensioners behave much differently than do wage-earners. Much more of their consumption takes place in the region to which they move; that is, their direct linkages to Lisbon’s economy practically vanishes. Elder households also have a different consumption structure since commuting is not an element. For the sake of comparison, we allocate the new residential location of pensioners’ homes to the two other regions in the same proportions applied in the previous scenario.⁴

To assess both scenarios, 14,498 people are estimated to depart, due to the rise in the number of guesthouses and of the average number of people by dwelling in Lisbon’s historical center. This number, in the case of workers, implies that almost 8 percentage points fewer noncommuters live in Lisbon via Scenario 2. This is offset by an equivalent rise in the number of commuters split between the Rest of the Metropolitan Area (RLMA) and in the Rest of the Country. Scenario 3 results in about a 10% decrease in the count of pensioners who live in Lisbon with the consequent compensating in rise in pensioners for RLMA and the Rest of the Country.

Tooled with a basic understanding of central Lisbon trends, the next step consists of incorporating the scenarios. We do so in a multi-regional input-output model that assesses the impact of guesthouse activity in Lisbon, but also measures spillovers and feedbacks effects obtained by the Rest of the Metropolitan Area and the Rest of the Country.

3. The Model framework

Regions benefit from tourism inasmuch as the income spent in those regions during holidays is generated by people who live outside of its boundaries and then is subsequently retained by tourism industry suppliers and employees. A lion’s share of tourism spending is

³ In contrast with the rest of the municipalities of the LMA, between 2013 and 2016, the price of a m² of residential property in Lisbon rose more than 40% in nominal terms (INE, 2018).

⁴ It is a purely theoretical assumption that pensioner households would distribute in the territory according to commuting patterns of working households (as a matter of fact we have no reasonable idea of where it would be). The reason for that assumption is to preserve the comparability between Scenario 2 and 3.

allocated to the hospitality (accommodations and eating and drinking establishments) and transportation sectors. Hospitality industries tend to locate in tourism locales themselves. The same cannot be said for transportation industries, in which the bulk of the monetary spending is to airlines, rail lines, and bus services. These services, which typically cross regional and national borders, make the transactions values more difficult to split across regions. Also, more often than not, goods sold to tourists at clothing stores and gift shops are not produced locally. Even food items served at restaurants are not always locally produced. When goods are not locally produced interindustry linkages are lost to other regions or nations, and the money does not recycle within the local economy (Hodur et al., 2006). That is, trade typically implies economic leakage for a region or nation. Economic leakage further weakens economy's multiplier effects. Thus, a large share of tourism impacts typically leaks or spillovers over into other regions other than that which is visited (Brun et al., 2002; Polo and Valle, 2008; Carrascal Incera et al., 2015; Haddad et al., 2013).

As an example, when a tourist rent a car, he or she pays for the car rental service (locally produced). The rental rate largely pays for labor costs, depreciation of the car, and auto insurance (albeit, this last can be optional). But, 99% of cars in Portugal are not produced in Portugal. Auto insurance also may not be from a company in the region. Meanwhile during its use, the driver will need to pay for fuel and any road tolls. The fuel, while perhaps processed at a national refinery, is ultimately imported, and the collected road tolls fund private-public-partnerships signed by the national government.

The above example shows that, in order to assess the local, regional and national economic impacts of tourism, what is needed is a modeling framework capable of explaining a rather complex set of interindustry and interregional interdependencies. So, in the case of Lisbon's this implies the use of a multiregional input-output (MRIO) model of Portugal. This sort of model articulates the multifarious linkages among industries, households and final consumption, while expressing different spatial aspects of Portuguese territory. Here, the MRIO model is based on the MULTI2C framework—multisectoral multiregional Coimbra model - developed by a group of researchers mainly from the University of Coimbra (Ramos et al., 2015). Departing from 2010 National and Regional Accounts,⁵ the MULTI2C framework uses top-down nonsurvey methods to regionalize “rectangular tables” with 431 products and 134 industries. In this case, we develop a tri-regional model, including the city of Lisbon, the Rest of the Lisbon Metropolitan Area (RLMA)⁶ and the Rest of the Country, which incorporates the remaining Portuguese territory as the third and final region. In order to estimate the data for the city of Lisbon, we depart from a Greater Lisbon NUTS III input-output table that had already been used by Ferreira (2016) and Ferreira et al. (2018) with a particular attention to Portugal's nonresident consumption (tourists). According to National Accounts, nonresident consumption is an independent vector of final demand that has a unique structure. The national consumption account for Portugal's nonresidents, which include 431 products, is distributed among the three regions

⁵ Together with other detailed statistical information at the regional level (2010 Employment records of the Ministry of Labor and Social Security, population census, household expenditure survey, agricultural census and national forestry survey).

⁶ The Lisbon municipality is part of the Greater Lisbon NUT III region corresponds to the Lisbon Metropolitan Area and comprises two NUTS III regions: Greater Lisbon, e.g., the Northern part of LMA on the right bank of the Tagus River, and Peninsula de Setubal, that corresponds to the left bank.

of our model by applying information on nights spent in hotels, other expenditures made by tourists and the number of day-trippers.

Then to adjust our model to accommodate the second and third scenarios, we introduce a ‘simplified’ commuting satellite account based on Ferreira et al. (2018). This extension includes two distinctive features: the interregional distribution of labor income and distinct housing consumption expenditure structures. First, the distribution of regional income means that households living in one region may earn money by providing labor services to an industry in another region—they are commuters. Others, of course, can both work and live in the same region (noncommuters). Economic multiplier effects then spread across territories differently, depending upon the mix of residents (commuters versus noncommuters). In Lisbon’s case, many households that live in Lisbon’s periphery depend on income earned from industries located in central Lisbon. Accordingly, workers living in Lisbon are noncommuters (if they work in Lisbon) or commuters (if they work outside of Lisbon). Similarly, those living in the RLMA can be noncommuters (if they work and live in the same municipality) or commuters inside the same region (if they work and live in different municipalities located in the RLMA) and also commuters between regions (if they work in the Lisbon municipality or in the Rest of the Country). In this work, commuting is limited to those who work. Thus, student commuting is excluded from the presented numbers. The estimation of distribution of regional income incorporated in the model comports with very detailed (134 industries) travel-to-work journey data by region (INE, 2012). Table 2 presents the estimated regional income distribution due to commuting among the different households considered in the model.

Table 2. Labor-income regional distribution due to commuting (10⁶ €), 2010

Insert Table 2 here

From Table 2 it is possible to confirm that the share of income earned in Lisbon by commuters from the Rest of the Lisbon Metropolitan Area (57%) is higher than that earned by Lisbon noncommuters (38%). So, as we stated earlier the phenomenon of suburbanization was already present in Greater Lisbon. The net income distributed by commuting favors the RLMA by almost €10 billion while the municipality of Lisbon suffers an annual earned-income deficit of nearly €1 billion. The Rest of the Country also presents a small net positive effect of just more than €1 billion. So, it is easy to understand that the application of the second scenario will, at least in a first stage, displace even more income from Lisbon to its suburbs.

The second feature addressed by a commuting satellite account refers to the incorporation of differences in household consumption. Commuters and noncommuters consume differently in two critical ways: first, households that live near their employment location spend more on housing rents and less on fuel and other commuting related products (e.g., cars, maintenance, tolls, insurance) compared to commuters, who use their cars more; and, noncommuters spend a larger share of their income in the region where they live, while commuters distribute their consumption across the regions of residence and work. When households travel to other regions, however, they buy and consume products and services in that region, and their hard-earned income is spent there. This is similar to what happens

when commuters satisfy their consumptive demands by buying products in the region where they work; the difference is on the daily amount consumed outside the region of residence. Beyond these effects, several products even when consumed in one region are, to a significant extent, produced in other regions (interregional trade). So, these three processes explain how households of different types living in one region can end up consuming goods and services produced in different regions.

After all the mentioned adaptations, our model is prepared to assess the impact on Lisbon (and on the other regions) of the tourism boom. This includes both the effects of the guesthouse boom alone, and the possible effects of crowding-out that lead to changes in the household location and possibly to higher commuting costs.

4. Results

In this section, we present the baseline and discuss the impacts of the hypothetical scenarios. First, we examine the results through aggregate measures such as regional GDP, jobs and labor income as divided between commuters and noncommuters workers. These indicators were derived from the output results by industry and by region using standard MRIO techniques as discussed in Miller and Blair (2009; Chapter 6). Table 3 ahead shows the simulation main results by region as measured through.

Table 3. Assessment of Lisbon guesthouse boom in the Portuguese economy

Insert Table 3

The results underline the positive impact of the rise of guesthouses in Portugal. In Scenario 1, when by assumption everybody continues to live in the same municipality, Lisbon guesthouses created about 29,400 jobs nationwide and improved the nation's GDP by 0.5%. Regionally, however, only about a half (52%) of the GDP benefits are Lisbon's, 23% feed the Rest of the Lisbon Metropolitan Area and the remaining 25% goes to Rest of the Country. The guesthouse boom impacts in Lisbon contributed for 1.4% growth in the municipal GDP and more than 2.5% growth of the employment generated by Lisbon's establishments. In terms of jobs, Lisbon is also the main beneficiary but accounts for just under 50% them. Sectorally, as the initial shock is due to a rise in Portugal's nonresident consumption, accommodation and food services industries are central to the net impacts on Lisbon, representing almost 30% of its value added difference. In the RLMA and the RC, retail and wholesale trade benefit most, largely due to induced effects through households expenditure, as household incomes in these regions rise for two reasons: more commutes to Lisbon and more local economic activity, since their regional economies also expand after the spillover effects emanating from Lisbon. Finally, Scenario 1 highlights that the increase in household incomes mostly affects Lisbon workers, both noncommuters and those who commute from the RLMA.

In Scenario 2, those that leave Lisbon to move to the periphery are workers (who become commuters) and their families. At the national level, results are still quite positive, although they are muted somewhat due to higher commuting costs, as commuters rely more on imported products, like cars and petroleum. In the big scheme of things, the full increase in commuting costs dampens the net gains in national GDP associated with the guesthouse

boom in Scenario 1 by 1.4%. This is the main nationwide difference, compared with Scenario 3, in which GDP increases by the same amount as in Scenario 1. The regional level offers a very different story, however. Indeed, the crowding-out of residents from Lisbon to the periphery reduces the net GDP gains from tourism in Lisbon by 21%, and in the case of jobs by 16% (although they remain positive). This effect is counteracted by a major net rise in GDP (37.8%) and jobs (31.8%) for the Rest of the Metropolitan Area, but of much smaller gains for the Rest of the Country (1.9% in the GDP and 1.2% in employment).

Similar conclusions underlie Scenario 3 that assumes that people moving out of Lisbon are pensioner households. While national gains are equivalent to those for Scenario 1, the outcomes are worse for Lisbon's economy compared even to those of Scenario 2. Compared to Scenario 1, the city now incurs a decrease of 22% in GDP gains and 19% in the jobs. The reason for Lisbon's lower gains than in Scenario 2, is that suburban pensioners do not travel to Lisbon. Instead they spend their money locally. Sectorally, both Scenarios 2 and 3, reveal production declines for some central Lisbon industries with concordant displacement to the periphery. Those industries mainly produce nontradable products and services. Indeed, 60% of Lisbon's job differential between Scenarios 1 and 2 is attributed to activities such as "education", "retail trade", "renting of own or leased real estate", "domestic personnel for households" and "arts, entertainment, sports and recreation".

Another important conclusion is that in Scenarios 2 and 3 Lisbon's population and economy are hit by countervailing effects. On the one hand, the city and its economy reduce in size as residents escape. On the other, the expansionary shock of the new guesthouses improves things. Although suburbanization enables significant population displacement, others prefer to live in Lisbon to take on jobs that cater to the new tourism activity that adheres. This effect partially offsets the shock of suburbanization. The resulting changes in the distribution of population across Lisbon, RLMA and Rest of the Country population by scenario is shown in Table 4.

Table 4. Estimated changes in the (employed and retired) population in Lisbon, Rest of the Lisbon Metropolitan Area and the Rest of the Country.

Insert Table 4

In fact, in Scenarios 2 and 3, Lisbon is also hit by contradictory shocks, either when we look at employment (including commuters from other regions) or at the number of residents still engaged in the labor market. Employment is higher in every scenario, albeit less so in Scenarios 2 and 3, because fewer residents (whether workers or pensioners) also mean less demand for nontradable goods and services, which are produced locally to serve residents. The working population living in Lisbon declines drastically in Scenario 2. But, the estimated final reduction in the number of employees is, at the end of the day, less than the initial shock of workers moving to the periphery, by cause of the expansionary effect of the tourism increase. This effect ultimately suggests some population churning in Lisbon that will undoubtedly support any attempts of further renewal. Indeed, if followed by an adequate urban strategy, the inflow of people who have jobs linked to tourism, can act as a 'pump-primer' to revitalize some particular neighborhoods in central Lisbon. Additionally,

in the Scenario 3 other societal and environmental urban changes are suggested as elderly residents are replaced by a younger working-age population.

To sum up, our results allow us to advance important lessons in the field of tourism and regional studies. First, it is true that tourism can have important positive effects in local, regional and even national economies. Second, city exodus motivated by undesirable side-effects of tourism can possibly deteriorate local earnings and favor a dispersion of tourism benefits to the urban periphery or beyond. A third and important conclusion, at least in terms of urban planning, highlights the relevance of commuting flows in the suburbanization process and in the context of Krugman's (1998) definition of centripetal and centrifugal forces. Even in Scenario 1, to satisfy the employment expansion that is occurring in Lisbon, the number of residents in the Rest of the Lisbon Metropolitan Area that commutes to Lisbon increases more than the new inhabitants who opt to live in Lisbon. So, despite the place where the main effects are experienced, within or outside the urban perimeter, people are continuously pulled towards the suburbs via a kind of centrifugal force that appears to favor the continuous dispersion of residents.

5. Conclusion

We examine the impacts of an exponential upswing in guesthouse activity in a metropolitan region, specifically in the Lisbon Metropolitan Area. We use a regional economic model capable of integrating thousands of interdependencies established by industries and households across three different regions: a city, the rest of its metropolitan area and the nation. It is used to assess three scenarios that illustrate the benefits of a strong rise in tourism, which is counteracted within the city economy by the crowding-out of residents. In the first scenario, no crowding out is assumed; so the economy, employment and population in the city center benefit most, although the rising tide of tourism raises all boats (regions). But if local policies and urban planning are incapable of controlling 'crowding-out' of historic structures into guesthouses, the impacts of tourism are likely to follow the hypothetical impacts assumed in Scenarios 2 and 3. In both cases, while national economic gains of tourism remain nearly fixed, the benefits to Lisbon are almost 20% lower with most of them transferred to its suburbs. Commuting intensification, which is present in each scenario, although most dramatically in Scenario 2, can harm the Portugal's economy as it reduces tourism benefits. Beyond that suburbanization and commuting can induce wider negative effects on both social and environmental terms as they can contribute to exacerbate infrastructure overcrowding and increase in GHG emission (Ewing and Hamidi, 2017; Ferreira et al., 2018; Tang and Ge, 2018). In Scenarios 1, 2 and 3, the estimated impact results from the tourism activity expansion particularly associated with the sharing economy. Any changes in prices, demand or occupancy rate in conventional hotels, happening during this time period, are an interesting matter to explore in further studies.

We conclude that if guesthouse activity continues apace in Lisbon, it is likely to imply further suburbanization, perhaps at a scale akin to that experienced elsewhere worldwide (Gotham, 2005; Lee, 2016; Lambea Llop, 2017). This highlight, reinforces the ongoing discussion and opens new research avenues in tourism, and also in urban and regional studies. Future research on guesthouses and the sharing economy may benefit from new data sources, in particular from big data that includes more information on tourists and their

expenditures. Also, new Census data can help us all to better understand the evolution of suburbanization in Lisbon and in other cities relatively that heavy invested in tourism.

Tourism as an economic activity can have a critical impact in national, regional or urban economies. On the one hand, it can improve the economy by creating jobs, increase aggregate regional incomes, be an impetus to renovate infrastructure, foster new interindustry interdependencies and improve social welfare (Dwyer et al., 2003). But several negative externalities can accompany tourism. One is the crowding-out of economic activities enjoyed by locals or, in the case of urban areas, even displacing long-time residents. Urban planners need to know how to manage the pressure that arises from rises in international tourism and find holistic solutions capable of improving the life qualities in urban residents. They need to learn how to do this while also continue to make historic places more attractive to those who just want to visit them.

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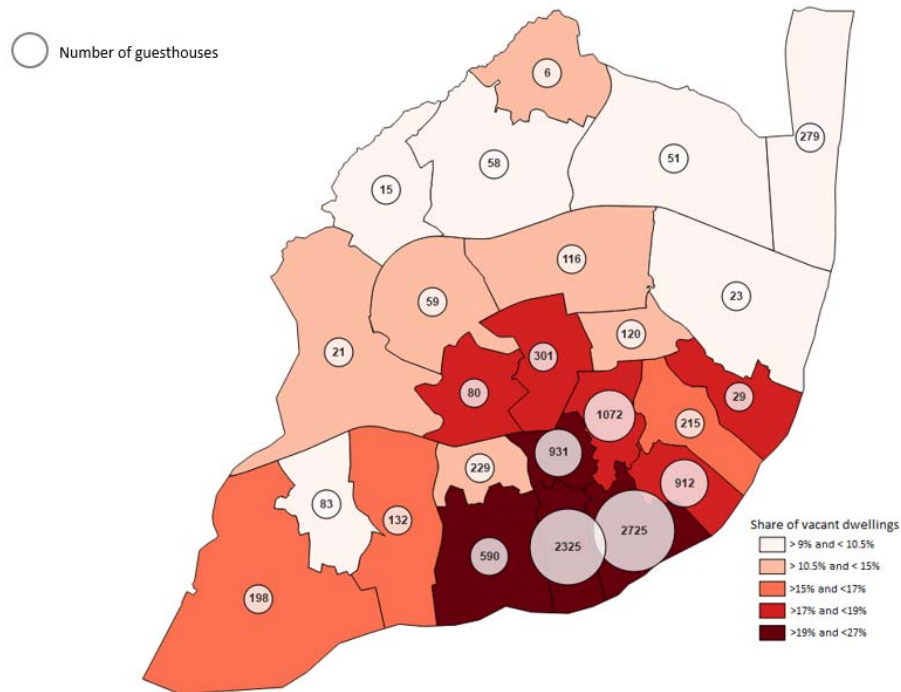
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Table 1. Boom in Lisbon guesthouses lodging capacity and ‘conventional’ hotels lodging capacity, nights spent and occupation rate rise between 2010 and 2016.

	Guesthouses	‘Conventional’ Hotels		
	Lodging capacity	Lodging capacity	Nights spent (1000)	Occupation rate (%)
2010	1306	35258	6191	48.7
2011	1845	35618	6419	50.3
2012	2636	35890	6789	52
2013	4146	40235	7455	52.3
2014	8040	43505	9009	57.8
2015	20742	47627	9998	58.7
2016	37607	51627	11072	59.8
2017	55629			

Source: National Registration Office (NTR, 2018) and National Statistical Institute (INE, 2018)

Figure 1. Guesthouse location in the Lisbon Municipality



Source: National Statistical Office (INE, 2012; 2018)

Table 2. Labor-income regional distribution due to commuting (10⁶ €), 2010

		Place of residence			
		Lisbon municipality	Rest of the Metropolitan Area		Rest of the Country
			Commuters	Noncommuters	
Place of work	Lisbon Municipality	7,518	11,256	-----	866
	Rest of the Metropolitan Area	1,165	6,189	12,235	571
	Rest of the Country	57	279	-----	62,623

Table 3. Assessment of Lisbon guesthouse boom in the Portuguese economy

	Lisbon municipality	Rest of the Metropolitan Area	Rest of the Country	Total
Initial Situation (2010)				
GDP (10⁶ €)	31,060	33,151	108,127	172,337
Employment (10³ FTE)	557	898	3,337	4,793
Resident Households Labor-Income				
Noncommuters (10 ⁶ €)	7,518	12,235	62,623	82,376
Commuters (10 ⁶ €)	1,222	17,725	1,437	20,384
Scenario 1 (Δ)				
GDP (10⁶ €)	444.2	200.6	214.9	859.7
Employment (10³ FTE)	14.5	6.3	8.6	29.4
Resident Households Labor-Income				
Noncommuters (10 ⁶ €)	122.7	87.7	135.4	345.8
Commuters (10 ⁶ €)	7.0	229.9	13.3	250.1
Scenario 2 (Δ)				
GDP (10⁶ €)	352.0	276.4	219.0	847.4
Employment (10³ FTE)	12.2	8.3	8.7	29.2
Resident Households Labor-Income				
Noncommuters (10 ⁶ €)	- 492.1	121.5	136.8	- 233.8
Commuters (10 ⁶ €)	9.4	757.9	53.8	821.0
Scenario 3 (Δ)				
GDP (10⁶ €)	347.5	287.7	224.5	859.7
Employment (10³ FTE)	11.8	8.8	8.9	29.5
Resident Households Labor-Income				
Noncommuters (10 ⁶ €)	96.8	124.8	139.6	361.2
Commuters (10 ⁶ €)	9.4	210.0	12.5	231.8

Table 4. Estimated changes in the (employed and retired) population in Lisbon, Rest of the Lisbon Metropolitan Area and the Rest of the Country.

	Scenario 1	Scenario 2	Scenario 3
Living in the:			
Lisbon municipality			
Noncommuters	5,422	-10,666	4,335
Commuters to the RLMA	267	351	361
Commuters to the RC	8	8	8
Pensioners	0	0	-14,498
Rest of the Metropolitan Area			
Noncommuters	4,247	5,618	5,980
Commuters to Lisbon	8,667	21,294	7,121
Commuters within the RLMA	1,658	2,182	2,271
Commuters to the RC	36	37	37
Pensioners	0	0	13,484
Rest of the Country			
Noncommuters	8,534	8,602	8,804
Commuters to Lisbon	407	1,390	332
Commuters to the RLMA	148	190	195
Pensioners	0	0	1,014