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Abstract

This paper provides cross-country macro-economic level evidence on the impact of tourism on house prices based on a panel of 20 OECD countries during the period 1995 to 2014. In its analysis, the study also accounts for institutional quality, banking credit, per capita income and income inequality. We employ Augmented Mean Group (AMG) estimator for the empirical investigation. The findings derived from AMG are robust and reliable as it accounts for cross-sectional dependence and allows for heterogeneous slope coefficients across panel members. The results show that tourism and its interaction with income inequality have a significant positive impact on house prices in the OECD economies. The findings also suggest that the growth in banking credit and per capita income further increases house prices, while institutional quality has the opposite impact. These findings offer new policy insights and practical knowledge.

JEL Classification: G24; P37; R31; Z32

Keywords: Housing prices; tourism; institutional quality; banking credit; AMG estimator

1. Introduction

Globally, tourism has grown very significantly over the last 30 years (Scott and Gössling, 2015). It contributes significantly to national economies and employment (World Travel and Tourism Council, 2017). However, it is claimed that tourism is significantly driving house prices upwards and therefore worsening the problem of housing affordability worldwide (DIHAS, 2016). Recently, a number of countries have experienced huge protests with demonstrators proclaiming loudly that tourism is making houses more unaffordable. For example, there have been violent protests in Barcelona against tourism based on this reason (ABC NEWS, 2017; Business insider, 2017; Stücklin, 2017). San Francisco (QUARTZ, 2015) and New York (SKIFT, 2016) have railed against Airbnb accusing it of making houses more unaffordable for local residents. The popular media also reports that the recent advent of property tourism (O'Reilly, 2007), for example by the Chinese (JUWAI, 2016; RMIT, 2016; The Real Estate Conversation, 2017), has driven house prices upwards in countries like Australia, the United Kingdom (UK) and other European countries.

Thus, the issue on the impact of tourism on house prices is one that is of global significance. Inspite of this, there is only a handful of studies that investigate the relationship between tourism and house prices. Existing research on the link between tourism and property prices focus on the impact of tourism on prices of tourism-related accommodations such as hotels (Espinet et al., 2003; Hamilton, 2007), apartments (Conroy and Milosh, 2011; Pompe and Rinehart, 1995; Rush and Bruggink, 2000), cottages, or holiday homes (Fleischer and Tchetchik, 2005; Nelson, 2009; Taylor and Smith, 2000) rather than on house prices. Furthermore, the few studies on tourism and

house prices are primarily country or locality-specific. There is no systematic study yet that investigates this issue in a global context at the macro-economic level.

For example, Biaggi et al. (2016) investigated the impact of tourism on housing prices across different cities in Italy based on latent class models. The study finds that tourism had mixed effect on house prices. Tourism increased house prices in some cities and either decreased or had no effect on house prices in the case of other cities. An increase in tourism also has been found to lead to higher rents (Schafer and Hirsch, 2017). The Home Affordability Report (Squires and Chin, 2016) prepared by Massey University's School of Economics and Finance also found that tourism has exacerbated housing prices in certain regions in New Zealand due to the tourism boom[1]. In a survey conducted by Gu and Ryan (2008), nearly 30 percent of respondents believed that hutong (Beijing, China) was becoming expensive to live because of tourism. Further, the respondents also felt that due to tourism, hutong has seen tremendous changes in infrastructure development, increases in property value and cost of living.

A number of research studies have also examined residents' perception towards tourism development proposals. For instance, Snaith and Haley (1999) investigated the residents' views on the impact of tourism in the historic city of York, England. They found that the resident population of York city have heterogeneous views in regards to tourism development and its management. Likewise, Schofield (2011) explored how residents react to tourism development proposals in the Worsley area of Salford city, England. The evidence from this study indicates that the local community was divided on

[1] Fereidouni et al. (2016) provide detailed analysis on the determinants of house prices in Malaysia's economic region and Singapore house prices.

the anticipated benefits and cost of tourism. The author confirmed that the expected negative side of tourism is more influential than that of its positive side.[2]

Our study addresses this important gap in the literature. We test the hypothesis that tourism has been a significant contributor to the increase in house prices over the long term in the context of twenty OECD economies, controlling for other confounding factors such as banking credit, per capita income, income inequality and institutional quality. We expect that both banking credit and per capita income to have a positive impact on house prices as these factors increase the demand for houses (Panagiotidis and Printzis, 2016; Droes and Van De Minne, 2016). In line with the previous literature (e.g. Alam and Paramati, 2016 and Reza and Shah, 2917), we expect income inequality to be positively related to house prices. In relation to institutional quality, our expectation is that this will have a negative relationship with house prices. For instance, a better institutional context lowers the risk of investing in houses, which may stimulate investments in housing from locals as well as foreigners thereby increasing the supply of housing and lowering house prices. On the other hand, the poorer the institutional framework is, the less investment in houses would be made thus putting pressure on the supply of houses, which can then lead to higher house prices (Liao and Mei, 1999). For the empirical investigation, we employ the Augmented Mean Group (AMG) estimator which is robust to cross-sectional dependence in panel data estimation and provides more reliable and robust estimates.

[2] O'Reilly (2007) provided detailed discussion on residential tourism, especially on 'retirement migration' and 'second-home ownership'. The author argues that the places that were developed for tourism in Spain have two outcomes. More specifically, Marbella still retains its elite status and has high prices; on the other hand, Torrevieja is witnessing declining prices and increasing crime rates. Hence, people are desperate to leave somewhere.

The OECD represents the most developed countries and as a group, accounts for the biggest share of tourism in the world (OECD, 2016). A 2016 OECD report indicates that OECD countries generated about 70% of world tourism revenues and were responsible for 60.2% of global travel receipts and 52.3% of expenditures. This report also pointed out that tourism contributes significantly to national economies, employment and service exports in the OECD area. The report identifies the sharing economy as a major driver of this growth in recent years. It noted, for example, that "Airbnb has close to 2 million properties in more than 190 countries and is the third most valuable venture-capital backed company in the world, with an estimated worth of USD 25.5 billion in June 2015". Along with Airbnb, there are small local or niche based platforms, which also contribute to the increase in tourism activity (OECD, 2016). While experiencing a significant growth in tourism, the OECD also grapples with the issue of housing affordability (Demographia International, 2017). Over the long-term, house prices in the OECD area as a whole has risen very significantly, by at least 2.5% a year, outstripping the growth of income (OECD 216).

2. Data and methodology

Our study makes use of annual data from 1995 to 2014 on 20 OECD economies - Australia, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Korea, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom (UK), and the United States (US). The study collects data on real house price (HP) index and two tourism indicators: tourism revenue (TR) which is the total revenue generated from the tourism in million US$ and tourism investment (TI) which is the total capital investment in the tourism in million US$. We also consider four control

factors: banking credit (BC) which is domestic credit to private sector by the banks as a % of GDP; per capita income (PI) represented by the GDP per capita in constant 2010 US$; institutional quality (IQ) which is proxied by the summary index of five indicators: size of the government, legal system and property rights, sound money, freedom to trade internationally and regulations; and an interaction term of income inequality (GINI) with tourism indicators. The GINI index is measured using disposable income, the higher (lower) value indicates higher (lower) income inequality. The data on HP and IQ is sourced from the OECD and Fraser Institute online databases, respectively, while data on BC and PI is obtained from the World Development Indicators and data on TR and TI is collected from the World Travel and Tourism Council and finally, the GINI index data is obtained from Solt (2019). Given the nature of the variables, we convert all variables into natural logarithms before commencing our empirical estimation.

In order to determine the effect of tourism on house prices in the OECD economies, we frame the following empirical models for the investigation:

$$HP_{it} = f\,(BC_{it}, IQ_{it}, PI_{it}, TR_{it}, v_i) \quad (1)$$

$$HP_{it} = f\,(BC_{it}, IQ_{it}, PI_{it}, TI_{it}, v_i) \quad (2)$$

$$HP_{it} = f\,(BC_{it}, IQ_{it}, PI_{it}, GINI\_TOU_{it}, v_i) \quad (3)$$

where HP, BC, IQ, PI, TR, TI and GINI_TOU indicate house prices, banking credit, institutional quality, per capita income, tourism revenue, tourism investments and an interaction variable (GINI index multiplied by tourism indicators, separately), respectively; v_i represents individual fixed country effects; and i and t capture cross-section and time-period, respectively.

3. Results and discussion

Before starting our empirical investigation, it is important to understand whether our panel data is cross-sectional dependent or independent. For this purpose, we apply a cross-sectional dependence (CD) test (Pesaran, 2004) and the results show, Table-1, that all the selected variables are cross-sectional dependent. We then apply a panel unit root, the cross-sectionally augmented IPS (CIPS) (Pesaran, 2007) test that takes into account of cross-sectional dependence in the estimation. The results of the CIPS test, Table-2, confirm that all the selected variables are integrated of order I (1). Given these, we examine the impact of tourism on house prices by applying the augmented mean group (AMG) estimator based on the approach suggested by Bond and Eberhardt (2009) and Eberhardt and Teal (2010). This method accounts for cross-sectional dependence and allows for heterogeneous slope coefficients across panel members.

The findings from the AMG estimations, shown in Table-3, suggest that the tourism indicators have a positive impact on house prices in the OECD economies. The results also show that banking credit and per capita income drive house prices upwards, whereas institutional quality plays the opposite role. Further, we incorporate an interaction variable (GINI index multiplied by tourism indicator) into the models to examine the combined impact of tourism and income inequality on house prices. We do this because the empirical literature has shown significant positive association between tourism and income inequality (e.g. Alam and Paramati, 2016; Raza and Shah, 2017). The results from Table-4 show that the interaction variable has a significant positive impact on house prices. This evidence suggests that higher tourism and income inequality could further escalate house prices. This outcome has important policy and practical

relevance. More specifically, we argue that the income inequality can be an important factor that could drive house prices in the OECD economies. The impact of other control variables on house prices remains the same and are statistically significant.

4. Conclusion

Our empirical findings confirmed that tourism raises house prices in the OECD economies; hence we provide new policy insights and practical implications. We argue that tourism has played a significant role in raising house prices by at least 4 to 5 percent on average (see Table-3). International tourist arrivals into these economies have increased from 265 million to 470 million during 1995-2014. Therefore, given this positive trend of tourist inflows into OECD economies, policy makers and tourism service providers need to initiate effective policies in regards to the regulation of real estate properties and accommodation facilities for tourists. If policy makers and service providers fail to pay attention to the appropriate regulation framework and required accommodation facilities for tourists, then not only will it have an adverse effect on house price affordability but also on tourism growth.

There are two possible arguments in relation to the link between tourism and house prices. The first possible argument is that if there are no sufficient accommodation facilities for tourists, then there will be an increasing demand for the limited accommodation, which will then increase accommodation prices. Consequently, there will be higher demand for houses, which will further increase pressure on house prices. The second possibility is that some wealthier tourists may try to buy their own houses in their preferred tourism destination city/country. Consequently, house prices in that city or

country will increase significantly and houses will become more expensive for the local community. Therefore, tourism can have a positive impact on house prices. Given these arguments, policy makers need to frame appropriate policies to stabilize house prices by intervening in the real estate market as well as tourism market. Otherwise, houses will become more expensive for the local residents and may create social unrest in those cities and/or countries, as reported in the media (e.g. ABC NEWS, 2017; Business insider, 2017). The major limitation of our study, however, is the use of macro level data; hence, future studies may want to re-examine the relationship between tourism and house prices at a more micro-level or location specific setting.

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Table 1: Cross-sectional dependence (CD) test results

Variable	CD-test	p-value
HP	17.200***	0.000
BC	20.430***	0.000
IQ	18.650***	0.000
PI	53.040***	0.000
TR	27.380***	0.000
TI	7.410***	0.000

Note: *** indicates the rejection of the null hypothesis of a cross-sectional independence at the 1% significance level.

Table 2: Panel Unit Root test (CIPS) results

	Level		First difference	
Variable	Zt-bar	p-value	Zt-bar	p-value
HP	2.139	0.984	-3.515***	0.000
BC	-0.808	0.210	-2.231**	0.013
IQ	-1.095	0.137	-4.254***	0.000
PI	-0.170	0.432	-3.523***	0.000
TR	1.058	0.855	-7.009***	0.000
TI	1.520	0.936	-8.870***	0.000

Notes: the test is estimated by incorporating constant in the model; *** and ** indicate the rejection of the null hypothesis of a unit root, under cross-sectional dependence, at the 1% and 5% significance levels, respectively.

Table 3: Augmented Mean Group (AMG) estimations based on cross-sectional dependence

	Coefficient	Prob.	Coefficient	Prob.
BC	0.295**	0.018	0.334***	0.005
IQ	-0.935***	0.001	-0.829***	0.001
PI	1.364***	0.000	1.223***	0.000
TR	0.042	0.741		
TI			0.051*	0.099
Trend	-0.001	0.810	-0.001	0.856
Constant	-9.980***	0.000	-8.852***	0.005

Notes: ***, ** and * indicate the significance levels at the 1%, 5% and 10%, respectively.

Table 4: Augmented Mean Group (AMG) estimations with GINI coefficient

	Coefficient	Prob.	Coefficient	Prob.
BC	0.317***	0.005	0.339***	0.005
IQ	-0.900***	0.001	-0.851***	0.001
PI	1.486***	0.000	1.248***	0.000
GINI_TR	-0.018	0.870		
GINI_TI			0.049*	0.090
Trend	-0.003	0.620	-0.002	0.795
Constant	-10.648***	0.000	-9.243***	0.003

Notes: ***, ** and * indicate the significance levels at the 1%, 5% and 10%, respectively.