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INTER-GENERATIONAL EMPLOYMENT SPILLOVERS FROM TOURISM ACROSS THE EU

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Abstract

How much of an economic stimulus does tourism in the EU provide by generating jobs and boosting aggregate employment? Using unbalanced panel data samples across 301 NUTS-2 statistical regions for the period 2006–2017, the impact of the tourism industry on employment rates in these regions has been analysed. This paper utilises the generalised method of moments (GMM) and Granger causality tests in panel data models to investigate the hypothesis that tourism indices per capita are on average positively associated with employment rates. In the analysis, older workers were segregated as a group and regressed separately, along with other groups of workers. The subsample analyses across regions indicate that those aged 15–64, followed by workers aged 20–64, are amongst the largest beneficiaries of these spill-overs in terms of higher employment rates. Using a robust system generalised method of moments (SGMM), the results show that no definitive conclusion could be made for older workers—those aged 55–64— because the SGMM regression yielded a not significant result.

Keywords: tourist arrivals, employment rate, older workers, Europe regions, spillovers, causality

1. INTRODUCTION

There is a general belief that the travel industry creates overflows/externalities for different segments of an economy, boosting local economies in particular. Such overflows occur as guests/holiday-makers in a country generate business for nearby merchandise and services providers, either through direct spending or indirectly by means of multiplier effects. Employment is one of the most important macro-economic variables. Tourists create multiplier effects on various sectors, and the income multiplier is not the only multiplier for an aggregate analysis of the effects of tourism. Another multiplier that is commonly considered is the employment multiplier, which measures the effects that tourism expenditure have on a destination's level of employment (Candela and Figini 2012).

In the Adriatic region of Croatia, for example, for each new full-time job in the tourism sector many more full-time jobs have been created in other sectors, more so than in other regions of Europe where tourism is not such an important industry. In Croatia, the average percentage share of total employment that was accounted for by tourism over the period 1995–2019 was 21.4 per cent, whereas in the EU the corresponding figure was 11.65 per cent (https://tool.wttc.org/). In 2018, this share rose to 23.41 per cent, making Croatia part of the global top 20 per cent of the list for the indicator 'Travel and Tourism total contribution to employment'. In comparison, Spain's tourism contribution to total employment in 2018 was 15.3 per cent, Austria's was 15.95 per cent and Italy's was 14.81 per cent, considerably lower Croatia's. However, the EU is a heterogeneous geographical space, and Greece (25.4%), Cyprus (23.25%) and Malta (28.12%) have similarly high ratios to Croatia's because of their heavy reliance on tourism (https://tcdata360.worldbank.org/indicators/).

The hypothesised local tourism effects can spill over easily into other regions across state borders through higher exports of food and beverages, agricultural produce, technical equipment, oil and other transportation fuels, and even banking services. Moreover, higher incomes of workers have a positive impact on the levels of production of regions benefitting from tourism. Ever since the European Council meeting of 21 June 1999 on the topic of 'Tourism and Employment', the EU has paid greater attention to the contribution of tourism to employment in Europe. The EU has made efforts to endorse tourism as one of the pivotal job creating sectors, for a while setting the goal of making Europe the world's top tourist destination. In 2018, the 'travel & tourism' sector directly contributed 3.9 per cent to the EU's GDP and accounted for 5.1 per cent of its total labour force (equating to some 11.9 million jobs). When peripheral tourism-related sectors are taken into account, the tourism sector's contributions increase significantly (10.3 per cent of GDP and 11.7 per cent of total employment, or 27.3 million workers) (http://www.europarl.europa.eu/factsheets/en/sheet/126/tourism). In fact, the growth of the tourism economy (accommodation and catering industries, travel and transportation agencies, health tourism, wellness/sport/recreation services, etc.) has elevated the importance and influence of tourism in the formulation of employment policies. However, despite its presumably significant economic impact, and hence policy importance, rigorous empirical evidence on precisely how much tourism across the EU contributes to employment is rare.

To fill this gap in the literature, we have examined the impact of travel industry inflows within EU geographic regions (estimated by the number of arrivals and night spends) on regional employment rates.

The employment rate measures the proportion of the active labour force that is in work. Unlike other macro-economic variables, employment rate statistics can help analysts to predict where an economy is headed. Employment rates typically move up and down along with the business cycle and aggregate output. A country's GDP growth rate affects its employment rate and transmits volatility. In this paper, we have abstracted that the employment rate is only one fraction of the labour force. Both the unemployment rate and the inactive labour force rate (people outside the labour force who are not searching for jobs, such as students and retired persons) can fluctuate due to demographic factors (such as migration), changing leisure or work preferences, income and substitution effects resulting from variations in real wages, and wealth accumulation.

The employment rate is, in a narrow sense, determined by the number of job vacancies — the intensity of demand for labour. An employer's liability is when a firm decides to hire and choose skilled workers. In the tourism industry, the preferred person to come into direct contact with clients is typically a younger individual rather than an older one. Discrimination against older people is in fact quite common in the hospitality and catering industries. Older waiters and chefs apply much less frequently for jobs than younger or middle-aged job seekers. One reason why older hotel/hospitality workers usually have a greater difficulty in finding a new job is that their accumulated skills and experience look undated.

The employment prospects of people aged 55 or higher are, as one can see, not always bright, even in non-tourism sectors where indirect effects from tourism are presumed to exist. Older workers generally have a lower life expectancy than middle aged or younger Europeans. Moreover, they are more risk averse when looking for a better job, or are relatively immobile when unemployment takes hold; for example, when older people are offered a job outside their neighbourhoods, they tend to show a certain reluctance to accept the offer. All in all, this cohort has less occupational exposure to the labour market's dynamism. Even when vacancies are unfilled, older worker are typically discouraged from submitting a job application.

Due to the restructuring of economies towards service-oriented sectors, most employers in the EU, and society as a whole, are not sufficiently aware of the new realities of precarious work and rapid ageing, or of the implications these phenomena have for older workers. This paper seeks to address the problems associated with to the inter-generational employment impact of tourism inflows.

In this paper, we have attempted to analyse the causal impact of tourism on employment, especially amongst older workers (but not exclusively that cohort) in a regional economy in the EU. Our empirical analysis seeks to answer the question of whether older workers benefit more from the tourism spillover effect and whether there is any causality impact in this regard. Furthermore, are older workers better off in terms of employment than other age strata in the inter-generational distribution? Our hypothetical and observational methodology is a departure from conventional studies of tourism economics and offers several new perspectives on issues concerning the relationship between tourism and employment.

In this paper, we have sought to prove a causal relationship between tourism arrivals/night spends per capita and employment rates by exploiting data on tourism and employment rates in 301 EU regions over the period 2006–2017. We have utilised a causality test based on the generalised method of moments (GMM) and panel Granger causality tests.

2. LITERATURE REVIEW

Research efforts in relation to the TLG (tourism-led growth) hypothesis have typically ventured towards assessments of tourism-income spillovers, with the greater part of the literature examining tourism-income effects. We found only a few recent papers that met our criteria, i.e., which specifically explored the causal impact of tourism-generated employment using the (WoS) citation indexing service. In their paper, Kadiyali and Kosová (2013) estimated a dynamic labour demand model with inter-industry spillover effects using various estimators, including GMM-based dynamic panel methods, and found statistically and economically significant effects — an additional 100 rooms sold per day during a year in a given (MSA) generates between 2 and 5 new jobs per non-hotel industry in that area. The authors used data for 43 U.S. metropolitan statistical areas for the period 1987–2006, and analysed the impact of tourism inflows (proxied using the number of hotel rooms sold) on employment in 22 non-hotel industries. Another study, however, by Baumann et al. (2012), found that while the Salt Lake City Olympics did increase employment overall by between 4,000 and 7,000 jobs, those gains were concentrated in the leisure industry, and the Games had little to no effect on employment 12 months later.

Tourism development also contributes significantly to reducing poverty levels by making available unskilled as well as part-time and seasonal jobs, which can help integrate people into long-term employment (Ashley & Mitchell, 2006). Perles-Ribesa et al. (2017) questioned the validity of the TLG hypothesis in the wake global economic and financial crises by examining the case of Spain from 1957 to 2014. In their study, they used a wider range of variables to proxy tourism (not just tourism revenue but also the number of visitors) and output (not just gross domestic product but also gross value added and employment). Specifically, they found co-integration between tourism revenue and employment variables, but a relatively weak one, with a significance of only 10 per cent. In one paper that included an employment rate variable along other growth variables (Lee and Chang, 2008), it was determined that tourism development has a greater impact on output in non-OECD countries than in OECD countries, and when the variable was tourism revenue, the greatest impact was found to be in Sub-Saharan African countries.

Studies of the spillover effects of tourism income abound. A broad review of the international literature on the topic of tourism and economic growth was made by Gwenhure and Odhiambo (2017), who found that the majority of studies supported the TLG hypothesis. The same authors also gave a snapshot of the focus of previous studies. Empirical studies of the causal relationship between tourism and economic growth that confirmed a causality flow from tourism to economic growth include: Balaguer and Cantavella-Jordan (2002) for Spain (1975–1997), using the Granger causality test; Chen and Chiou-Wei (2009) for Taiwan and South Korea, using the E- GARCH model; Durbarry (2004) for Mauritius (1952–1999), using the Granger causality test in a VECM framework; Hye and Khan (2013) for Pakistan, using the Granger causality test; Caglayan et al. (2012) for 135 countries in East Asia, South Asia and Oceania, also using the Granger causality test; Obadiah et al. (2012) for Kenya, using ARDL Bounds Testing; Lee and Chang (2008) for OECD countries (1990–2002); Gunduz and Hatemi (2005) for Turkey (1963–2002), using a bootstrap causality test; Narayan et al. (2013) for Pacific island countries (1985–2010), using panel data regression; Akinboade and Braimah (2010) for South Africa, using the Granger causality test; Lanza et al. (2003) for 13 OECD countries (1977–1992), using unit root tests and a cointegration test (Johansen and Juselius); Kreishan (2015), for Bahrain (1990–2014), using ARDL bounds testing; Tang and Tan (2015) for Malaysia (1975–2011), using the Granger causality test; Mishra (2011) for India, using the Granger causality test; Jalil et al. (2013) for Pakistan (1972–2011), using ARDL bounds testing; Risso and Brida (2008) for Chile (1986–2007), using the Granger causality test; Atan and Arslanturk (2012) for Turkey, using Input–Output analysis; Brida et al (2008) for Mexico, using unit root tests, a cointegration test (Johansen and Juselius) and the Granger causality test; Sequiera and Nunes (2008) for multiple countries, using panel regression; Bento (2016) for Portugal, using time series analysis; Brida et al. (2016) for Brazil and Argentina, using time series analysis; Cárdenas-García et al. (2015) for 144 countries, using panel regression; Chiu and Yeh (2016) for 84 countries, using cross-sectional analysis; and De Vita and Kyaw (2016) for 129 countries, using panel system generalised methods-of-moments (SGMM)).

Other empirical studies have also identified causality flow from economic growth to tourism: Oh (2005) for South Korea (1975–2001), using VAR Engle and Granger causality tests; Payne and Merva (2010) for Croatia, using the Tada Yamamoto causality test; Katircioglu (2007) for Northern Cyprus, using the Granger causality test; Odhiambo (2011) for Tanzania, using ARDL Bounds Testing; and Suresh and Senthilnathan (2014) for Sri-Lanka (1977–2012), using the Granger causality test. Some researchers found a bi-directional relationship between tourism and economic growth: Seghir et al. (2015) for 49 countries, using the Granger causality test; Tugcu (2014) for Mediterranean regions (1988–2011), using panel data; Apergis and Payne (2012) for nine Caribbean countries, using Panel Error Correction and the Granger causality test; Khalil et al. (2007), using the Granger causality test; Dritsakis (2004) for Greece (1960–2000), using the Granger causality test; Demiroz and Ongan (2005) for

Turkey (1980–2004), using the Granger causality test; Chou (2013) for ten transition countries (1988–2011), using panel Granger causality and bidirectional causality to prove the flow in the case of the Czech Republic, Poland, Estonia and Hungary; Lee and Chien (2008) for Taiwan (1959–2003), using the Granger causality test; Kim et al. (2006) for Taiwan, using the Granger causality test; Cortés-Jiménez et al. (2009) for Italy and Spain, using time series Granger causality testing; and Seetanah (2011) for 19 island economies (1990–2007), using GMM and the Granger causality test. Studies that concluded that no causal relationship exists between tourism and economic growth include: Eugenio-Martins and Morales (2004) for Latin America (1980–1997), using panel GLS; Brida et al. (2011) for Brazil (1965–2007), using time series analysis; Arslanturk (2011) for Turkey, using rolling window VECM; Katircioglu (2009) for Turkey (1960–2006), using ARDL bounds testing; and Kasimati (2011) for Greece (1960–2010), using VECM and the Granger causality test.

In their study, Brida et al. (2014) gave another exhaustive review of approximately 100 peer-reviewed papers on the TLG hypothesis. Their results showed an increasing diversification in the econometric modelling used. With a few exceptions, the empirical findings suggest that overall international tourism does drive economic growth. Alhowaish (2016) conducted a panel Granger causality analysis to assess the contribution of tourism to economic growth in Gulf Cooperation Council (GCC) countries, both as a whole and individually. In the case of the GCC countries as a whole, the results showed a one-way Granger causality, from economic growth to tourism growth. Another paper by Tang and Abosedra (2016) showed that tourism Granger-causes economic growth in Morocco and Tunisia, thus supporting the tourism-led growth hypothesis. A study done by Tugcu (2014) investigated the causal relationship between tourism and economic growth in European, Asian and African countries that border the Mediterranean Sea. The study used panel data for the period 1998–2011, and conducted a panel Granger causality analysis to assess the contribution made by tourism to economic growth in each country. Aslan (2014), meanwhile, examined the relationship between tourism development and economic growth in Mediterranean countries using panel Granger causality tests for the period 1995–2010. While a bidirectional causal nexus was found between tourism development and economic growth in the case of Portugal, a unidirectional causal nexus was found from economic growth to tourism development for Spain, Italy, Tunisia, Cyprus, Croatia, Bulgaria and Greece. In the literature on tourism economics, there are also other interesting approaches currently being employed in relation to the TLG hypothesis, mainly time series, where the focus is specifically on the tourism industry–growth nexus (Tang and Tan, 2013, 2015; Katircioglu, 2009a, 2009b, 2010, 2011; Cortes-Jimenez, 2011; Ozturk and Acaravci, 2009).

As far as we know, there is no usage of the system generalised method of moments (SGMM), as innovated by Arellano and Bover (1995), Blundell, and Bond (1998), or of the panel Granger causality test developed by Hurlin and

Venet (2001) to test the TLG hypothesis in terms of employment spillovers in heterogeneous European regions.

3. METHODOLOGY

Our basic idea, which we have empirically tested, is that tourist arrivals (or alternatively overnight stays) co-vary with the employment of older persons directly because of heterogeneous unobservable factors, summed up as a combination of diverse labour-market specifics relating to that pre-retirement age stratum. The transmission of shocks due to fluctuations in tourism amongst other groups of employed persons (along with older workers analysed in the same manner) has been identified through separate cases using bivariate testing. The results aim to indicate whether tourism Granger-causes a boost to employment or whether there is no evidence to suggest that rising tourism has an impact on employment rates. Employment here refers to the contribution to total employment (direct and indirect) emanating from tourism's primary impulse. The general theoretical assumption on which our model is based is that all arrivals (or overnight stays) caused relative-demand shocks, which in turn had different effects on employment fluctuations within certain age groups. Even though this looks like a truism, but have persisted with this assumption for the sake of simplicity.

The log ratio between tourist arrivals/overnight stays in tourist accommodation and the resident population has been used as a measure of tourism.

For this type of panel analysis, tourism indices per capita have the following advantages: (1) they are instantly comparable across regions, without the need for transformations that could further exaggerate measurement errors, and (2) such indices are consistent with our theory that spatial overcrowding with tourists positively affects employment rates. Given the large cross-country differences in total tourist overnight stays/arrivals per capita, the log transformation generates a smoother distribution. A similar strategy was applied by Carmignani and Moyle (2018), who used a log of total international arrivals instead of tourism revenue.

Since one of the main objectives of this study was to investigate the presence of a causal relationship, we explicitly addressed the direction of causation between tourist travellers and employment using the Granger causality test (Granger, 1969) in a panel data setting, which is well-known for its strong intuitive appeal. We estimated Granger test equations using GMM methods. This methodology provides a very suitable tool for examining hypotheses regarding the strength, direction, determinants and consequences of tourist activity on the employment rate. The bivariate Granger causality test is a useful device for determining whether the lags of a variable, say X_{it}, contribute to a better forecasting of Y_{it} when the lagged values of X_{it} are introduced into the regression of Yit on the lagged values of Y_{it} and X_{it}. Thus, we have estimated a time-stationary VAR model adapted to a panel context (as in Holtz-Eakin, 1988) in the form:

$$Y_{i,t=\alpha_0}+\sum_{l=1}^{m}\beta_l\,Y_{i,t-l}+\sum_{l=1}^{m}\delta_l\,X_{i,t-l}+\mu_i+u_{i,t} \quad (1)$$

where Y_{it} and X_{it} are the 'employment rate' and the 'tourism indices per capita' respectively. As a final step, we explored whether the effects of tourism on employment rates in the regions under study were different so that we could assess its solitary impact on different employment rates in various age strata. In the N regions (indexed by i), observed over T periods (indexed by t), l is the time lag.

We allowed for region-specific effects μi. The disturbances $u_{i,t}$ are assumed to be independently distributed across regions with a zero mean. However, they may display heteroscedasticity across time and regions.

The best solution for dealing with a dynamic panel problem is still the subject of debate in the econometric literature (Kiviet, 1995; Harris and Mátyás, 2004). The fixed effects estimates of this model are inconsistent for finite values of T, but they are consistent when T and N tend to infinity. Our current data reflect a substantial sample size in the cross-section dimension (301 regions), whereas the time dimension (12 years) is much smaller. However, the generalised method of moments (GMM) estimator can produce consistent and asymptotically efficient estimates, especially when T is small.

Our empirical research adopted the Arellano–Bond (Arellano and Bond, 1991) estimator, which derives a GMM estimator for the assessed parameters on the right-hand side, using lagged levels of the dependent variables and differences of the exogenous variables. This estimator requires first-differencing to remove the fixed effects in the equation. It also assumes that there is no second-order autocorrelation in the first-differenced idiosyncratic errors, which we formally tested through an Arellano–Bond test.

Blundell and Bond (1998) showed that GMM first-difference estimators suffer from a major problem. They argued that the instruments used with the standard first-difference GMM estimator become less informative in models where the variance of the fixed effects is particularly high relative to the variance of the transitory shocks. To avoid this bias, they proposed a system-GMM (henceforth SGMM) estimator that combines within a system the first-difference estimators with the same equation expressed in levels. The system-GMM gives more robust results than the first-difference GLS and GMM estimation methods (Bond et al., 2001).

The hypothesis that tourist activity Granger-causes positive spillovers in terms of job creation, tested amongst groups of workers with different ages, was scrutinised by imposing a restriction on the parameters of Equation 1. The null-hypotheses were H0: δ_l = zero. In other words, based on the estimation results, a conclusion on causality was arrived at by running Wald tests on the coefficients of the lagged X_ts to check whether they were statistically different from zero. This study employed the Sargan test for the validity of our instrumental variables, along with the Hansen statistic, which is a test of overidentifying restrictions of the instruments, along with the Arellano–Bond test for the AR(1) process.

In the section that presents the results, we have outlined our findings that were derived using the Arellano–Bond one-step system GMM, the Arellano–Bond two-step system GMM estimators, and the Blundell–Bond SGMM estimators, with the Wald statistic acting as a basis for confirming the causality hypothesis. Because of the aforementioned problems with instruments, the system-GMM estimation has an advantage in terms of impact assessment. Such prioritisation allows for a clear-cut conclusion about the causality impact.

4. DATA

Due to the fact that there were gaps in some of the time series for selected regions, the missing data—imputed using software applications for inserting missing data—filled the gaps here and there; done with the help of AMELIA II, which is one of the R-GUI packages Honaker et all. (2011). Nevertheless, certain minor gaps in the cross-sectional data, caused by the rich variety of the regions, remained. After final filtering, the data set consisted of unbalanced panel data spanning the years 2006 to 2017.

The variables used in this study and their descriptive statistics are shown in Table 1.

Table 1

Variables and descriptive statistics

Statistic	Source	N	Mean	St. Dev.	Min	Max
arrp	Eurostat	2,769	2.046	1.988	0.126	14.964
nigp	Eurostat	2,769	6.862	9.787	0.335	77.692
emp15_64	Eurostat	2,769	65.839	8.460	38.900	86.600
emp20_64	Eurostat	2,769	70.127	8.172	42.100	88.400
emp55_64	Eurostat	2,769	50.571	12.089	20.100	86.400

Note: emp15_64 = employment rate for the age group 15–64, emp20_64 = employment rate for the age group 20–64, emp55_64 = employment rate for the age group 55–64 by NUTS 2 regions, arrp = total arrivals per capita at tourist accommodation establishments, nigp= total nights spent per capita at tourist accommodation establishments.

The data used was from the Eurostat portal (https://ec.europa.eu/ eurostat). This dataset source contains data that is not in age brackets, but older persons' employment data is and it was therefore utilised. The exhaustive list of regions used in this paper is in the Appendix (see Table A.2.)

5. EMPIRICAL RESULTS

A reasonable first step in empirical analysis is a visual inspection of the data. Figures A1–A5 show the histograms of the included variables for our sample of 301 regions. Both variables exhibit outliers (especially the two tourism indices). Another way to look at the data is to examine a bivariate pooled scatter graph; the links between the two variables indicated by the slope may have a positive or negative association (or no association at all). Figures A6–A11 depict a moderate contemporaneous association between tourism indices and employment in the majority of cases. The flat line linking older workers and tourist overnight stays per capita suggests that there is a weak correlation between the variables. Outliers become apparent here also.

Granger causality tests require stationary data, but when a dynamic GMM is applied in panel data, as it has been in this paper, it is not necessary. Moreover, the time span of our data was relatively short, and therefore rigorous unit root testing was not required. Nonetheless, all of the time series were tested for the presence of unit roots, with a battery of now-standard panel unit root tests (when the panel data was unbalanced) being applied (ADF–Fisher unit root; Levin–Lin–Chu test; Im, Pesaran, and Shin W-stat). The panel UR test results showed that all of the encompassed variables for employment in the analysis were stationary in levels for all the regions. The same conclusion was reached for the tourism variables.

Table 3

Panel unit root test results

		arrp	nigp	emp15_64	emp20_64	emp55_64
ADF	P	0.000	0.000	0.000	0.000	0.000
	Z	0.000	0.000	0.000	0.000	0.000
	L	0.000	0.000	0.000	0.000	0.000
	Pm	0.000	0.000	0.000	0.000	0.000
Levin, Lin, and Chu		0.051	0.023	0.000	0.000	0.000
Im, Pesaran, and Shin		0.033	0.067	0.000	0.000	0.000

Note: P: p-values; Inverse chi-squared P, Z: Inverse normal, L: Inverse logit, Pm: Modified inverse chi-squared.

The GMM specifications included period-specific effects (as recommended in the literature). Lags of the dependent variable from at least one period earlier served as GMM-style instruments. Since Granger causality test results are sensitive to the choice of lag length in the time-stationary VAR model shown in Equation (1), it was important to specify the lag structure appropriately. In estimating Equation (1) with OLS, we based the choice of optimal lag length on the Schwarz Information Criterion (SIC). We found that the optimal lag length is 1. The full results obtained using the SIC criterion are available upon request.

In order to not interrupt the narrative flow, the core results of the GMM and SGMM dynamic panel estimations of the Granger causality framework presented in this paper are shown in the Appendix (Tables A.4–A.9).

Tables A.4–A.6 summarise the core results of the estimations that include the logarithm level of arrp as controls. The arrp level controls for the effect of arrivals per capita on employment rates amongst older persons, which we predicted as positive (Table A.4). It is positive if the employment of older workers shifts their employment trajectory path away from fewer employees to more employees, translating positive externalities in the local economy. The estimate for the effect of the log (arrp) in the two-step GMM is positive, which is statistically significant at the 5 per cent significance level.

The following picture emerges from the bivariate Granger causality test using the two-step GMM. The log coefficients for long-term tourism arrivals per capita are significantly positive, while the short-term coefficients (one-year lag) are not significant. Focusing solely on the Wald test results, we find clear evidence that a rise in tourist arrivals per capita has a positive impact on employment rates amongst older residents, and that arrivals per capita Granger-cause employment in a positive way, as we suggested in the Introduction. This result, however, is not robust, and the SGMM estimator disables us so far from reaching a clear-cut assessment.

When considering the employment rates of other groups of employed persons as a dependent variable (Tables A.5 and A.6), however, we find evidence that more arrivals per capita have a higher effect on employment (even from the SGMM estimators that are the preferred).

The results shown in Tables A.5 and A.6 suggest tourism-induced employment-led growth implications for employment, as discussed in the Introduction. Taking everything into consideration, we were able to find a uni-directional relationship based on the Wald-test results, running from arrp to emp15_64 and alternatively from arrp to emp20_64. First of all, the direction of causality—with 301 regions showing causality from tourist arrivals to employment—suggests that a number of factors (in the Keynesian–Kahn multipliers' sense) differ significantly in magnitude across the regions, depending on their economic structure, but in total and across all the regions, societies (e.g., the EU labour force) capitalise on greater employment.

If night spend per capita is the control variable (see Table A.7), this term has a statistically insignificant coefficient in all the models that include older workers on the left side of the regression. Otherwise, the direction of that coefficient would imply that an increase in concurrent tourist overnight stays per capita leads to an increase in employment rates amongst older people. Based on the findings shown in Table A.8, night spend per capita Granger-cause employment (emp15_64) in the form of a short-run causality in both the models, but do not Granger-cause the slightly different group of workers (the 20–64 age group) in the SGMM, except in the GMM estimator (Table A.9).

The AB test shows the test results for the presence of autocorrelation in the error terms. The p-values indicate that the null hypothesis of no autocorrelation was rejected for all the samples when the model included one lag for the right-hand side variables. The Sargan test and the Hansen statistic did not indicate any problems in the data-generating process.

6. CONCLUSION

This paper applied the method of Granger causality testing to a unbalanced panel data of 301 Mediterranean regions for the period 2006–2017 to investigate the relationship between variations in tourist arrivals/night spends and employment rates amongst older workers, as well as other working age populations. All the data was transformed into annual logged values, and the estimators chosen were of the Arellano–Bond GMM and the Blundell–Bond SGMM types. This study found limited evidence that tourist arrivals/night spends per capita have an expanding effect on employment rates amongst older persons, as complete evidence confirmed by the SGMM estimator did not materialise. For instance, we did not see a positive causal relationship running from the tourist indices variable to the rate of employment amongst older persons, nor a uni-directional relationship between these two variables, because of robust SGMM failure. The challenge in this paper was to provide test results that could identify the employment impact on older workers as opposed to the employment impact on average workers. In two other groups of workers, uni-directional Granger causality from tourism growth to higher employment rates was noted. However, these statistical results do not negate our thesis that the status of older workers in the EU labour market is extremely complex and contrasts with that of other age groups, for whom demand across the EU is more comprehensive and dynamic. The contribution of this paper is in the extended consequences of this fact, which was elaborated through deep panel data research, and which can have a broader influence on future employment policies regarding middle or less-qualified older workers in the hotel and hospitality industry. This study's findings show that the relationship between tourism growth and employment growth differs from cohort to cohort, and is dependent on the methodology used, but overall the aggregate labour force does benefit from tourism growth in the EU.

Nevertheless, there are many regions in the EU that are underdeveloped in the tourism sense, and it is questionable whether they would benefit from 'overtourism,' either directly or indirectly. Direct employment of workers by tourism-related establishments, such as hotels, restaurants and souvenir shops, could not occur if such establishments do not exist in touristically under-developed regions, but indirect employment could occur in industries that supply goods and services to the tourism sector, such as agriculture, fishing, transport and the car rental industry (if such industries exist there). Our failure to observe employment variations in different branches of the economy, or in less or more developed tourism regions, which would have allowed for clearer conclusions to be drawn, is to a certain extent the weak element of this research. Therefore, further investigation is required to examine the relationships between these variables in a more analytical and microeconomic manner, and to avoid raw macroeconomics data traps.

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APPENDICES

Table A.2

List of regions analyzed

AT11	Burgenland (AT)	DE11	Stuttgart	EL42	Notio Aigaio
AT12	Niederösterreich	DE12	Karlsruhe	EL43	Kriti
AT13	Wien	DE13	Freiburg	EL51	Anatoliki Makedonia, Thraki
AT21	Kärnten	DE14	Tübingen	EL52	Kentriki Makedonia
AT22	Steiermark	DE21	Oberbayern	EL53	Dytiki Makedonia
AT31	Oberösterreich	DE22	Niederbayern	EL54	Ipeiros
AT32	Salzburg	DE23	Oberpfalz	EL61	Thessalia
AT33	Tirol	DE24	Oberfranken	EL62	Ionia Nisia
AT34	Vorarlberg	DE25	Mittelfranken	EL63	Dytiki Ellada
BE10	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	DE26	Unterfranken	EL64	Sterea Ellada
BE21	Prov. Antwerpen	DE27	Schwaben	EL65	Peloponnisos
BE22	Prov. Limburg (BE)	DE30	Berlin	ES11	Galicia
BE23	Prov. Oost-Vlaanderen	DE40	Brandenburg	ES12	Principado de Asturias
BE24	Prov. Vlaams-Brabant	DE50	Bremen	ES13	Cantabria
BE25	Prov. West-Vlaanderen	DE60	Hamburg	ES21	País Vasco
BE31	Prov. Brabant Wallon	DE71	Darmstadt	ES22	Comunidad Foral de Navarra
BE32	Prov. Hainaut	DE72	Gießen	ES23	La Rioja
BE33	Prov. Liege	DE73	Kassel	ES24	Aragón
BE34	Prov. Luxembourg (BE)	DE80	Mecklenburg-Vorpommern	ES30	Comunidad de Madrid
BE35	Prov. Namur	DE91	Braunschweig	ES41	Castilla y León
BG31	Severozapaden	DE92	Hannover	ES42	Castilla-la Mancha
BG32	Severen tsentralen	DE93	Lüneburg	ES43	Extremadura
BG33	Severoiztochen	DE94	Weser-Ems	ES51	Cataluna
BG34	Yugoiztochen	DEA1	Düsseldorf	ES52	Comunidad Valenciana
BG41	Yugozapaden	DEA2	Köln	ES53	Illes Balears
BG42	Yuzhen tsentralen	DEA3	Münster	ES61	Andalucía
CH01	Région lémanique	DEA4	Detmold	ES62	Región de Murcia
CH02	Espace Mittelland	DEA5	Arnsberg	ES63	Ciudad Autónoma de Ceuta (ES)
CH03	Nordwestschweiz	DEB1	Koblenz	ES64	Ciudad Autónoma de Melilla (ES)
CH04	Zürich	DEB2	Trier	ES70	Canarias (ES)

CH05	Ostschweiz	DEB3	Rheinhessen-Pfalz	FI19	Länsi-Suomi
CH06	Zentralschweiz	DEC0	Saarland	FI1B	Helsinki-Uusimaa
CH07	Ticino	DED2	Dresden	FI1C	Etelä-Suomi
CY00	Kypros	DED4	Chemnitz	FI1D	Pohjois- ja Itä-Suomi
CZ01	Praha	DED5	Leipzig	FI20	Aland
CZ02	Stredni Cechy	DEE0	Sachsen-Anhalt	FR10	Île de France
CZ03	Jihozápad	DEF0	Schleswig-Holstein	FRB0	Centre - Val de Loire
CZ04	Severozápad	DEG0	Thüringen	FRC1	Bourgogne
CZ05	Severovýchod	DK01	Hovedstaden	FRC2	Franche-Comté
CZ06	Jihovýchod	DK02	Sjalland	FRD1	Basse-Normandie
CZ07	Stredni Morava	DK03	Syddanmark	FRD2	Haute-Normandie
CZ08	Moravskoslezsko	DK04	Midtjylland	FRE1	Nord-Pas de Calais
DE11	Stuttgart	DK05	Nordjylland	FRE2	Picardie
DE12	Karlsruhe	EE00	Eesti	FRF1	Alsace
DE13	Freiburg	EL30	Attiki	FRF2	Champagne-Ardenne
DE14	Tübingen	EL41	Voreio Aigaio	FRF3	Lorraine
FRG0	Pays de la Loire	ITH5	Emilia-Romagna	PL82	Podkarpackie
FRH0	Bretagne	ITI1	Toscana	PL84	Podlaskie
FRI1	Aquitaine	ITI2	Umbria	PL91	Warszawski stoleczny
FRI2	Limousin	ITI3	Marche	PL92	Mazowiecki regionalny
FRI3	Poitou-Charentes	ITI4	Lazio	PT11	Norte
FRJ1	Languedoc-Roussillon	LT00	Lietuva (NUTS 2013)	PT15	Algarve
FRJ2	Midi-Pyrénées	LT01	Sostines regionas	PT16	Centro (PT)
FRK1	Auvergne	LT02	Vidurio ir vakaru Lietuvos regionas	PT17	Área Metropolitana de Lisboa
FRK2	Rhône-Alpes	LU00	Luxembourg	PT18	Alentejo
FRL0	Provence-Alpes-Côte d'Azur	LV00	Latvija	PT20	Regiao Autónoma dos Açores (PT)
FRM 0	Corse	ME00	Crna Gora	PT30	Regiao Autónoma da Madeira (PT)
FRY1	Guadeloupe	MK00	Severna Makedonija	RO11	Nord-Vest
FRY2	Martinique	MT00	Malta	RO12	Centru
FRY3	Guyane	NL11	Groningen	RO21	Nord-Est
FRY4	La Réunion	NL12	Friesland (NL)	RO22	Sud-Est
FRY5	Mayotte	NL13	Drenthe	RO31	Sud - Muntenia
HR03	Jadranska Hrvatska	NL21	Overijssel	RO32	Bucuresti - Ilfov

HR04	Kontinentalna Hrvatska	NL22	Gelderland	RO41	Sud-Vest Oltenia
HU10	Közép-Magyarország (NUTS 2013)	NL23	Flevoland	RO42	Vest
HU11	Budapest	NL31	Utrecht	SE11	Stockholm
HU12	Pest	NL32	Noord-Holland	SE12	Östra Mellansverige
HU21	Közép-Dunántúl	NL33	Zuid-Holland	SE21	Smaland med öarna
HU22	Nyugat-Dunántúl	NL34	Zeeland	SE22	Sydsverige
HU23	Dél-Dunántúl	NL41	Noord-Brabant	SE23	Västsverige
HU31	Észak-Magyarország	NL42	Limburg (NL)	SE31	Norra Mellansverige
HU32	Észak-Alföld	NO01	Oslo og Akershus	SE32	Mellersta Norrland
HU33	Dél-Alföld	NO02	Hedmark og Oppland	SE33	Övre Norrland
IE01	Border, Midland and Western (NUTS 2013)	NO03	Sor-Ostlandet	SI03	Vzhodna Slovenija
IE02	Southern and Eastern (NUTS 2013)	NO04	Agder og Rogaland	SI04	Zahodna Slovenija
IS00	Ísland	NO05	Vestlandet	SK01	Bratislavský kraj
ITC1	Piemonte	NO06	Trondelag	SK02	Západné Slovensko
ITC2	Valle d'Aosta/Vallée d'Aoste	NO07	Nord-Norge	SK03	Stredné Slovensko
ITC3	Liguria	PL12	Mazowieckie (NUTS 2013)	SK04	Východné Slovensko
ITC4	Lombardia	PL21	Malopolskie	UKC1	Tees Valley and Durham
ITF1	Abruzzo	PL22	Slaskie	UKC2	Northumberland and Tyne and Wear
ITF2	Molise	PL41	Wielkopolskie	UKD1	Cumbria
ITF3	Campania	PL42	Zachodniopomorskie	UKD3	Greater Manchester
ITF4	Puglia	PL43	Lubuskie	UKD4	Lancashire
ITF5	Basilicata	PL51	Dolnoslaskie	UKD6	Cheshire
ITF6	Calabria	PL52	Opolskie	UKD7	Merseyside
ITG1	Sicilia	PL61	Kujawsko-Pomorskie	UKE1	East Yorkshire and Northern Lincolnshire
ITG2	Sardegna	PL62	Warminsko-Mazurskie	UKE2	North Yorkshire
ITH1	Provincia Autonoma di Bolzano/Bozen	PL63	Pomorskie	UKE3	South Yorkshire
ITH2	Provincia Autonoma di Trento	PL71	Lódzkie	UKE4	West Yorkshire
ITH3	Veneto	PL72	Swietokrzyskie	UKF1	Derbyshire and Nottinghamshire
ITH4	Friuli-Venezia Giulia	PL81	Lubelskie	UKF2	Leicestershire, Rutland and Northamptonshire
ITH5	Emilia-Romagna	PL82	Podkarpackie	UKF3	Lincolnshire
ITI1	Toscana	PL84	Podlaskie	UKG1	Herefordshire, Worcestershire and Warwickshire
ITI2	Umbria	PL91	Warszawski stoleczny	UKG2	Shropshire and Staffordshire
ITI3	Marche	PL92	Mazowiecki regionalny	UKG3	West Midlands

ITI4	Lazio	PT11	Norte	UKH1	East Anglia
LT00	Lietuva (NUTS 2013)	PT15	Algarve	UKH2	Bedfordshire and Hertfordshire
LT01	Sostines regionas	PT16	Centro (PT)	UKH3	Essex
LT02	Vidurio ir vakaru Lietuvos regionas	PT17	Área Metropolitana de Lisboa	UKI1	Inner London (NUTS 2010)
LU00	Luxembourg	PT18	Alentejo	UKI2	Outer London (NUTS 2010)
LV00	Latvija	PT20	Regiao Autónoma dos Açores (PT)	UKI3	Inner London - West
ME00	Crna Gora	PT30	Regiao Autónoma da Madeira (PT)	UKI4	Inner London - East
MK00	Severna Makedonija	RO11	Nord-Vest	UKI5	Outer London - East and North East
MT00	Malta	RO12	Centru	UKI6	Outer London - South
NL11	Groningen	RO21	Nord-Est	UKI7	Outer London - West and North West
NL12	Friesland (NL)	RO22	Sud-Est	UKJ1	Berkshire, Buckinghamshire and Oxfordshire
NL13	Drenthe	RO31	Sud - Muntenia	UKJ2	Surrey, East and West Sussex
NL21	Overijssel	RO32	Bucuresti - Ilfov	UKJ3	Hampshire and Isle of Wight
NL22	Gelderland	RO41	Sud-Vest Oltenia	UKJ4	Kent
NL23	Flevoland	RO42	Vest	UKK1	Gloucestershire, Wiltshire and Bristol/Bath area
NL31	Utrecht	SE11	Stockholm	UKK2	Dorset and Somerset
NL32	Noord-Holland	SE12	Östra Mellansverige	UKK3	Cornwall and Isles of Scilly
NL33	Zuid-Holland	SE21	Smaland med öarna	UKK4	Devon
NL34	Zeeland	SE22	Sydsverige	UKL1	West Wales and The Valleys
NL41	Noord-Brabant	SE23	Västsverige	UKL2	East Wales
NL42	Limburg (NL)	SE31	Norra Mellansverige	UKM2	Eastern Scotland (NUTS 2013)
NO01	Oslo og Akershus	SE32	Mellersta Norrland	UKM3	South Western Scotland (NUTS 2013)
NO02	Hedmark og Oppland	SE33	Övre Norrland	UKM5	North Eastern Scotland
NO03	Sor-Ostlandet	SI03	Vzhodna Slovenija	UKM6	Highlands and Islands
NO04	Agder og Rogaland	SI04	Zahodna Slovenija	UKN0	Northern Ireland (UK)
NO05	Vestlandet	SK01	Bratislavský kraj		
NO06	Trondelag	SK02	Západné Slovensko		
NO07	Nord-Norge	SK03	Stredné Slovensko		
PL12	Mazowieckie (NUTS 2013)	SK04	Východné Slovensko		
PL21	Malopolskie	UKC1	Tees Valley and Durham		
PL22	Slaskie	UKC2	Northumberland and Tyne and Wear		
PL41	Wielkopolskie	UKD1	Cumbria		
PL42	Zachodniopomorskie	UKD3	Greater Manchester		

PL43	Lubuskie	UKD4	Lancashire
PL51	Dolnoslaskie	UKD6	Cheshire
PL52	Opolskie	UKD7	Merseyside
PL61	Kujawsko-Pomorskie	UKE1	East Yorkshire and Northern Lincolnshire
PL62	Warminsko-Mazurskie	UKE2	North Yorkshire
PL63	Pomorskie	UKE3	South Yorkshire
PL71	Lódzkie	UKE4	West Yorkshire
PL72	Swietokrzyskie	UKF1	Derbyshire and Nottinghamshire
PL81	Lubelskie	UKF2	Leicestershire, Rutland and Northamptonshire

Note: Source: Eurostat. NUTS - Nomenclature of territorial units for statistics.

Table A.4

Do tourist arrivals Granger-cause the employment of persons aged 55 to 64?

arrp	**Arellano-Bond one-step GMM**	**Arellano-Bond two-step GMM**	**Blundell-Bond one-step SGMM**	**Blundell-Bond two-step SGMM**
lag(log(emp55-64), 1)	0.835 (0.033)***	0.834 (0.037)***	0.918 (0.018)***	0.913 (0.018)***
log(arrp)	0.062 (0.033)	0.082 (0.030)**	0.029 (0.023)	0.029 (0.023)
lag(log(arrp), 1)	0.044 (0.033)	0.028 (0.033)	-0.025 (0.021)	-0.025 (0.021)
n	301	301	301	301
T	12	12	12	12
Num. obs.	2769	2769	2769	2769
Num. obs. used	2124	2124	4527	4527
Sargan Test (p-value)	0.060	0.050	0.001	0.034
Hansen test (p-level)		0.005		0.002
AB test (p-level)	0.004	0.004	0.004	0.005
Wald Test (p-value)	0.000	0.000	0.000	0.000

Note: Standard errors are in parentheses. *, ** and *** denote significance at the 10, 5 and 1 percent levels, respectively. Num.obs.(used) =1848 (1584). Estimates for constant terms are not shown. AB test = Arellano-Bond test for AR(2) in first differences.

Table A.5

Do tourist arrivals Granger-cause the employment of persons aged 15 to 64?

arrp	Arellano-Bond one-step GMM	Arellano-Bond two-step GMM	Blundell-Bond one-step SGMM	Blundell-Bond two-step SGMM
lag(log(emp15_64), 1)	0.532 (0.058)***	0.537 (0.057)***	1.013 (0.012)***	1.010 (0.013)***
log(arrp)	0.060 (0.013)***	0.062 (0.013)***	0.025 (0.010)*	0.027 (0.010)**
lag(log(arrp), 1)	0.064 (0.015)***	0.063 (0.017)***	-0.035 (0.019)	-0.038 (0.029)
n	301	301	301	301
T	12	12	12	12
Num. obs.	2769	2769	2769	2769
Num. obs. used	2124	2124	4527	4527
Sargan Test (p-value)	0.000	0.006	0.000	0.001
Hansen test (p-level)		0.005		0.001
AB test (p-level)	0.011	0.009	0.007	0.006
Wald Test (p-value)	0.000	0.000	0.000	0.000

Note: Ibid

Table A.6

Do tourist arrivals Granger-cause the employment of persons aged 20 to 64?

arrp	Arellano-Bond one-step GMM	Arellano-Bond two-step GMM	Blundell-Bond one-step SGMM	Blundell-Bond two-step SGMM
lag(log(emp20-64), 1)	0.526 (0.060)***	0.524 (0.060)***	1.020 (0.011)***	1.017 (0.012)***
log(arrp)	0.050 (0.012)***	0.052 (0.012)***	0.017 (0.009)	0.021 (0.009)*
lag(log(arrp), 1)	0.055 (0.014)***	0.053 (0.016)***	0.026 (0.019)**	0.029 (0.029)
n	301	301	301	301
T	12	12	12	12
Num. obs.	2769	2769	2769	2769
Num. obs. used	2124	2124	4527	4527
Sargan Test (p-value)	0.001	0.003	0.001	0.001
Hansen test (p-level)		0.005		0.002
AB test (p-level)	0.004	0.004	0.002	0.002
Wald Test (p-value)	0.000	0.000	0.000	0.000

Note: Ibid

Table A.7

Do tourist night spends Granger-cause the employment of persons aged 55 to 64?

nigp	Arellano-Bond one-step GMM	Arellano-Bond two-step GMM	Blundell-Bond one-step SGMM	Blundell-Bond two-step SGMM
lag(log(emp55-64), 1)	0.846 (0.031)***	0.848 (0.034)***	0.929 (0.016)***	0.925 (0.016)***
log(nigp)	0.040 (0.034)	0.055 (0.032)	0.015 (0.024)	0.015 (0.026)
lag(log(nigp), 1)	0.031 (0.031)	0.038 (0.032)	-0.015 (0.023)	-0.017 (0.025)
n	301	301	301	301
T	12	12	12	12
Num. obs.	2769	2769	2769	2769
Num. obs. used	2124	2124	4527	4527
Sargan Test (p-value)	0.003	0.015	0.001	0.007
Hansen test (p-level)		0.005		0.002
AB test (p-level)	0.005	0.005	0.005	0.005
Wald Test (p-value)	0.000	0.000	0.000	0.000

Note: Ibid

Table A.8

Do tourist night spends Granger-cause the employment of persons aged 15 to 64?

nigp	Arellano-Bond one-step GMM	Arellano-Bond two-step GMM	Blundell-Bond one-step SGMM	Blundell-Bond two-step SGMM
lag(log(emp15_64), 1)	0.544 (0.058)***	0.550 (0.057)***	1.009 (0.012)***	1.008 (0.013)***
log(nigp)	0.069 (0.014)***	0.071 (0.014)***	0.023 (0.010)*	0.027 (0.011)*
lag(log(nigp), 1)	0.051 (0.015)***	0.049 (0.016)**	0.030 (0.021)	0.034 (0.031)
n	301	301	301	301
T	12	12	12	12
Num. obs.	2769	2769	2769	2769
Num. obs. used	2124	2124	4527	4527
Sargan Test (p-value)	0.000	0.002	0.000	0.000
Hansen test (p-level)		0.005		0.001
AB test (p-level)	0.011	0.010	0.005	0.004
Wald Test (p-value)	0.000	0.000	0.000	0.000

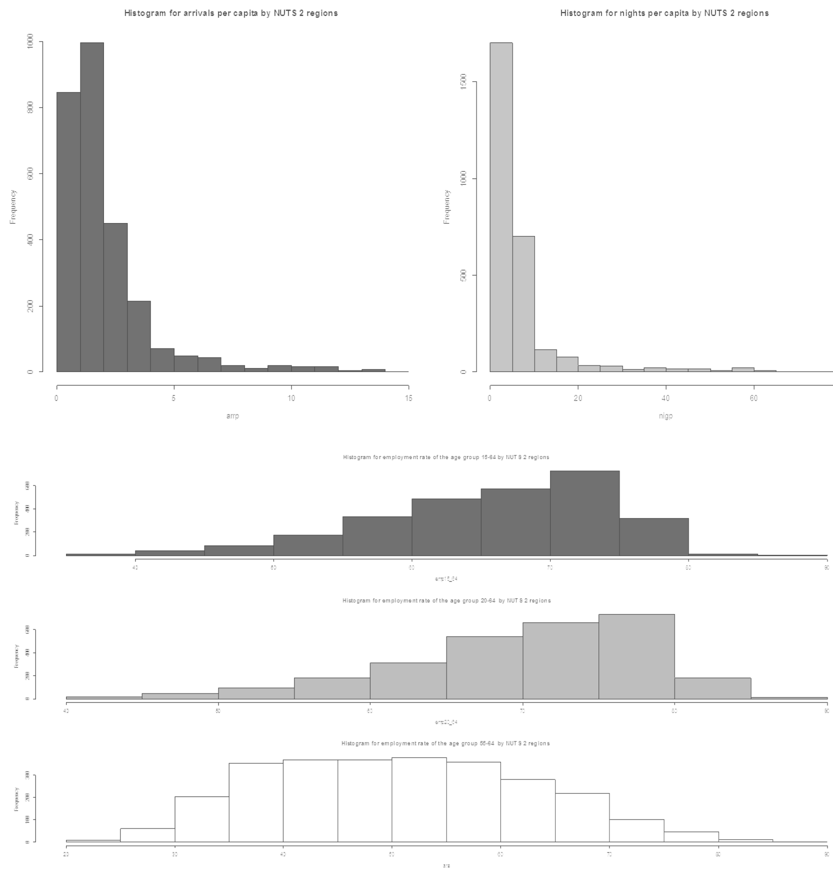
Note: Ibid

Table A.5

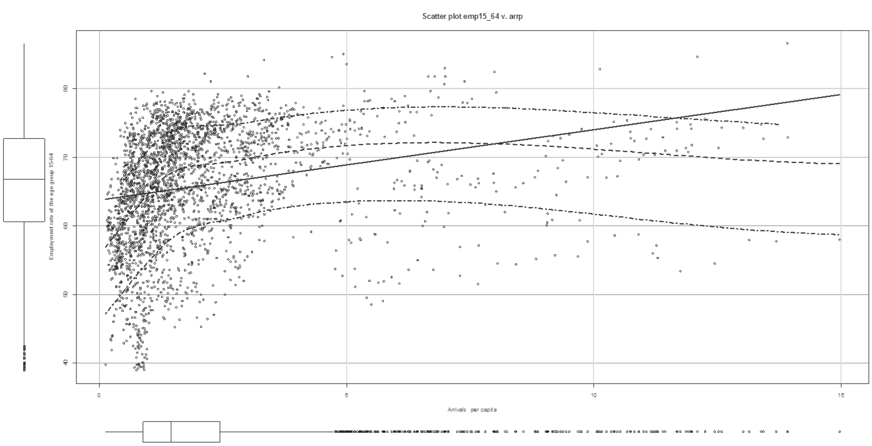
Do tourist night spends Granger-cause the employment of persons aged 20 to 64?

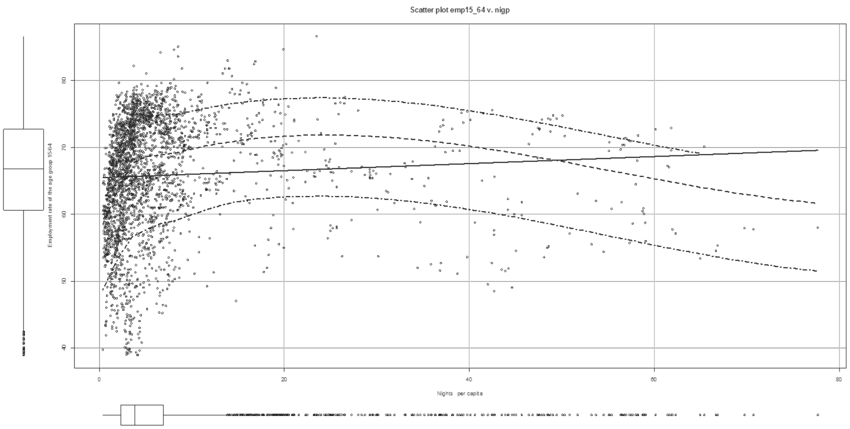
nigp	Arellano-Bond one-step GMM	Arellano-Bond two-step GMM	Blundell-Bond one-step SGMM	Blundell-Bond two-step SGMM
lag(log(emp20-64), 1)	0.539 (0.060)***	0.523 (0.051)***	1.015 (0.011)***	1.012 (0.012)***
log(nigp)	0.060 (0.013)***	0.042 (0.011)***	0.016 (0.010)	0.017 (0.010)
lag(log(nigp), 1)	0.043 (0.014)**	0.041 (0.015)**	0.031 (0.020)	0.033 (0.031)
n	301	301	301	301
T	12	12	12	12
Num. obs.	2769	2769	2769	2769
Num. obs. used	2124	2124	4527	4527
Sargan Test (p-value)	0.000	0.002	0.000	0.001
Hansen test (p-level)		0.005		0.002
AB test (p-level)	0.004	0.004	0.001	0.001
Wald Test (p-value)	0.000	0.000	0.000	0.000

Note: Ibid

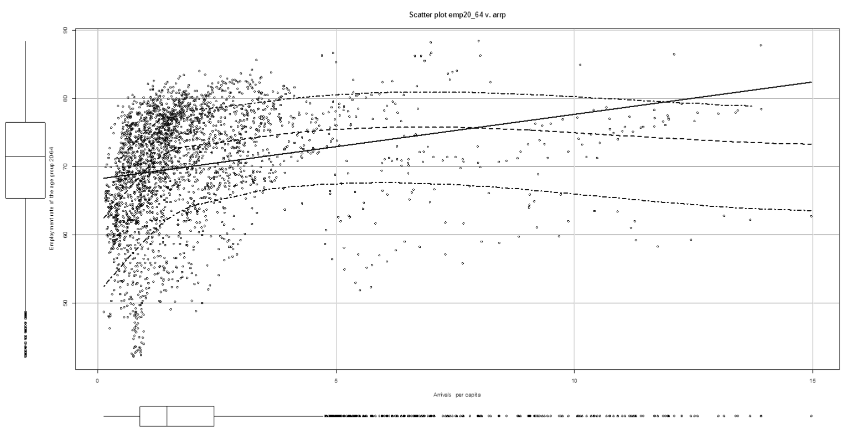


Figures A.1-A.5 Histograms of included variables in analysis

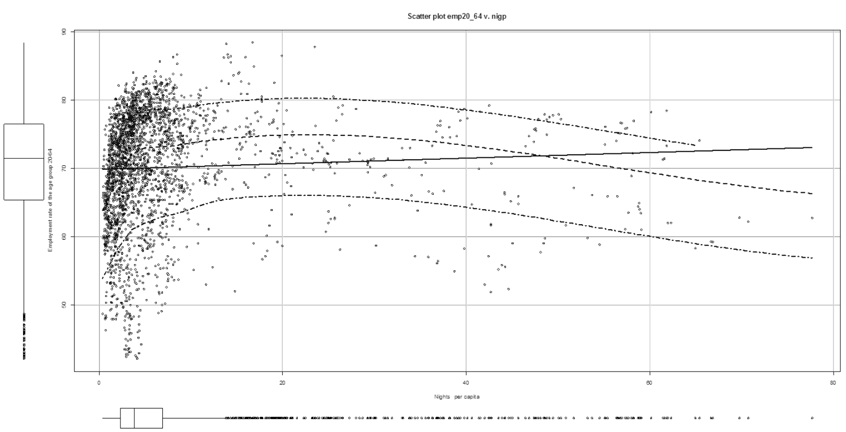




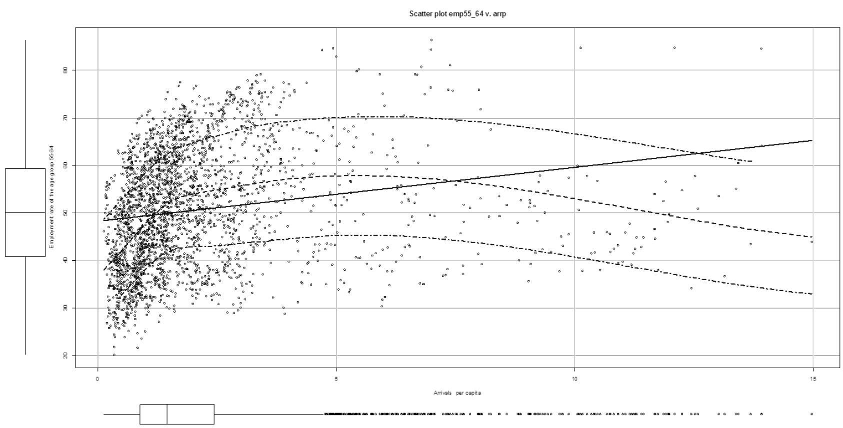
Scatter plot emp15_64 v. nigp
Employment rate of the age group 15-64
Nights per capita

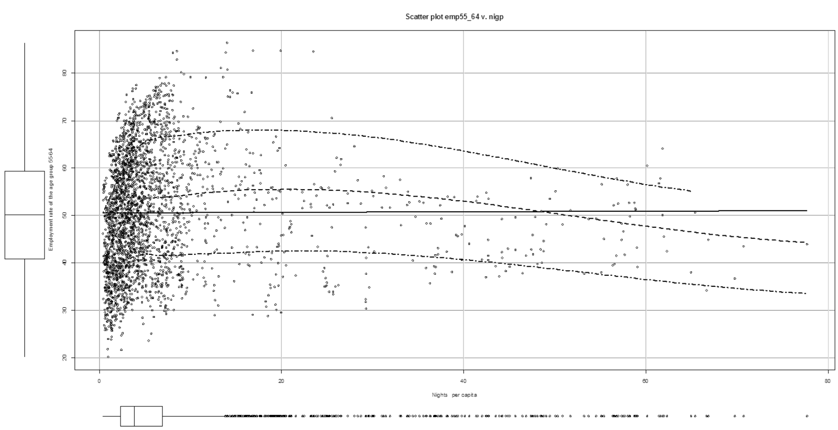


Scatter plot emp20_64 v. arrp
Employment rate of the age group 20-64
Arrivals per capita



Scatter plot emp20_64 v. nigp
Employment rate of the age group 20-64
Nights per capita





Figures A.6-A.11 Scatterplots of included variables in analysis

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MEĐUGENERACIJSKO PRELIJEVANJE ZAPOŠLJAVANJA IZ TURIZMA U EU

Sažetak

Koliko ekonomske stimulacije daje turizam u EU otvaranjem novih poslova i poticanjem ukupne zaposlenosti? Upotrebom uzoraka neuravnoteženih panel podataka u 301 NUTS-2 statističkim regijama u razdoblju od 2006. do 2017. godine, analiziran je učinak turizma na razinu zaposlenosti u ovim regijama. U radu je korištena generalizirana metoda momenata (GMM) i Grangerovi testovi uzročnosti na modelima panel podataka kako bi se provjerila hipoteza da su turistički indeksi po glavi stanovnika u prosjeku pozitivno povezani s razinama zaposlenosti. U analizi, stariji zaposlenici izdvojeni su kao grupa i posebno analizirani regresijskom metodom uz ostale grupe zaposlenika. Analize poduzoraka po regijama pokazuju da zaposlenici u dobi od 15 do 64 godine, a odmah iza njih zaposlenici u dobi od 20 do 64 godine, imaju najvišu korist od prelijevanja u smislu više razine zaposlenosti. Rezultati dobiveni upotrebom generalizirane metode momenata robustnog sustava (SGMM) pokazuju da se ne može donijeti konačan zaključak za starije radnike – one dobi od 55 do 64 godine – jer SGMM regresijska metoda nije pokazala statistički značajne rezultate.

Ključne riječi: dolasci turista, razina zaposlenosti, stariji zaposlenici, europske regije, prelijevanja, uzročnost.

JEL klasifikacija: L83, J21, J23.