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NEGOTIA

2/2020

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3

CONTENT – SOMMAIRE – INHALT – CUPRINS

THE TRAVEL AND TOURISM INDUSTRY PRIOR AND DURING COVID-19 PANDEMIC– FROM A MAIN GLOBAL ECONOMIC ENGINE TO ITS DECLINE

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ABSTRACT. The COVID-19 pandemic and the restrictions on travel established as a response to it, have a serious impact on Travel and Tourism industry. The global health crisis shut down hotels, restaurants and cafes, and many other additional businesses; it has grounded airplanes and greatly affected the Travel and Tourism industry. The aim of this paper is threefold. Firstly, it analyzes and underlines the development, size and dynamics of the Travel and Tourism industry compared to other industries which have a comparable presence worldwide. Secondly, it concisely examines this industry's direct, indirect and induced contribution to GDP and to employment worldwide, during 2010-2019. Finally, it highlights the prospects for the development of tourism in the future, taking into account the pandemic that we face globally. Moreover, this paper highlights the positive impact this industry had upon the economic growth worldwide in the last years, and the fact that we should not disregard its relevance, as it represents an important global economic engine.

Keywords: *Travel and Tourism Industry, GDP, employment, COVID-19 pandemic.*

JEL classification: Z32, O18, L83

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Introduction

According to Guterres (2020), the United Nations secretary general, "Tourism can be a force for good in our world, playing a part in protecting our planet and its biodiversity, and celebrating what makes us human: from discovering new places and cultures to connecting with new people and experiences". We are faced, worldwide, with an unprecedented health crisis, and its repercussions can be observed in all sectors of economy. The Travel and Tourism (T&T) industry is going through a dramatic period, an unprecedented one, in each region / country worldwide, being one of the sectors on which the ongoing COVID-19 pandemic impacted the most. The sustainable recovery of this industry from the pandemic's devastating effects is crucial.

The Travel and Tourism industry was a major engine of the world economy during the last decades. It generated directly or indirectly one in every ten jobs, representing 30% of the world's exports of services (US$ 1.5 trillion) and up to 45% of the total export of services in developing countries (WTTC, 2019b). Moreover, it contributes significantly to global GDP, accounting for 7% (on average) of international trade and it attracts foreign spending in many countries in the form of international tourists. This global magnitude of tourism, especially in industrialised and developed countries, has produced economic and employment benefits in many related sectors - from construction to agriculture or telecommunications. Presently, the pandemic has devastated the tourism sector, with unprecedented effects on employment and on the activity of any business related to tourism.

Limitations on travel established in response to the COVID-19 pandemic continue to hit T&T industry terribly. The World Tourism Organization (UNWTO) underlined a sharp decrease of international tourist arrivals in the first quarter of 2020 (-22%). They expect an annual decline

between 60% and 80% (UNWTO, 2020a). Moreover, for the first eight months of 2020, a 70% fall in international arrivals was registered, at global level (UNWTO, 2020b).

Even under these austere conditions, we should not disregard the importance, size and dynamics of this industrial sector relative to other sectors from the global economy at global level. Therefore, the present study focuses on highlighting the economic relevance of this industry, compared to other sectors, in the last years and its great contribution to the global economic growth. By comparing the development of the T&T industry over time to other significant industries, we can observe that this is one of the sectors that have seen the most persistent growth in the last decades. The consequence of this success was given by a substantial contribution to the global economic growth. We may underline that the positive evolutions of the global economic environment in the last years have been a source of growth for the Travel and Tourism industry. The pandemic hit the global economy, and due to the fact that there is a relationship of direct proportionality between the global economic environment and the T&T industry, the negative effects were dramatically felt in this sector.

The remainder of this paper is organized as follows: Section 1 reviews different studies related to Travel and Tourism industry growth in the last decades and the COVID-19 pandemic negative effects on it. Section 2 describes the research methodology that has been employed. Section 3 outlines and emphasizes the research results, and finally, the last section of the paper concludes this research.

Literature review

The current COVID-19 pandemic had a negative impact on most industries, worldwide, but particularly strong negative influences were registered by the Travel and Tourism industry. On 7 January 2020, the World Health Organization (WHO) announced the coronavirus to be the cause of the reported pneumonia cases in China. On 11 March 2020, after the disease spread in many countries, WHO declared the COVID-19 a pandemic (UNWTO, 2020a). For the moment, the evolution of the

pandemic and its economic impact worldwide is really uncertain. Since the virus spread rapidly outside of China, the economic impact is registered in all the countries at the global level.

Over time, the global tourism has been exposed to a wide range of crises: the September 11 terrorist attacks (2001), the severe acute respiratory syndrome (SARS) outbreak (2003), the global economic crisis unfolding in 2008/2009, respectively the 2015 Middle East Respiratory Syndrome (MERS) outbreak. But Travel and Tourism industry has been resilient to all these crunches and none of them led to a longer-term decline in the global development of tourism. The impact and its potential recovery from the COVID-19 pandemic will be unprecedented for this industry. McKibbin and Fernando (2020) summarizes the existing literature on the macroeconomic costs of diseases and estimates dramatic effects of the COVID-19 outbreak under seven different scenarios of how the disease might evolve.

There are many studies conducted on examining the regional impact of the recent pandemic on Travel and Tourism industry. Correa-Martínez et al. (2020) investigated the spread of COVID-19 in Ischgl, a popular ski town in the Austrian Alps. Centeno and Marquez (2020) forecasted the total earnings loss of the T&T industry in the Philippines. They concluded that if the pandemic lasts up to five months, the T&T industry of the Philippines will have an estimated earnings loss of about 170.5 billion pesos. Hoque et al. (2020) measured the impact of the pandemic on the tourism industry in China. Nepal (2020) analyses the impacts of pandemic on adventure tourism in Nepal.

Few studies are focusing on the global impacts of pandemic on Travel and Tourism industry. Gössling et al. (2020) investigated the effect of global travel restrictions and stay at home behaviour on tourism and projected global change, underlining that COVID-19 provides striking lessons to the tourism industry. Ugur and Akbıyık (2020) revealed the effects of pandemic on global tourism, in the light of travellers' comments. Sigala (2020) analysed why and how the COVID-19 can be a transformational opportunity, and it identified the fundamental values, institutions, and pre-assumptions that the tourism industry and academia should challenge and break through to advance and reset the research and practice frontiers.

Before COVID-19, based on the importance of the Travel and Tourism industry in the economy worldwide there has been a high number of articles that examined the relationship and causality between tourism and the economic growth worldwide, in some specific countries or cross-countries. The World Travel and Tourism Council succinctly summarized the important role that this industry plays in the growth of global economy. During this time, T&T industry was an engine for economic growth worldwide. Many studies highlighted a positive long-run association between tourism development and economic growth for some specific countries, like Turkey (Arslanturk and Atan, 2012; Gunduz and Hatemi, 2005; Ongan and Demiroz, 2005), Spain (Balaguer and Cantavella-Jorda, 2002; Nowak et al., 2007), Greece (Dritsakis, 2004), Italy (Massidda and Mattana, 2013), Latin American countries (Martin et al., 2004) or four Pacific Island countries (Narayan et al., 2010).

Scientific research and methodology

The purpose of the present section is twofold. On one hand, it investigates and emphasizes the size and dynamics of the Travel and Tourism industry compared to other sectors of activity, which are regarded as having a comparable presence at the global level. On the other hand, it indicates the direct, indirect and induced contribution of this industry to GDP and to employment worldwide, respectively the prospects for the development of tourism in the future. The authors emphasize this industry's direct, indirect and induced contribution, as well as its total contribution to the GDP and employment at global level and in different regions or comparatively to that of other sectors, in order to reveal the economic importance of this sector in the economy worldwide in the last decade.

Considering the main goals of the present paper we used the World Travel & Tourism Council (WTTC) database. Worldwide, WTTC represents the authoritative source for the role of Travel & Tourism in generating GDP and employment. We used this database as it is one of the world's largest sources of knowledge for many countries and share a commitment to promoting sustainable development. The data was

collected for a period of 10 years (2010 – 2019) and computed accordingly to our main research objective. Based on the online available data we analysed the Direct Contribution to GDP and employment, respectively we computed and analysed the Indirect and Induced Contribution to GDP and employment. We also used the World Tourism Organization (UNWTO) reports which includes assessments on tourism growth over time.

The analysis commences by emphasizing the benchmarking of the Travel and Tourism industry compared to other industries globally before 2020. The study conducted by Bode and Coros (2018) represents a radiography of the impact of the Travel and Tourism industry upon the economic growth worldwide during the 2011-2016 period. The paper highlights the importance of this industry, being an important economic engine worldwide for the investigated period. The size and dynamics of the Travel and Tourism industry was compared to other sectors of activity that has a similar presence worldwide.

The result of the research emphasized the fact that, by comparing the growth, the size and dynamics of the T&T industry with other significant industries over time, it can be observed that it registers the most sustained growth in the examined period. The following industries were analysed compared to the T&T industry[4]: Mining, Agriculture, Education, Higher education, Chemicals' manufacturing, automotive manufacturing, Communication services, Construction, Banking, Retail, Financial services. The main conclusions of the paper highlighted the relevant importance of the T&T industry, being an engine used to determine economic growth for the analysed period. Some important aspects that worth to be mentioned to sustain this idea are given by the fact that: the T&T industry contributed more to GDP than the automotive industry in each region of the world; directly employed 6 times more people than the automotive industry, 5 times more than the chemicals production industry and 4 times more than the mining industry; supported more jobs than the automotive industry, financial services, communications, mining and chemical industry in every region of the world. Moreover, for every dollar spent on tourism and travel, $3.2 were

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[4] The sectors considered for comparison are defined by Bode and Coros (2018) and differ from year to year in the benchmarking reports.

generated in the GDP across the economy globally; 1 million USD in tourism sales generated twice as many jobs as the same 1 million USD in sales in financial services, communications, and automotive (Bode and Coros, 2018).

It is important to mention that, during 2011-2016, the positive evolutions of the activity in the T&T industry were generated by the favourable growth of the global economic environment. Therefore, we must be aware of the fact that there is a relationship of direct proportionality between the T&T industry and global or regional economic environment.

In the present section, we conduct a comparative analysis for 2018 and 2019 of the Travel and Tourism industry compared to other industries, in order to assess the size and dynamics of this industry, highlighting that it was one of the largest sectors before pandemic spread all over the world. The performance of the Travel and Tourism industry globally in 2018 has been impressive. Globally, this industry has been one of the fastest sectors of activity in 2018, registering an increase of about 3.9% compared to the previous year, its expansion exceeding growth rate of the car manufacturing industry (3.7%) and the health sector (3.3%). The increase in the growth rate of the Travel and Tourism industry has been driven by the number of small businesses in this sector, a massive increase in tourist consumption, low rates of unemployment registered in this sector and facilitation of visa regime in many countries and regions around the world.

According to WTTC (2019a), in 2018, the total contribution of the Travel and Tourism industry to the global GDP was 10.4%, 1.7 times more than the mining, 1.5 times more than the automotive industry and 1.3 times more than the agriculture and banking. In terms of contribution to employment, we need to emphasize that the Travel and Tourism industry provided 10% of the total working labour force at the global level. This percentage resulted in a total of 319 million jobs, more than financial services (the contribution of it was 9.1%) and more than the health sector (the contribution of it was 7.4%). In order to outline the performance of the Travel and Tourism industry in contrast to other sectors, the figure below reveals the contribution of this industry to both the global GDP and employment.
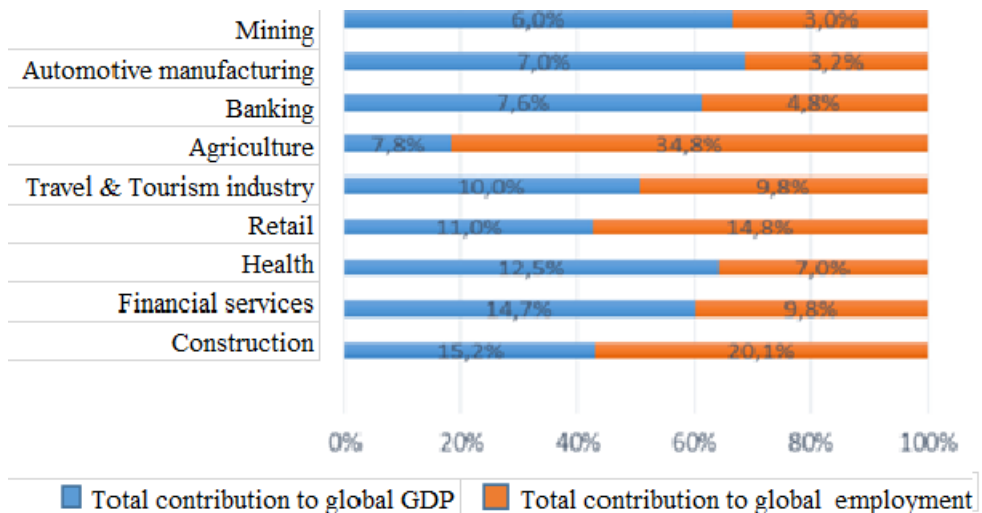
Figure 1. The total contribution of the T&T industry to global GDP and employment compared to that of other sectors in 2018

Source: Authors' own elaboration based on WTTC, Benchmark Report 2019, available at https://www.wttc.org/research/economic-research/benchmark-reports/#undefined

The Travel and Tourism industry contribution to the global GDP (10%) was almost equal to the contribution to global employment (9.8%). The ratio between the two types of contributions is a balanced one and indicates the ability of this sector to be a socially efficient one (in terms of providing people's jobs) and economically efficient one (increasing the value of economic welfare, in terms of increasing GDP). Industries that have outperformed the Travel and Tourism industry, such as construction, agriculture and retail, have a less balanced ratio, the contribution to employment being in all cases higher.

An overview of the performance of T&T industry at the global level in 2018, requires emphasizing the contribution by reference to main regions worldwide.

In Europe, the total contribution of the Travel and Tourism industry to GDP was 9.7% (2.2 trillions of dollars) (WTTC, 2019c). The contribution of this sector was higher than that of the banking sector (5.9%), respectively agriculture (3.9%). The total contribution of the T&T industry to employment quantified 36.7 million, surpassing the

impact of mining industry, automotive industry and financial services. The competitiveness of this industry in Europe is demonstrated by the position in benchmarking reports, this industry being ranked fourth in terms of both contribution to GDP and employment. At the same time, we need to underline that the Travel and Tourism industry has registered a faster pace of growth compared with all the other sectors. The growth rate of the tourism and travel industry in Europe was 3.1%, outperforming the construction industry (2.8%) and banking services (2.6%).

In Asia and the Pacific, the Travel and Tourism industry ranked five in terms of total contribution to GDP and employment. Total contribution to GDP of T&T industry in this region in 2018 was 9.9%, higher than that of retail trade (9.5%) and the health sector (9.1%). The Travel and Tourism industry is the largest sector in the Philippines and Thailand, but the fourth largest sector in China. Number of jobs created in this region by the Travel and Tourism industry was 180 million jobs, equivalent to 9.3% of the total number of jobs created in Asia during this year. Compared to T&T industry, the contribution of the health sector was 4.6% and that of banking services was 5.6%. However, the contribution of the Travel and Tourism industry remains significantly lower than that of agriculture, which is the largest provider of jobs in this region, with a percentage of the 42.6% of all jobs created. The growth rate of the T&T sector in Asia expressed remarkable values compared to previous years in some countries: in China, the pace of growth was higher with 7.3%, in the Philippines with 7.8% and in Indonesia with 8.9%.

In Africa, the T&T industry ranked sixth in terms of total contribution to GDP (8.5%) and fourth place in job supply (6.4%). Within this continent, most of the activity of the Travel and Tourism industry was recorded in Egypt, where the total contribution to GDP was 11.9%, higher than mining (7.3%), but lower than construction (16.8%) and agriculture (15,3%). In contrast to 2010, the Travel and Tourism industry has fallen by two positions, but in 2018 managed to have the fastest pace of growth, a significant value, with 16.5% more than the previous year. In Africa, the growth rate of the T&T industry was 5.8% higher than the previous year, the development of this sector being more significant than constructions, where the pace was quoted at an increase of 4.8%, and then the mining sector (4.4%).

Concerning the Americas, the total contribution of the T&T industry to GDP was 8.3%, surpassing mining (5.4%) and the automotive industry (4.6%). Contribution to employment represented 44 million jobs, meaning 9.7% of all jobs created, twice as much as banking and triple that of automotive industry. The tourism sector is the main one in Mexico, both in terms of total contribution to GDP (17.2%) and employment (17.8%). During 2010-2018, the Travel and Tourism industry was the second sector in terms of growth rate (was outclassed just by the manufacturing industry). The causes of this position are monetary depreciations (case of Argentina), the recovery after the hurricane in the Caribbean region and the relaxation of visa policies.

A significant growth fort the T&T industry was also registered in. However, at the same time, the outbreak of the Covid-19 pandemic and the spread of the new type of virus demonstrated the vulnerability of this industry to a biological hazard of such dimensions.

The performance of the Travel and Tourism industry in 2019 was equivalent to a contribution of 8.9 trillion dollars to world GDP (10.3%), of US$1.7 trillion to visitor exports (6.8% of total exports, 28.3% of global services exports) and of US$948 billion capital investment (4.3% of total investment), respectively of 330 million new jobs created (1 in 10 jobs around the world; over the past five years, one in four new jobs were created by this industry, making Travel & Tourism the best partner for governments to generate employment.). This sector experienced 3.5% growth in 2019, outpacing the global economy growth of 2.5% for the ninth consecutive year. T&T growth in 2019 compared with other sectors means that this sector surpassed the growth of Healthcare (3%), Retail & Wholesale (2.4%), Agriculture (2.3%), Construction (2.1%), respectively Manufacturing (1.7%). Only Information & Communication (4.8%) and financial services (3.7%) surpassed T&T industry.

We continue our analysis by emphasizing that over time, Travel and Tourism industry became one of the fastest growing economic sectors in the world. In the last decades, tourism was one of the main economic activities in many regions, worldwide. Further, we analyse the contribution of this industry to global GDP and employment.

Figure 2. The direct, indirect, and induced contribution of the T&T industry to global employment during 2010-2019

Source: Authors' own elaboration based on WTTC database

As it can be observed from Figure 2, the percentage share that Travel and Tourism contributes directly or indirectly to employment was rather constant for the period 2010-2019, for all major regions in the world. We can observe that Australia exhibits the highest contribution of T&T to total employment regardless of whether direct or indirect and induced effects are measured. When compared with the overall World results, Australia's T&T can be observed to exceed them by over 1% in direct contribution (10 years average of 4.66% compared to 3.51% for

17

the World) and by almost 2% in indirect and induced contribution (10 year average of 7.98% vs. 6.22%). Halfway, Europe and the Americas are very close to the figures which display the overall results of the World. At the opposite end, Africa and Central Asia are the regions in which both direct and indirect contributions of T&T to total employment are very low. In Central Asia, direct contribution throughout the whole analysed period (2010-2019) was below 2% whereas for the indirect and induced, the contributions did not exceed the 4% level.
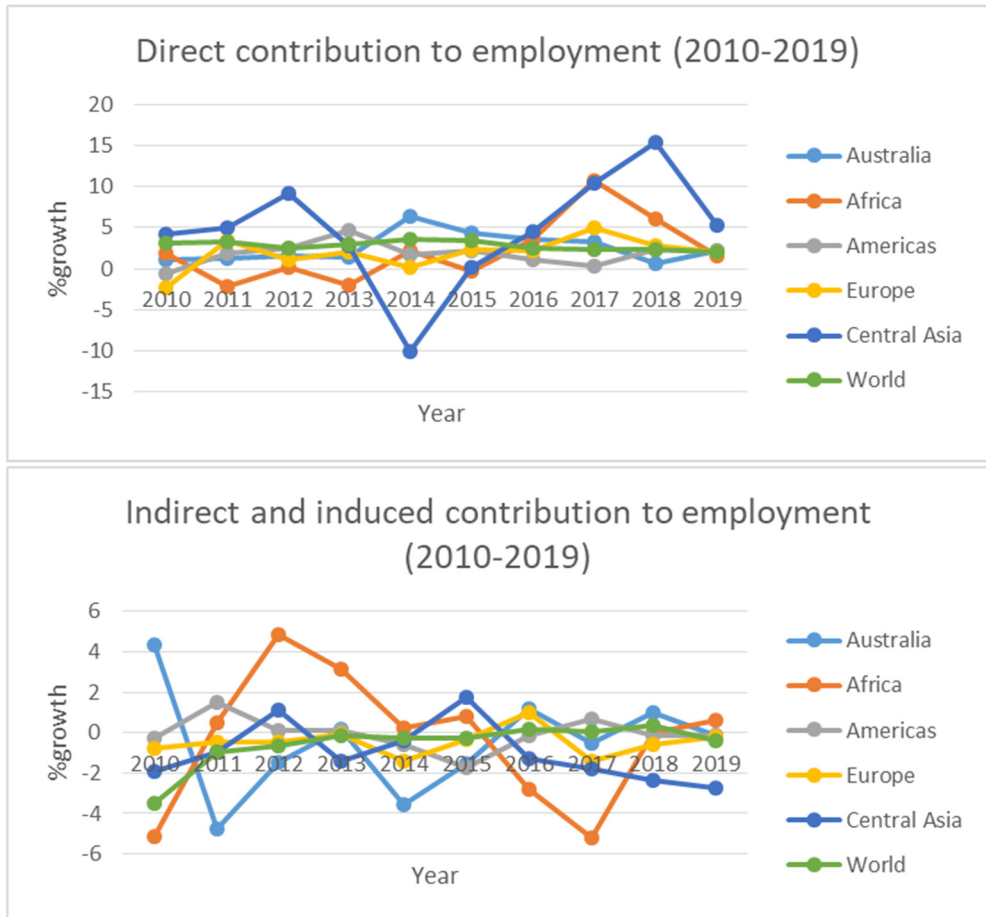
Figure 3. The direct, indirect, and induced contribution of the T&T industry to global employment during 2010-2019, percentage growth

Source: Authors' own elaboration based on WTTC database

As far as the yearly percentage growth is concerned, we can observe some serious fluctuations in certain regions. In the case of the indirect and induced contribution to employment the World figures, Europe and the Americas exhibit relatively constant percentage growth. However, high fluctuations are registered in Africa, Australia and Central Asia. Similar patterns are illustrated for the direct contribution, except that Australia exhibits less fluctuations whereas the yearly fluctuations for Central Asia are amplified. It can be observed that in the case of the direct contribution to employment the percentage growth for Central Asia changes dramatically from peaks as high as 9.16% in 2012 and 15.38% in 2018 to troughs as low as -10.12% in 2014.
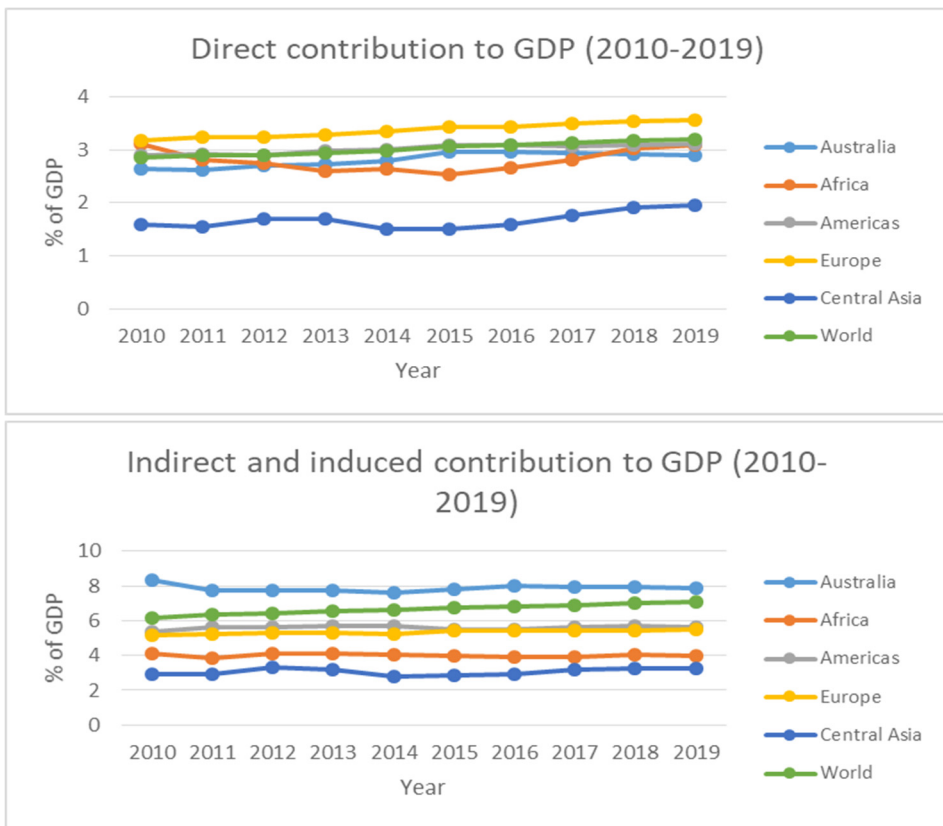
Figure 4. The direct, indirect, and induced contribution of the T&T industry to global GDP during 2010-2019
Source: Authors' own elaboration based on WTTC database

In the case of T&T's contribution to the total percentage of GDP, we can observe that the results are slightly more convoluted. As far as the direct contribution is concerned, Europe is leading in percentages with an average (across of the 10 years) of 3.37%. Australia, Africa, and the Americas, being both very close to the World (average of 3.02%) with averages of 2.82%, 2.80%, and respectively 3.01%. Africa's results are being influence by the decrease which culminated in 2015 with a trough of 2.52%, but its contribution increased up to 3.08% in 2019, even surpassing Australia. In the case of direct contribution to GDP, a huge gap of over 1% can be seen between the results of Central Asia (with an overall average of only 1.67%) and the other analysed regions.

On the other hand, in the case of indirect and induced contribution to GDP, we can observe that in the case of Europe, T&T represents significantly less than Australia and the cumulated World results. On this indicator, Australia, with an average of 7.88%, is the only region that contributes more than the cumulated World figures, which average 6.67%. Europe and the Americas have very similar indicators: averages of 5.35% and, respectively, 5.59%. Africa and Central Asia, are like in the case of the contribution to employment, the regions which register the lowest T&T indirect and induced contribution to total GDP, with averages of 4.01% and, respectively, 3.05%, over the 10 year period being analysed.

By analysing the percentage growth, we can observe some major fluctuations in the values of Central Asia and Africa for both direct and indirect indicators. As far as the direct contribution is concerned Africa's percentage growth alternates from positive to negative growth year after year, exception being 2017 when it reaches the remarkable peak value of 15.90%. Central Asia also reaches a very positive growth of 15.63% (in 2012) and only registers negative growth in 2014 (-3.67%). In the case of indirect and induced contribution, to the previously mentioned regions (Africa and Central Asia) a significant variation can be observed in the first couple of years being analysed for Australia. In 2010, Australia registers a rather large 5.92% growth which is followed by a period of decline which has its trough in the very next year (2011) at -5.46%.
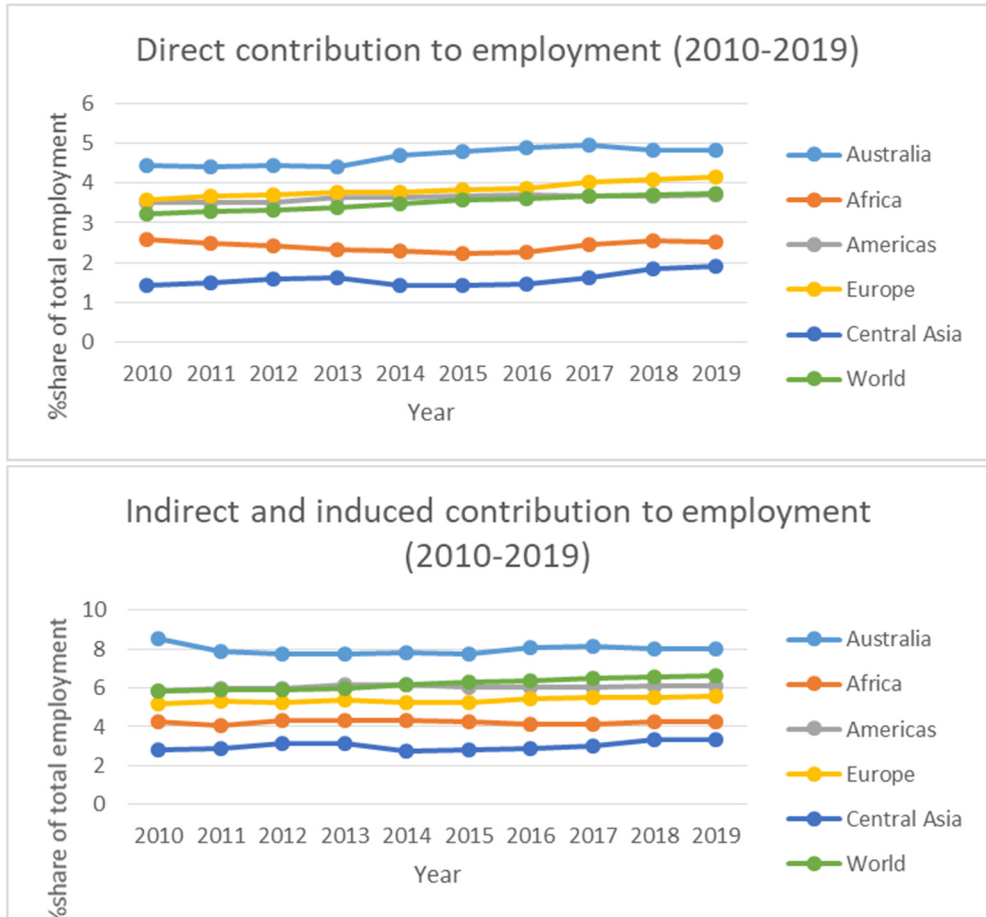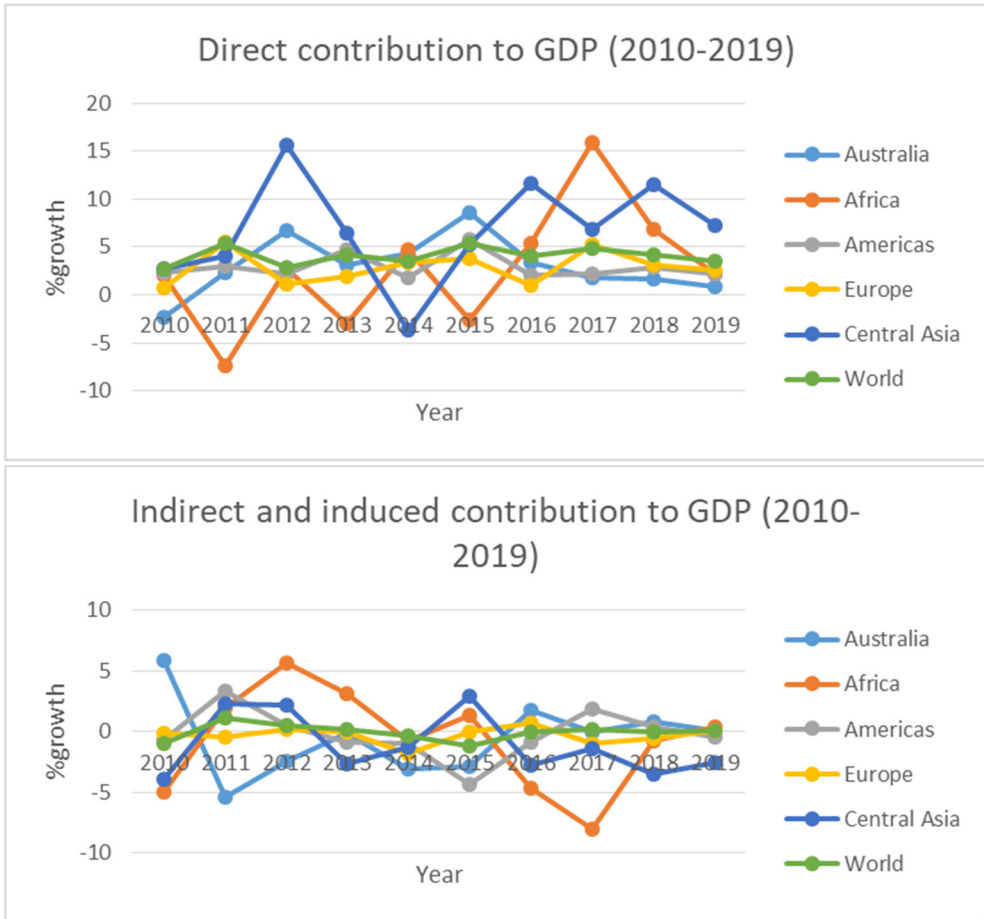
Figure 5. The direct, indirect, and induced contribution of the T&T industry to global GDP during 2010-2019, percentage growth

Source: Authors' own elaboration based on WTTC database

In the last part of the present section, we underline the prospects for the development of tourism in the future and the impact of Covid-19 on performance of the Travel and Tourism industry. The impact of the pandemic was particularly felt by the Travel and Tourism industry, whereas the performance of this industry involves mobility, displacement of people from one place of the world to another, an increased degree of inter-human interaction and, of course, the inevitable connectivity of this industry with other industries. Research carried out by WTTC' specialists points out

21

that the disastrous impact of the pandemic on the T&T industry will be at least five times greater than the impact of economic crisis from 2008 exerted on this sector WTTC, 2020a). To better understand the immediate effects of the pandemic and its huge negative impact on the Travel and Tourism industry, we can explore the sharp decrease in employment for this industry as early as the end of March 2020. WTTC reports estimate that approximately 100 million people are already no longer active in the T&T industry, this decrease representing 30% (WTTC, 2020a). Only in the first four months of the outbreak of the pandemic, the total contribution of the T&T industry to global GDP decreased by 2.7 trillions of dollars. International tourist flows have been severely affected, since the arrivals indicator world-wide growth rate decreased by 22.4%. In the first quarter of 2020 the losses corresponding to international arrivals worldwide were 67 millions of people, materialized in 80 billion dollars. We believe that a better perception of the changes in the international arrivals indicator require analysis and presentation of change for each region of the world in the first quarter of 2020. The graph below emphasizes that the most affected regions in terms of international arrivals were Asia (-35%), Oceania (-23%) and the Caribbean Region (-20%). The second region immediately affected at the global level based on the number of international arrivals was Europe, where a decrease of 19% was recorded. Although the Middle East is one of the regions where illness is still increasing, the number of international arrivals has decreased by 11%, one third less than Asia.
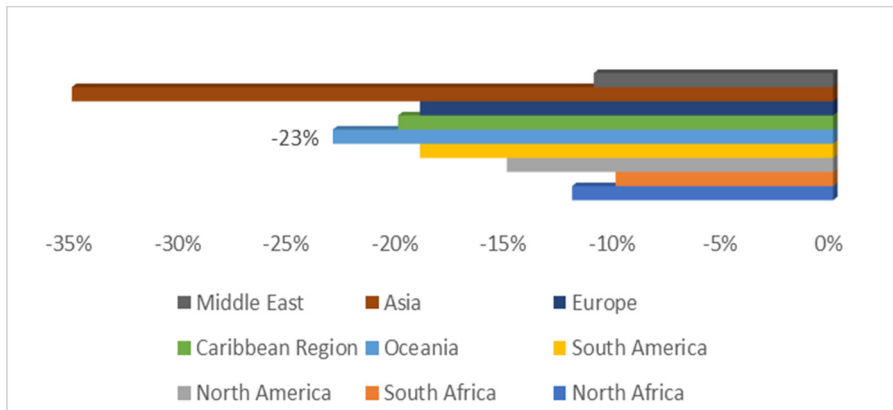
Figure 6. International arrival variation under Covid-19 at the global level (First quarter of 2020)

Source: Authors' own elaboration based on UNWTO database

The pandemic short-circuited the T&T industry; the impact was overwhelming, as there was no set of regulations and policies related to this aspect. The operating environment of tourism agents has become uncertain and unstable. The pandemic generated, overnight, the cancellation of hundreds of bookings, the impossibility of hosting events, isolating and self-isolating people and blocking certain tourists thousands of miles away. Many means of transport, particularly the air traveling were temporarily closed or restricted. The health crisis has led to a significant decrease in the activity of the aviation industry, which is indispensable for the proper functioning of the tourism mechanism. International air industry recorded the largest decrease in air traffic since the 2008 crisis. According to IATA (2020), losses of this sector is approximated to $29.3 billion, while for 2019, IATA forecast an increase in the pace of development of 4.1%. Unlike the crisis caused by SARS in 2003 and 2002, losses are currently around four times higher and full recovery will only be possible within a long time horizon. One of the state's functions should be that of intervention and support for tourism, the current context is the right time for the exercise of this function. More than that is an eminent necessity, bearing in mind that the Travel and Tourism industry generated in the last years about 10% of the global GDP, and one in ten people employed worked in tourism and related areas.

Supporting the Travel and Tourism industry is, since the beginning of the pandemic, one of the concerns of governments around the world, and at present the measures have taken the form of future operating prospects and action in tourism. One of the first measure adopted by small and medium-sized enterprises in the field of tourism, in all countries, was interruption of economic activity. The governments generally supported these measures by providing funds for covering technical unemployment of employees and extending the period of time during which debts can be reimbursed (WTTC, 2020a). We can say with certainty that the T&T industry needs to reorganize, the journey will no longer proceed as it once did. Development prospects and the future industry will be closely linked to the evolution of the pandemic and the provision of safety for tourists. Performing a health test before leaving the country or when entering the destination country, may soon become an obligation framework. Businesses and institutions in the tourism industry and are still awaiting clear regulations on the rules and standards of travel and hygiene, which needs to be implemented for reopening or continuing the activity.

The vision of the restoration for this industry requires redefining the way in which it operates and improving the communication between the involved stakeholders. The biggest impediment in the recovery plan of the tourist mechanism is represented by the bruised confidence of tourists and the building-up of new attitudes regarding travel and holidays. It takes time and regulations to reconfigure the new template of traveling and both, the institutions in charge with it and the touristic structures, require well-defined resources and rules in this respect, ensuring and inspiring the verisimilitude of the tourist's safety. The situation caused by Cofid-19 determined some touristic destinations to close the borders, limiting any form of tourism. Others suspended a part or all the flights, whilst others prohibit access of tourists coming from the red areas. Although it sounds paradoxical, a number of opportunities can be identified in the context of the pandemic for tourism, they are: increasing the degree of digitalism and innovation, rethinking future business models, strengthening sustainability and nature-oriented segments, implementing better safety and health standards. On the other hand, a number for the T&T industry can be identified: the uncertainty of the global economic environment, economic recession caused by the pandemic, the increasing rate of unemployment, the unknown duration of the pandemic, the absence of a vaccine, the prolongation of the quarantine in many countries and the difficulty of adapting to the "new normality". The measures that can be underlined to sustain this industry in each state, at the global level, can be: state support, increased accountability in the behaviour of customers, the orientation towards the development of domestic tourism and the expansion of domestic tourism supply, balancing the value for money, respectively the initiative to diversify and renew the touristic supply. In antithesis, we can emphasize the weaknesses of the Travel and Tourism industry at the moment, such as: tourism consumption has seen the lowest level since the 2008 crisis; there are major disturbances in the activity of the air transport and all institutions related to tourism; we face the lack of similar periods in the past, the current situation being one with a particular, unprecedented specificity; the perception of traveling being a major risk situation; the low level of touristic demand at the beginning of the recovery of tourism activity, correlated with social distance.

The Travel and Tourism industry is one of the industries that has managed to stand up to the world conflagrations, previous epidemics, nationalist conflicts and dangerous ideologies. Travel and Tourism mean mobility, and humanity is largely dependent on this, therefore it is certain that this sector will continue to exist and operate, but under a different form. We will travel again, show responsibility and be aware that this industry needs the support of each of us. Development of the T&T industry remains to be seen in optimistic parameters. According to WTTC reports, by 2030 the Travel and Tourism will provide 11.3% of the value of world GDP, and the contribution to employment will be 11.8% globally (WTTC, 2020b). Restoring this sector under the present conditions is directly dependent on the responsibility of the population, the involvement of the state and the accommodation of touristic services to the new provisions and regulations.

Conclusions

In the last decades, the development of Travel and Tourism industry was characterized worldwide by an upward sloping trend as a result of the positive influence of economic, demographic, political and social factors. This paper conducted a comparative analysis in order to highlight the relevance of T&T industry as being one of the largest industrial sectors. According to WTTC (2019c), in 2019 T&T was reported to support approximately 330 million jobs worldwide, (1 in 10 jobs around the world), it generated approximately 10.3% of the global GDP (US$8.9 trillion contribution to the world's GDP), it accounted for nearly 6.8% of all exports and 28.3% of the services' exports worldwide, and it contributed for 4.3% of total investment.

Prior to the current pandemic, the direct, indirect, and induced contribution of T&T to important factors such as GDP and employment were found to increase in most regions. Even for regions such as Africa and Central Asia which registered quite high fluctuations, the last couple of years highlighted the significance of this important industrial sector. Some remarkable results can be observed in 2018 for Central Asia which registered a 15.38% growth in T&T's direct contribution to employment and in 2017 for Africa which registers a 15.90% growth in T&T's direct contribution to GDP.

Strategic planning for overcoming the current COVID-19 challenges should be one of the main pressing worldwide urgencies. Stakeholders should consider how this pandemic can be overcome and then, gradually, how the T&T industry can be re-started and returned to positive trends. Therefore, this industry will be subject to several changes which must be taken into account:

➢ Sustainable tourism will gain momentum. Tourists, at global level, will search for less and less crowded areas, rural areas or other places in the middle of the nature. Adventures or unique experiences such as cycling or hiking, wine or gastronomic tastings or will be preferred by tourists ;

➢ Proximity tourism is expected to dominate the next two-three years. Depending on the duration and severity of the pandemic, in the short term– tourist will prefer domestic tourism or travelling to destinations situated in the immediate vicinity;

➢ Many behavioral changes are anticipated. As expected, T&T exhibits an increased focus on safety and hygiene, even more so than many other industries;

➢ Digitization will be one key factor in the success of this sector. All opportunities to digitize tourism will be exploited, starting from reducing red tape, facilitating the client throughout the booking chain (pre-stay, during stay, post-stay), to automating internal operational processes;

➢ The business tourism will lose its current top position in favor of leisure tourism, "work from anywhere" being in the next years a main component of tourism sector.

Worldwide, tourism operators will have to be more flexible, invest in training the staff, and act pragmatically, with well-established short, medium and long-term goals. They will be forced to be more cohesive, so that they form a united front in the local, national or regional landscape. At the same time, T&T employees must be more careful about their input in this activity, prepare accordingly and accept the mobility, both domestically and internationally.

Clearly, the economic relaunching of the Travel and Tourism industry will constitute a challenge. Strategic planning at a global level is required to convince all stakeholders of the importance of this sector and to gain their trust.

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FACTORS AFFECTING THE ADOPTION OF INVENTORY COST FLOW METHOD BY THE MACEDONIAN COMPANIES: FIFO, WEIGHTED AVERAGE, AND SPECIFIC IDENTIFICATION METHOD

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ABSTRACT. Inventory valuation is a major topic in the accounting practice. Inventory valuation is reflected in financial reporting, i.e. the balance sheet and the profit and loss account and the choice of the right inventory cost flow method is one of the basic decisions all companies engaged in manufacturing and distribution of goods need to make. Preferably, the chosen method should result in the best income and financial result measurement. However, no method is acknowledged to always be the best for accomplishing these objectives.

The main aim of this paper is to investigate the factors affecting the adoption of inventory cost flow method by Macedonian companies. The data was collected by using a questionnaire randomly distributed via email to Macedonian retailing and manufacturing companies and later examined through statistical methods.

Analyzing a pool of 56 respondents, we find that the subject of inventory valuation is important as most of the participants consider that they understand the existing inventory valuation methods. The choice of inventory valuation method is mostly affected by the level of education of the manager, understanding of the method and simplicity of the separate inventory valuation methods.

Key words: *Inventory, valuation, methods, FIFO, weighted average, specific identification;*

JEL classification: M4, M1

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Introduction

Background of the study

Inventories are the finished goods or goods in different stages of production that a company keeps at its premises. There are various motives for keeping inventories depending on whether the inventory is designed for a process, for a flow of materials, or for a function it needs to achieve for an enterprise (Friberg *et al.*, 2006). Inventory represents a large (if not largest) portion of assets of manufacturing firms and as such, makes up an important part of the balance sheet items (Pollard, Harrison and Mills, 2007). Therefore, it is very important to understand how inventory is valued. If monitoring and measurement of inventories is not given proper consideration, the feedback given to managers to help them make decisions regarding inventory issues is running the risk of being unreliable (Srikanth, 1996). Valuation of inventories is a major problem in the accounting practice. Accounting inventory is also reflected in financial reporting, i.e. the balance sheet and the profit and loss account. The choice of the right inventory cost flow method is a one of the basic decisions all companies engaged in manufacturing and distribution of goods need to make. Preferably, the chosen method should result in the best income and financial result measurement. However, no method is acknowledged to always be the best for accomplishing these objectives. The issue is not new, but might be considered as being insufficiently discussed by members of the accounting profession. This is the main reason because of which many researchers through the years examined the factors affecting the choice and adoption of inventory valuation methods, and also the reason why this particular subject was chosen for this study.

The choice of inventory valuation methods is not a minor issue. The method adopted is of vital importance to the firm since different procedures result in widely different valuations. The value of an inventory

depends on the valuation method used, such as first-in, first-out (FIFO) method, last-in, first-out (LIFO) method, weighted average (WAP) method and specific identification method. Therefore, choosing the inventory valuation method is one of the basic decisions all companies needs to make. Ideally, the method chosen should result in the best measure of a company's income and financial condition, but there is no one method that is always best for accomplishing this objective.

Statement of the problem

Companies have to consider which costs are going to be included in the pricing of materials when valuing inventories. For financial reasons it is very important for companies to know all the rules and regulations in the matter of this issue. Different inventory valuation methods can result with different costs of goods sold and by that differently affect the closing inventory figures. These differences are important because they affect the company's financial statements. As a result of the issues raised above, there is need for companies to choose the right valuation method, i.e. the valuation method that is the most suitable for the specific company.

The study's general aim is to determine whether Macedonian companies use different inventory valuation methods by doing a survey-based research, and which are the factors affecting the choice of the inventory valuation method. This research work is based on inventory valuation and reporting practices in Macedonian companies: superiority test between FIFO, WAP and specific identification method, evidence from selected Macedonian manufacturing and retailing companies. This results of the overall analysis will be significant to organizations in appropriately valuating and reporting inventory. So far, a specific study on this subject for Macedonian companies has not been conducted, so it will give recommendation in terms of effective inventory valuation based on local practices.

The article consists of five sections. This first section is introduction. It presents the subject of inventory valuation and states the aim and objectives of the paper. The second section presents the theoretical background of the study, through a literature review. The literature review covers current and previous theories and research about

inventory valuation and the factors that affect the choice of the method utilized. The third section covers the methodology of this research. It explains the design of the field research that was conducted through a questionnaire, the sample size and sample characteristics, including some statistics on the sample. The fourth section presents the results of the study, through the statistical methods of numerical and graphical presentation of data. The last part concludes the discussion and provides recommendations for future research.

Theoretical background

Overview of existing literature

According to Seitelman (1953) up to the middle of the nineteenth century, most businesses were not large and carried their inventories at cost and by the first-in, first-out method. However, the problem was with physical count and extension at the last invoice prices. Seitelman also says that several authors of accounting books believed the market value of an asset should not be ignored. In 1929, the American Institute of Accountants reaffirmed the lower of cost or market rule for inventory valuation and, later in 1943 according to replies of a survey made, it was evident there was agreement on application of the lower of cost or market value (Previts *et al.,* 2011).

In a 1985 study, Hunt evaluated the potential determinants of corporate inventory accounting decisions. According to the study, during period of rising prices, using LIFO inventory method can bring significant tax savings of several million dollars per firm. Thus, the tax savings are an important determinant of inventory method choice. However, many companies that could benefit of this choose not to do so, because of substantial opportunity costs associated with this choice.

Dopuch and Pincus, (1988) also say that firms tend to choose method which will result in the lowest expected present value of future tax payments. However, if potential tax savings from using LIFO are so large, the most US firms would have switched to LIFO, and this is not the case. Because of this they stress that this may not be the real reason and tend to look for nontax explanations.

Later, Arcelus and Trenholm (1991) are examining the choice behavior of firms in Canada, where restrictive tax laws remove taxes as the distinguishing valuation criterion. They classify methods into two categories, upon weather the method is intended to increase income (FIFO) or is income neutral (weighted average). They come to a finding that smaller firms tend towards income increasing inventory methods, while larger firms choose and income neutral method. This finding is parallel to the recommended amendment to IAS2, in which weighted average and FIFO are identified as preferred methods of assigning cost to inventories. However, they concluded that firms with similar characteristics are not selecting the same inventory valuation method, and potentially resulting in misleading comparisons.

Bar-Yosef and Sen (1992) identify an optimal inventory valuation method as a mixed strategy of using partly FIFO and LIFO but, conditions exist for either FIFO or LIFO to be used. This mixed policy can be interpreted by recognizing that the weighted average method would implement a particular mixed strategy. They also emphasize the effect of the acquisition cost on the firm's inventory accounting policy. A higher price increases tax advantages, but also increases the value of potential distortion due to inefficient purchasing. Thus, unlike many other authors, these two don't agree that at the time of rising prices, firms will necessarily shift to LIFO.

Cushing and LeClere (1992) compared long-time FIFO with long-time LIFO users to test variables expected to influence inventory method choice. The findings suggested that tax saving is the primary reason firms use LIFO. Also, other firms do not use LIFO because of numerous factors without a single dominant reason. Most of these factors decrease the potential tax saving from LIFO. They include LIFO layer liquidations, LIFO bookkeeping costs, declining production costs, and contradictory tax and financial reporting rules for inventory. However, other factors include effect on debt covenants, concern about the complexity of LIFO, and government requirements for FIFO use.

In a study by Kou (1993) the issue of inventory valuation method choice from the perspective of small firms and investigated three major factors believed to play an important role in small firms' inventory decisions. It was discovered, the hypothesis that highly leveraged firms more likely adopt FIFO is relevant for small as well as for large firms. The study also suggests that increase in business risk increases the tendency of the company

to use FIFO in order to reduce the chance of getting into a technical default. The significant relationship between size and LIFO choice indicates that political impact of high profits and the resulting negative wealth transfer, of concern to large firms, also concerns small firms. On the other hand, when size of small firms increases, an increase in business risk does not necessarily increase the tendency to use LIFO. Also, the findings suggest that small firms have a smaller chance of reporting extraordinarily high profits, thus a small firm's business risk does not interact with its size to influence the LIFO decision. Finally, the study predicted it is possible managerial ownership interest could influence inventory decisions, but contrary to this prediction, no significant relationship.

Later, Archambault and Archambault (1994) find that weighted average cost firms face lower inflation than FIFO firms, thus it implies that the firms with greatest tax advantage of using weighted average are using FIFO. However, the benefit of averaging highly variable costs may be important enough to offset the tax benefits received from using FIFO. Results suggest that weighted average is more frequently used than FIFO in industries based on commodities rather than manufacturing industries. Also, firms using average cost have higher variability in inventory, reported income and inflation rate. Another reason for management to choose the weighted average method is to make the firm appear less risky to investors, and that is because this method is the best cost flow assumption for reducing variability in income. In terms of size, weighted average firm are larger with a slower inventory turnover than FIFO firms.

Later, Ibarra (2008) made a study to determine if companies in different industries in the Philippines use different inventory valuation methods. It was found that companies preferred inventory methods vary based on the type of goods they manufacture or retail. The reasons considered by companies when choosing the type of inventory costing method were inventory obsolescence or subject to expiration, perishability of inventory, variability of inventory and unstable acquisition costs of inventory. However, companies did not consider tax savings in choosing the type of inventory costing they use. Companies engaged in manufacturing, retailing or distributing merchandise use FIFO; drug and medicine companies use either FIFO or weighted average; and most oil companies use the weighted average method. In terms of characteristics of inventories, companies whose inventories are subject to expiration and obsolescence or are

easily perishable use FIFO. When inventories are variable companies use either FIFO or weighted average and, when costs of acquiring inventories are not stable companies use the weighted average method.

In a study about the different effectiveness resulting from the choices of different inventory valuation method, Gu (2013) says, factors that should be considered when selecting inventory valuation method are the intrinsic characteristics of inventory and the influence on enterprise. He says that it is quite important to choose a method that corresponds to the characteristics of the inventories, hence when an enterprise's issuing and receiving of inventory is not frequent, there is no doubt that specific identification method is more accurate in inventory valuation. Contrary, when the enterprise has large amounts of inventory, and issuing and receiving is frequent, using this method can generate considerable workload and lead to greater cist and difficulties in managing inventory. In this case, it is better to use FIFO and weighted average method, which will simplify procedure and reduce the enterprise cost.

The second factor that should be taken into account in choosing the appropriate inventory valuation method is the influence on enterprises. Different methods have different degrees of influence on inventory balance and cost of sales, thus will influences the company's asset, profit, cash flow, financial ratios and tax issues. Also, it will influence the valuation of the operating performance among enterprises. Different valuation methods will result in different final inventory values, thus indirectly influence the enterprise operating performance.

Onoja Emmanuel and Abdullahi (2015) examined inventory practice and reporting in the Nigerian textile industry to find out whether firms tend to use FIFO or weighted average method. The study revealed that FIFO gives more realistic cost of closing stock and is simpler to understand and apply; therefore, it is preferred to weighted-average and other methods. Also, the study showed that as a result of weighted average method matching revenue against the average cost of inventory, the correct current economic value may not be reflected.

Niehaus (1989) examines the relationship between the chosen inventory method and ownership. The evidence shows that inventory choice is related to both managerial and outside ownership. When LIFO is the tax minimizing method, shareholders are likely to prefer the use of LIFO, but if manager's compensation is related to reported income, managers may prefer FIFO. Consequently, managers and shareholders can have conflicted

interests when LIFO is the tax minimizing method. Thus, probability of choosing LIFO increase with outside ownership concentration, which is likely to reduce agency problems by increasing level of monitoring. Other evidence from this study indicates the probability of choosing LIFO decreases as managerial ownership increases.

Legislation on inventories

Inventory in Macedonian companies is regulated under IAS 2. The international accounting standard - IAS 2 Inventories contains the requirements on how to account for most types of inventory. As per IAS 2, inventories ought to be measured at the lower of cost and net realizable value (NRV). Moreover, the standard provides as acceptable methods for cost valuation, specific identification (in some cases), first-in first-out (FIFO) and weighted average cost. The use of last-in first-out (LIFO) method is not permitted under IFRS. In December 2003 a revised version of IAS 2 was issued and started to be applied to annual reports beginning on or after 1 January 2005 (Iasplus, 2018).

The main purpose of IAS 2 is to prescribe the accounting treatment for inventories. The standard provides guidance for determining the cost of inventories and for subsequently recognizing an expense, including any write-down to net realizable value. It also gives directions on the cost formulas that are used to assign costs to inventories. The main principle of the standard is that inventories are required to be stated at the lower of cost and net realizable value (NRV).

Inventories include resources held for sale in the ordinary course of business (completed goods), for example, stock obtained by a retailer and held for resale, or land and other property held for resale. Inventories also encompass finished goods produced, or work in progress being produced, by the organization and include materials and supplies waiting to be used in the production process. The expense of inventories will involve all expenses of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

Should items not be interchangeable in the normal course of operations, goods or services produced and segregated for specific projects need to be assigned by using specific identification of their individual costs. Specific identification of cost implies that particular expenses are credited

and attributed to specifically identified items of inventory. This is the proper treatment for items that are segregated for a specific project, regardless of whether they have been purchased or produced. However, specific identification of costs is unseemly to be used when there are vast quantities of items of stock that are ordinarily interchangeable.

In such conditions, the method of selecting those items that remain on stock could be utilized to obtain predicted impact on profit or loss. Other that the specific identification method the cost of inventories, shall be assigned by using the first-in, first-out (FIFO) or weighted average cost formula. An organization should use the same cost formula for all stock having a similar nature and use to the entity. For inventories with a different nature or use, different cost formulas may be used. For instance, inventories used in one department might have a different use to the organization from the same type of inventories used in another operating department.

However, a distinction in geographical location of inventories (or in the respective tax rules), by itself, is not sufficient to legitimize the use of different cost formulas. The FIFO formula assumes that the things of stock that were bought or created first are sold first, and subsequently the things staying in stock toward the finish of the period are those that are last acquired or created. Under the weighted average cost formula, the cost of each item is determined from the weighted average of the cost of similar items at the start of a period and the cost of similar items obtained or created during the period. The average may be computed on a periodic basis, or as each additional purchase is received, depending upon the conditions in the entity.

The cost of inventories may not be recoverable if those inventories are in any way damaged, have become entirely or partially out of date, or if their selling prices have decreased. The cost of inventories may likewise not be recoverable if the approximated costs of completion or the expected costs to be incurred to make the sale have enlarged. The practice of writing inventories down below cost to net realizable value is in consistence with the opinion that assets should not be carried in excess of amounts likely to be acknowledged from their sale or utilization.

At the point when inventories are sold, the carrying amount of those inventories should be recognized as an expense in the period in which the related income is recognized. The volume of any write-down of stock to net realizable value and all losses of stock should be recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of

any write-down of inventories, emerging from a rise in net realizable value, should be recognized as a decrease in the amount of inventories recognized as an expense in the period in which the reversal occurs.

Research methodology

Based on the comprehensive literature review in the domain of inventory valuation, the aim of this analysis is to evaluate, by using quantitative techniques, whether the choice of inventory valuation method depends on the firm and inventory characteristics. The main goal is to statistically analyze and determine which of the observed factors significantly affect the company's choice of inventory valuation method. This will be achieved by doing descriptive analysis (frequency, percentiles, central tendency, standard scores) and correlational analysis (correlation and regression) of the data collected from 56 Macedonian companies, using the SPSS software.

In the first part of the chapter, the research design will be explained, along with the research objectives and research hypotheses. In the second part the research strategy is explained. The data analysis will be conducted by using parametric and non-parametric tests.

Research objectives and hypotheses

The purpose of the field research was to explore whether Macedonian companies use different inventory valuation methods, and which are the factors affecting the choice of the inventory valuation method. The specific objectives previously mentioned are determining to what extent companies are familiar with existing inventory valuation methods, identifying the factors associated with the choice of inventory valuation method, comparing our findings with existing literature and giving recommendation in terms of choosing the most suitable inventory valuation method.

In order to assist in achieving the objective of the study the following hypotheses are formulated in order to provide for statistical test:

Hypothesis on managers' level of education

Insufficient education of the responsible person can lead to the company not choosing to use the most suitable inventory valuation method. (Ibarra 2008) Also most probably, employees with lower education will

have less knowledge of the existing inventory valuation methods. As stated previously, the specific identification method is a common practice for firms with rather unique inventory items of high-value such as vehicles, artwork, jewelry and custom-made furniture. (Anthony *et al*., 2003) This method connects specific items to their specific costs. Therefore, this method is more time consuming, expensive and requires specific knowledge to be utilized and by it the most sophisticated inventory valuation method. This leads to the expectation that higher educated managers will choose to use more sophisticated methods and opposite, managers with lower education will choose to use simpler methods.

Hypothesis 1:

H0: There is no significant association between employee's level of education and the choice of inventory
H1: There is a significant association between employee's level of education and the choice of inventory
Hypothesis on company size

Size of the firm has been used in other studies of inventory choice for various reasons. Firms may choose to use the LIFO inventory method to reduce reported accounting income and thereby avoid the appearance of monopolistic behavior. In addition, larger firms may be in a better position to benefit from the use of LIFO and to bear any increased costs that this inventory accounting system requires. (Craycraft *et al*. 1998) Kuo (1993) examined the factors affecting the choice of inventory method in small companies in United States. He concluded that as the size of a company increased, as measured by total sales, it is more likely that the company would use LIFO, while an upsurge in the debt to equity ratio had a contrary effect. Companies would tend to choose an income increasing method when debt is increased probably due to the covenants placed in their debt contracts. All these findings lead to the following hypothesis.

Hypothesis 2:

H0: There is no significant association between the size of a company and the choice of inventory method
H1: There is a significant association between the size of a company and the choice of inventory method

Hypothesis on ownership

A study by Craycraft *et al*. (1998) on U.S. companies shows that the level of foreign operations influences the choice of inventory accounting methods for domestic inventories. Firms with foreign operations make different choices regarding the inventory method used for their U.S. inventory than firms without foreign operations. Firms with significant levels of foreign operations are hypothesized to be more likely to use a non-LIFO inventory method. This means that all of the existing inventory methods are likely to be used by foreign owned companies. One of the IFRS aims is to augment investor comparability of companies by embracing one set of accounting standards. Gu (2013) in his study on inventory valuation methods says that the FIFO method is more suitable for actual flow of inventory and makes the balance of the inventory closer to the market value. However, he found that the actual usage of the FIFO method is less frequent than of the weighted average method. Therefore, the next hypothesis is as follows.

Hypothesis 3:

H0: There is no significant association between Ownership and the choice of inventory method
H1: There is a significant association between Ownership and the choice of inventory method
Hypothesis on nature of business

Ibarra (2008) found that the choice of ending inventory valuation is not affected or dictated by the company's nature of business. The two variables appear to be independent of each other. Unlike this The American Institute of Certified Public Accountants' Accounting Trends and Techniques (1990) has consistently found the adoption of LIFO to be strongly affected by industry classification. Firms within an industry tend to use the same accounting practices. In our case it is expected that manufacturing companies will probably use the specific identification but only if the nature of their business is production of large or more complex products. Therefore, the next hypothesis is on whether there is association between choice of inventory method and the nature of the business.

Hypothesis 4:

H0: There is no significant association between Business Nature and the choice of inventory method
H1: There is a significant association between Business Nature and the choice of inventory method
Hypothesis on importance of inventory valuation

It is very important for the company to choose to most suitable inventory valuation method. The specific identification method of inventory costing revolves around linking the actual cost to an identifiable unit of merchandise. This method is particularly easy to adopt when purchasing and selling bulky inventories such as vehicles. The study of Onoja Emmanuel and Abdullahi (2015) revealed that FIFO gives more realistic picture of company's inventory and is simpler to understand and apply, and therefore is preferred by smaller companies which shows that every inventory valuation method has advantages if it is correctly chosen for the company. This leads to the assumption that inventory importance is in association with the choice of inventory valuation method, thus the following hypothesis.

Hypothesis 5:

H0: The choice of inventory method is independent of the importance of Inventory Valuation.
H1: The choice of inventory method adopted depends on the importance of Inventory Valuation.
Hypothesis on understanding inventory valuation methods

It has to be taken into consideration that there are as well, disadvantages of each method and not choosing a suitable method may harm the company. For example, the main disadvantage of the specific identification method is that management can easily manipulate ending inventory cost, since they can choose to report that cheaper were sold first, ultimately raising income. Then again, managers may opt for reporting lower income, reducing taxes that need to be paid. From a theoretical point of view, this is the best technique as it relates the ending inventories directly to their specific purchase price. In a 2013 study by Gu on Chinese companies in 2005 only around 7% of the companies use the specific identification

method and this number additionally decreases to 5% in the next four years. The reason for this is probably the fact that if the enterprise has large amounts of inventory with great varieties, and the issuing and receiving is frequent, using specific identification method can generate considerable workload. Inevitably, it will lead to greater cost and make it difficult to manage inventory. Having adequate knowledge of the methods and understanding each separate method helps the company to choose the right inventory valuation method; therefore, understanding of the methods was put into correlation with the choice of the inventory method in the next hypothesis.

Hypothesis 6:

H0: The understanding of the method is not related to the choice of an inventory valuation method used.
H1: The understanding of the method is related to the choice of an inventory valuation method used.
Hypothesis on inventory system used

For the purpose of inventory management, normally companies may adopt to account for and operate inventories either based on a perpetual or periodic inventory system. In perpetual system of inventory, it is required to update the status of inventory accounts every time the company makes any change in the inventory. This is usually more time consuming and costly. Compared to perpetual system, the periodic inventory system is less intense, less accurate and does require the entire inventory status after a few weeks or months. Accountants have to create a separate record of inventory from the available records and compare it with the physical/actual inventory balance. This may require some major adjustments to correct the differences between the two balances. The difference in these two methods is that through periodic system inventory balance is disclosed as 'what is in hand', while through perpetual system, the same is disclosed as 'what should be on hand'. (Verma, 2015) It is expected that companies that use the periodical inventory system which is considered to be simpler, will use simpler inventory valuation method like FIFO. Therefore, the next hypothesis follows.

Hypothesis 7:

H0: The choice of Inventory Method does not depend on the Inventory System

H1: The choice of Inventory Method depends on the Inventory System. Hypothesis on simplicity of use

Wood and Sangster 2008 give a few main factors that affect the choice of inventory valuation method. One of the reasons is convenience, which means that companies choose the particular inventory method because it is the easiest method. In a study by Mosa et al., 2013 it was found out that FIFO is used because it is easy to implement and exercise on all types of inventory and opposite of this weighted average was not used because there was a lack of knowledge of its implementation. This leads to the following assumption.

Hypothesis 8:

H0: The choice of Inventory Valuation Method does not depend on its simplicity of use
H1: The choice of Inventory Method depends on its simplicity of use. Hypothesis on choice made by industry peers

Wood and Sangster 2008 as another main reason give custom, and this means that companies will choose to use the same inventory method that is used by other companies in the same industry. As an example, here we can point the study by Li and Sun, 2014 where they found that companies in the oil industry most commonly use the LIFO inventory valuation method. In another study by Onoja Emmanuel and Abdullahi (2015) on inventory valuation methods in Nigerian textile industries it was found out that most companies included in the research were utilizing the FIFO method, therefore, the above reason is once again confirmed. This leads to the assumption that the choice of inventory valuation method of industry peers has in fact big impact on the choice of inventory valuation method utilized by the company.

Hypothesis 9:

H0: The choice of Inventory Method is correlated with the choice made by industry peers.
H1: The choice of Inventory Method is not correlated with the choice made by industry peers.

Hypothesis on accuracy of inventory method

Onoja Emmanuel and Abdullahi (2015) also revealed in their study that the FIFO inventory valuation method gives more realistic cost of closing stock and as such is more superior to weighted average method. Li and Sun (2014) found out that manufacturing companies gradually switched from LIFO to FIFO inventory valuation method, and the main reason for this was the nonrealistic inventory values provided by the LIFO inventory method. The previous findings lead to the following hypothesis

Hypothesis 10:

H0: The choice of Inventory Valuation Method does not depend on the perceived inventory evaluation accuracy.
H1: The choice of Inventory Valuation Method depends on the perceived inventory evaluation accuracy.
Hypothesis on inventory characteristics – Inventory obsolescence

Obsolete inventory refers to the inventory that is at the end of its life cycle. This is the inventory that has not been sold or used for a long period of time and it is not expected to be sold in the future. Obsolete inventory is that part of existing inventory which cannot be either used (raw materials) or sold (finished goods). (Verma, 2015) Another name for obsolete inventory is dead inventory or excess inventory. This type of inventory must be written down and can cause losses for a company. In a study made on Philippines companies results show that companies whose inventories are subject to obsolescence or expiration use the FIFO which was opposite of the expected result. When inventory is subject to expiration the tendency is for the buyers to purchase the most recent product, so it is assumed that the ending inventory will be the cost of products purchased earlier or LIFO is applicable. (Ibarra, 2008) Verma also says that most of the companies with this kind of inventory use FIFO method since it is simple and results in older inventory being sold-out first, which in turn reduces the chances of writing off the obsolete inventory. This leads to the next hypothesis.

Hypothesis 11:

H0: The choice of Inventory Valuation Method does not depend on whether the inventories are obsolescent or not.

H1: The choice of Inventory Valuation Method depends whether the inventories are obsolescent or not.
Hypothesis on inventory characteristics – Stability of inventory acquisition cost

There are some costs that come with inventory. These costs are the results of ordering and holding inventory. Such as: purchasing cost, space available, labor cost, and possibility of deterioration and risk of theft (Muller, 2003). The assumption that volatile acquisition cost of inventory or unstable prices will make a company use weighted average for easier recording was confirmed. Majority of the Philipinian companies consider unstable cost (60%) in acquiring their inventories as the major reason in choosing the weighted average method. At time intervals when acquisition costs become uncertain, this technique is simpler and safer in terms of estimating ending inventory. That is, the weighted average method will neither overvalue nor undervalue the bottom line result. (Ibarra, 2008) Thus, the choice of inventory valuation method is put into correlation with weather costs of acquisition are stable or not.

Hypothesis 12:

H0: The choice of Inventory Valuation Method does not depend on whether costs are stable or not.
H1: The choice of Inventory Valuation Method depends on whether the costs are stable or not.
Hypothesis on inventory characteristics – Inventory variability

Ibarra (2008) assumed that numerous inventories will make a company use the weighted average for easier recording and management. Businesses engaged in manufacturing, retailing and distribution of goods are divided between obsolescence and variability of their inventories as their rationale in choosing FIFO twenty percent use the weighted average method due to perishability of goods and other twenty percent due to variability of their products. Because of this we assume that inventory variability has influence on the choice of inventory valuation method.

Hypothesis 13:

H0: The choice of Inventory Valuation Method does not depend on Inventory Variability

H1: The choice of Inventory Valuation Method depends on Inventory Variability
Hypothesis on inventory characteristics – Inventory perishability

As merchandise can be subject to decay, the seller will first sell items that were produced or purchased at an earlier date. Hence, one can assume that ending inventory will represent the cost of the newest stock items, i.e. that FIFO inventory technique is used by the seller. This corresponded to the results from the above-mentioned study by Ibarra (2008) which were that companies consider perishability (56.2%) of their inventories as the major reason in choosing the FIFO inventory method. Entities operating in the food, drugs and medicine industries consider perishability or useful life of their merchandises as the main reason for considering FIFO. This is not surprising since their products are mostly consumables and are highly susceptible to spoilage. Enterprises believe that this method will follow the actual flow of goods from the warehouse to the sales point. Moreover, entities believe that FIFO gives the most precise estimate of the costs of ending inventories. Rao (2011) also argues that the use of FIFO method is specifically suitable if the inventory items are of a perishable nature. The previous findings lead to the assumption that perishability as an inventory characteristic is affecting the choice of inventory valuation method.

Hypothesis 14:

H0: The choice of Inventory Valuation Method does not depend on whether Inventory is perishable or not.
H1: The choice of Inventory Valuation Method depends depend on whether Inventory is perishable or not.
Methods and sample of data collection

The questionnaire design was adopted for the purpose of the study. The population of this study is made up of Macedonian retailing and manufacturing companies. The method of sampling that was employed in obtaining required data is the random sampling method. Descriptive method of statistical data analysis is used for testing percentiles and frequencies and the hypothesis are tested using correlation analysis. (Crosstabs – Chi-square tests for independence) This is achieved using the SPSS software program as a main tool for analyzing the collected data.

The questionnaire administered to the selected respondents consist 12 questions of two types:

- Multiple - choice questions, with possibility to choose from a predetermined response list.
- Likert - type questions, used to indicate level of agreement or disagreement in social science research.

The questionnaire was specifically designed to examine entity characteristics and how they are affecting the choice of inventory cost flow methods. The questions provide information on entity type, size, inventory system, nature of business, education degree of the responsible person, as well as the main question of what method does the company utilize. Then the results were put into correlation to find out how each of the factors is affecting the choice of the inventory cost flow method. The main form of the questionnaire was adopted from one study on inventory valuations practice and reporting in Nigerian textile industries. (Abdullahi, 2015) The questions were modified to be suitable for testing the hypothesis of this study.

The questionnaire that forms the basis of the empirical research in this study consists of the following three parts: company characteristics, knowledge of inventory valuation methods and characteristics of inventories. The first part contains four questions related to general information. The first question is related to the education level of the manager. The second question is related to the size of the company and here the classification is made according to the number of employees according to the Macedonian legislation where micro entities employ up to 10 employees, small entities employ up to 50 employees, medium enterprises employ up to 250 workers, whereas large entities go beyond this figure (apprm.gov.mk, 2020). This classification was considered to be the easiest for the respondents to answer. The third question is related to ownership meaning if the company is domestic or foreign owned. And the last question is for the nature of the business. The respondents are given the possibility to choose between service, merchandise or production business. All the questions in this part are multiple choice questions with one possible answer.

The second part consists of seven questions. This part helps us to define weather participants in the survey understand the inventory valuation method. Here we have two types of questions: Likert - type

questions, used to indicate level of agreement or disagreement in social science research and multiple-choice questions. The first four of the seven questions in this part are Likert - type questions and are related to the understanding of the inventory valuation methods. The measure of central tendencies in SPSS will be used to analyses these questions. The respondent is given a statement and the possibility to agree stay neutral or disagree with it. The next questions are related to the inventory method and the reasons why the company uses this particular method. For the second question more than one answer is possible. The last question from this part is connected to the inventory system the company uses and the possible answers are periodical or perpetual.

In the last part of the questionnaire the inventory characteristics are examined. The participants are asked to describe their inventories by selecting from the given characteristics. For this question it was expected that multiple answers would be chosen by respondents when describing the inventories in their company.

Before sending out to respondents, the questionnaire was tested on a few chosen subjects to make sure everything was correctly understood, and corrections were made according to the received feedback. After the corrections, the questionnaire was tested again on a few more different subjects and it was concluded that there was no need for additional corrections to be made.

The collection of the data from the survey began in March 2018, following the financial year end. This period was chosen not randomly but to be able to get a higher rate of responses from potential respondents. If the data collection had begun in the period of closing the financial year, there was a big possibility that the response rate would be significantly lower. Using the random sampling technique, the questionnaire was delivered to one hundred and seventy-four (174) respondents. The survey was distributed via e-mail and was accessible through an internet link which was active for two weeks. The potential respondents were randomly chosen from companies operating on the territory of North Macedonia and there were no significant criteria for inclusion in the study. The number of retrieved questionnaires was 56 from the total of 174 questionnaires distributed. This figure represents about 32 percent response rate which is a good representation.

Descriptive statistics

The test sample is comprised of 56 companies and the percentiles and frequencies of the gathered data are presented below.

The table below shows that 19.6% of the company's representatives are high school graduates, 8.9% of them have some college, without a degree, 26.8% have master's degree or higher and 44,6% of them have a bachelor's degree.

Table 1. Percentiles and frequency of education

		Frequency	Percent
Valid	**High school graduate**	11	19.6
	Some college. no degree	5	8.9
	Bachelor's degree	25	44.6
	Master's degree or higher	15	26.8
	Total	56	100.0

Table 2 shows that highest percentage (39.3%) or 22 out of 56 companies are micro or have up to 10 employees. 16 companies are small or have up to 50 employees. 8 companies are medium and have up to 250 employees and 10 companies are classified as large or have more than 250 employees.

Table 2. Percentiles and frequency of size

		Frequency	Percent
Valid	**Micro**	22	39.3
	Small	16	28.6
	Medium	8	14.3
	Large	10	17.9
	Total	56	100.0

In table 3 we can see that 83.9% of all companies are in dominant domestic ownership. Only 8 out of the 56 companies are foreign owned and this makes 14.3% of all companies. Finally, only one company is equally domestic and foreign owned.

Table 3. Percentiles and frequency of ownership

		Frequency	Percent
Valid	Dominant domestic	47	83,9
	Dominant foreign	8	14,3
	Equally domestic and foreign	1	1,8
	Total	56	100,0

More than a half of the surveyed companies (55.4%) are in the retail business. The number of companies in the production business is 18 and only 7 companies are service businesses. (Table 4)

Table 4. Percentiles and frequency of business nature

		Frequency	Percent
Valid	Services	7	12.5
	Retail	31	55.4
	Production	18	32.1
	Total	56	100.0

Table 5 shows that 25 companies use the Periodical inventory system and his means that the company calculates the cost per unit at the end of each financial period and 31 companies use the perpetual inventory system which means that the costs per unit are calculated after each purchase is made.

Table 5. Percentiles and frequency of inventory system

		Frequency	Percent
Valid	Periodical	25	44.6
	Perpetual	31	55.4
	Total	56	100.0

One of the most important variables from our study is the method of inventory valuation that the company utilizes. 18 of 56 companies use the FIFO method. 27 of 56 companies use the weighted average method and the remaining 11 use the specific identification method. (Table 6) This will later be put into correlation with other variables to find out which factors have the highest influence on the choice of the inventory valuation method.

Table 6. Percentiles and frequency of inventory valuation method

		Frequency	Percent
Valid	**FIFO**	18	32.1
	Weighted average	27	48.2
	Specific identification	11	19.6
	Total	56	100.0

Research findings

This chapter presents the main findings from our analysis. The results are going to be interpreted separately for each given hypothesis. As it is previously mentioned the hypotheses of the study are tested using Multinomial logistic regression and Pearson's chi-square test.

The main objective of the study was to find out which factors are affecting the choice of the inventory valuation method that is utilized in the company.

For testing of the first hypothesis, employee's level of education and the choice of inventory valuation method were put into correlation. These are two nominal variables: level of education and inventory valuation method therefore, we are using the Pearson's chi-square test.

Hypothesis 1:

H0: There is no significant association between employee's level of education and the choice of inventory valuation method
H1: There is a significant association between employee's level of education and the choice of inventory valuation method

Table 7. H1 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.321a	4	.010
Likelihood Ratio	13.115	4	.011
Linear-by-Linear Association	2.368	1	.124
N of Valid Cases	56		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is 2.95.

Given that p – value is 0.010, which is less than 0.05 (alpha level), H0 is rejected. Then, we can conclude that there is a statistically significant association between the education of the employee and the choice of inventory valuation method, therefore the tested hypothesis is accepted.

Table 8. H1 - Education * Inventory Method Cross-tabulation

		Inventory Method			Total
		FIFO	Weighted average	Specific identification	
High school graduate	Count	6	4	6	16
	% of Total	10.7%	7.1%	10.7%	28.6%
Bachelor's degree	Count	4	18	3	25
	% of Total	7.1%	32.1%	5.4%	44.6%
Master's degree	Count	8	5	2	15
	% of Total	14.3%	8.9%	3.6%	26.8%
Total	Count	18	27	11	56
	% of Total	32.1%	48.2%	19.6%	100.0%

The results of this test present the adoption of inventory valuation method by managers, with different level of education. Managers with a high school diploma are equally choosing between FIFO and Specific identification method. Managers with a bachelor's degree prefer the weighted average method, with 18 of the 27 respondents who chose Weighted Average method being in the category of bachelor's degree, and managers with a master's degree prefer the FIFO method of inventory valuation.

Hypothesis 2:

H0: There is no significant association between the size of a company and the choice of inventory method
H1: There is a significant association between the size of a company and the choice of inventory method

For testing of the second hypothesis, company size and the choice of inventory valuation method were put into correlation. These are two nominal variables: size and inventory valuation method therefore, we are using the Pearson's chi-square test.

Table 9. H2 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.094a	6	.168
Likelihood Ratio	11.905	6	.064
Linear-by-Linear Association	2.962	1	.085
N of Valid Cases	56		

a. 8 cells (66.7%) have expected count less than 5. The minimum expected count is 1.57.

With a p – value of 0.168, the H0 is not rejected. This value of p tells us that there is no statistically significant association between the size of the company and the choice of Inventory Method.

Table 10. H2 - Size * Inventory Method Cross-tabulation

			Inventory Method			Total
			FIFO	**Weighted average**	**Specific identification**	
Size	Micro	Count	6	8	8	22
		% of Total	10.7%	14.3%	14.3%	39.3%
	Small	Count	6	7	3	16
		% of Total	10.7%	12.5%	5.4%	28.6%
	Medium	Count	3	5	0	8
		% of Total	5.4%	8.9%	0.0%	14.3%
	Large	Count	3	7	0	10
		% of Total	5.4%	12.5%	0.0%	17.9%
Total		Count	18	27	11	56
		% of Total	32.1%	48.2%	19.6%	100.0%

The results of this test present the adoption of inventory valuation method within different sized companies. Medium and large companies prefer the weighted average method of inventory valuation. Small companies are almost equally choosing the weighted average and FIFO methods. Micro companies have the most even distribution of inventory method utilized. On the first place is the specific identification method and weighted average method and not far behind is the FIFO method of inventory valuation.

Hypothesis 3:

H0: There is no significant association between Ownership and the choice of inventory method
H1: There is a significant association between Ownership and the choice of inventory method

For testing of the following hypothesis again the Pearson's chi-square test was used. Ownership and the choice of inventory valuation method were put into correlation. These are two nominal variables: ownership and inventory valuation method.

Table 11. H3 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.218a	4	.125
Likelihood Ratio	7.790	4	.100
Linear-by-Linear Association	.299	1	.584
N of Valid Cases	56		

a. 6 cells (66.7%) have expected count less than 5. The minimum expected count is, 20.

The p – value from the Pearson Chi-Square test on this hypothesis is 0.125, i.e. there is no statistically significant association between Ownership and choice of inventory method. Therefore, the tested hypothesis is rejected.

Table 12. H3 - Ownership * Inventory Method Cross-tabulation

			Inventory Method			Total
			FIFO	Weighted average	Specific identification	
Ownership	Dominant domestic	Count	16	21	10	47
		% of Total	28.6%	37.5%	17.9%	83.9%
	Dominant foreign	Count	2	6	0	8
		% of Total	3.6%	10.7%	0.0%	14.3%
	Equally domestic and foreign	Count	0	0	1	1
		% of Total	0.0%	0.0%	1.8%	1.8%
Total		Count	18	27	11	56
		% of Total	32.1%	48.2%	19.6%	100.0%

The results of this test present the adoption of inventory valuation method within domestic and foreign owned companies. Foreign owned companies prefer the weighted average method and the domestic owned companies have more even distribution between. Most used by domestic companies is the weighted average method, followed by FIFO and in the end the specific identification method of inventory valuation.

Hypothesis 4:

H0: There is no significant association between Business Nature and the choice of inventory method
H1: There is a significant association between Business Nature and the choice of inventory method

For testing this hypothesis, business nature and the choice of inventory valuation method were put into correlation. These are two nominal variables: business nature and inventory valuation method therefore, we are using the Pearson's **chi-square test.**

Table 13. H4 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.081a	4	.395
Likelihood Ratio	4.176	4	.383
Linear-by-Linear Association	.012	1	.913
N of Valid Cases	56		

a. 4 cells (44,4%) have expected count less than 5. The minimum expected count is 1,38.

From the Pearson Chi-Square we can see that p – value is 0.395. This value of p tells us that there is no statistically significant association between business nature and the choice of inventory valuation method, therefore the tested hypothesis is rejected.

The results of this test show that companies that are in service business equally prefer each of the three methods. Merchandise companies are choosing between FIFO and weighted average method. Finally, companies that are in the production business prefer the weighted average method of inventory valuation.

Table 14. H4 – Business Nature * Inventory Method Cross-tabulation

			Inventory Method			Total
			FIFO	Weighted average	Specific identification	
Business Nature	Services	Count	3	2	2	7
		% of Total	5.4%	3.6%	3.6%	12.5%
	Merchandise	Count	11	13	7	31
		% of Total	19.6%	23.2%	12.5%	55.4%
	Production	Count	4	12	2	18
		% of Total	7.1%	21.4%	3.6%	32.1%
Total		Count	18	27	11	56
		% of Total	32.1%	48.2%	19.6%	100.0%

Hypothesis 5:

H0: The choice of inventory method is independent of the importance of Inventory Valuation.
H1: The choice of inventory method adopted depends on the importance of Inventory Valuation.

The aim of this hypothesis is to evaluate if there is a relationship/correlation between the importance of Inventory valuation method and the choice of the method adopted. Particularly, we want to find out if the choice of Inventory method depends on its importance.

Table 15. H5 - Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.379a	4	.666
Likelihood Ratio	3.489	4	.480
Linear-by-Linear Association	.415	1	.519
N of Valid Cases	56		

a. 6 cells (66.7%) have expected count less than 5. The minimum expected count is .20.

The p - value is 0.666 and is greater than the significance level of 0.05; hence, the null hypothesis is not rejected, and we conclude that the choice of inventory method adopted does not depend on the importance placed on inventory valuation.

Hypothesis 6:

The aim of this hypothesis is to check if there is a relationship between the individual knowledge of Inventory valuation method and the choice of the method adopted. Here, we consider the understanding of the three methods.

a)
H0: The understanding of FIFO is not related to the choice of an inventory valuation method used.
H1: The understanding FIFO is related to the choice of an inventory valuation method used.

Table 16. H6(a) – Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.719a	4	.000
Likelihood Ratio	27.550	4	.000
Linear-by-Linear Association	21.142	1	.000
N of Valid Cases	56		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .39.

The p – value here is 0, therefore, the null hypothesis is rejected since the p – value is less than 0.05. We then conclude that, the understanding of FIFO is related to the choice of Inventory method adopted.

b)
H0: The understanding of Weighted Average is not related to the choice of an inventory valuation method used.
H1: The understanding Weighted Average is related to the choice of an inventory valuation method used.

Table 17. H6(b) - Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.447a	4	.000
Likelihood Ratio	23.737	4	.000
Linear-by-Linear Association	12.794	1	.000
N of Valid Cases	56		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .79.

The p-value here is 0, therefore, the null hypothesis is rejected since the p-value is less than 0.05. We then conclude that the Understanding of Weighted Average is related to the choice of Inventory method adopted.

c)
H0: The understanding of Specific Identification is not related to the choice of an inventory valuation method used.
H1: The understanding Specific Identification is related to the choice of an inventory valuation method used.

Table 18. H6(c) - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.242a	4	.993
Likelihood Ratio	.242	4	.993
Linear-by-Linear Association	.200	1	.655
N of Valid Cases	56		

4 cells (44.4%) have expected count less than 5. The minimum expected count is .79.

The p - value here is 0.993, therefore, the null hypothesis is not rejected since the p - value is greater than 0.05. We then conclude that the Understanding of Specific Identification is not related to the choice of Inventory method adopted.

Hypothesis 7:

H0: The choice of Inventory Method does not depend on the Inventory System
H1: The choice of Inventory Method depends on the Inventory System.

For testing this hypothesis, the choice of inventory system and the choice of inventory valuation method were put into correlation. These are two nominal variables: inventory system and inventory valuation method therefore, we are using the Pearson's chi-square test.

The results of this test show that companies that utilize the periodical inventory system equally prefer each of the three methods. Companies using the perpetual inventory system prefer the weighted average method of inventory valuation. The least preferred method for companies that use the perpetual inventory system is the specific identification inventory valuation method.

Table 19. H7 – Inventory system and Inventory Method Cross-tabulation

			Inventory Method			Total
			FIFO	Weighted average	Specific identification	
Inventory system	Periodical	Count	8	9	8	25
		% within Inventory system	32.0%	36.0%	32.0%	100,0%
		% within Inventory Method	44.4%	33.3%	72.7%	44,6%
		% of Total	14.3%	16.1%	14.3%	44,6%
	Perpetual	Count	10	18	3	31
		% within Inventory system	32.3%	58.1%	9.7%	100,0%
		% within Inventory Method	55.6%	66.7%	27.3%	55,4%
		% of Total	17.9%	32.1%	5.4%	55,4%
Total		Count	18	27	11	56
		% within Inventory system	32,1%	48.2%	19.6%	100.0%
		% within Inventory Method	100,0%	100.0%	100.0%	100.0%
		% of Total	32,1%	48.2%	19.6%	100.0%

Table 20. H7 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.908a	2	.086
Likelihood Ratio	4.995	2	.082
Linear-by-Linear Association	1.380	1	.240
N of Valid Cases	56		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.91.

For the hypothesis to be accepted. The p – value should be lower than 0.05. This means that there is little or no evidence against the hypothesis. From the Pearson Chi-Square we can see that p – value is 0.086. This value of p tells us that the choice of Inventory Method does not depend on the Inventory System. In other words, there is no association between Inventory Method and Inventory System.

Hypothesis 8:

H0: The choice of Inventory Valuation Method does not depend on its simplicity of use

H1: The choice of Inventory Method depends on its simplicity of use.

For testing this hypothesis, the choice of inventory system and the simplicity of the inventory valuation method were put into correlation. These are two nominal variables: easy and simple to use and inventory valuation method therefore, we are using the Pearson's chi-square test.

Table 21. H8 – Inventory Method * Easy simple Cross-tabulation

			Inventory Method			
			FIFO	Weighted average	Specific identifi-cation	Total
Easy_ simple	no	Count	7	16	10	33
		% within Easy simple	21.2%	48.5%	30.3%	100,0%
		% within Inventory Method	38.9%	59.3%	90.9%	58,9%
		% of Total	12.5%	28.6%	17.9%	58,9%
	yes	Count	11	11	1	23
		% within Easy simple	47.8%	47.8%	4.3%	100,0%
		% within Inventory Method	61.1%	40.7%	9.1%	41,1%
		% of Total	19.6%	19.6%	1.8%	41,1%
Total		Count	18	27	11	56
		% within Easy simple	32,1%	48.2%	19.6%	100.0%
		% within Inventory Method	100,0%	100.0%	100.0%	100.0%
		% of Total	32,1%	48.2%	19.6%	100.0%

The results of this test show that in general simplicity of the method does not affect the choice of the inventory method. However, from the companies that use FIFO method 60% answered that this is because of the simplicity of the method.

Table 22. H8 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.636a	2	.022
Likelihood Ratio	8.580	2	.014
Linear-by-Linear Association	7.325	1	.007
N of Valid Cases	56		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.52.

For the hypothesis to be accepted, the p – value should be less than 0.05. This means that there is little or no evidence against the hypothesis. From the Pearson Chi-Square we can see that p – value is 0.022. This value of p tells us that there is a statistically significant association between the simplicity of the method and the choice of inventory valuation method, therefore the H0 is rejected.

Hypothesis 9:

H0: The choice of Inventory Method is correlated with the choice made by industry peers.
H1: The choice of Inventory Method is not correlated with the choice made by industry peers.

For testing of this hypothesis, industry peer's choice and the choice of inventory valuation method were put into correlation. These are two nominal variables: Used by other similar companies and inventory valuation method therefore, we are using the Pearson's chi-square test.

Table 23. H9 – Inventory Method * Used by other Cross-tabulation

			Inventory Method			Total
			FIFO	Weighted average	Specific identification	
Used_ by_ other	no	Count	15	25	11	51
		% within Used by other	29.4%	49.0%	21.6%	100,0%
		% within Inventory Method	83.3%	92.6%	100.0%	91,1%
		% of Total	26.8%	44.6%	19.6%	91,1%
	yes	Count	3	2	0	5
		% within Used by other	60.0%	40.0%	0.0%	100,0%
		% within Inventory Method	16.7%	7.4%	0.0%	8,9%
		% of Total	5.4%	3.6%	0.0%	8,9%
Total		Count	18	27	11	56
		% within Used by other	32,1%	48.2%	19.6%	100.0%
		% within Inventory Method	100,0%	100.0%	100.0%	100.0%
		% of Total	32,1%	48.2%	19.6%	100.0%

The results of this test clearly show that the choice of the inventory method is not at all affected by the choice of inventory methods by other companies with similar business nature. Only 9% of the respondents gave an answer that their choice is triggered by industry peer's choice.

Table 24. H9 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.481a	2	.289
Likelihood Ratio	3.220	2	.200
Linear-by-Linear Association	2.422	1	.120
N of Valid Cases	56		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is. 98.

Given that the p – value is 0.289, there is no statistically significant association between choice of industry peers and the choice of inventory valuation method. Therefore, the null hypothesis is accepted.

Hypothesis 10:

H0: The choice of Inventory Valuation Method does not depend on the perceived inventory evaluation accuracy.
H1: The choice of Inventory Valuation Method depends on the perceived inventory evaluation accuracy.

Table 25. H10 – Inventory Method * Most accurate Cross-tabulation

			Inventory Method			Total
			FIFO	Weighted average	Specific identify-cation	
Most_ accurate	no	Count	9	10	1	20
		% within Most accurate	45.0%	50.0%	5.0%	100,0%
		% within Inventory Method	50.0%	37.0%	9.1%	35,7%
		% of Total	16.1%	17.9%	1.8%	35,7%
	yes	Count	9	17	10	36
		% within Most accurate	25.0%	47.2%	27.8%	100,0%
		% within Inventory Method	50.0%	63.0%	90.9%	64,3%
		% of Total	16.1%	30.4%	17.9%	64,3%

		Inventory Method			Total
		FIFO	Weighted average	Specific identify-cation	
Total	Count	18	27	11	56
	% within Most accurate	32,1%	48.2%	19.6%	100.0%
	% within Inventory Method	100,0%	100.0%	100.0%	100.0%
	% of Total	32,1%	48.2%	19.6%	100.0%

For testing of the first hypothesis, inventory valuation accuracy and the choice of inventory valuation method were put into correlation. These are two nominal variables: most accurate inventory method and inventory valuation method therefore, we are using the Pearson's chi-square test.

Table 26. H10 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.017a	2	.081
Likelihood Ratio	5.747	2	.056
Linear-by-Linear Association	4.601	1	.032
N of Valid Cases	56		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.93.

For the hypotheses to be accepted. The p – value should be less than 0.05. This means that there is little or no evidence against the hypothesis. From the Pearson Chi-Square we can see that p – value is 0.081. This value of p tells us that there is no statistically significant association between the perceived inventory evaluation accuracy and the choice of inventory valuation method. Hence, the null hypothesis is accepted.

Hypothesis 11:

H0: The choice of Inventory Valuation Method does not depend on whether the inventories are obsolescent or not.
H1: The choice of Inventory Valuation Method depends whether the inventories are obsolescent or not.

For testing this hypothesis, inventory obsolescence and the choice of inventory valuation method were put into correlation. These are two nominal variables and again we are using the Pearson's chi-square test.

Table 27. H11 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.073a	2	.964
Likelihood Ratio	.072	2	.965
Linear-by-Linear Association	.004	1	.949
N of Valid Cases	56		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.77.

From the Pearson Chi-Square we can see that p – value is 0.964. This value of p tells us that there is no statistically significant association between whether inventories are obsolete and the choice of inventory valuation method; therefore, we do not reject the null hypothesis.

Table 28. H11 – Inventory obsolescence and Inventory Method Cross-tabulation

			Inventory Method			
			FIFO	**Weighted average**	**Specific identify-cation**	**Total**
Obsolescence	no	Count	15	23	9	47
		% within Obsolescence	31.9%	48.9%	19.1%	100,0%
		% within Inventory Method	83.3%	85.2%	81.8%	83,9%
		% of Total	26.8%	41.1%	16.1%	83,9%
	yes	Count	3	4	2	9
		% within Obsolescence	33.3%	44.4%	22.2%	100,0%
		% within Inventory Method	16.7%	14.8%	18.2%	16,1%
		% of Total	5.4%	7.1%	3.6%	16,1%
Total		Count	18	27	11	56
		% within Obsolescence	32,1%	48.2%	19.6%	100.0%
		% within Inventory Method	100,0%	100.0%	100.0%	100.0%
		% of Total	32,1%	48.2%	19.6%	100.0%

Another interesting thing to find out is if companies with obsolete inventories use FIFO. From the results we can see that only 33% of the companies who consider their inventories to be obsolescent use FIFO. The preference of the three methods is almost equally distributed.

Hypothesis 12:

H0: The choice of Inventory Valuation Method does not depend on whether costs are stable or not.
H1: The choice of Inventory Valuation Method depends on whether the costs are stable or not.

Table 29. H12 - Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.042a	2	.594
Likelihood Ratio	1.028	2	.598
Linear-by-Linear Association	.507	1	.476
N of Valid Cases	56		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.52.

Again we have two nominal variables cost of acquisition of inventories and inventory valuation method. Therefore, we are using Pearson's chi-square test.

From the Pearson Chi-Square we can see that p – value is 0.594. This value of p tells us that there is no statistically significant association between inventories cost of acquisition and the choice of inventory valuation method, therefore the alternative hypothesis is rejected.

Table 30. H12 – Inventory with unstable cost and Inventory Method Cross-tabulation

			Inventory Method			
			FIFO	Weighted average	Specific identification	Total
Unstable cost	No	Count	11	17	5	33
		% within Unstable cost	33.3%	51.5%	15.2%	100,0%
		% within Inventory Method	61.1%	63.0%	45.5%	58,9%
		% of Total	19.6%	30.4%	8.9%	58,9%
	Yes	Count	7	10	6	23
		% within Unstable cost	30.4%	43.5%	26.1%	100,0%
		% within Inventory Method	38.9%	37.0%	54.5%	41,1%
		% of Total	12.5%	17.9%	10.7%	41,1%
Total		Count	18	27	11	56
		% within Unstable cost	32,1%	48.2%	19.6%	100.0%
		% within Inventory Method	100,0%	100.0%	100.0%	100.0%
		% of Total	32,1%	48.2%	19.6%	100.0%

We are also interested in knowing if companies with unstable costs prefer to use Weighted Average Method. The results of this test show that less than half of the companies in question consider the cost of acquisition of their inventories to be unstable. Companies that have an unstable cost of acquisition prefer the weighted average method.

Hypothesis 13:

H0: The choice of Inventory Valuation Method does not depend on Inventory Variability
H1: The choice of Inventory Valuation Method depends on Inventory Variability

For testing this hypothesis, variability of inventory and the choice of inventory valuation method were put into correlation. These are two nominal variables: variability of inventory and inventory valuation method therefore, we are using the Pearson's chi-square test.

Table 31. H13 – Chi Square test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.678a	2	.712
Likelihood Ratio	.677	2	.713
Linear-by-Linear Association	.638	1	.424
N of Valid Cases	56		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.91.

From the Pearson Chi-Square we can see that p – value is 0.712. This value of p tells us that there is no statistically significant association between variability of inventory and the choice of inventory valuation method. In order words, the choice of Inventory Valuation Method does not depend on Inventory Variability.

The results of this test show that more than half of the companies in question consider their inventories to be variable. Companies that have variable inventories mostly prefer the weighted average method.

Table 32. H13 – Inventory variability and Inventory Method
Cross-tabulation

			Inventory Method			Total
			FIFO	Weighted average	Specific identify-cation	
Variability	no	Count	7	12	6	25
		% within Variability	28.0%	48.0%	24.0%	100,0%
		% within Inventory Method	38.9%	44.4%	54.5%	44,6%
		% of Total	12.5%	21.4%	10.7%	44,6%
	yes	Count	11	15	5	31
		% within Variability	35.5%	48.4%	16.1%	100,0%
		% within Inventory Method	61.1%	55.6%	45.5%	55,4%
		% of Total	19.6%	26.8%	8.9%	55,4%
Total		Count	18	27	11	56
		% within Variability	32,1%	48.2%	19.6%	100.0%
		% within Inventory Method	100,0%	100.0%	100.0%	100.0%
		% of Total	32,1%	48.2%	19.6%	100.0%

Hypothesis 14:

H0: The choice of Inventory Valuation Method does not depend on whether Inventory is perishable or not.
H1: The choice of Inventory Valuation Method depends depend on whether Inventory is perishable or not.

For testing this hypothesis, perishability of inventory and the choice of inventory valuation method were put into correlation. These are two nominal variables: Perishability of inventory and inventory valuation method therefore, we are using the Pearson's chi-square test.

For the hypothesis to be accepted. The p – value should be lower than 0.05. This means that there is little or no evidence against the hypothesis. From the Pearson Chi-Square we can see that p – value is 0.018. This value of p tells us that there is a statistically significant association between perishability of inventory and the choice of inventory valuation method, therefore the alternative hypothesis is accepted.

Table 33. H14 – Chi Square test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.014a	2	.018
Likelihood Ratio	7.535	2	.023
Linear-by-Linear Association	5.371	1	.020
N of Valid Cases	56		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.96.

The results of this test show that most of the companies do not have perishable inventories. Companies that have perishable inventories prefer the FIFO method of inventory valuation.

Table 34. H14 – Inventory perishability and Inventory Method Cross-tabulation

		Inventory Method			Total
		FIFO	Weighted average	Specific identification	
Perishability no	Count	11	25	10	46
	% within Perishability	23.9%	54.3%	21.7%	100,0%
	% within Inventory Method	61.1%	92.6%	90.9%	82,1%
	% of Total	19.6%	44.6%	17.9%	82,1%
yes	Count	7	2	1	10
	% within Perishability	70.0%	20.0%	10.0%	100,0%
	% within Inventory Method	38.9%	7.4%	9.1%	17,9%
	% of Total	12.5%	3.6%	1.8%	17,9%
Total	Count	18	27	11	56
	% within Perishability	32,1%	48.2%	19.6%	100.0%
	% within Inventory Method	100,0%	100.0%	100.0%	100.0%
	% of Total	32,1%	48.2%	19.6%	100.0%

Concluding remarks

This section brings together the findings from international literature and previous studies on the subject and the previously presented findings of our study presented. An overview of the most significant factors that affect the choice of inventory valuation method will be provided here.

Level of education

Many previous studies have shown the level of education of the managers has big impact on the company in general. Companies led by managers with completed higher levels of education are more successful than companies led by managers with lower education. Also as previously mentioned, insufficient education of the responsible person can lead to the company not choosing to use the most suitable inventory valuation method. (Ibarra, 2008) One more thing to be taken in consideration is that employees with lower education will have less knowledge of the existing inventory valuation methods. This leads to the expectation that higher educated managers will choose to use more sophisticated methods. Our study confirms that the managers level of education affects the choice of inventory valuation method. But unlike the prediction that was previously made managers with master's degree do not prefer the specific identification method, which is considered to be the most sophisticated method, but prefer to use the FIFO method which is considered to be simpler. Managers with a high school diploma are equally choosing between FIFO and Specific identification method. Managers with a bachelor's degree prefer the weighted average method.

Understanding of the method

Valuation of inventories is a major problem in the accounting practice. The understanding of the inventory valuation methods is shown to be quite important in previous studies as well as in our study. Gu (2013) says it is key to choose a method that corresponds to the characteristics of the inventories and the method to be most corresponding with the business in general. The chosen method will influence the company's asset, profit, cash flow, financial ratios and tax issues. Also, it will influence the valuation of the operating performance among enterprises. Different valuation methods will result in different final inventory values, thus indirectly influence the enterprise operating performance. Therefore, the one responsible for choosing the inventory method has to have sufficient knowledge and to understand all the methods to be able to choose the most suitable method for the company. The results from

our study show that inventory valuation is in general important. Most of the respondents answered that they understand the inventory valuation as well as FIFO and the weighted average method. After testing the hypotheses, the results show that understanding FIFO and the weighted average method affects the choice of the utilized method. This cannot be said for the specific identification method. This may be because this method is considered to be the most complicated and most time consuming to use.

Simplicity of use

As previously mentioned in a study by Wood and Sangster 2008 companies choose the particular inventory method because it is the easiest method. This is confirmed in another study by Mosa *et al.* (2013) where the main finding is that FIFO method for inventory valuation is used because it is easy to implement and exercise on all types of inventory and opposite of this weighted average was not used because there was a lack of knowledge of its implementation. The same can be said for the specific identification method. Unlike the predictions made the results of this study show that in general simplicity of the method does not affect the choice of the inventory method. It is important to be mentioned, from the companies that use FIFO method 60% answered that this is because of the simplicity of the method as well as that from the companies that use the weighted average method 40% answered that this is due to the simplicity to understand and use the method. Unlike the previous two methods, only 10% of specific identification users listed simplicity as the reason for using this method.

Limitations of the study

There are a few limitations for the study:

- The sample size is small and studies with small sample size result with higher sampling error. The survey was initially sent to 174 companies, but only 56 companies returned the survey. Therefore, it is suggested for further studies conduction of research on even larger sample.

- There is a possibility that the survey was not answered by the right person. The survey was conducted online and therefore we have no knowledge if it was answered by the manager or someone from a lower position with less knowledge about inventories.
- The results of the study may have been more accurate if the chosen method was a personal interview with the responsible person from the companies instead of online survey. When answering online questionnaires, respondents are less concentrated and want to finish faster.

Future studies in this area should include larger sample size and then the results can be accepted with higher probability for validity. Using the interview as a research method instead of distributing online questionnaire will bring more accurate results, as well as addressing the most qualified person to speak on the subject.

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THE EMERGENCE OF AN EUROPEAN UNION CULTURAL DIPLOMACY

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ABSTRACT. On 16 April 2020, the Organisation for Economic Co-operation and Development (OECD) released preliminary figures[2] according to which the collective Official Development Assistance (ODA) from the European Union (EU) and its Member States to developing countries amounted to 75.2 billion in 2019, representing 55.2% of global assistance. The EU and its Member States therefore maintain their position as the largest international aid donor.

In spite of the vast amount of resources spent annually by the EU, there is widespread perception that the EU punches below its weight. Notwithstanding the undeniable positive impact that the EU external policies have on the ground, the EU's role in international development remains mostly invisible.

This paper presents the perception of the EU and EU's policies abroad and makes the case for the necessity of an integrated and fully coordinated EU Public Diplomacy (PD) capable of communicating effectively and strengthening EU's role as a global actor. It argues that culture has a substantial potential in Europe's international relations, making the case for the necessity of an integrated and tailor-made EU Cultural Diplomacy. This paper shows that culture is a worthwhile investment in driving economic growth. Failure to capitalise on this would be a huge missed opportunity for Europe.

Keywords: *European Union, Economic Support to Developing Countries, Economic Growth, Public Diplomacy, Cultural Diplomacy, European External Action Service*

JEL classification: O10, Z10

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[2] Publication of preliminary figures on 2019 Official Development Assistance, *https://ec.europa.eu/commission/presscorner/api/files/attachment/864363/Annex_Tables_ and_Graphs_ODA_2019.pdf*

Introduction

The lack of visibility of the economic contribution of the EU to developing countries shows not only that the citizens of those countries are to a great extent unaware of the important support provided but also that there is an EU lack of capacity and ability to communicate its achievement. Traditional communication techniques on which diplomacy has relied so far are no longer efficient in achieving the expected impact. The EU needs to engage in a type of cultural diplomacy that, while fostering the respect of common values, would build on the key elements of its attractiveness: style of life, modernity, multiculturalism, etc. as shown in the study on the perception of the EU and of its policies presented in this paper.

There are direct and indirect ways in which culture can have an impact on both external relations and economic growth. This paper attempts to map the various initiatives at EU level in the area of culture and to indicate the need for a more pragmatic approach to culture and cultural relations. While it makes the argument for a tailor-made approach in EU Cultural Diplomacy, based on the specificities of each country and on the proven potential of the European culture, it also sheds light on the lack of a consistent approach to culture and cultural relations as drivers for economic growth.

The article presents EU competences as defined by the EU treaties and regulations and maps different initiatives of the EU in the field of culture, with particular focus on culture in the frame of EU external relations. It draws a broad overview of various EU initiatives, from the *UNESCO 2005 Convention* to the 2016 *EU Strategy for international cultural relations,* while touching upon different aspects of cultural relations processes and practices. In this respect, a number of publications on cultural diplomacy and on soft power in the digital age have been used, as detailed in the References section.

Furthermore, the paper argues that culture, in particular cultural industries, can play a catalysing role in driving Europe's global competitiveness. Although cultural and creative sectors make a special and multifaceted contribution towards strengthening Europe's competitiveness, the European vision for smart economic growth lacks pragmatism without a strong link to the innovation and creativity generated by its creative and cultural industries.

Given the considerable number of factors that culture entails – from an economic and social to political and security aspects, with subtle and various diplomatic implications – attempts to grasp its complexity can be somehow unsatisfactory and subject to critical views. The ultimate objective of this paper is to place cultural aspects under the spotlight and initiate a conversation on the need to reframe EU's approach to cultural diplomacy.

Treaty provisions on culture

Article 6 of the Treaty on the Functioning of the European Union (TFEU) states that the EU has the competence to support, coordinate or supplement the actions of the Member States in the area of culture. Further to this Paragraph 3 of Article 167 of the TFEU states that the EU and the Member States shall foster cooperation with third countries and relevant international organisations in the sphere of culture. Paragraph 4 of the same Article 167, continues with the provision that the Union shall take cultural aspects into account in its action under other provisions of the Treaties, in particular in order to respect and to promote the diversity of its cultures. At the level of the institutional framework, the European Parliament and the Council are to adopt incentive measures while the Council shall adopt recommendations on a proposal from the Commission.

A brief history – the emergence of an EU cultural diplomacy

In 2006, the EU became one of the 144 Parties ratifying the UNESCO *2005 Convention on the protection and promotion of the diversity of cultural expressions*. The Convention's Preamble underlines the need to incorporate culture as a strategic element in national and **international**

development policies, as well as in international development cooperation. The convention provides a framework for policies on sustainable development and has since become a **cornerstone** of the EU's development cooperation policy.

In **2007**, the Commission proposes a new ***European agenda for culture in a globalising world***[3] in an attempt to respond to the challenges of globalisation and identifies **culture in external relations** as a fundamental pillar. The new strategy proposes intensifying cultural cooperation in the EU and acknowledges the key role of culture in social, economic and political developments as well as its fundamental role in the process of European integration. For the first time the potential of culture in international relations is clearly articulated. The new European agenda for culture identifies three fundamental pillars, one of them being – "**Culture as a vital element in international relations".** The cultural dimension becomes a clearly defined ingredient of EU external relations, as previously recommended by the 2005 UNESCO Convention.

Since the Commission's proposal of the 'European Agenda for Culture in a globalising world' (2007), we have been witnessing the entry into force of the Lisbon Treaty (1 December 2009) and the establishment in 2011 of the EU's diplomatic service – the European External Action Service (EEAS). This evolution created a new architecture and, at the same time, the prerequisite for the development of an EU Public diplomacy with culture at the core of its actions for strengthening EU's position as a global player.

The idea of building on the dimension of culture in external relations gains traction. The *Council Conclusions on the promotion of cultural diversity and intercultural dialogue in external relations* (2008)[4], the *European Parliament's Resolution on the cultural dimensions of the EUs external action* (2011)[5] and the *Preparatory Action paper 'Culture in EU external relations*'

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[3] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a European agenda for culture in a globalizing world, 10 May 2007

[4] Council Conclusions on the promotion of cultural diversity and intercultural dialogue in the external relations of the Union and its Member States 2905th Education, Youth And Culture Council meeting Brussels, 20 November 2008

[5] Cultural dimensions of EU external actions European Parliament resolution of 12 May 2011 on the cultural dimensions of the EU's external actions (2010/2161(INI))

(2014)[6], all stress the role of culture in the policies and programmes conducted within the framework of external relations.

Beyond declarations, the **Commission's Preparatory Action 'Culture in EU External Relations'** (2014) was the result of a study covering 54 countries – the EU Member States (28), the 16 countries under the European Neighbourhood Policy[7] and the 10 Strategic Partnership (SP) countries.[8] Culture as a **substantial potential** in Europe's international relations was the main outcome of the report. However, the report also stated: "failure to **capitalise on the potential of culture would be a huge missed opportunity for Europe"**.

The report fully confirmed the necessity of the process initiated in 2007 by the European Commission's "Communication on a European agenda for culture in a globalizing world". At the same time, the study analysed how third country stakeholders collaborated with these European cultural actors and how they view their relationships with Europe, confirming that many people across the world have **a strong interest in engaging culturally** with Europe. The European 'narrative' and in particular Europe's cultural diversity, its fundamental values, such as freedom of expression, and Europe's cultural and **creative industries** figured as main points of attraction.

However, the study also reveals that growing pressure in the international landscape Europe has been successful in projecting an image of cultural creativity and diversity. However, it is now facing a fragmented world, with multiple and at the same time newly emerging identities on a backdrop of permanent cultural and social transformation, shaped largely by the digital revolution, the expansion of social media and large-scale political changes. The report argues that Europe has to step up, go beyond a position of "projection" and engage with the rest of the world through "mutual learning and sharing" in a spirit of "global cultural

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[6] Preparatory action "Culture in external relations", Engaging the world: towards global cultural citizenship, 2 October 2017

[7] The ENP countries are the following: Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Morocco, Moldova, Palestine, Syria, Tunisia and Ukraine

[8] The Strategic Partner countries are: Brazil, Canada, China, India, Japan, Mexico, Russia, South Africa, South Korea and the United States of America

citizenship" where cultural rights and responsibilities are shared, with "participation for all in a framework of cosmopolitan solidarity". Furthermore, the report identifies in its "recommendation for ways forward" the principles on which cultural relations should be centred: **reciprocity** and mutuality, notably mutual listening and learning. As Sir Martin Davidson, CEO of the British Council noted: "Europeans must be willing to ask the "Other" what (s)he really wants"[9]. Planning and implementation of cultural relations should involve all cultural stakeholders right from the outset, including third country partners, arguing that deep and lasting ties can be achieved through "co-creation" of projects.

The report explores ways in which to reconcile the rich diversity of European cultures serving broader European interests, arguing for **strategic communication** and **coordination** at a transnational dimension and coherence among its tools, instruments and actors responsible for them. Member states have competence in external relations but progress will depend on the achievement of subsidiarity complementary, meaning how European institutions and expert organisations will support this process.

Operational recommendations include the creation of **a strong coordination mechanism** within the **European External Action Service** (EEAS) to coordinate relevant EC DGs, governmental and non-governmental stakeholders as well as civil society and the set-up of a network of cultural relations experts in EU Delegations worldwide. Noteworthy, **better communication** is underlined, with reference to enhanced EU Public Diplomacy. It calls for a coherent international cultural relations strategy, recognising the need for Europe to engage with audiences around the world in new ways, "listening, sharing, imagining and creating together, rather than simply projecting our individual national cultures in a purely representational logic".

While culture in external relations can foster **trade**, **investment** and **competitiveness**, the report points out that little benefit can be expected from the deployment of culture in external relations unless procedures concerning applications for EU funding are simplified and made accessible.

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[9] International Conference in Brussels, 8 April, 2014.

Results and recommendations of the study "Analysis of the perception of the EU and of EU's policies abroad", December 2015

Recognising the need for an enhanced EU Public Diplomacy, the Service for Foreign Policy Instruments of the European Commission requested a study on the perception of the EU abroad. "Analysis of the perception of the EU and of EU's policies abroad"[10] was published in December 7, 2015 in an effort to have a better understanding of the perception of the EU and EU's policies primarily in the ten EU strategic partner (SP) countries. It is therefore relevant to communication and public diplomacy activities in third countries and aims to contribute to EU Public Diplomacy outreach activities for meaningful and effective EU engagement globally. The analysis aimed at improving ability to assess the results of future actions in the field of Public Diplomacy as well as to contribute to HRVP's efforts that will lead to the new EU Global Strategy.

The European Union has official Strategic Partnerships (SP)[11] with 10 countries - Brazil, Canada, China, India, Japan, Mexico, Russia, South Africa, South Korea, and the US.

The study measured visibility, what kind of actor the EU is perceived to be (actorness), its effectiveness, its local resonance and the EU as a norm-setter. The key themes included economy, trade, politics security, social development and international aid, culture, education, migration and multiculturalism, environment and energy, research, science and technology. The target groups covered youth, business, policy makers, academia and think tanks, civil society and media. The analysis drew on literature review, (social) media analysis, public opinion poll and non-representative elite interviews.

Key findings showed that the EU is less visible in the US, Canada and Japan as compared to other countries such as China, Brazil and in particular Russia. Economy is the most visible theme. Political, social (including migration) and cultural issues follow. It cames as no surprise that the European sovereign debt crisis, the threat of Grexit and of Brexit,

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[10] *https://ec.europa.eu/fpi/sites/fpi/files/eu_perceptions_study_executive_summary.pdf*

[11] This entails holding regular meetings at the level of heads of state and numerous other trade, politics and cultural activities.

the migration/refugee crisis figures high in media reports. At the same time reports on EU in the field of research, science, technology, environment and education are very few.

It is noteworthy to mention that, despite the EU being the world's biggest donor, the finding of the report show that the EU's role in international development is mostly invisible. Media focus on dramatic events is not surprising, however the fact that EU's longer-term efforts go unnoticed, deserves further reflection.

On the question of actorness – what kind of actor the EU is perceived to be – weather active, important influential or not, the response is overall positive across SP countries, with the exception of Russia. Negative perceptions can be explained by EU's reaction to Russia's annexation of Crimea and the imposed economic sanctions. The EU is influential in global economic affairs, climate change and technological progress with a tendency for a less positive answer in Russia and Japan. In terms of influence and importance, the EU is perceived as falling behind the US, the UN, and respondent's own bigger player countries.

Around 70-80% of responses in all SP countries, including Russia see the EU very attractive in terms of culture and lifestyle. Europe's culture is an influential point of attraction.

The EU is best described by the word "multicultural" ranking first in the US, Canada, China, Mexico and Japan, second in Russia. To note that multicultural can be understood in both a positive and a negative way. The EU is consistently associated with the concept of "modern" and "strong".

Respondents agreed that the EU is an important trade partner and a good performed on global trade. The economic field where the EU performs best is tourism. In politics and security, media freedom, justice and rule of law were assessed relatively well. However, less positively assessed was the support to developing countries and the dealing with refugees.

In the SP countries' perception, the EU is viewed as performing well in its overall quality of life, in education as well as at the level of equality between men and women. Nonetheless, there is a less positive perception of EU's integration of refugees and protection of minorities, as well as of its work on the eradication of poverty and reduction of income inequalities.

The European monuments and museums, history, arts, luxury goods and clothes are particularly highly regarded while in general the domain of culture has overall positive appreciation. There is a higher appreciation among the SP countries of the historical facets of the EU (monuments, history, all types of art) rather than the modern.

The EU is seldom recognised as a norm-setter in spite of Europe's long academic history and of its currently intense academic discourse. It is however recognised as an international norm-setter in three areas: renewable energy technology, equality between women and men and gay rights. It is worthwhile noting that respondents were hesitant as to the appropriateness and applicability of EU norms in their specific contexts.

The conclusions of the study support the undeniable necessity for a **centralised EU Public Diplomacy strategy** with a **decentralised implementation to adjust to local specificities**. The need for a cultural relations strategy was a prominent recommendation. The importance of adapting to local audiences is stressed with a view to formulating and targeting messages while keeping aware of differing interpretations of history. Elements of European superiority should be removed from communications, particularly in countries that have experienced European colonialism.

The EU should build on and maximise the potential of its network of over 138 Delegations around the world. In this respect, Delegations should be main the interlocutors in identifying messages on areas of interest, key topics and key target groups and better coordination with the Member States should take place through joint strategic approaches and regular institutionalised coordination meetings with respective SP countries.

Engagement in Cultural Diplomacy should centre on the very positive perceptions of European/ EU Member States' culture, arts and history. As underlined in the conclusions of the study[12], engagement with expert networks should be pursued by establishing platforms for interested experts to network, share information and exchange best practices on policy fields that are relevant to EU PD. Furthermore, local experts should be involved into PD policy design while '**listening' exercises** for identifying perceptions should be integrated in the policy design from the outset. Centrally-formulated messages and strategies must be localised. Engagement with local civil society and the youth must result in broad outreach with localised messages.

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[12] "Analysis of the perception of the EU and of EU's policies abroad", December 2015

Another recommendation was the use of **e-diplomacy** for efficiency and quick outreach of distant audiences. This would require specialised training to EU officials, whether in EU Delegations or in Head Quarters, in order to improve **digital diplomacy** skills for achieving successful implementation of e-diplomacy actions.

The set-up of sufficient local resources and of decentralised decision-making processes are necessary for having the required flexibility to react to unexpected events. Funds dedicated to PD measures should be combined in a lump sum budget that EU Delegations can use for the implementation of a PD strategy with activities tailored to local conditions. With processes streamlined and competencies decentralised chances are higher that resources will be focused on implementation of PD activities rather than on dealing with bureaucratic and hierarchical bottlenecks.

Finally yet importantly – evaluation should be an integral part of any outreach activity, with evaluation tools and success indicators (such as the ones used in this study) at the core of PD initiatives. EU Delegations should have access to measurement tools for assessing the efficiency and success of their activities.

Culture as driver of economic growth – *The EU Strategy for international cultural relations*, *2016*

On 8 June **2016**, the European Commission and the EU High Representative for Foreign Affairs and Security Policy, Federica Mogherini formally adopts and presents the new "***EU Strategy for international cultural relations***"[13]. It aims at "encouraging cultural cooperation between the EU and its partner countries and promoting a global order based on peace, the rule of law, freedom of expression, mutual understanding and respect for fundamental values". The 2016 Communication is a cornerstone in the process of policy formulation initiated in 2007. The EU now sees public diplomacy as an existential necessity.

The 2016 strategy states: "As a party to the 2005 UNESCO Convention on the protection and promotion of the diversity of cultural expressions, the EU is committed to promoting the diversity of cultural expression as

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[13] Joint Communication to The European Parliament and The Council "Towards an EU strategy for international cultural relations", Join(2016) 29 final

part of its international cultural relations. This reflects and promotes the EU's fundamental values, such as human rights, gender equality, democracy, freedom of expression and the rule of law, as well as cultural and linguistic diversity".

Culture, in particular inter-cultural dialogue, can contribute to addressing major global challenges – such as conflict prevention and resolution, integrating refugees, countering violent extremism, and protecting cultural heritage.

Cultural exchanges can also bring **economic benefits**. As mentioned upfront in the Joint Communication (JOIN (2016) 29 final) - Global trade in creative products has more than doubled between 2004 and 2013[14] , whilst culture is a central element in the new economy driven by creativity, innovation and access to knowledge.

Cultural and creative industries represent around 3 % of the global GDP and 30 million jobs[15]. In the EU alone, these industries account for over 7 million jobs. [16] Likewise, in developing countries, the cultural and creative sectors contribute to promoting sustainable development and inclusive growth. Culture can therefore help promote job creation and competitiveness both inside the EU and beyond its borders. This is recognised in the UN's 2030 Agenda for Sustainable Development[17], which underlines that culture, including world cultural heritage and creative industries, can have an important role in achieving inclusive and sustainable development. Culture is therefore one of the important sectors promoted as part of the EU's development cooperation.

This Joint Communication proposes *an EU Strategy for International Cultural Relations* that focuses on advancing cultural cooperation with partner countries across three main strands: supporting culture as an engine for sustainable social and economic development; promoting culture and intercultural dialogue for peaceful inter-community relations; reinforcing cooperation on cultural heritage. In pursuing these objectives, the EU's International Cultural Relations will contribute to making the EU a stronger

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[14] The Globalisation of Cultural Trade: A Shift in Cultural Consumption--International flows of cultural goods and services 2004-2013, UNESCO Institute for Statistics (UIS), 2016.

[15] Cultural Times, report by CISAC and UNESCO, 2015.

[16] Ibidem

[17] *https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf*

global actor – a major priority for this Commission as well as of the High Representative's forthcoming Global Strategy.

The Joint Communication (JOIN (2016) 29 final) places culture as driver of the economic growth first.

While in the European debate creative and cultural industries have been traditionally less prominent elements of economic growth, the example of the UK would be worthwhile noting.

As Martin Rose and Nick Wadham-Smith write, diplomacy is "*not primarily about building trust, but about achieving specific, policy-driven transactional objectives […] Nations don't have permanent friends, […] they only have permanent interests.*

In the UK, the academic policy discourse has focused more upon creative industries and UK's creative economy agenda has been driven by the evidence of the creative industries' contribution to economic growth. Comparable to financial services' contribution to economic growth and even faster growing than other sectors in the UK, creative industries accounted for over 6% of Gross Value Added and for around 8% of the UK economy in 2007 (NESTA 2009). Furthermore, growth in employment has been higher in creative industries than in the rest of the economy (DCMS 2010). According to Deloitte (2008), in 2007, both cultural and tourism industries accounted for more than 8% of the UK's GDP. So combined, creative and cultural economies in the UK contributed close to 15% of national GDP.

These figures are relevant in the EU context, where culture and the role of culture are seen as generating innovation and creativity resulting in economic growth. EU Council's conclusions on the contribution of the cultural and creative sectors to the achievement of the Lisbon objectives have recognised that the cultural sector has been experiencing growth higher than that of the wider economy, with employment growth also higher than the average for the economy (EU Council 2007, p.3).

Cultural and creative industries have gained the well-deserved importance and the EU's has mentioned the "promotion of culture as a catalyst for creativity in the framework of the Lisbon Strategy" in its "First ever European strategy for culture: contributing to economic growth and intercultural understanding". (EU Commission 2007, p1).

At the same time, the Council conclusions (EU Council 2007, p 4.), recognised that "cultural and creative sectors make a special and multi-

faceted contribution towards strengthening Europe's global competitiveness". The Cultural and Creative Industries generate around €509 billion per year, representing 5.3% of the EU's total GDP and employ 12 million full-time jobs, which constitutes 7.5% of the EU's employment and the third largest employer sector in the EU (European Commission, 2018).

Conclusions

According to Commissioner for International Partnerships, Jutta **Urpilainen**: "*As the world's leading donor of Official Development Assistance, the EU is saving lives, building stronger economies and protecting the planet for the benefit of millions throughout the world.*"[18]

Cultural diplomacy represents a means for states to exercise and maximise soft power, the power to persuade and influence other states or citizens in order to achieve foreign policy goals. Policy makers use culture for influencing foreign publics and states. Judging by the investment of states in cultural activities, Cultural diplomacy is broadly perceived as valuable and the consensus seems overwhelming with a view to its potential to maximise soft power.

How cultural products are actually received abroad, comes rarely under scrutiny. From the perspective of the process of reception, one can see the extent to which audiences are involved in the process of meaning-making, deeply linked to the articulation of identity. By understanding the process of reception of cultural products, cultural policy can gain real impact.

In a 2014 report[19] for the British Council, the facilitation of cultural relations enjoys a growing interest as vector in achieving the creation of positive impressions, of familiarity and of influence over the behaviour of individuals or over a society as a whole. While the report gives a comprehensive review of cultural activities around the globe, an evaluation of the actual impact is missing. There is an obvious lack of criteria in assessing how cultural policy actions can achieve expected results not only from an academic point of view but also in the way policy is developed.

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[18] European Commission Press Release, The European Union remains world's leading donor of Official Development Assistance, 16 April 2020, Brussels

[19] Howson Paul, Dubber John, Culture matters – Why culture should be at the heart of future public policy, publish by the British Council, 2014

The only way to optimize the use of the various EU instruments at our disposal in order to convert a cultural or soft power into economic growth is to exercise a systematic monitoring of the impact of cultural diplomacy in the various countries. While it is easy to measure the financial investment of the EU and the economic evolution of the partner countries, it is much more difficult to measure the connection between the two. An important indicator is to measure the perception of citizens in each country, but this should be done systematically and periodically. It is essential to adapt the EU response according to the situation and the cultural perceptions in the various countries. The European values that are a condition to economic growth can be arrived at on different roads and it is necessary that the involved EU institutions like the EEAS develop the flexibility to discover the optimal road in each partner country.

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THE DRIVERS OF RURAL ACCOMMODATION DEVELOPMENT IN ROMANIA: A PRELIMINARY STUDY – PART 2

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ABSTRACT. The present paper continues the work of Pop et al. (2019) on what concerns the drivers of rural accommodation development in Romania. The study covers the same period: 2005 to 2019. This study introduces a new factor / driver: the accessibility of communes via the national and county road network.

Similar to the findings of Pop et al. (2019), the 2008 and 2012 ranks were established based on the existing tourist attractions. The 2012 rank is strongly influenced by 2008 ranks and, under the present study, by accessibility. Though, the influence of both ranks on lodgings (both under NIS and MoT data) remains weak to very weak hence suggesting the need to introduce new factors in order to explain the lodging development in rural areas.

Keywords: *rural tourism, lodging, resources, Romania*

JEL classification: L83

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Introduction

The present paper continues the work of Pop et al. (2019) on what concerns the drivers of rural accommodation development in Romania. The study covers the same period: 2005 to 2019.

This study introduces a new factor / driver: the accessibility of communes via the national and county road network. This is applied in combination with the factors / drivers of the previous study on the accommodation data set provided by the National Institute of Statistics (NIS).

It also analyses the impact of the previously identified drivers (including the new factor) on a new set of data regarding the accommodation facilities, the data provided by the Ministry of Tourism (MoT; this is a generic abbreviation for all the authorities in charge with tourism between 2005 and 2019, since tourism had either a stand alone ministry or was integrated in various other ministries, depending on the vision of diverse governments).

In the space of less than one year since the publication of the previous study at the end of 2019, to the best knowledge of the authors, no important advances appeared regarding the in-depth investigation of drivers of rural accommodation development in Romania.

For the purpose of this study, the ideas expressed in the previous paper regarding the benefits of diversification brought by tourism to the rural economy (Panyik et al. 2011) and the tourism complementarity to the existing economic activities (Hall 2004; Tao & Wall 2009) remain important. Also of importance remains the fact that rural tourism attractions are brought forth by the closeness to nature, new cultural experiences and intangible heritage (Figueiredo et al. 2013) allowing the advance of various forms of recreation (Banski & Bednarek-Szczepanska 2013).

The number of communes for this study remains the same as for the previous study, 2,861 and the data regarding the identified tourist attractions remains the same, as Annex 1 shows.

The new data regarding the accessibility of these communes via the network of national and county roads show that only 24 communes (0.84%) are not located on or in the close proximity of (5 km or less) national and / or county roads. Therefore, the majority of Romanian communes are accessible via the main road networks.

According to MoT data, the number of communes without an accommodation facility was of 1,694 at the end of 2019. The number of remaining communes, of 1,167, registered at least one lodging facility, of which only 9 communes registered 30 to 49 accommodations, while other 9 registered 50 or more lodgings. MoT data indicate an extra number of 175 communes with registered accommodation facilities compared with NIS data. This discrepancy between the two databases have various causes as discussed by Pop et al. (2017) and are not discussed within this paper. The data regarding both series of data (provided by NIS and MoT) are available in Annex 2.

MoT data, similar to NIS data, show an increase in the number of communes with registered accommodation, from 538 in 2005 to 1,066 in 2019 (98.14%). The growth rate based on MoT data is only slightly higher than the rate calculated based on NIS data (95.46%). The information is available in Annex 3. Based on MoT data, no county registered a decrease in the number of communes with lodging facilities. However, for two counties, Teleorman and Olt, the growth rate could not be calculated since in both cases the number of communes is 0 in 2005.

Some extreme situations can also be highlighted: 119 communes, with identified tourist attractions between 10 and 48, have no registered accommodation facilities, according to MoT data. Only 2 of these communes are not accessible via national and/or county roads. The number is lower than the number indicated by NIS of 146 communes in the same situation. At the other end of the spectrum, MoT indicates also 139 communes with no tourist potential, similar with the number based on NIS data. Nonetheless, the number of these communes which registered at least 1 lodging facility is of 33, slightly higher that the 27 communes in a similar situation based on NIS data.

The research question remains the same as formulated in the previous study: which are the drivers of the accommodation development in rural areas in Romania?

To the identified drivers / factors in the first study, in this one we added the accessibility factor via the network of national & county roads and the new combination of factors was applied to the data series of accommodation facilities based on NIS data and on MoT data.

Similar to the findings of Pop et al.(2019), the 2008 and 2012 ranks were established based on the existing tourist attractions. The 2012 rank is strongly influenced by 2008 ranks and, under the present study, by accessibility. Though, the influence of both ranks on lodgings (both under NIS and MoT data) remains weak to very weak hence suggesting the need to introduce new factors in order to explain the lodging development in rural areas.

Material and methods

All the 2,861 communes identified in the previous study by Pop et al. (2019) are included in the present study also.

The points 1 to 9 from Pop et al. (2019, pp.82-83) regarding the extracted data remain the same and will be reproduced below:

1. the accommodation units, based on NIS data via Tempo-online, for the years 2005, 2010, 2015, and 2019. The start year 2005 was chosen for the following reasons: a) is the year before the publication of the Master-Plan for Tourism in Romania 2007-2026; b) the first database with the accommodation units offered by the Ministry of Tourism/National Authority for Tourism (MoT/NAT) is available for 2005; no comparisons previous to 2005 are possible between the data offered by NIS and MoT/NAT; c) by the end of 2005 almost all administrative units' upgrades (from communes to towns or from villages to communes) were completed; the very few registered in 2006 have no important consequences on the study.

2. the 2008 ranking and 2012 ranking for the communes; both rankings quantify the communes' tourist potential based on a number of points; the 2008 ranking uses the 1 to 10 scale; the 2012 ranking uses a scale from 1 to 56.4, though the majority of the 948 ranked communes have between 20 and 35 points. No explanation could be found regarding how the two rankings were established. Moreover, the assignment of rankings in 2008 and 2012 seems not to follow a uniform process: while 27 communes declared resorts (either of local or national interest) were not taken into consideration by the 2008 ranking, the 2012 ranking assigned points to 25 of these communes, while leaving 3 resorts of local interest not ranked.

3. the protected natural areas based on the Romanian Government Decision 1284/2007 and the Order 46/2016 issued by the Environment Ministry.

4. the historic monuments made available by the Ministry of Culture at https://patrimoniu.ro/monumente-istorice/lista-monumentelor-istorice

5. the museums were not included in this study because the inventory offered by the Romanian National Institute of Statistics is clearly incomplete, excluding local museums, based on the local communities' efforts to preserve various historic, cultural, and natural attractions (see Pop & Balint, 2020 in press)

6. the recognized wine regions, vineyards and independent wine centers as announced by the National Office of Wine and Wine Products through the Order 1205/2018.

7. the recognized sources of mineral waters in Romania provided by the National Agency for Mineral Resources through the Orders 175/2008 and 139/2018.

8. the balneary potential based on a range of sources crossed with the information regarding the mineral waters since no official list for the localities with spa/wellness resources could be found.

9. the status of resort (either of national or local interest) as provided by MoT/NAT and the last updates for 2019 provided by http://turismbalneo.ro

For the present study two more series of data were extracted, as follow:

10. the accommodation units, based on MoT information, were extracted for the years 2005, 2010, 2015 and 2019.

11. the communes located on or in the near proximity of national and county roads were extracted based on the national road network available at: http://www.cnadnr.ro/ro/retea-administrata-drumuri-nationale; the maps of communes and allocated villages were further used for the identification of rural localities on the county roads, distinguished by their abbreviation (DJ from the Romanian drumuri judetene). While a list of communes situated at 25 to 30 km from the nearest urban locality is available within a 2014 report form the Ministry of Regional Development and Public Administration, a random verification of the information found inexactness and therefore the respective list was discarded for the

present study. The railroad network was not taken into consideration due to the continuing decrease in local train services during the past two decades in favor of personal cars and bus services.

The three points mentioning the processing of extracted data in Pop et al. (2019, pp.83-84) also remain the same for the present study and will be reproduced bellow:

1. for the NIS accommodation units, an average for the four observations was calculated; however, when at least one accommodation unit was registered in any of the four years, the average was considered 1.

2. for the 2008 ranking the following conventions were applied: a) in the cases of 10 communes without ranking in 2008, the lack of ranking was replaced with 0; b) in the case of the localities declared resorts for which no 2008 rank was available, the lack of ranking was replaced with an average number of points (6) resulting from taking into consideration the ranking available for the localities declared resorts later than 2008; this processing was applied for 28 communes.

3. a variable called 'extra-resources' was created in order to measure the influence of following potential tourist resources: the presence of the vineyards/independent wine centers; the existence of mineral waters and balneary potential; the status of resort for the respective locality; the presence of a natural or cultural World Heritage Site (WHS). For each of these tourist resources, 1 point was allocated. Though the lists of protected areas and of historic monuments include the WHS, it was considered that the inclusion of a certain natural area or a cultural monument on the WHS list enhances the tourist potential of the respective locality/localities as shown by Iorio & Corsale (2013), Reyes (2014). Therefore, the maximum number of points for this variable (extra-resources) is 4.

For the present study two more data processing were used, as follows:

4. for the MoT accommodation units, also an average was calculated for the four observations (2005, 2010, 2015 and 2019); the same treatment applied for NIS accommodation was used for MoT accommodations: when at least one accommodation unit was registered in any of the four years, the average was considered 1.

5. a series of data called 'roads' combining the access via national and county roads. The decision to combine the access (via national and county roads) came from the fact that, due to European Union funds, the

county roads are gradually improving; while this is not true for all the regions, the county roads ensure a reasonable connection among communes and villages outside the national road network. Therefore, the series of data called 'roads' was created based on the following points:

       - for the communes situated on or near by (5 km or less) national roads = 3 points

       - for the communes situated on or near by (5 km or less) national road branches = 2 points

       - for the communes situated on or near by (5 km or less) secondary national roads = 1 point

       If a commune was located at the crossroad of any of the alternative mentioned above, the number of points was added since it increased the accessibility of the respective rural area.

       - for the communes situated on a county road = 0.25 points

       If a commune was located at the crossroad of two county roads the allocated points were 0.5, while if at the crossroad of multiple county roads the number of allocated points was of 1 since very few communes were crossed by more than 4 county roads.

       If a commune was located on any type of national road and was also crossed by a county road, only the points for the location on national roads were taken into consideration.

       Similar with the previous study of Pop et al.(2019), for the present study the communes were classified in 3 groups, as follow: a) the one including all the 2.861 localities; b) the second group includes the 1,913 localities with no 2012 rankings, and c) the third group including the 948 localities ranked in 2012.

       The same hypotheses were formulated as in the previous study of Pop et al. (2019, pp.84-85), though for the present study the accessibility via roads was added as a new factor. Furthermore, the hypotheses were extended at MoT data series. The hypotheses for the present study are:

       H1 (for all communes): 2008 rank is influenced by the tourist resources and roads (accessibility)

       H1.1 (for the 1,913 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)

       H1.2 (for the 948 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)

H2 (for the 948 communes): 2012 rank is influenced by the tourist resources and roads (accessibility)

H2.1 (for the 948 communes): 2012 rank is influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3 (for all communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3bis (for all communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.1 (for the 1,913 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.1bis (for the 1,913 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.2 (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.2bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)

H3.2a (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)

H3.2a-bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)

The above hypotheses were tested using OLS (ordinary least square) multiple regression. Further, similar with the previous study of Pop et al. (2019), the results were completed with the application of PLS-SEM (partial least squares-structural equation modeling) which allows more complex links between the investigated variables. The names of the variables are presented in Annex 6 and those of latent variables are presented in Annex 9 to 12.

Tourist resources, lodgings and accessibility in rural areas by county, regions and macro-regions revisited

Annex 1 of the present paper includes a new column completing the information in Annex 1 of Pop et al. (2019). This new information is in column two and presents the number of communes, within each

county, respectively region and macro-region, located on (national and county) road networks. The data indicates a high level of accessibility of Romania's rural localities since only 24 communes (0.84%) are currently not located on national and/or county roads.

Macro-region 2 is the one with the highest number of 13 communes outside the networks of national and county roads. This number is split almost equally between the component regions: North-East with 6 such communes and South-East with 7 communes. The South-East region including also the counties with the highest number of communes outside the national and county roads: Buzau and Tulcea with 3 communes each. Macro-region 1 follows with a number of 7 communes not located on national and/or county roads, Center region concentrating 5 of these communes. Macro-region 4 has only 3 communes outside the national and/or county road networks, all located in South-West region, while Macro-region 3 has only 1 commune not located on the considered road networks.

The information regarding the communes with natural protected areas, registered historic monuments and being part of registered vineyards and registered wine centers remains unchanged, as presented by Pop et al. (2019).

The profile of these 24 communes located outside the national and county road networks is mixed: only 5 communes are part of the group with of 139 communes with no identified tourist attractions; 9 communes have been ranked in 2012, with a ranking ranging between 14 and 36.22; the fact that 3 communes from Tulcea county are within this group is not unexpected since the water transportation is more common within the county covering the Danube Delta. Nonetheless, the most frequent feature for these communes is the lack of accommodation facilities, 18 of the 24 communes having zero lodgings either under NIS data or MoT data. This is not an unexpected situation since the accessibility to these communes is poor.

The information in Annex 2 remains unchanged for the columns 1 to 5 while for the columns 6 to 10 new information regarding the communes with lodgings registered under MoT database was introduced. The information offered by MoT data indicates a decrease with 175 communes for 0 lodging communes. These 175 increase the number of

communes with lodgings as follow: a surplus of 53 communes for the category of communes with 1 lodging; a surplus of 105 communes for the communes with 2 to 19 lodgings; and a surplus of 17 communes for those localities with at least 20 lodgings. By Macro-regions, the situation is the following: Macro-region 1 registered the highest decrease of 0 lodging communes, with 65 communes; within this Macro-region, North-West region has the highest decrease, of 42 communes; Macro-region 2 follows with a decrease of 54 communes; on the third place is Macro-region 4 with a decrease of 31 communes, 20 of these communes being in South-West region; Macro-region 3 has the lowest decrease, of 25 communes, with 22 of these communes in South-Muntenia region. At county level, 6 counties (Bihor, Maramures, Covasna, Suceava, Vrancea, and Prahova) have a decrease in 0 lodging communes between 10 and 14, while at the other end of the spectrum 4 counties (Vaslui, Arges, Teleorman, and Olt) registered and increase of 0 lodging communes between 1 and 2. For other 3 counties (Sibiu, Buzau, and Arad) no changes in the number of 0 lodging communes was registered.

The difference of 175 communes seems not to be a very large one. Though it represent a decrease of 0 lodging communes of about 6%. As mentioned within the paragraph above, these decrease in 0 lodging communes was counterbalanced with a similar increase in the total number of communes with lodgings, the communes with 2 to 19 lodgings having the highest addition of 105 communes. It is worth noting that the same pattern can be found within the Macro-regions 1 and 4 where the communes with 2 to 19 lodgings increased with 53 and respectively with 25 communes. Macro-region 4 it is outside this trend, the communes with 1 lodgings having the highest gain of 36 communes. It is also worth noting that, overall, at national and macro-region levels the number of communes with 1 lodging increased, at region level there a 3 exceptions: Center region which registered a decrease in the number of 1 lodging communes with 11 communes (in favor of an increase with 8 communes in the category of at least 20 lodging communes), Ilfov county and West region where the number of 1 lodging communes decreased with 1 commune.

Is also interesting to mention that using MoT data, the number of communes with at least 20 lodgings almost double, to 37 compared with the 20 communes identified based on NIS data. According to MoT data, the leading macro-region is now Macro-region 1, followed by Macro-

region 2, while the remaining two macro-regions (3 and 4) are lagging well behind with 5 and respectively 3 communes within this category. Also based on MoT data, the number of counties with more than 90% communes with 0 lodgings decreased at 3: Ialomita, Teleorman (in Macro-region 3) and Olt (Macro-region 4). The same 3 counties also present only communes whit just one lodging.

The comments of Pop et al. (2019) regarding the 2008 ranking remain the same. Also similar remains the comment that, this time based both on NIS and MoT data, the information in Annex 2 implies a certain level of correlation between the 2008 ranking and the number of communes with reported lodgings and, to some extent, a correlation between the 2008 ranking and the number of lodgings.

In Annex 3 the MoT information presented in square brackets depicts a similar situation with the one discussed by Pop et al. (2019). Macro-region 1 remains on the leading position with the highest number of communes with lodgings, while Macro-region 3 remains on the last position. It is worth noting that Macro-region 3 is the only one with a decrease in the number of communes with lodgings in 2010 when MoT data are considered in comparison with NIS data. When the growth rate is taken into consideration, Macro-region 4 remains on the top position, while for Macro-region 3 a change appears which place it on the second position since, based on MoT data, Ilfov county does not registered a negative rate. Both Macro-region 1 and 2 exhibit lower than the national level growth rates, which is normal since their growth base is larger than in the case if the two other macro-regions.

An regional level, the MoT data present a similar position with NIS data, as pointed out by Pop et al. (2019). Center region remains on the highest position followed by North-West region, while South-West region is the last. When the growth rate is taken into consideration, the situation is changed; MoT data places West region on the top position, followed by South-Muntenia and having South-West region dropped to the 3rd place (from the top position under NIS data). North-West position retains its 4th place, while the remaining regions have growth rates lower than the national level growth rate.

Based on MoT data, the situation at county level is different from the case presented by Pop et al. (2019) based on NIS data, considering the counties with at least 20 communes reporting lodgings. MoT data

indicate, for 2005, a number of 9 counties having 20 or more communes with lodgings, compared with only 4 based on NIS data. For 2019 the number of these counties grew to 28, compared with 24 based on NIS data. It is worth noting that, as of 2019, within three regions (North-West, Center, and West) all counties have more than 20 communes with lodgings.

It is important to note that the growth rate based on MoT data shows less extreme figures than the NIS data and also shows no negative growth rates. Nonetheless, in the case of two counties (Teleorman from South-Muntenia region and Olt from South-West region), the growth rate could not be calculated since MoT database has no data for the rural regions in 2005 for these two counties.

Crossing the information regarding the 2008 rank from Annex 2 with the MoT data, similar with the observation of Pop et al. (2019), no pattern could be established between the two series of data for the 41 counties. The calculation of the (Pearson) correlation coefficient shows a weak negative and non-significant relation (-0.236; p-value = 0.138), compared with the almost nonexistent relation when NIS data are considered (correlation of -0.075; p-value = 0.635). While 2008 ranking might have been established using the existing accommodations at commune level (Pop et al.2019), it seems it has no important role to play in the subsequent development of rural lodgings.

Annex 4 presents all the 2,861 communes in a data panel split into 4 clusters: 0 lodging communes; 1 lodging communes, 2-19 lodging communes and at least 20 lodging communes. MoT data, similar with NIS data commented by Pop et al. (2019), do not reveal a clear pattern among 2008 ranking, the number of tourist attractions and lodgings. Also, under MoT data, the number of communes with 2-19 lodgings remains the dominant one within all four clusters.

The 0 lodging commune cluster shows a high concentration of communes within 1 and 2 point ranking (58.26%). This cluster also gather 17 of the 24 communes not located on national and/or county roads. The data in this cluster seem to indicate the need for tourist attractions and accessibility in order to trigger the development of lodging facilities. The following cluster, communes with 1 lodging, seems to confirm the first cluster suggestion: the communes with 1 and 2 point ranking decrease (representing 38.26%), while the communes with 3 and 4 point ranking increase (42.17%). Also, the number of communes with low accessibility

is only of three. However, the same cluster shows that, starting with 5 point ranking, the number of communes with 1 lodging decreases inspite of the number of attractions and higher ranking, therefore a possible higher tourist potential. The third cluster, communes with 2-19 lodging, show a similar situation with the second cluster, with the only exception that the concentration of communes appears mostly around 4 point ranking (29.29%) and an almost equal percentage around 5 and 6 point ranking (30.21%). Nevertheless, from 7 point ranking on, the number of communes with lodgings decreases regardless of tourist attractions. The third cluster also register three communes with low accessibility. Furthermore, it is worth noting that both the second and the third cluster shows communes with no identified tourist potential that developed lodgings and in two cases this is combined also with low accessibility (within the second cluster). Though these cases can be considered exceptions, they further weaken the modest linear relation that emerged. Only the fourth cluster is showing a clear relation between the lodgings, 2008 ranking and tourist attractions. Nevertheless, this relation is weak since only 37 communes (1.29% of total) are included in this last cluster. The exception of one commune with low accessibility within this cluster is interesting to note since it suggests that if attractive enough, the low accessibility of a destination seems to be ignored by tourists.

Annex 5 presents the same structure of data for the 948 communes which received a ranking in 2012. The situation in annex 5 is similar with that presented in Annex 4, based in MoT data. Though Annex 5 shows fewer exceptions and the number of communes with 0 lodgings represents only about 34% compared with about 59% of the total communes in Annex 4. Nevertheless, the data in Annex 5 are intriguing mainly for the first and second cluster, showing communes considered to have high and very high tourist potential but with no lodgings or with just one registered lodging. Also unusual is the presence within Annex 5 of 9 communes with low accessibility, of which 4 are within the 0 lodging cluster. However this situation raises the question on which base was 2012 ranking calculated as highlighted by Pop et al. (2019). Nonetheless, the exception represented by the 5 communes with low accessibility but with high 2012 rankings and with lodgings seems to suggest the idea formulated at the end of the previous paragraph: the low accessibility seems of low

importance if a (rural) tourist destination is considered attractive. These mentioned 5 communes are: C.A.Rosetti, Maliuc and Sfantu Gheorghe (Tulcea county; in Danube Delta, therefore with a poor road network), Avram Iancu (Alba county) and Comandau (Covasna county).

Research results

Correlation and multiple regression results

The descriptive statistics in Annex 6 contains similar data with those presented by Pop et al. (2019) and includes two new data series: MoT lodgings and roads. For the variables rank 2008, lodgings (NIS), monuments, protected-areas, extra-resources, and rank 2012, the data are unchanged and therefore the comments of Pop et al. (2019) unaltered.

The new data show that under MoT database the number of lodgings is higher, presenting higher average values and higher maximum values for all three commune clusters (all the communes, the communes with no 2012 rank and the 948 communes with 2012 rank). For the last two commune cluster the MoT data show higher figures within the third quartile compared to NIS data.

The data regarding the roads (quantifying the level of accessibility via the national and county road networks) show almost identical data for the first two commune clusters, indicating that either the communes are located at least on a secondary national road or at a junction of county roads. For the 948 communes ranked in 2012, therefore considered to have a higher tourist potential, the accessibility is higher (the average and the data for the first quartile), but not to a significant level compared to the first two commune clusters.

The correlation data in Annex 7 present weak to very weak (but in most cases significant) relations among variables for all three groups of communes, with the exception of the moderate relation between 2008 rank and 2012 rank for the 948 communes considered to have a higher tourist potential. For most cases the data are similar to those discussed by Pop et al. (2019). Nonetheless, the introduction of two new variables, MoT lodgings and roads, generated several differences: the strong relation between MoT lodgings and NIS lodgings within all three groups

of communes, which is normal; this situation generates the a similar pattern of relations for MoT lodgings with NIS lodgings; the absence of any relation between roads and rank 2008 and respectively between roads and extra-resources also within all the three clusters; the absence of any relation between roads and lodgings (either NIS or MoT), and between roads and protected-areas, both occurring in the case of the 948 communes ranked in 2012. It is worth to note the very weak, though significant, relation between roads and lodgings (either NIS or MoT) in the case of all communes, while in the case 1,913 communes with no ranking in 2012 this relation becomes weak and remains significant.

The stepwise multiple regression results are presented in Annex 8 for the three communes group (all communes, the 1,913 communes without 2012 ranking and 948 communes ranked in 2012). Through the formulated hypotheses there was an expectation of a higher influence exerted by the accessibility feature quantified through the variable roads. Nonetheless, the majority of the results (see Table 1 for comparative purposes) are only slightly different from those obtain by Pop et al. (2019) when the variable road was not yet introduced. The new variable roads seems to have a negligible to non-existent influence on the dependent variable rank 2008, though the influence is more visible in the case of dependent variable rank 2012. In the case of road influence on lodgings (both NIS and MoT) it can be considered low and significant in the case if the first two commune groups, while becoming very low and with a significance level lower than 95% in the case of third group of 948 communes, when rank 2012 is not taken into consideration. Road influence on lodgings (NIS and MoT) become irrelevant when rank 2012 is introduced as independent variable suggesting and indirect influence.

PLS-SEM results

Though PLS-SEM allows for more complex relations among the investigated variables, the results for the investigated hypotheses din not yield significantly stronger bonds among variables.

The following Figure 1 and Figure 1a present the results for all the 2,861 communes for both NIS lodgings (Figure 1) and MoT lodgings (Figure 1a). These results are also presented for comparative purposes in Table 1. The results are in line with the multiple regression findings.
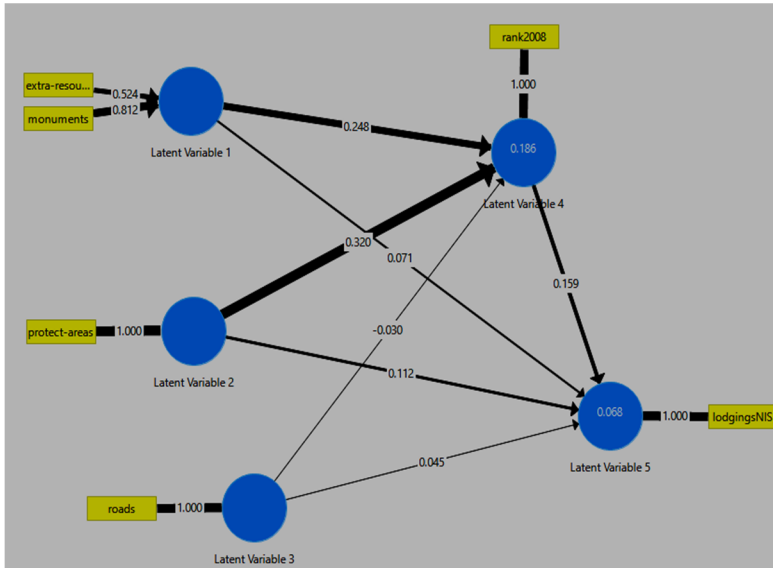
Figure 1. PLS-SEM results for all 2,861 communes
with lodgings registered based on NIS data
Source: authors' calculations
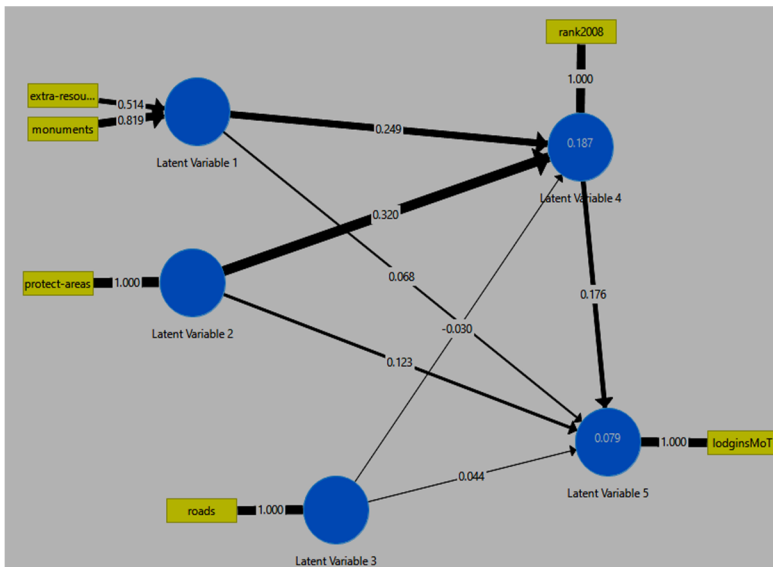
Figure 1a. PLS-SEM results for all 2,861 communes
with lodgings registered based on MoT data
Source: authors' calculations

Figure 2 and Figure 2a present the results for the 1,913 communes without 2012 rank for both NIS lodgings (Figure 2) and MoT lodgings (Figure 2a). These results are also in line with the multiple regression findings and are included in Table 1 for easier comparison.
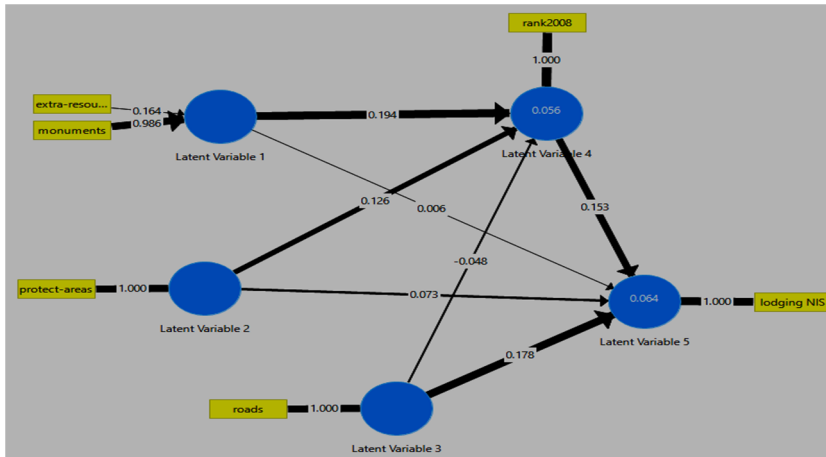
Figure 2. PLS-SEM results for 1,913 communes
(not ranked in 2012) with lodgings registered based on NIS data
Source: authors' calculations
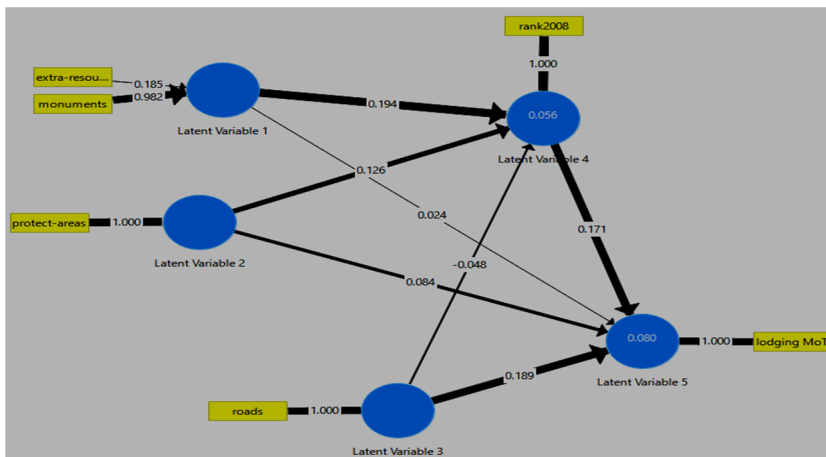
Figure 2a. PLS-SEM results for 1,913 communes
(not ranked in 2012) with lodgings registered based on MoT data
Source: authors' calculations

Figure 3 and 3a presents the case of the 948 communes, ranked in 2012, taking into account the NIS lodgings and respectively MoT lodgings. For these two situations rank 2012 was not included as independent variable. Similar to the previous cases, these results also confirm the multiple regression results and are included in Table 1 for easier comparison.
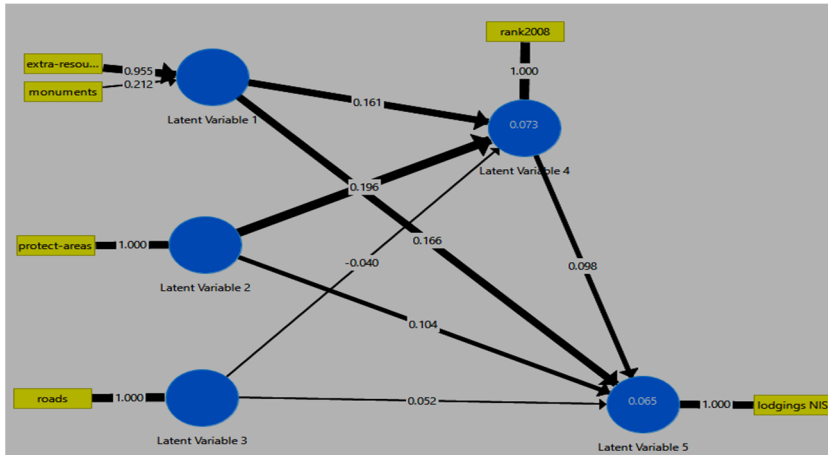
Figure 3. PLS-SEM results for 948 communes with lodgings registered based on NIS data (rank2012 not included)
Source: authors' calculations
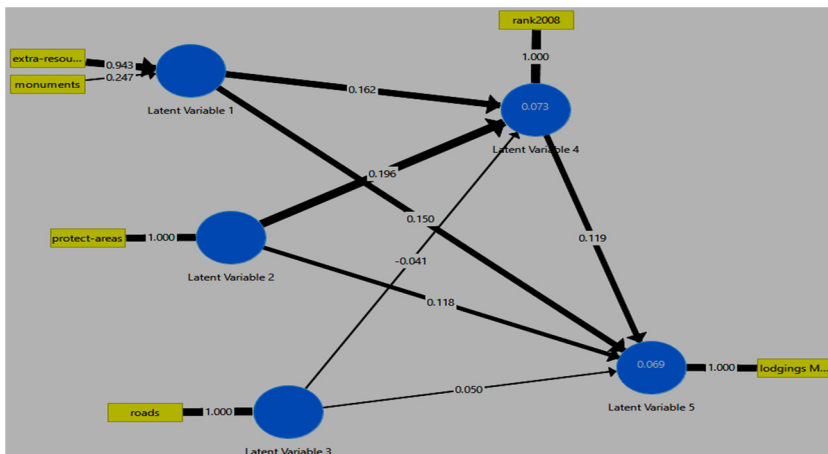
Figure 3a. PLS-SEM results for 948 communes with lodgings registered based on MoT data (rank2012 not included)
Source: authors' calculations

In Figure 4 and 4a for the 948 communes with higher tourist potential, rank 2012 was included as independent variable in both cases of NIS lodgings and respectively MoT lodgings. As in the previous cases, the results also confirm the multiple regression results and are included in Table 1 for an easier comparison.
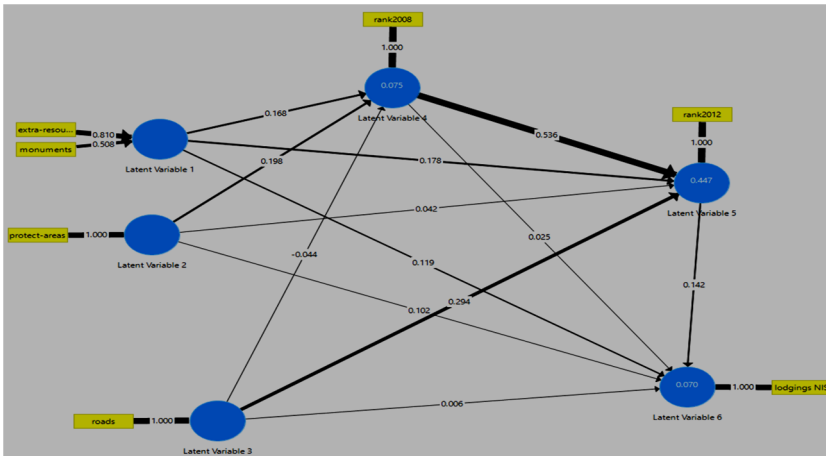
Figure 4. PLS-SEM results for 948 communes with lodgings registered based on NIS data (rank2012 included)
Source: authors' calculations
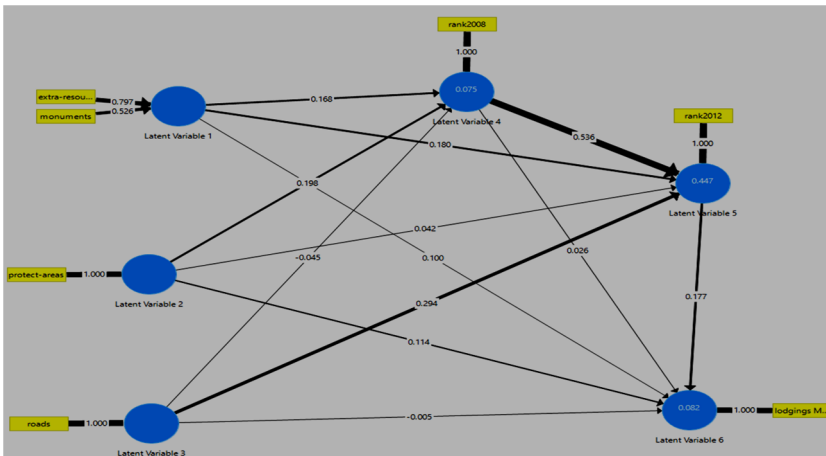
Figure 4a. PLS-SEM results for 948 communes with lodgings registered based on MoT data (rank2012 included)
Source: authors' calculations

Discussions

All the formulated hypotheses for this study are confirmed with a high level of confidence, as Table 1 shows. For and easier comparison, Table 1 contains also the hypotheses formulated by Pop et al. (2019). The most important finding is, based on the data used for this study, that the accessibility (quantified with the variable roads) adds only insignificant explanatory power either when the 2008 rankings are taken into consideration or when lodgings are studied (in the case of all communes and the 948 communes ranked in 2012).

It is worth noting that the results for NIS lodgings and MoT lodgings are close, with a slightly higher explanatory power in the case of MoT lodgings since the MoT database presents a higher number of lodgings.

Table 1. Hypotheses confirmation/information

Hypotheses formulated by Pop et al.(2019)			Hypotheses formulated by Pop et al.(2019)		
Hypotheses	Multiple regression results	PLS-SEM results	Hypotheses	Multiple regression results	PLS-SEM results
H1 (for all communes): 2008 rank is influenced by the tourist resources	Confirmed. $R^2 = 18.8\%$; p-value < 0.001	Confirmed $R^2 = 18.5\%$; p-value = 0.0000	**H1 (for all communes): 2008 rank is influenced by the tourist resources and roads (accessibility)**	Confirmed. $R^2 = 19.0\%$; p-value < 0.001	Confirmed $R^2 = 18.6\%$; p-value = 0.0000
H1.1 (for the 1,913 communes): 2008 rank is influenced by the tourist resources	Confirmed. $R^2 = 5.4\%$; p-value < 0.001	Confirmed $R^2 = 5.4\%$; p-value = 0.0000	H1.1 (for the 1,913 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)	Confirmed. $R^2 = 5.7\%$; p-value < 0.001	Confirmed $R^2 = 5.6\%$; p-value = 0.0000
H1.2 (for the 948 communes): 2008 rank is influenced by the tourist resources	Confirmed. $R^2 = 7.3\%$; p-value < 0.001	Confirmed $R^2 = 7.1\%$; p-value = 0.0000	H1.2 (for the 948 communes): 2008 rank is influenced by the tourist resources and roads (accessibility)	Confirmed. $R^2 = 7.5\%$; p-value < 0.001	Confirmed $R^2 = 7.3\%$; p-value = 0.0000
H2 (for the 948 communes): 2012 rank is influenced by the tourist resources	Confirmed. $R^2 = 11.5\%$; p-value < 0.001	Not investigated.	**H2 (for the 948 communes): 2012 rank is influenced by the tourist resources and roads (accessibility)**	Confirmed. $R^2 = 18.5\%$; p-value < 0.001	Not investigated.

Hypotheses formulated by Pop et al.(2019)			Hypotheses formulated by Pop et al.(2019)		
H2a (for the 948 communes): 2012 rank is influenced by the tourist resources and the 2008 rank	Confirmed. $R^2 = 36.8\%$; p-value < 0.001	Confirmed $R^2 = 36.1\%$; p-value = 0.0000	H2.1 (for the 948 communes): 2012 rank is influenced by the tourist resources, the 2008 rank, and roads (accessibility)	Confirmed. $R^2 = 45.1\%$; p-value < 0.001	Confirmed $R^2 = 44.7\%$; p-value = 0.0000
H3 (for all communes): lodgings are influenced by the tourist resources and the 2008 rank	Confirmed. $R^2 = 7.3\%$; p-value < 0.001	Confirmed $R^2 = 6.5\%$; p-value = 0.0000	**H3 (for all communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)**	Confirmed. $R^2 = 7.6\%$; p-value < 0.001	Confirmed $R^2 = 6.8\%$; p-value = 0.0000
-	-	-	***H3bis (for all communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)***	Confirmed. $R^2 = 8.6\%$; p-value < 0.001	Confirmed $R^2 = 7.9\%$; p-value = 0.0000
H3.1 (for the 1,913 communes): lodgings are influenced by the tourist resources and the 2008 rank	Confirmed. $R^2 = 3.3\%$; p-value < 0.001	Confirmed $R^2 = 3.2\%$; p-value = 0.0000	H3.1 (for the 1,913 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)	Confirmed. $R^2 = 6.5\%$; p-value < 0.001	Confirmed $R^2 = 6.4\%$; p-value = 0.0000
-	-	-	*H3.1bis (for the 1,913 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)*	Confirmed. $R^2 = 8.1\%$; p-value < 0.001	Confirmed $R^2 = 8.0\%$; p-value = 0.0000
H3.2 (for the 948 communes): lodgings are influenced by the tourist resources and the 2008 rank	Confirmed. $R^2 = 6.4\%$; p-value < 0.001	Confirmed $R^2 = 6.2\%$; p-value = 0.0000	H3.2 (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)	Confirmed. $R^2 = 6.7\%$; p-value < 0.001	Confirmed $R^2 = 6.5\%$; p-value = 0.0000
-	-	-	*H3.2bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, and roads (accessibility)*	Confirmed. $R^2 = 7.1\%$; p-value < 0.001	Confirmed $R^2 = 6.9\%$; p-value = 0.0000

113

Hypotheses formulated by Pop et al.(2019)			Hypotheses formulated by Pop et al.(2019)		
H3.2a (for the 948 communes): lodgings are influenced by the tourist resources and the 2008 rank and the 2012 rank	Confirmed. $R^2 = 8.0\%$; p-value < 0.001	Confirmed $R^2 = 7.0\%$; p-value = 0.0000	H3.2a (for the 948 communes): NIS lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)	Confirmed. $R^2 = 8.0\%$; p-value < 0.001	Confirmed $R^2 = 7.0\%$; p-value = 0.0000
-	-	-	H3.2a-bis (for the 948 communes): MoT lodgings are influenced by the tourist resources, the 2008 rank, the 2012 rank, and roads (accessibility)	Confirmed. $R^2 = 9.0\%$; p-value < 0.001	Confirmed $R^2 = 8.2\%$; p-value = 0.0000

Source: Pop et al. (2019) for the first three columns and authors' calculations

Differences appear in the case of 2012 ranking where R^2 increases by 8.3% under multiple regression and by 8.6% under PLS-SEM. An interesting result appears in the cases of the 1,913 communes not ranked in 2012, therefore considered with a lower tourist potential. For NIS lodgings the explanatory power of accessibility is almost double when the accessibility is considered, compared with the previous findings of Pop et al. (2019). Though, R^2 remains lower than 10%. Nonetheless, this result might suggest that lodging development is up to an extent influenced by the accessibility when the tourist attentions are less numerous and tourism potential is judged as low. This suggestion is somewhat confirmed by the results (presented above) indicating the lack of influence of accessibility when studying the lodgings (both NIS and MoT) for the 948 communes ranked in 2012 (considered to have a higher tourist potential). The presence of tourist attractions seeming to be appealing for tourists (and lodging providers) while the accessibility becomes less relevant.

Similar to the findings of Pop et al. (2019), the 2008 and 2012 ranks were established based on the existing tourist attractions. The 2012 rank is strongly influenced by 2008 ranks and, under the present study, by accessibility. Though, the influence of both ranks on lodgings (both under NIS and MoT data) remains weak to very weak hence suggesting the need to introduce new factors in order to explain the lodging development in rural areas.

Conclusions

The introduction of two new series of data in the study (the lodgings registered according to MoT database and the accessibility quantified via variable roads) show a slightly different situation than the circumstances presented by Pop et al. (2019).

Based on MoT database, the number of communes with no lodgings decreased, representing about 59% of the total (compared with the about 65% using NIS data). The most important increase, using MoT data, is in the number of communes whit 2-19 lodgings representing about 17% (compared with 12% under NIS data). Though, the number of communes with at least 20 lodgings remains a negligible 37 communes (compared with 20 communes) under NIS data. The conditions are replicated in the case of the 948 communes ranked in 2012 also. Using MoT data, the number of communes with 0 lodgings, within this category, decreased to 34% (from 39% under NIS data), while the number of communes with 2-19 lodgings increased to about 33% (compared with 26% under NIS data).

The accessibility of the communes can be considered high since only 24 of these communes are not located on the national and county road networks. However, this conclusion cannot be extended to all the villages under the 2,861 communes administration. Being over 12,000 such villages the investigation would have been too difficult.

The accessibility seems to play a role (though the relation is weak, but significant) in developing lodgings mainly for the case of the 1,913 communes not ranked in 2012, therefore considered to have a lower tourist potential. While a higher tourist potential seems to make the direct influence of accessibility rather irrelevant for developing lodgings in the case of the 948 communes ranked in 2012. However, the influence of accessibility in the case of these 948 communes is rather indirect, via the 2012 rank. These findings do not contradict however the findings of Pop et al.(2019) indicating a low to very low awareness at commune level regarding the presence of natural and anthropic tourist attractions since almost all the investigated relations are weak, though significant.

The findings above lead to the same conclusion formulated by Pop et al. (2019): the community-based tourism, as suggested by (Figueiredo et al., 2013) should be considered a path to be followed, rising the level of community awareness regarding the existing resources and how they should be used under a sustainable development strategy.

The limitations of this study come from the way the accessibility was quantified and from not taking into consideration the intangible heritage of the communes. Further research points toward including new factors in order to explain the lodging development in rural areas, toward including into the study only the communes with lodgings and toward a potential segmentation of tourist offer as suggested by Coros (2020) and Nistoreanu (2018).

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Annex 1. The situation of communes with tourist potential

County/region/macro-region	Number of communes	Number of communes on national and county roads	Number of communes with protected areas	Number of communes with historic monuments	Number of communes with vineyards/wine centres	Number of communes with mineral waters/balneary potential	Number of communes with (natural or cultural) WHS	Number of communes with status of resort	Number of communes with no identified tourist potential	Number of communes with no 2008 ranking (of which resorts)	Number of communes with no 2012 ranking	Number of communes with no 2008 ranking and 2012 ranking
Bihor	91	91	71	74	10	7	0	3	5	4 (3)	65	1
Bistrita-Nasaud	58	57	40	47	24	1	0	2	4	0	21	0
Cluj	75	75	55	72	20	1	0	2	0	1 (1)	48	0
Maramures	63	63	51	53	7	7	10	5	1	1 (1)	9	0
Satu-Mare	59	58	34	52	21	9	0	0	4	1	49	1
Salaj	57	57	23	50	19	4	0	1	2	0	26	0
North-West	**403**	**401**	**274**	**348**	**101**	**29**	**10**	**13**	**16**	**7 (5)**	**218**	**2**
Alba	67	65	56	59	35	0	2	2	1	2 (2)	22	0
Brasov	48	47	41	45	0	6	4	3	0	2 (2)	15	0
Covasna	40	39	36	38	0	8	0	1	0	1 (1)	13	0
Harghita	58	58	51	52	0	11	1	2	1	2 (2)	22	1
Mures	91	90	74	79	33	5	1	1	0	0	32	0
Sibiu	53	53	46	50	23	1	2	2	0	1 (1)	18	0
Center	**357**	**352**	**304**	**323**	**91**	**31**	**10**	**11**	**2**	**8 (8)**	**122**	**1**
Macro-1	*760*	*753*	*578*	*671*	*192*	*60*	*20*	*24*	*18*	*15 (13)*	*340*	*3*
Bacau	85	83	45	69	25	1	0	0	7	0	71	0
Botosani	71	69	43	61	4	0	0	0	7	0	63	0
Iasi	93	92	71	83	56	2	0	0	2	0	79	0
Neamt	78	78	55	62	1	5	0	2	6	2 (2)	35	0
Suceava	98	98	71	65	0	9	7	6	5	1	57	1
Vaslui	81	80	44	61	67	1	0	0	2	0	71	0
North-East	**506**	**500**	**329**	**401**	**153**	**18**	**7**	**8**	**29**	**3 (2)**	**376**	**1**
Braila	40	40	31	21	14	3	0	1	5	1 (1)	26	1
Buzau	82	79	52	68	18	3	0	1	5	1 (1)	66	0
Constanta	58	57	46	52	30	2	4	1	2	1 (1)	33	0
Galati	61	61	34	39	58	0	0	0	0	1	46	1
Tulcea	46	43	45	34	22	0	14	0	0	0	24	0
Vrancea	68	68	45	54	28	2	0	1	5	0	49	0
South-East	**355**	**348**	**253**	**268**	**170**	**10**	**18**	**4**	**17**	**4 (3)**	**244**	**2**

County/region/macro-region	Number of communes	Number of communes on national and county roads	Number of communes with protected areas	Number of communes with historic monuments	Number of communes with vineyards/wine centres	Number of communes with mineral waters/balneary potential	Number of communes with (natural or cultural) WHS	Number of communes with status of resort	Number of communes with no identified tourist potential	Number of communes with no 2008 ranking (of which resorts)	Number of communes with no 2012 ranking	Number of communes with no 2008 ranking and 2012 ranking
Macro-2	*861*	*848*	*582*	*669*	*323*	*28*	*25*	*12*	*46*	*7 (5)*	*620*	*3*
Arges	95	95	52	86	18	3	0	3	3	1 (1)	45	0
Calarasi	50	50	25	37	14	0	0	0	5	0	49	0
Dambovita	82	81	21	77	5	2	0	1	5	0	63	0
Giurgiu	51	51	29	49	9	0	0	0	1	0	47	0
Ialomita	59	59	48	40	1	0	0	0	9	1	55	1
Prahova	90	90	30	74	17	2	0	1	12	1 (1)	72	0
Teleorman	92	92	57	76	9	0	0	0	6	0	90	0
South-Muntenia	**519**	**518**	**262**	**439**	**73**	**7**	**0**	**5**	**41**	**3 (2)**	**421**	**1**
Ilfov	32	32	10	31	0	0	0	1	1	1 (1)	27	0
Macro-3	*551*	*550*	*272*	*470*	*73*	*7*	*0*	*6*	*42*	*4 (3)*	*448*	*1*
Arad	68	68	55	45	11	3	0	1	3	1 (1)	54	0
Caras-Severin	69	69	53	58	6	0	17	3	6	2 (2)	38	0
Hunedoara	55	55	46	45	0	4	4	1	2	1 (1)	17	0
Timis	89	89	56	63	4	6	0	1	12	5 (1)	80	5
West	**281**	**281**	**210**	**211**	**21**	**13**	**21**	**6**	**23**	**9 (5)**	**189**	**5**
Dolj	104	104	60	99	64	0	0	0	1	0	93	0
Gorj	61	61	34	60	9	3	1	3	0	1 (1)	31	0
Mehedinti	61	59	45	56	39	4	4	0	0	0	44	0
Olt	104	104	63	90	13	1	0	0	8	1	99	1
Valcea	78	77	36	76	25	4	7	1	1	1 (1)	49	0
South-West	**408**	**405**	**238**	**381**	**150**	**12**	**12**	**4**	**10**	**3 (2)**	**316**	**1**
Macro-4	*689*	*686*	*448*	*592*	*171*	*25*	*33*	*10*	*33*	*12 (7)*	*505*	*6*
National level	2,861	2,837	1,880	2,343	759	120	78	52	139	38 (28)	1,913	13*

Note *: of these 13 communes, 3 have the status of resort of local interest: Chiscani (Lacul Sarat) – Braila county; Voslabeni (Izvorul Muresului) – Harghita county, and Ortisoara (Baile Calacea) – Timis county.

Sources: authors' calculations based on NIS data and collected data regarding the roads; this Annex 1 is similar with Annex 1 from Pop et al.(2019) for the columnes 1 and 3 to 12

Annex 2. The situation of communes 2008 rank and average number of lodgings for 2005-2019 providend by NIS and MoT; MoT data and comments in brakets [x]

County/region/ macro-region	Number of communes	Minimum/maximum 2008 rank	Average 2008 rank	The most frequent 2008 rank (and percentage)	Communes with 0 lodgings	Communes with 1 lodging	Communes with 2-19 lodgings	Communes with 20 lodgings or more	Comments
Bihor	91	0/7	3.20	2 (35.16%)	55 [42]	22 [31]	13 [17]	1 [1]	Sanmartin (Baile Felix & 1 Mai; resorts): 66 [139] lodgings
Bistrita-Nasaud	58	1/8	4.47	4 (25.86%)	32 [28]	21 [20]	5 [10]	0 [0]	
Cluj	75	1/6	3.52	4 (40.00%)	31 [24]	23 [24]	21 [26]	0 [1]	[Sancraiu: 33 lodgings]
Maramures	63	1/10	4.90	4 (25.40%)	28 [16]	15 [17]	20 [28]	0 [2]	[Botiza (resort): 20 lodgings; Ocna Sugatag (resort): 38 lodgings]
Satu-Mare	59	0/6	2.49	2 (37.29%)	41 [39]	16 [17]	2 [3]	0 [0]	
Salaj	57	1/7	3.42	4 (31.58%)	33 [29]	19 [22]	4 [6]	1 [0]	Boghis (resort): 30 lodgings
North-West	**403**	**0/10**	**3.67**	**4 (25.56%)**	**220 [178]**	**116 [131]**	**65 [90]**	**2 [4]**	
Alba	67	1/10	4.72	4 (22.39%)	31 [30]	23 [15]	13 [20]	0 [2]	[Arieseni (resort): 35 lodgings; Rametea: 21 lodgings]
Brasov	48	2/8	4.25	4 (43.75%)	13 [11]	16 [15]	17 [19]	2 [3]	Bran (resort): 102 [146] lodgings; Moieciu (resort): 111 [153]; [Fundata: 29 lodgings]
Covasna	40	1/8	4.20	4 (30.00%)	18 [5]	10 [16]	12 [19]	0 [0]	
Harghita	58	1/8	4.00	4 (32.76%)	10 [6]	22 [20]	23 [28]	3 [4]	Praid (resort): 49 [76] lodgings; Voslabeni (Izvorul Muresului, resort): 23 [24] lodgings; Zetea: 30 [52] lodgings [Lupeni: 21 lodgings]
Mures	91	1/8	3.48	4 (48.35%)	50 [47]	29 [27]	12 [17]	0 [0]	
Sibiu	53	2/9	4.57	4 (39.62%)	21 [21]	18 [14]	14 [16]	0 [2]	[Gura Raului: 22 lodgings; Rasinari: 20 lodgings]
Center	**357**	**1/10**	**4.20**	**4 (36.97%)**	**143 [120]**	**118 [107]**	**91 [119]**	**5 [11]**	
Macro-1	*760*	*0/10*	*3.94*	*4 (30.97%)*	*363 [298]*	*234 [238]*	*156 [209]*	*7 [15]*	
Bacau	85	1/6	2.08	2 (54.12%)	60 [55]	19 [16]	6 [14]	0 [0]	
Botosani	71	1/6	2.42	2 (56.34%)	69 [60]	1 [10]	1 [1]	0 [0]	
Iasi	93	1/6	2.23	2 (37.63%)	69 [65]	16 [19]	8 [9]	0 [0]	

County/region/ macro-region	Number of communes	Minimum/maximum 2008 rank	Average 2008 rank	The most frequent 2008 rank (and percentage)	Communes with 0 lodgings	Communes with 1 lodging	Communes with 2-19 lodgings	Communes with 20 lodgings or more	Comments
Neamt	78	1/9	3.77	4 (30.77%)	39 [38]	19 [20]	18 [17]	2 [3]	Alexandru cel Bun: 20 [24] lodgings; Ceahlau (Durau, resort): 41 [51] lodgings [Agapia: 20 lodgings]
Suceava	98	0/9	3.48	2 (28.57%)	43 [32]	28 [38]	25 [25]	2 [3]	Sucevita (resort): 26 [40] lodgings; Vama: 20 [26] lodgings [Ma-nastirea Humorului: 21 lodgings]
Vaslui	81	1/6	2.25	2 (48.15%)	70 [71]	10 [8]	1 [2]	0 [0]	
North-East	**506**	**0/9**	**2.71**	**2 (41.70%)**	**350 [321]**	**93 [111]**	**59 [68]**	**4 [6]**	
Braila	40	1/6	2.08	1 (52.50%)	33 [32]	5 [6]	2 [2]	0 [0]	
Buzau	82	1/7	2.72	1 (34.15%)	54 [54]	16 [16]	11 [11]	1 [1]	Merei (Sarata Monteoru, resort): 22 [25] lodgings
Constanta	58	1/8	3.36	3 (22.41%)	43 [40]	11 [13]	3 [3]	1 [2]	Costinesti (resort): 173 [224] lodgings [Limanu: 70 logdings]
Galati	61	0/7	2.79	3 (31.15%)	54 [51]	7 [9]	0 [1]	0 [0]	
Tulcea	46	1/8	3.87	4 (28.26%)	27 [23]	9 [8]	7 [11]	3 [4]	Somova: 23 lodgings; Jurilovca: 24 [22] lodgings; Murighiol: 39 [64] lodgings [Crisan: 32 lodgings; Sf.Gheorghe: 27 lodgings]
Vrancea	68	1/6	2.90	2 (38.24%)	48 [34]	15 [29]	4 [4]	1 [1]	Tulnici: 20 [30] lodgings
South-East	**355**	**0/8**	**2.95**	**2 (23.65%)**	**259 [234]**	**63 [81]**	**27 [32]**	**6 [8]**	
Macro-2	*861*	*0/9*	*2.83*	*2 (34.26%)*	*609 [555]*	*156 [192]*	*86 [100]*	*10 [14]*	
Arges	95	1/6	3.56	4 (36.84%)	47 [49]	26 [21]	21 [22]	1 [3]	Rucar: 25 [34] lodg-ings [Arefu: 27 lodg-ings; Corbeni: 23 lodgings]
Calarasi	50	1/5	1.60	1 (70.00%)	44 [37]	5 [12]	1 [1]	0 [0]	
Dambovita	82	1/7	3.02	2 (35.37%)	59 [54]	19 [22]	4 [5]	0 [1]	[Moroeni (resort): 22 lodgings]
Giurgiu	51	1/6	2.18	1 (37.25%)	43 [40]	8 [8]	0 [3]	0 [0]	
Ialomita	59	0/5	1.92	1 (50.85%)	55 [54]	4 [5]	0 [0]	0 [0]	
Prahova	90	1/6	2.88	2 (40.00%)	64 [54]	18 [24]	7 [11]	1 [1]	Maneciu (Cheia, re-sort): 20 [36] lodgings
Teleorman	92	1/5	1.88	1 (42.39%)	84 [86]	8 [6]	0 [0]	0 [0]	

County/region/ macro-region	Number of communes	Minimum/maximum 2008 rank	Average 2008 rank	The most frequent 2008 rank (and percentage)	Communes with 0 lodgings	Communes with 1 lodging	Communes with 2-19 lodgings	Communes with 20 lodgings or more	Comments
South-Muntenia	**519**	**0/7**	**2.43**	**2 (27.75%)**	**396 [374]**	**88 [98]**	**33 [42]**	**2 [5]**	
Ilfov	32	1/7	2.63	2 (43.75%)	20 [17]	9 [8]	3 [7]	0 [0]	
Macro-3	*551*	*0/7*	*2.53*	*2 (28.68%)*	*416 [391]*	*97 [106]*	*36 [49]*	*2 [5]*	
Arad	68	1/7	3.13	4 (25.00%)	39 [39]	20 [20]	9 [8]	0 [1]	[Moneasa (resort): 20 lodgings]
Caras-Severin	69	2/8	3.75	2 (27.54%)	35 [34]	22 [23]	12 [12]	0 [0]	
Hunedoara	55	2/10	4.58	4 (36.36%)	21 [20]	25 [19]	9 [16]	0 [0]	
Timis	89	0/6	2.21	2 (37.08%)	61 [52]	21 [25]	7 [12]	0 [0]	
West	**281**	**0/10**	**3.42**	**2 (26.33%)**	**156 [145]**	**88 [87]**	**37 [48]**	**0 [1]**	
Dolj	104	1/6	2.11	2 (49.04%)	91 [85]	11 [13]	2 [6]	0 [0]	
Gorj	61	1/9	3.59	2 (42.62%)	39 [34]	13 [16]	9 [10]	0 [1]	[Baia de Fier (resort): 25 lodgings]
Mehedinti	61	1/9	2.95	2 (49.18%)	45 [40]	12 [14]	4 [7]	0 [0]	
Olt	104	0/7	2.05	2 (45.19%)	96 [97]	8 [7]	0 [0]	0 [0]	
Valcea	78	1/7	2.82	2 (52.56%)	54 [49]	18 [17]	5 [11]	1 [1]	Voineasa (resort): 34 [41] lodgings
South-West	**408**	**0/9**	**2.70**	**2 (47.79%)**	**325 [305]**	**62 [67]**	**20 [34]**	**1 [2]**	
Macro-4	*689*	*0/10*	*3.06*	*2 (39.04%)*	*481 [450]*	*150 [154]*	*57 [82]*	*1 [3]*	
National level	2,861	0/10	3.09	2 (30.93%)	1,869 [1,694]	637 [690]	335 [440]	20 [37]	

Sources: authors' calculations based on NIS and MoT data; this Annex 2 is similar with Annex 2 from Pop et al. (2019) for columns 1 to 5; information regaring MoT data was aded in columns 6 to 10.

Annex 3. The evolution of communes with registered accommodation facilities between 2005 and 2019 according to NIS and MoT; MoT data in brakets [x]

County/region/ macro-region	Number of communes	Communes with lodgings in 2005	Communes with lodgings in 2010	Communes with lodgings in 2015	Communes with lodgings in 2019	Increase/decrease in communes with lodgings (%)
Bihor	91	18 [22]	19 [21]	27 [35]	30 [43]	66.67 [95.45]
Bistrita-Nasaud	58	5 [9]	6 [12]	11 [18]	24 [30]	380.00 [233.33]
Cluj	75	27 [25]	33 [31]	32 [34]	40 [50]	48.15 [100.00]
Maramures	63	19 [34]	26 [28]	27 [34]	34 [42]	78.95 [23.53]
Satu-Mare	59	8 [6]	8 [7]	9 [11]	15 [20]	87.50 [233.33]
Salaj	57	5 [5]	10 [9]	14 [15]	20 [26]	300.00 [420.00]
North-West	**403**	**82 [101]**	**102 [108]**	**120 [147]**	**163 [211]**	**98.78 [108.91]**
Alba	67	8 [19]	18 [20]	28 [29]	32 [35]	300.00 [84.21]
Brasov	48	19 [20]	19 [21]	27 [30]	32 [35]	68.42 [75.00]
Covasna	40	11 [17]	15 [16]	21 [24]	21 [33]	90.91 [94.12]
Harghita	58	36 [39]	31 [31]	34 [38]	40 [45]	11.11 [15.38]
Mures	91	16 [20]	16 [14]	30 [32]	35 [42]	118.75 [110.00]
Sibiu	53	12 [16]	18 [21]	22 [24]	26 [31]	116.67 [93.75]
Center	**357**	**102 [131]**	**117 [123]**	**162 [177]**	**186 [221]**	**82.35 [68.70]**
Macro-1	*760*	*184 [232]*	*219 [231]*	*282 [324]*	*349 [432]*	*89.67 [86.21]*
Bacau	85	11 [16]	9 [15]	20 [24]	22 [25]	100.00 [56.25]
Botosani	71	2 [4]	2 [1]	2 [6]	2 [9]	0.00 [125.00]
Iasi	93	14 [13]	13 [14]	16 [17]	18 [26]	28.57 [100.00]
Neamt	78	17 [21]	28 [22]	29 [32]	35 [38]	105.88 [80.95]
Suceava	98	25 [31]	31 [31]	36 [44]	51 [62]	104.00 [100.00]
Vaslui	81	1 [2]	5 [7]	8 [8]	10 [7]	900.00 [250.00]
North-East	**506**	**70 [87]**	**88 [90]**	**111 [131]**	**138 [167]**	**97.14 [91.95]**
Braila	40	3 [2]	3 [3]	6 [5]	6 [7]	100.00 [250.00]
Buzau	82	14 [14]	21 [16]	22 [24]	25 [27]	78.57 [92.86]
Constanta	58	8 [8]	9 [7]	8 [14]	12 [17]	50.00 [112.50]
Galati	61	1 [3]	1 [5]	1 [5]	6 [7]	500.00 [133.33]
Tulcea	46	9 [13]	8 [16]	13 [18]	17 [20]	88.89 [53.85]
Vrancea	68	14 [19]	11 [13]	6 [14]	15 [23]	7.14 [21.05]

County/region/ macro-region	Number of communes	Communes with lodgings in 2005	Communes with lodgings in 2010	Communes with lodgings in 2015	Communes with lodgings in 2019	Increase/decrea se in communes with lodgings (%)
South-East	**355**	**49 [59]**	**53 [60]**	**56 [80]**	**81 [101]**	**65.31 [71.19]**
Macro-2	*861*	*119 [146]*	*141 [150]*	*167 [211]*	*219 [268]*	*84.03 [83.56]*
Arges	95	23 [22]	28 [25]	40 [39]	45 [46]	95.65 [109.09]
Calarasi	50	2 [2]	4 [3]	4 [4]	5 [11]	150.00 [450.00]
Dambovita	82	8 [11]	16 [13]	17 [21]	21 [27]	162.50 [145.45]
Giurgiu	51	3 [4]	3 [3]	2 [8]	5 [10]	66.67 [150.00]
Ialomita	59	1 [1]	4 [2]	4 [2]	4 [4]	300.00 [300.00]
Prahova	90	13 [17]	13 [13]	16 [19]	22 [33]	69.23 [94.12]
Teleorman	92	3 [0]	1 [0]	3 [5]	5 [6]	66.67 [n/a]
South-Muntenia	**519**	**53 [57]**	**69 [59]**	**86 [98]**	**107 [137]**	**101.89 [140.35]**
Ilfov	32	10 [11]	10 [8]	7 [9]	6 [14]	-40.00 [27.27]
Macro-3	*551*	*63 [68]*	*79 [67]*	*93 [107]*	*113 [151]*	*79.37 [122.06]*
Arad	68	15 [15]	20 [10]	19 [19]	20 [24]	33.33 [60.00]
Caras-Severin	69	10 [10]	17 [17]	30 [32]	32 [34]	220.00 [240.00]
Hunedoara	55	14 [18]	14 [20]	17 [25]	29 [33]	107.14 [83.33]
Timis	89	9 [8]	12 [16]	19 [22]	23 [32]	155.56 [300.00]
West	**281**	**48 [51]**	**63 [63]**	**85 [98]**	**104 [123]**	**116.67 [141.18]**
Dolj	104	3 [9]	3 [10]	9 [12]	10 [17]	233.33 [88.89]
Gorj	61	7 [6]	9 [10]	11 [16]	22 [26]	214.29 [333.33]
Mehedinti	61	3 [8]	4 [8]	7 [10]	15 [18]	400.00 [125.00]
Olt	104	2 [0]	0 [2]	1 [3]	6 [6]	200.00 [n/a]
Valcea	78	12 [18]	13 [19]	19 [22]	24 [25]	100.00 [38.89]
South-West	**408**	**27 [41]**	**29 [49]**	**47 [63]**	**77 [92]**	**185.19 [124.39]**
Macro-4	*689*	*75 [92]*	*92 [112]*	*132 [161]*	*181 [215]*	*141.33 [133.70]*
National level	2,861	441 [538]	531 [560]	674 [803]	862 [1,066]	95.46 [98.14]

Source: based on NIS data as available via Tempo-online and MoT data. This Annex 3 is similar with the Annex 3 in Pop et al.(2019) for the data that are not in squared brackets

Annex 4. The structure of the 2,861 communes based on the average lodgings as provided by NIS and MoT [in brakets], 2008 ranking, and potential tourist attractions [note: NR = national road; CR = county road]

		Communes with 0 lodgings			
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	1 [1]	3 [3]	4 [4]	0 [0]	**8 [8]**
1 point	48 [46]	62 [60]	260 [249]	0 [0]	**370 [355]**
2 points	47 [42]	102 [96]	547 [492]	2 [2]	**698 [632]**
3 points	12 [13]	29 [25]	276 [249]	4 [3]	**321 [290]**
4 points	2 [2]	28 [25]	297 [261]	6 [3]	**333 [291]**
5 points	1 [1]	3 [2]	67 [59]	0 [0]	**71 [62]**
6 points	1 [1]	2 [2]	43 [35]	2 [1]	**48 [39]**
7 points	0 [0]	2 [1]	11 [10]	1 [1]	**14 [12]**
8 points	0 [0]	0 [0]	1 [0]	1 [1]	**2 [1]**
9 points	0 [0]	0 [0]	4 [4]	0 [0]	**4 [4]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**112 [106]**	**231 [214]**	**1,510 [1,363]**	**16 [11]**	**1,869 [1,694]**
Of which not on NRs and CRs	*3 [3]*	*0 [0]*	*14 [14]*	*0 [0]*	*17 [17]*
		Communes with 1 lodging			
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	1 [1]	0 [0]	1 [1]	0 [0]	**2 [2]**
1 point	4 [6]	6 [8]	50 [54]	0 [0]	**60 [68]**
2 points	11 [16]	13 [16]	125 [164]	1 [0]	**150 [196]**
3 points	5 [5]	7 [11]	90 [100]	1 [1]	**103 [117]**
4 points	0 [1]	3 [7]	154 [156]	8 [10]	**165 [174]**
5 points	0 [0]	2 [2]	68 [60]	3 [2]	**73 [64]**
6 points	0 [0]	0 [0]	53 [46]	3 [2]	**56 [48]**
7 points	0 [0]	0 [0]	18 [13]	0 [0]	**18 [13]**
8 points	0 [0]	0 [0]	5 [5]	1 [1]	**6 [6]**
9 points	0 [0]	0 [0]	2 [2]	0 [0]	**2 [2]**
10 points	0 [0]	0 [0]	2 [0]	0 [0]	**2 [0]**
Total	**21 [29]**	**31 [44]**	**568 [601]**	**17 [16]**	**637 [690]**
Of which not on NR.s and CR.s	*1 [2]*	*0 [0]*	*2 [1]*	*0 [0]*	*3 [3]*

Communes with 2-19 lodgings				
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	1 [1]	1 [1]	16 [23]	1 [1]	**19 [26]**
2 points	2 [2]	4 [7]	32 [48]	0 [1]	**38 [58]**
3 points	1 [0]	5 [5]	20 [39]	1 [2]	**27 [46]**
4 points	2 [1]	3 [3]	91 [122]	1 [2]	**97 [128]**
5 points	0 [0]	2 [2]	44 [59]	3 [4]	**49 [65]**
6 points	0 [0]	1 [1]	52 [61]	3 [5]	**56 [67]**
7 points	0 [0]	1 [2]	22 [27]	1 [0]	**24 [29]**
8 points	0 [0]	0 [0]	11 [7]	0 [0]	**11 [7]**
9 points	0 [0]	0 [0]	11 [9]	0 [0]	**11 [9]**
10 points	0 [0]	0 [0]	2 [4]	1 [1]	**3 [5]**
Total	**6 [4]**	**17 [21]**	**301 [399]**	**11 [16]**	**335 [437]**
Of which not on NR.s and CR.s	*1 [0]*	*1 [1]*	*2 [2]*	*0 [0]*	*4 [3]*
Communes with 20 lodgings or more				
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
2 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
3 points	0 [0]	0 [0]	1 [0]	0 [0]	**1 [0]**
4 points	0 [0]	0 [0]	3 [6]	0 [0]	**3 [6]**
5 points	0 [0]	0 [0]	1 [2]	0 [0]	**1 [2]**
6 points	0 [0]	0 [0]	9 [14]	4 [4]	**13 [18]**
7 points	0 [0]	0 [0]	1 [2]	0 [1]	**1 [3]**
8 points	0 [0]	0 [0]	0 [5]	0 [0]	**0 [5]**
9 points	0 [0]	0 [0]	1 [3]	0 [0]	**1 [3]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**0 [0]**	**0 [0]**	**16 [32]**	**4 [5]**	**20 [37]**
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*0 [1]*	*0 [0]*	*0 [1]*

Sources: authors' calculations based on NIS and MoT data. This Annex 4 is similar with the Annex 4 in Pop et al. (2019) for the data that are not in squared brackets

Annex 5. The structure of 948 communes, with 2012 rank, based on the average lodgings as provided by NIS and MoT [in brakets], 2008 ranking, and potential tourist attractions

Communes with 0 lodgings					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	0 [0]	10 [10]	0 [0]	**10 [10]**
2 points	1 [1]	3 [2]	26 [22]	0 [0]	**30 [25]**
3 points	1 [1]	0 [0]	20 [15]	0 [0]	**21 [16]**
4 points	0 [0]	12 [10]	177 [161]	3 [1]	**192 [172]**
5 points	1 [1]	3 [2]	58 [50]	0 [0]	**62 [53]**
6 points	0 [0]	1 [1]	37 [30]	2 [1]	**40 [32]**
7 points	0 [0]	1 [0]	8 [7]	1 [1]	**10 [8]**
8 points	0 [0]	0 [0]	1 [0]	1 [1]	**2 [1]**
9 points	0 [0]	0 [0]	4 [4]	0 [0]	**4 [4]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**3 [3]**	**20 [15]**	**341 [299]**	**7 [4]**	**371 [321]**
Average 2012 rank	*17.83 [17.83]*	*23.71 [23.23]*	*24.50 [24.45]*	*34.79 [35.92]*	*25.21 [25.36]*
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*4 [4]*	*0 [0]*	*4 [4]*
Communes with 1 lodging					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	1 [1]	5 [3]	0 [0]	**6 [4]**
2 points	0 [0]	1 [1]	15 [16]	1 [0]	**17 [17]**
3 points	0 [0]	0 [0]	11 [18]	0 [0]	**11 [18]**
4 points	0 [0]	2 [5]	115 [103]	6 [6]	**123 [114]**
5 points	0 [0]	2 [2]	67 [60]	3 [2]	**72 [64]**
6 points	0 [0]	0 [0]	51 [45]	3 [1]	**54 [46]**
7 points	0 [0]	0 [0]	18 [10]	0 [0]	**18 [10]**
8 points	0 [0]	0 [0]	5 [5]	1 [1]	**6 [6]**
9 points	0 [0]	0 [0]	2 [2]	0 [0]	**2 [2]**
10 points	0 [0]	0 [0]	2 [0]	0 [0]	**2 [0]**
Total	**0 [0]**	**6 [9]**	**291 [262]**	**14 [10]**	**311 [281]**
Average 2012 rank	*0 [0]*	*25.26 [23.40]*	*27.43 [26.82]*	*29.80 [24.28]*	*27.50 [24.83]*
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*2 [1]*	*0 [0]*	*2 [1]*

Communes with 2-19 lodgings					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	1 [1]	1 [0]	3 [5]	1 [1]	**6 [7]**
2 points	0 [0]	1 [3]	8 [11]	0 [1]	**9 [15]**
3 points	0 [0]	0 [0]	5 [10]	0 [0]	**5 [10]**
4 points	0 [0]	3 [2]	73 [95]	1 [1]	**77 [98]**
5 points	0 [0]	2 [3]	43 [58]	3 [4]	**48 [65]**
6 points	0 [0]	1 [1]	50 [59]	2 [5]	**53 [65]**
7 points	0 [0]	1 [2]	22 [27]	1 [0]	**24 [29]**
8 points	0 [0]	0 [0]	11 [7]	0 [0]	**11 [7]**
9 points	0 [0]	0 [0]	11 [9]	0 [0]	**11 [9]**
10 points	0 [0]	0 [0]	2 [4]	1 [1]	**3 [5]**
Total	**1 [1]**	**9 [11]**	**228 [285]**	**9 [13]**	**247 [310]**
Average 2012 rank	*1 [1]*	*22.55 [21.52]*	*30.85 [29.52]*	*33.03 [32.55]*	*21.86 [21.15]*
Of which not on NR.s and CR.s	*0 [0]*	*1 [1]*	*2 [2]*	*0 [0]*	*3 [3]*
Communes with 20 lodgings or more					
2008 ranking points	Number of commune with no tourist potential	Number of communes with 1 tourist attraction	Number of communes with 2-19 tourist attractions	Number of communes with 20 tourist attractions or more	Total
0 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
1 point	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
2 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
3 points	0 [0]	0 [0]	1 [0]	0 [0]	**1 [0]**
4 points	0 [0]	0 [0]	3 [6]	0 [0]	**3 [6]**
5 points	0 [0]	0 [0]	1 [2]	0 [0]	**1 [2]**
6 points	0 [0]	0 [0]	8 [13]	4 [4]	**12 [17]**
7 points	0 [0]	0 [0]	1 [2]	0 [1]	**1 [3]**
8 points	0 [0]	0 [0]	0 [5]	0 [0]	**0 [5]**
9 points	0 [0]	0 [0]	1 [3]	0 [0]	**1 [3]**
10 points	0 [0]	0 [0]	0 [0]	0 [0]	**0 [0]**
Total	**0 [0]**	**0 [0]**	**15 [31]**	**4 [5]**	**19 [36]**
Average 2012 rank	*0 [0]*	*0 [0]*	*27.66 [32.99]*	*36.13 [37.85]*	*31.90 [35.42]*
Of which not on NR.s and CR.s	*0 [0]*	*0 [0]*	*0 [1]*	*0 [0]*	*0 [1]*

Sources: authors' calculations based on NIS and MoT data. This Annex 5 is similar with the Annex 5 in Pop et al. (2019) for the data that are not in squared brackets

Annex 6. Descriptive statistics
Annex 6A. Descriptive statistics for 2,861 communes and
1,913 communes without 2012 ranking

All 2,861 communes							
Descriptive statistics	rank2008	lodgings NIS	monuments	protect-areas	extra-resources	lodgings MoT	roads
Mean	3.055	1.025	3.437	1.456	0.353	1.556	1.039
Median	3.000	0.000	2.000	1.000	0.000	0.000	1.000
Mode	2.000	0.000	1.000	0.000	0.000	0.000	1.000
St.dev	1.670	5.236	3.895	1.773	0.527	7.606	0.952
Skewness	0.930	20.037	2.839	2.770	1.189	17.484	1.904
Kurtosis	0.852	537.202	13.698	16.088	0.816	401.610	4.416
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Max	10.000	173.000	46.000	21.000	3.000	224.000	7.000
25th percentile	2.000	0.000	1.000	0.000	0.000	0.000	0.250
50th percentile	3.000	0.000	2.000	1.000	0.000	0.000	1.000
75th percentile	4.000	1.000	5.000	2.000	1.000	1.000	1.000
Counts/valid	2,861	2,861	2,861	2,861	2,861	2,861	2,861
1,913 communes without 2012 ranking							
Descriptive statistics	rank2008	lodgings NIS	monu-ments	protect-areas	extra-resources	lodgings MoT	roads
Mean	2.251	0.317	2.751	1.033	0.315	0.452	1.041
Median	2.000	0.000	2.000	1.000	0.000	0.000	1.000
Mode	2.000	0.000	1.000	0.000	0.000	0.000	1.000
St.dev	1.019	0.909	3.176	1.198	0.477	1.198	0.929
Skewness	0.813	10.402	2.867	1.629	0.955	8.198	1.817
Kurtosis	1.169	212.560	13.298	4.034	-0.678	112.414	3.900
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Max	7.000	23.000	28.000	9.000	2.000	24.000	7.000
25th percentile	2.000	0.000	1.000	0.000	0.000	0.000	0.250
50th percentile	2.000	0.000	2.000	1.000	0.000	0.000	1.000
75th percentile	3.000	0.000	4.000	2.000	1.000	1.000	1.000
Count/valid	1,913	1,913	1,913	1,913	1,913	1,913	1,913

Source: authors' calculations

Annex 6B. Descriptive statistics for 948 communes
with 2012 ranking

948 commune with 2012 ranking								
Descriptive statistics	rank 2008	lodgings NIS	monu-ments	protect-areas	extra-resources	rank 2012	lodgings MoT	roads
Mean	4.678	2.454	4.823	2.309	0.428	27.172	3.783	1.088
Median	4.000	1.000	4.000	2.000	0.000	26.500	1.000	1.000
Mode	4.000	0.000	2.000	1.000	0.000	21.500	0.000	1.000
St.dev	1.542	8.836	4.751	2.347	0.610	7.812	12.822	0.944
Skewness	0.432	12.103	2.496	2.331	1.256	0.457	10.504	2.033
Kurtosis	1.083	190.960	10.717	10.886	1.184	0.510	141.440	5.082
Min	1.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
Max	10.000	173.000	46.000	21.000	3.000	56.400	224.000	6.000
25th percentile	4.000	0.000	2.000	1.000	0.000	21.508	0.000	0.500
50th percentile	4.000	1.000	4.000	2.000	0.000	26.500	1.000	1.000
75th percentile	6.000	2.000	6.250	3.000	1.000	32.000	3.000	1.000
Count/valid	948	948	948	948	948	948	948	948

Source: authors' calculations

Annex 7. Correlation matrices
Annex 7A. Correlation matrices for 2,861 communes and
1,913 communes without 2012 ranking

	rank 2008	lodgings NIS	monu-ments	protect-areas	extra-resources	lodgings MoT	roads
All 2,861 communes							
rank2008							
lodgings NIS	0.220 (p<0.001)						
monuments	0.272 (p<0.001)	0.071 (p<0.001)					
protect-areas	0.355 (p<0.001)	0.181 (p<0.001)	0.106 (p<0.001)				
extra-resources	0.139 (p<0.001)	0.152 (p<0.001)	0.077 (p<0.001)	0.120 (p<0.001)			
lodgings MoT	0.240 (p<0.001)	0.986 (p<0.001)	0.080 (p<0.001)	0.199 (p<0.001)	0.146 (p<0.001)		
roads	0.005 (p=0.772)	0.052 (p=0.002)	0.086 (p<0.001)	0.061 (p<0.001)	-0.012 (p=0.515)	0.057 (p=0.002)	
1,913 communes without 2012 ranking							
	rank2008	lodgings NIS	monuments	protect-areas	extra-resources	lodgings MoT	roads
rank2008							
lodgings NIS	0.160 (p<0.001)						
monuments	0.196 (p<0.001)	0.051 (p=0.026)					
protect-areas	0.134 (p<0.001)	0.105 (p<0.001)	0.051 (p=0.025)				
extra-resources	0.026 (p=0.265)	0.037 (p=0.102)	0.006 (p=0.805)	0.058 (p=0.011)			
lodgings MoT	0.183 (p<0.001)	0.861 (p<0.001)	0.073 (p=0.002)	0.120 (p<0.001)	0.045 (p=0.048)		
roads	-0.023 (p=0.311)	0.180 (p<0.001)	0.092 (p<0.001)	0.062 (p=0.006)	-0.111 (p=0.645)	0.192 (p<0.001)	

Source: authors' calculations

Annex 7B. Correlation matrix for 948 communes
with 2012 ranking

	rank 2008	rank 2012	lodgings NIS	monu-ments	protect-areas	extra-resources	lodgings MoT	roads
948 communes with 2012 scores								
rank2008								
rank2012	0.569 (p<0.001)							
lodgings NIS	0.149 (p<0.001)	0.211 (p<0.001)						
monuments	0.095 (p=0.003)	0.228 (p<0.001)	0.026 (p=0.426)					
protect-areas	0.213 (p<0.001)	0.188 (p<0.001)	0.146 (p<0.001)	0.005 (p=0.889)				
extra-resources	0.171 (p<0.001)	0.212 (p<0.001)	0.199 (p<0.001)	0.105 (p=0.001)	0.121 (p<0.001)			
lodgings MoT	0.170 (p<0.001)	0.241 (p<0.001)	0.969 (p<0.001)	0.033 (p=0.307)	0.162 (p<0.001)	0.0187 (p<0.001)		
roads	-0.033 (p=0.311)	0.281 (p<0.001)	0.052 (p=0.111)	0.066 (p=0.042)	0.042 (p=0.163)	-0.024 (p=0.458)	0.051 (p=0.120)	

Source: authors' calculations

Annex 8. Regression results
Annex 8A. Regression results for 2,861 communes and
1,913 communes without 2012 ranking

All 2,861 communes					
Dependent variable & model results	**Independent variables**	**Estimate**	**T-statistic**	**p-value**	**VIF**
rank2008	b_0 (intercept)	2.237	42.035	< 0.001	-
	monuments	0.101	13.765	< 0.001	1.023
	protect-areas	0.304	18.884	< 0.001	1.027
	extra-resources	0.260	4.823	< 0.001	1.020
	roads	-0.059	-1.970	0.049	1.011
R^2 (%) = 19.0%; p-value < 0.001; F = 166.979					
lodgings NIS	b_0 (intercept)	-1.724	7.605	< 0.001	-
	monuments	0.001	0.044	0.965	1.090
	protect-areas	0.311	5.455	< 0.001	1.156
	extra-resources	1.161	6.410	< 0.001	1.028
	rank2008	0.519	8.291	< 0.001	1.234
	roads	0.284	2.855	0.004	1.012
R^2 (%) = 7.6%; p-value < 0.001; F = 47.206					
lodgings MoT	b_0 (intercept)	-2.705	-8.258	< 0.001	
	monuments	0.012	0.317	0.751	1.090
	protect-areas	0.504	6.112	< 0.001	1.156
	extra-resources	1.540	5.886	< 0.001	1.028
	rank2008	0.829	9.155	< 0.001	1.234
	roads	0.397	2.758	0.006	1.012
R^2 (%) = 8.6%; p-value < 0.001; F = 53.715					

1,913 communes without 2012 ranking					
Dependent variable & model results	**Independent variables**	**Estimate**	**T-statistic**	**p-value**	**VIF**
rank2008	b_0 (intercept)	2.011	45.840	< 0.001	-
	monuments	0.062	8.688	< 0.001	1.011
	protect-areas	0.108	5.667	< 0.001	1.010
	extra-resources	0.035	0.741	0.459	1.004
	roads	-0.053	-2.181	0.029	1.012
R^2 (%) = 5.7%; p-value < 0.001; F = 28.668					
lodgings NIS	b_0 (intercept)	-0.244	-4.312	< 0.001	-
	monuments	1.479e-4	0.023	0.982	1.051
	protect-areas	0.054	3.160	0.002	1.027
	extra-resources	0.059	1.407	0.160	1.004
	rank2008	0.137	6.732	< 0.001	1.060
	roads	0.175	8.025	< 0.001	1.015
R^2 (%) = 6.5%; p-value < 0.001; F = 26.626					
lodgings MoT	b_0 (intercept)	-0.384	-5.196	< 0.001	-
	monuments	0.006	0.750	0.454	1.051
	protect-areas	0.082	3.695	< 0.001	1.027
	extra-resources	0.095	1.722	0.085	1.004
	rank2008	0.202	7.609	< 0.001	1.060
	roads	0.245	8.588	< 0.001	1.015
R^2 (%) = 8.1%; p-value < 0.001; F = 33.522					

Source: authors' calculations

Annex 8B. Regression results for 948 communes with 2012 ranking

948 communes with 2012 ranking					
Dependent variable & model results	**Independent variables**	**Estimate**	**T-statistic**	**p-value**	**VIF**
rank2008	b_0 (intercept)	4.174	42.003	< 0.001	-
	monuments	0.027	2.612	0.009	1.016
	protect-areas	0.130	6.266	< 0.001	1.017
	extra-resources	0.348	4.333	< 0.001	1.028
	roads	-0.068	-1.400	0.162	1.008
R^2 (%) = 7.5%; p-value < 0.001; F = 19.121					
rank2012 A	b_0 (intercept)	21.230	44.923	< 0.001	-
	monuments	0.313	6.430	< 0.001	1.016
	protect-areas	0.510	5.161	< 0.001	1.017
	extra-resources	2.298	6.018	< 0.001	1.028
	roads	2.085	8.990	< 0.001	1.008
R^2 (%) = 18.5%; p-value < 0.001; F = 53.371					
rank2012 B	b_0 (intercept)	9.888	15.039	< 0.001	-
	monuments	0.241	5.992	< 0.001	1.024
	protect-areas	0.156	1.887	0.060	1.060
	extra-resources	1.353	4.271	< 0.001	1.048
	rank2008	2.717	21.369	< 0.001	1.081
	roads	2.271	11.910	< 0.001	1.010
R^2 (%) = 45.1%; p-value < 0.001; F = 154.649					
lodgings NIS A	b_0 (intercept)	-2.669	-2.753	0.006	-
	monuments	-0.011	-0.184	0.854	1.024
	protect-areas	0.383	3.137	0.002	1.060
	extra-resources	2.485	5.321	< 0.001	1.048
	rank2008	0.576	3.074	0.002	1.081
	roads	0.489	1.738	0.083	1.010
R^2 (%) = 6.7%; p-value < 0.001; F = 13.469					

lodgings NIS B	b_0 (intercept)	-4.386	-4.090	< 0.001	-
	monuments	-0.053	0.879	0.380	1.063
	protect-areas	0.356	2.928	0.003	1.064
	extra-resources	2.250	4.802	< 0.001	1.069
	rank2008	0.104	0.460	0.646	1.605
	rank2012	0.174	3.639	< 0.001	1.821
	roads	0.094	0.314	0.753	1.162
R^2 (%) = 8.0%; p-value < 0.001; F = 13.577					
lodgings MoT A	b_0 (intercept)	-4.506	-3.210	0.001	-
	monuments	0.004	0.049	0.961	1.024
	protect-areas	0.633	3.581	< 0.001	1.060
	extra-resources	3.234	4.782	< 0.001	1.048
	rank2008	1.001	3.685	< 0.001	1.081
	roads	0.681	1.674	0.094	1.010
R^2 (%) = 7.1%; p-value < 0.001; F = 14.351					
lodgings MoT B	b_0 (intercept)	-7.544	-4.874	< 0.001	-
	monuments	-0.070	-0.806	0.421	1.063
	protect-areas	0.585	3.336	< 0.001	1.064
	extra-resources	2.818	4.169	< 0.001	1.069
	rank2008	0.166	0.506	0.613	1.605
	rank2012	0.307	4.461	< 0.001	1.821
	roads	-0.016	-0.037	0.970	1.162
R^2 (%) = 9.0%; p-value < 0.001; F = 15.515					

Source: authors' calculations

Annex 9. PLS-SEM results for the 2,861 communes considering NIS lodgings
Annex 9A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.248 (inner VIF: 1.026)	0.110 of which 0.040 indirect effect (inner VIF: 1.102)
Latent variable 2 (protect-areas)	-	-	-	0.320 (inner VIF: 1.025)	0.163 of which 0.051 indirect effect (inner VIF: 1.151)
Latent variable 3 (roads)	-	-	-	-0.030 (inner VIF: 1.007)	0.041 of which -0.005 indirect effect (inner VIF: 1.008)
Latent variable 4 (rank2008)	-	-	-	-	0.159 (inner VIF: 1.229)
Latent variable 5 (lodgings NIS)	-	-	-	-	-

(Source: authors' calculations)

Annex 9B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 9C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.149	1.000	-	-	-
Latent variable 3 (roads)	0.064	0.061 (0.061)	1.000	-	-
Latent variable 4 (rank2008)	0.294	0.355 (0.355)	0.005 (0.005)	1.000	-
Latent variable 5 (lodgings NIS)	0.137	0.181 (0.181)	0.058 (0.058)	0.220 (0.220)	1.000

Annex 9D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	14.267	0.000
Latent variable 1 → Latent variable 5	4.687	0.000
Latent variable 2 → Latent variable 4	19.239	0.000
Latent variable 2 → Latent variable 5	4.297	0.000
Latent variable 3 → Latent variable 4	1.662	**0.097**
Latent variable 3 → Latent variable 5	2.584	0.010
Latent variable 4 → Latent variable 5	7.009	0.000

Annex 9-1. PLS-SEM results for the 2,861 communes considering MoT lodgings (Source: authors' calculations)
Annex 9-1A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.249 (inner VIF: 1.026)	0.112 of which 0.044 indirect effect (inner VIF: 1.102)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 2 (protect-areas)	-	-	-	0.320 (inner VIF: 1.025)	0.180 of which 0.056 indirect effect (inner VIF: 1.151)
Latent variable 3 (roads)	-	-	-	-0.030 (inner VIF: 1.007)	0.039 of which -0.005 indirect effect (inner VIF: 1.008)
Latent variable 4 (rank2008)	-	-	-	-	0.176 (inner VIF: 1.230)
Latent variable 5 (lodgings MoT)	-	-	-	-	-

Annex 9-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 9-1C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.148	1.000	-	-	-
Latent variable 3 (rank2008)	0.064	0.061 (0.061)	1.000	-	-
Latent variable 4 (rank2008)	0.294	0.355 (0.355)	0.005 (0.005)	1.000	-
Latent variable 5 (lodgings MoT)	0.141	0.199 (0.199)	0.057 (0.057)	0.240 (0.240)	1.000

Annex 9-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	13.001	0.000
Latent variable 1 → Latent variable 5	2.776	0.006
Latent variable 2 → Latent variable 4	20.150	0.000
Latent variable 2 → Latent variable 5	3.809	0.000
Latent variable 3 → Latent variable 4	1.819	**0.070**
Latent variable 3 → Latent variable 5	3.158	0.002
Latent variable 4 → Latent variable 5	7.983	0.000

Annex 10. PLS-SEM results for the 1,913 communes
considering NIS lodgings
Annex 10A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 4 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.190 (inner VIF: 1.011)	0.036 of which 0.030 indirect effect (inner VIF: 1.051)
Latent variable 2 (protect-areas)	-	-	-	0.126 (inner VIF: 1.007)	0.092 of which 0.019 indirect effect (inner VIF: 1.024)
Latent variable 3 (roads)	-	-	-	-0.048 (inner VIF: 1.011)	0.171 of which - 0.007 indirect effect (inner VIF: 1.014)
Latent variable 4 (rank2008)	-	-	-	-	0.153 (inner VIF: 1.060)
Latent variable 5 (lodgings NIS)	-	-	-	-	-

(Source: authors' calculations)

Annex 10B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 10C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.060	1.000	-	-	-
Latent variable 3 (rank2008)	0.089	0.062 (0.062)	1.000	-	-
Latent variable 4 (rank2008)	0.198	0.134 (0.134)	-0.023 (0.023)	1.000	-
Latent variable 5 (lodgings NIS)	0.056	0.105 (0.105)	0.180 (0.180)	0.160 (0.160)	1.000

Annex 10D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	9.132	0.000
Latent variable 1 → Latent variable 5	0.225	**0.822**
Latent variable 2 → Latent variable 4	5.373	0.000
Latent variable 2 → Latent variable 5	3.052	0.002
Latent variable 3 → Latent variable 4	2.093	0.037
Latent variable 3 → Latent variable 5	4.711	0.000
Latent variable 4 → Latent variable 5	4.792	0.000

Annex 10-1. PLS-SEM results for the 1,913 communes considering MoT lodgings
Annex 10-1A. Total effects

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 4 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.194 (inner VIF: 1.011)	0.057 of which 0.033 indirect effect (inner VIF: 1.051)
Latent variable 2 (protect-areas)	-	-	-	0.126 (inner VIF: 1.007)	0.105 of which 0.022 indirect effect (inner VIF: 1.024)
Latent variable 3 (roads)	-	-	-	-0.048 (inner VIF: 1.011)	0.181 of which -0.008 indirect effect (inner VIF: 1.014)
Latent variable 4 (rank2008)	-	-	-	-	0.171 (inner VIF: 1.060)
Latent variable 5 (lodgings MoT)	-	-	-	-	-

(Source: authors' calculations)

Annex 10-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 10-1C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-
Latent variable 2 (protect-areas)	0.061	1.000	-	-	-
Latent variable 3 (rank2008)	0.088	0.062 (0.062)	1.000	-	-
Latent variable 4 (rank2008)	0.197	0.134 (0.134)	-0.023 (0.023)	1.000	-
Latent variable 5 (lodgings MoT)	0.080	0.120 (0.120)	0.192 (0.192)	0.183 (0.183)	1.000

Annex 10-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	9.161	0.000
Latent variable 1 → Latent variable 5	0.827	**0.409**
Latent variable 2 → Latent variable 4	5.185	0.000
Latent variable 2 → Latent variable 5	3.710	0.000
Latent variable 3 → Latent variable 4	2.064	0.040
Latent variable 3 → Latent variable 5	5.136	0.000
Latent variable 4 → Latent variable 5	5.708	0.000

Annex 11. PLS-SEM results for the 948 communes without
considering rank2012 and considering NIS lodgings
Annex 11A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.161 (inner VIF: 1.014)	0.182 of which 0.016 indirect effect (inner VIF: 1.042)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 2 (protect-areas)	-	-	-	0.194 (inner VIF: 1.012)	0.123 of which 0.019 indirect effect (inner VIF: 1.058)
Latent variable 3 (roads)	-	-	-	-0.040 (inner VIF: 1.002)	0.048 of which -0.004 indirect effect (inner VIF: 1.004)
Latent variable 4 (rank2008)	-	-	-	-	0.097 (inner VIF: 1.078)
Latent variable 5 (lodgings NIS)	-	-	-	-	-

(Source: authors' calculations)

Annex 11B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 11C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-		-	-

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings NIS)
Latent variable 2 (protect-areas)	0.117	1.000	-	-	-
Latent variable 3 (roads)	-0.009	0.045 (0.045)	1.000		
Latent variable 4 (rank2008)	0.184	0.213 (0.213)	-0.033 (0.033)	1.000	-
Latent variable 5 (lodgings NIS)	0.196	0.146 (0.146)	0.052 (0.052)	0.149 (0.149)	1.000

Annex 11D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.374	0.000
Latent variable 1 → Latent variable 5	4.521	0.000
Latent variable 2 → Latent variable 4	7.198	0.000
Latent variable 2 → Latent variable 5	2.527	0.012
Latent variable 3 → Latent variable 4	1.286	**0.199**
Latent variable 3 → Latent variable 5	2.335	0.020
Latent variable 4 → Latent variable 5	4.294	0.000

Annex 11-1. PLS-SEM results for the 948 communes without considering rank2012 and considering MoT lodgings
Annex 11-1A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.162 (inner VIF: 1.014)	0.169 of which 0.019 indirect effect (inner VIF: 1.042)
Latent variable 2 (protect-areas)	-	-	-	0.196 (inner VIF: 1.012)	0.141 of which 0.023 indirect effect (inner VIF: 1.057)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 3 (roads)	-	-	-	-0.041 (inner VIF: 1.002)	0.045 of which -0.005 indirect effect (inner VIF: 1.004)
Latent variable 4 (rank2008)	-	-	-	-	0.119 (inner VIF: 1.079)
Latent variable 5 (lodgings MoT)	-	-	-	-	-

(Source: authors' calculations)

Annex 11-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 11-1C. Discriminant validity: Fornell-Larker Criterion (and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-		-	-
Latent variable 2 (protect-areas)	0.116	1.000	-	-	-

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (lodgings MoT)
Latent variable 3 (roads)	-0.006	0.045 (0.045)	1.000		
Latent variable 4 (rank2008)	0.185	0.213 (0.213)	-0.033 (0.033)	1.000	-
Latent variable 5 (lodgings MoT)	0.185	0.162 (0.162)	0.051 (0.051)	0.170 (0.170)	1.000

Annex 11-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.444	0.000
Latent variable 1 → Latent variable 5	4.601	0.000
Latent variable 2 → Latent variable 4	6.721	0.000
Latent variable 2 → Latent variable 5	3.414	0.001
Latent variable 3 → Latent variable 4	1.348	**0.178**
Latent variable 3 → Latent variable 5	2.114	0.035
Latent variable 4 → Latent variable 5	4.879	0.000

Annex 12. PLS-SEM results for the 948 communes rank2012 included and considering NIS lodgings
Annex 12A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	0.168 (inner VIF: 1.010)	0.268 of which 0.090 indirect effect (inner VIF: 1.041)	0.161 of which 0.042 indirect effect (inner VIF: 1.098)
Latent variable 2 (protect-areas)	-	-	-	0.198 (inner VIF: 1.012)	0.149 of which 0.106 indirect effect (1.055)	0.128 of which 0.026 indirect effect (inner VIF: 1.058)

146

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings NIS)
Latent variable 3 (roads)	-	-	-	-0.044 (inner VIF: 1.002)	0.270 of which -0.024 indirect effect (inner VIF: 1.004)	0.044 of which 0.037 indirect effect (inner VIF: 1.160)
Latent variable 4 (rank2008)	-	-	-	-	0.536 (inner VIF: 1.081)	0.101 of which 0.076 indirect effect (inner VIF: 1.601)
Latent variable 5 (rank2012)	-	-	-	-	-	0.142 (inner VIF: 1.807)
Latent variable 6 (lodgings NIS)	-	-	-	-	-	-

(Source: authors' calculations)

Annex 12B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (rank2012)	1.000	1.000	1.000	1.000
Latent variable 6 (lodgings NIS)	1.000	1.000	1.000	1.000

Annex 12C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings NIS)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-	-
Latent variable 2 (protect-areas)	0.101	1.000	-	-	-	-
Latent variable 3 (roads)	0.014	0.045 (0.045)	1.000	-	-	-
Latent variable 4 (rank2008)	0.187	0.213 (0.213)	-0.033 (0.033)	1.000	-	-
Latent variable 5 (rank2012)	0.287	0.188 (0.188)	0.281 (0.281)	0.569 (0.569)	1.000	-
Latent variable 6 (lodgings NIS)	0.174	0.146 (0.146)	0.052 (0.052)	0.149 (0.149)	0.211 (0.211)	1.000

Annex 12D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.855	0.000
Latent variable 1 → Latent variable 5	6.040	0.000
Latent variable 1 → Latent variable 6	2.998	0.003
Latent variable 2 → Latent variable 4	7.108	0.000
Latent variable 2 → Latent variable 5	1.772	**0.077**
Latent variable 2 → Latent variable 6	2.554	0.011
Latent variable 3 → Latent variable 4	1.405	**0.161**
Latent variable 3 → Latent variable 5	11.721	0.000
Latent variable 3 → Latent variable 6	0.228	**0.820**
Latent variable 4 → Latent variable 5	17.343	0.000
Latent variable 4 → Latent variable 6	0.731	**0.465**
Latent variable 5 → Latent variable 6	2.648	0.008

Annex 12-1. PLS-SEM results for the 948 communes rank2012
included and considering MoT lodgings
Annex 12-1A. Total effects (and inner VIF)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	0.168 (inner VIF: 1.010)	0.270 of which 0.090 indirect effect (inner VIF: 1.040)	0.152 of which 0.052 indirect effect (inner VIF: 1.099)
Latent variable 2 (protect-areas)	-	-	-	0.198 (inner VIF: 1.012)	0.149 of which 0.106 indirect effect (1.054)	0.146 of which 0.032 indirect effect (inner VIF: 1.058)
Latent variable 3 (roads)	-	-	-	-0.045 (inner VIF: 1.002)	0.270 of which - 0.024 indirect effect (inner VIF: 1.004)	0.047 of which 0.037 indirect effect (inner VIF: 1.160)
Latent variable 4 (rank2008)	-	-	-	-	0.536 (inner VIF: 1.081)	0.121 of which 0.095 indirect effect (inner VIF: 1.601)
Latent variable 5 (rank2012)	-	-	-	-	-	0.177 (inner VIF: 1.809)
Latent variable 6 (lodgings MoT)	-	-	-	-	-	-

(Source: authors' calculations)

Annex 12-1B. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite reliability	Average Variance Extracted (AVE)
Latent variable 1 (monuments & extra resources)	-	1.000	-	-
Latent variable 2 (protect-areas)	1.000	1.000	1.000	1.000
Latent variable 3 (roads)	1.000	1.000	1.000	1.000
Latent variable 4 (rank2008)	1.000	1.000	1.000	1.000
Latent variable 5 (rank2012)	1.000	1.000	1.000	1.000
Latent variable 6 (lodgings MoT)	1.000	1.000	1.000	1.000

Annex 12-1C. Discriminant validity: Fornell-Larker Criterion
(and Heterotrait-Monotrait Ratio)

	Latent variable 1 (monuments & extra resources)	Latent variable 2 (protect-areas)	Latent variable 3 (roads)	Latent variable 4 (rank2008)	Latent variable 5 (rank2012)	Latent variable 6 (lodgings MoT)
Latent variable 1 (monuments & extra resources)	-	-	-	-	-	-
Latent variable 2 (protect-areas)	0.099	1.000	-	-	-	-
Latent variable 3 (roads)	0.016	0.045 (0.045)	1.000	-	-	-
Latent variable 4 (rank2008)	0.186	0.213 (0.213)	-0.033 (0.033)	1.000	-	-
Latent variable 5 (rank2012)	0.288	0.188 (0.188)	0.281 (0.281)	0.569 (0.569)	1.000	-
Latent variable 6 (lodgings MoT)	0.167	0.162 (0.162)	0.051 (0.051)	0.170 (0.170)	0.241 (0.241)	1.000

Annex 12-1D. Total effects T-statistic and p-values

	T-statistic	P-value
Latent variable 1 → Latent variable 4	4.815	0.000
Latent variable 1 → Latent variable 5	5.684	0.000
Latent variable 1 → Latent variable 6	2.626	0.009
Latent variable 2 → Latent variable 4	7.119	0.000
Latent variable 2 → Latent variable 5	1.681	**0.093**
Latent variable 2 → Latent variable 6	2.972	0.003
Latent variable 3 → Latent variable 4	1.421	**0.156**
Latent variable 3 → Latent variable 5	12.440	0.000
Latent variable 3 → Latent variable 6	0.178	**0.859**
Latent variable 4 → Latent variable 5	16.858	0.000
Latent variable 4 → Latent variable 6	0.664	**0.507**
Latent variable 5 → Latent variable 6	3.022	0.003