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Volume 30 2023 Number 1

CONTENTS

ARTICLES

REVIEW ARTICLES

BOOK REVIEW

Member since 2018
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Volume 30 2023 Number 1

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ARTICLES

Dimitrios KANTIANIS [*], Serafeim POLYZOS [**], Dimitrios TSIOTAS [***]

MODELLING THE REGIONAL VARIABILITY OF BUILDING ACTIVITY IN GREECE: A MULTI-LEVEL MULTINOMIAL LOGISTIC REGRESSION APPROACH

Abstract. This paper studies spatial differences in the fluctuations of the regional building activity in Greece, by developing a composite multinomial logistic regression model expressing the building activity's variability in socio-economic terms. The results show that the variability in building activity is related to economies of scale within the construction sector, along with the performance of two other Greek economy's major sectors, i.e., tourism and tertiary, in highlighting a dependence on the prime drivers of economic and regional development. Overall, the research provides empirical evidence on the macro-economic modelling of spatial demand, based on a proxy incorporating all aspects of human activity in the geographical space.

Key words: spatial planning, regional development, building activity, multinomial logistic regression.

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1. INTRODUCTION

The construction industry is traditionally considered a significant driver of national economies, as well as of regional economic development (Lopes, 2012; Polyzos and Tsiotas, 2020). Construction output typically and consistently contributes worldwide a sizeable proportion, around 7% to 10% of the Gross National Product (GNP), and is responsible for more than half of the national fixed capital generation. It also employs a significant number of the working population, generally between 6% and 8% (Turin, 1973; Wells, 1985; Ball and Wood, 1996; Lopes *et al.*, 2002; Pearce, 2003; Ruddock and Lopes, 2006; Ofori, 2015). Moreover, the construction industry's products form the main factors of production, such as land and buildings, for almost all the other industrial sectors. Shelter, living accommodation, and transportation are considered the necessities of modern life, and these are provided by construction (Smith and Jaggar, 2007; Polyzos and Tsiotas, 2020). The construction sector is also seen as a major contributor to land use change and, therefore, its role in meeting long-term sustainable development goals is important (Ortiz *et al.*, 2009; Sev, 2009; Lima *et al.*, 2021). Since the building industry mainly delivers fixed long-lasting assets, building production is normally seen, by all parties involved, as a capital investment undertaking (Polyzos, 2019; Zasada *et al.*, 2015). The final product is often large and expensive, and can represent a client's largest single capital outlay (Ashworth, 2004). The types of building demands are diverse and range from residential buildings, such as houses and blocks of multi-storey apartments, to several types of non-residential building structures, like industrial, commercial, offices, and public buildings of various needs (Seeley, 1996; Polyzos, 2019). Socio-economic development is mainly concerned with expanding the productive capacity of the national economy to increase the quality and extent of goods and services available to the community, or to improve standards of living and economic well-being (Briscoe, 1988; Polyzos, 2019). Thus, apart from its contribution to the total economic flow, the construction industry plays an indispensable role, and the level of building activity is often used as a measure of socio-economic development and progress within a society (Myers, 2008).

Construction activity, as a key sector of overall economic activity, has undoubtedly played an important role in Greece's development throughout the post-war period (Polyzos and Minetos, 2008; Mavridis and Vatalis, 2015). It has been a key axis around which a significant (if not the most important) part of the country's economic development has revolved (Polyzos, 2019). The need for recovery and rebuilding on new foundations of the country's productive apparatus, combined with the need to solve the housing problem for a large percentage of the population, led to a building boom, which functioned autonomously and complementarily to the country's economic development. Thus, the country's economic development was largely focused on construction activity and the creation of a productive mechanism

that would support it (Polyzos and Minetos, 2008; Mavridis and Vatalis, 2015). The needs for housing were suffocating, especially in Athens, and some estimates put the need for housing across the country in the 1950s and 1960s at 1 million (Polyzos, 2019). In the 1970s, the rate of investment in housing in Greece, which had a long-standing tendency to fall, rose again quite high. Thus, once again, during the then (1970s) crisis, construction filled to some extent the gaps in industrial investment (Polyzos and Minetos, 2008). Already, however, investment in construction was also entering a crisis, based on the data on the volume of new construction, which seems to have been reduced by about half in the Attica region and elsewhere (Polyzos and Minetos, 2008; Mavridis and Vatalis, 2015; Polyzos, 2019). During the 1980s, residential construction was significantly reduced compared to the past, mainly due to a decrease in reconstruction in urban centres. Private and public construction activity experienced a decline in the early 1990s due to the cost of housing. It was affected by high mortgage interest rates, and rising construction costs due to increases in material and labour prices (Polyzos, 2019). However, since the end of 1995, mortgage interest rates have decreased, leases have been liberalised and many areas have been included in the urban plan (Zantanidis and Tsiotras, 1998; Polyzos, 2019). These events together with the 2004 Olympic Games increased construction activity (Polyzos and Minetos, 2008; Polyzos, 2019). Between 1997 and 2005, the number of new houses increased because middle-income earners borrowed to buy housing (Polyzos, 2019). The mortgage system with tax measures led to an increase in housing, especially at the high-quality end. In general, the construction sector experienced a rapid growth from the early 1990s until 2007, significantly increasing its importance in the Greek economy and contributing positively to its growth (Karousos and Vlamis, 2008; Polyzos, 2019; Sdrolias *et al.*, 2022), The positive performance of the sector until recently has been largely due to the absorption of funds for infrastructure projects used under the Community Support Frameworks (CSF), the implementation of Olympic projects, and the growth of private construction activity over time (Polyzos, 2019). Both in the past and today, significant reservations have been expressed about the effectiveness of continued policy support for the construction sector in Greece (Polyzos, 2019), regarding whether this sector of the Greek economy has reached a tipping point or a saturation point, which should lead to the pursuit of different regional development policies.

Within this context, this paper assumes that extending knowledge on the spatial variation in the volume of building activity could assist urban policy decision-makers to identify potential changes in regional economic patterns and alert them to opportunities and risks in markets and regions with differently synchronised economies. To this end, Greece can provide an excellent case for studying building activity as it suggests a country submitted in the last fifty years to considerable urbanisation forces and its modern aspect development is symbiotically related to building activity. The paper has been organised into five sections as follows. Following the introductory section, the second section provides a brief literature review and de-

scribes the specific characteristics and territorial dimension of the building activity in Greece, and sets the study area as the spatial unit of analysis. The third section provides a thorough description of the multinomial logistic regression methodology used in the research, the dependent variable, and the explanatory variables that are used in the empirical model. The fourth section presents the analysis results and discusses the spatial configuration of the building activity variance across the Greek prefectures. The paper concludes with a presentation of broader implications and the value of the study to the real estate market and the land use public policy-makers.

2. LITERATURE REVIEW

2.1. Building activity and economic development

The level of building activity represents over time the demand for geographical space due to housing, business, and recreation forces, and suggests a critical driver of both economic growth and regional development. Considering its symbiotic relationship with economic and regional development, further macro-economic evidence on the evolution, spatiality, and current trends in building activity may contribute to a more effective regional policy, planning, and implementation, and provide insights into major questions in regional science as geographic dependency and regional divergence. Ball and Wood (1996) provided evidence of a long-term steady-state relationship between building investment and economic growth for the U.K. from the themed-20th century to the present day. Notwithstanding its significance, fluctuations in building activity output, usually referred to as building or property cycles, are endemic in the industry. In part, they are caused by fluctuations in the economy as a whole and in part by the unique nature of the construction product (Hillebrandt, 2000). Hence, property cycles occur for reasons that are both endogenous (from within the building sector) and exogenous (influences outside the building sector). Endogenous reasons can arise from time lags in production that lead to periods of excess demand and excess supply which means the property market is hardly ever in equilibrium. At first, demand increases but there is a delay before a new building can commence while planning permission and finance are arranged; further shortages of space lead to rising rents bringing forth more new developments; speculation that rents will continue to rise further spurs supply; completions then provide excess supply leading to falling rents and less development. As exogenous influences, they can be considered as any fluctuations in income, employment, availability of credit, interest rates, exchange rates, changes in government policy, etc. A typical example is the introduction of energy performance certificates that posed an additional expense to property owners

(Jowsey, 2015). A strong economic upturn coinciding with a shortage of available property may be the starting point of a cycle. Rents and capital values increase, and this can stimulate new development. Further speculative developments are financed by an expansion of bank lending and so a building boom results, but it takes time for supply to reach the market and so rents and capital values continue to rise. When new developments are completed, the business cycle may have peaked and slowed down, causing a fall in demand for property and a property slump with falling values, high vacancy levels, and widespread bankruptcies in the building sector. Undoubtedly, the economy, the property sector, and the financial sector are strongly interlinked (Barras, 1994). According to Towey (2018) and Polyzos (2019), a typical building cycle conceptual model builds on the key characteristics of an economic cycle that are reflected in the building industry, such as a fall/rise in interest rates, a rise/reduction in share prices and value of commodities, and easier/tighter money and rise in property prices, the signs of which are differentiated on the top or bottom of the cycle.

The patterns of these events can affect capital investments that drive or diminish the demand for building activity. Falling interest rates encourage more lending and activity for building work with the opposite in force after a boom. Knowledge of these trends permits building developers and land policy-makers to be aware of the likelihood of changes in demand in both the long and short termsand to implement strategies for future planning. This information aids decision-making around the risks and opportunities available in specific markets to recognise the type of consumer demand that will be in force at given times (Towey, 2018). Although most economic activities are subject to business cycles, the ease with which investment in a building can be postponed makes the difference between the maximum and minimum demand greater than that for most other activities. The greater the amplitude of the fluctuations and their frequency, the less the industry is able to meet future increases in demand as it cannot plan with confidence (Smith and Jaggar, 2007).

Strassmann (1970), as cited in Mehmet and Yorucu (2008), has argued that construction, like agriculture or manufacturing sectors, follows a pattern of change that reflects a country's level of economic development. After showing a lag in early development, construction accelerates in middle-income countries and then falls rapidly. Goh (2009) studied four countries belonging to the same class of economic development and population, namely Singapore, Finland, Denmark, and Sweden, and concluded that the roles and importance of building activity in the national context could still vary: (*i*) for a highly developed country with a mature economy, building output volume can be relatively high when the share of construction is relatively low; (*ii*) the extent to which the government of a country uses the construction industry as an economic regulator is critical in sustaining its importance even when the country is industrially advanced; and (*iii*) in highly competitive advanced industrialised countries, the building industry can significantly contribute to national competitiveness through a continuous supply

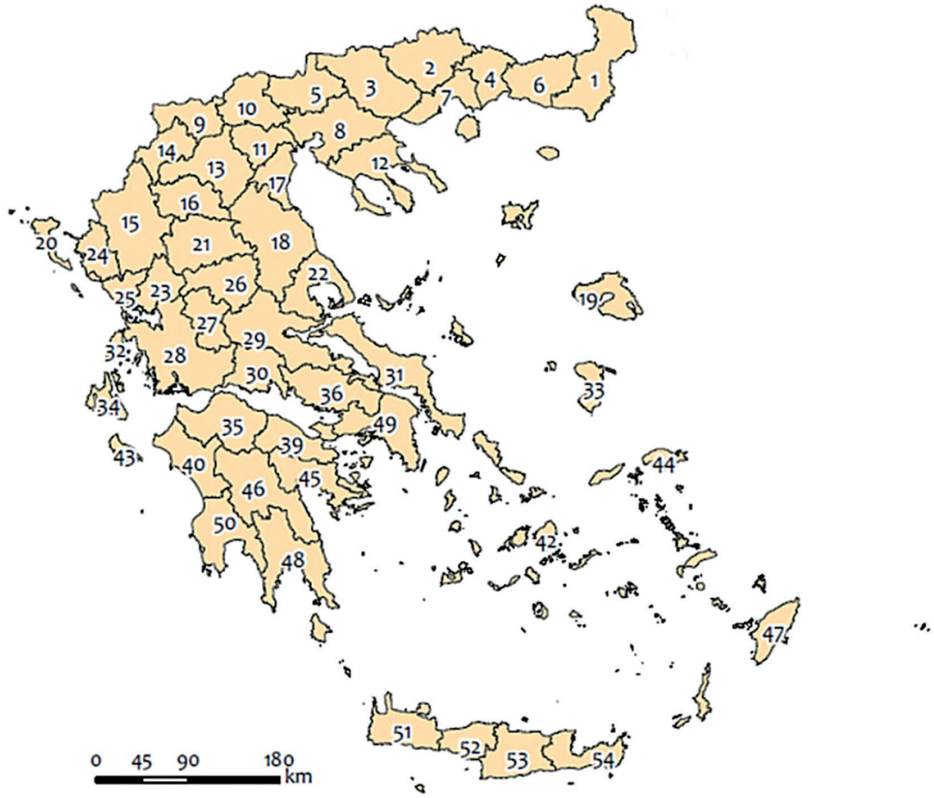
of buildings and modernising the country's physical infrastructure to foster productivity growth and investment.

Regional economies usually experience different periods of either economic growth or decline, and this instability is reflected in higher or lower levels of building activity. These declining, stagnant, or rising patterns of building activity can have a direct effect on regional prosperity level, consumer spending trends, as well as employment opportunities, therefore, providing useful information on the economic performance of a region. Moreover, information on possibly significant spatial variations in regional building activity, within the broader national context, can further contribute considerably to the effectiveness of strategic policy decision-making and implementation (Petrakos and Polyzos, 2005). Exploring variations in the volume produced by the building activity sector can provide useful insights regarding the behaviour of regional property markets and the trajectories of change in the regional land use system. The spatial dimension of building activity variance could add to a clearer understanding of the principal dynamic of increased spatial dependency and regional divergence. The economic underperformance of some regions when compared to others is an indicator of the effectiveness of the applied regional policy (Polyzos and Minetos, 2008). Alkay *et al.* (2018) emphasised the importance of studying the spatial variation in housing construction activity in Turkey. The authors have suggested that uneven spatial development might be explained in several ways in different parts of the country: in many parts, they have found a reasonable degree of consistency between economic fundamentals and housing activity, but there are exceptions in some regions whereas it seems likely that policy is creating conditions where development levels are outstripping market requirement which, of course, might seek to destabilise the property market and the wider economy; in other regions, development levels may be below what might be required to meet market requirements and to support the growth agenda.

2.2. Building activity in Greece

The Building Activity Survey published by the Hellenic Statistical Authority (ELSTAT) has been providing data on a monthly and yearly basis since 1964 (Polyzos, 2019; ELSTAT, 2022). The purpose of this study is to register the total number of building permits issued by the responsible administrative authorities. The survey covers all the features of building activity, such as the type of building permit, the type of construction, the type and the characteristics of a building and its auxiliary spaces, as well as building usage, surface, volume, and value. The survey is fully harmonised with European legislation. The primary legislative act is Regulation (EC) 1165/1998, as it was amended according to Regulation (EC) 1158/2005 and Regulation (EU) No. 2019/2152 of the European Parliament and the Council on European business statistics, as well as Commission Implementing Regulation

(EU) No. 2020/1197 laying down specifications and arrangements under Regulation (EU) No. 2019/2152. The survey is exhaustive and covers the total number of issued building permits across the country. The analysis was conducted on the third level of Nomenclature of Territorial Units for Statistics (NUTS-III level), for the fifty-one (51) Greek prefectures, as is shown in Fig. 1.



Code	Name	Code	Name	Code	Name	Code	Name	Code	Name
1	Evros	12	Chalkidiki	22	Magnesia	32	Lefkada	45	Argolis
2	Drama	13	Kozani	23	Arta	33	Chios	46	Arcadia
3	Serres	14	Kastoria	24	Thesprotia	34	Cephalonia	47	Dodecanese
4	Xanthi	15	Ioannina	25	Preveza	35	Achaea	48	Laconia
5	Kilkis	16	Grevena	26	Karditsa	36	Boeotia	49	Attica
6	Rhodope	17	Pieria	27	Evrytania	39	Korinthia	50	Messenia
7	Kavala	18	Larissa	28	Aetolia-Acarnania	40	Elis	51	Chania
8	Thessaloniki	19	Lesbos	29	Phthiotis	42	Cyclades	52	Rethymno
9	Florina	20	Corfu (Kerkyra)	30	Phocis	43	Zakynthos	53	Heraklion
10	Pella	21	Trikala	31	Euboea	44	Samos	54	Lasithi
11	Imathia								

Fig. 1. Map with the 51 prefectures (NUTS-III level) of Greece

Source: own work.

The total building activity for both private and public sectors in Greece is calculated based on the number of issued building permits (Polyzos, 2019; ELSTAT, 2022) and, as of March 2022, amounted to 2,002 permits (ELSTAT, 2022). This amount corresponds to 383,300 sq. m of surface and 1,736,600 cubic m of building volume, reflecting, respectively, a 2.8% increase in the number of building permits, a 19.6% decrease in surface, and a 16.8% decrease in volume, compared with the corresponding month of 2021 (ELSTAT, 2022). The building permits for the private building activity sector issued in March 2022 reached 1,990. This amount corresponds to 382,000 sq. m of surface and 1,731,500 cubic m of volume (ELSTAT, 2022). In comparison with the respective month of 2021, there was a 3.2% increase in the number of building permits, a 15.1% decrease in surface, and a 6% decrease in volume (ELSTAT, 2022). In the same period, from April 2021 until March 2022, private building activity in Greece recorded a 24.4% increase in the number of issued building permits, a 42% increase in the surface, and a 43.2% increase in volume, compared with the corresponding period from April 2020 to March 2021 (ELSTAT, 2022). Based on this information, Fig. 2 shows the fluctuations in the annual private building activity for the period from 2012 to 2021 (expressed as several building permits, surface in sq. m, and volume in cubic m).

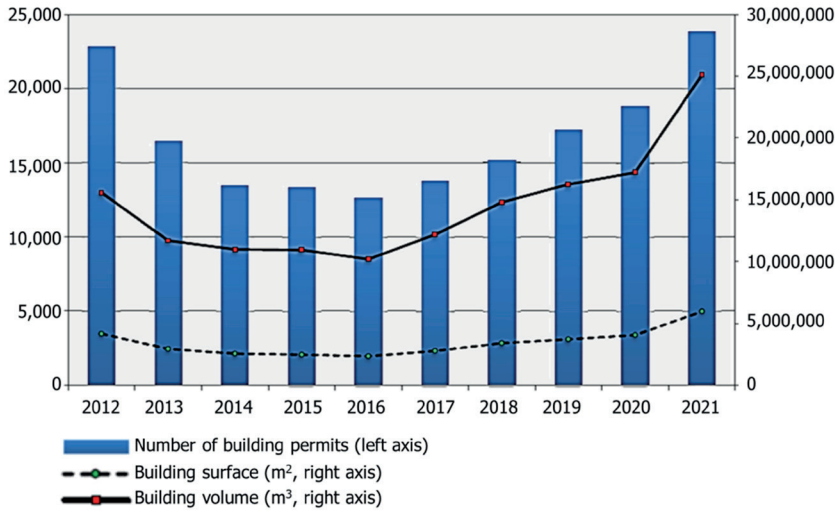


Fig. 2. Annual private building activity in Greece, for the period 2012–2021
Source: own work created on data extracted from ELSTAT (2022).

Next, Fig. 3 shows the fluctuations in monthly private building activity for the period from April 2012 to March 2022, expressed as several building permits, surface in sq. m, and volume in cubic m (ELSTAT, 2022). A building is any permanent and independent structure that has walls and a roof and consists of one or more

rooms and other complementary spaces. Building volume refers to the area that is included between the external surface of the external walls, the lowest level (basement or sub-basement, if existent), and the roof of the building. The volume of any open ground floors not enclosed by walls between the lower floor and roof is also considered. The relevant authorities calculate the building volume during the issuing of the building permit. The building surface is the sum of each floor space along with the outer space of the outer walls. A permit refers to all types of building permits: for new buildings or for addition, repair, renovation, demolition, legitimization, amendment, and modification of existing buildings (ELSTAT, 2022).

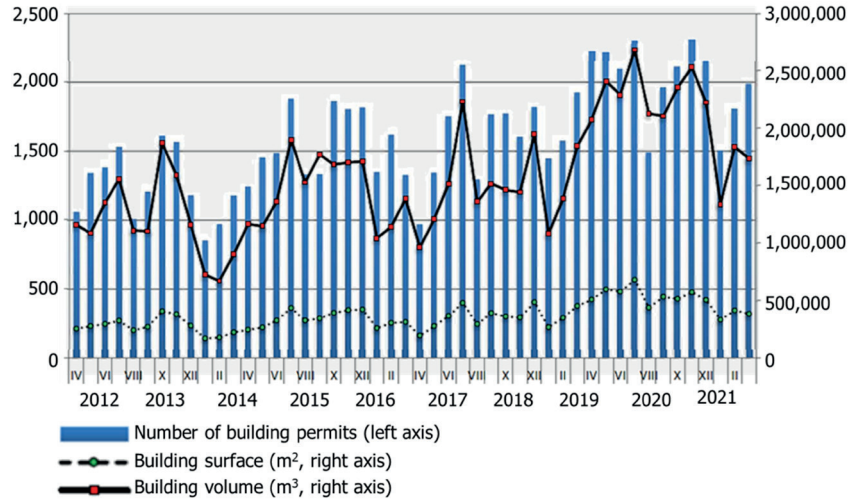


Fig. 3. Monthly private building activity in Greece, for the period Apr 2018–Mar 2022

Source: own work created on data extracted from ELSTAT (2022).

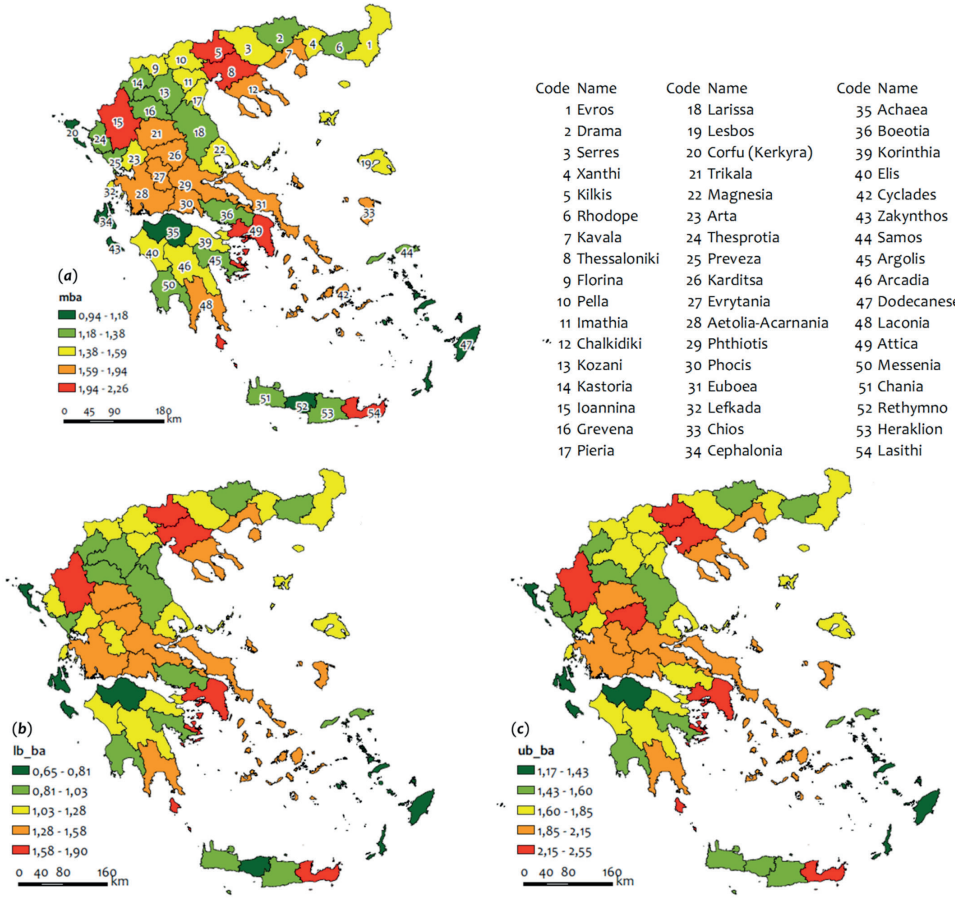
Next, Fig. 4a shows the spatial distribution of the average volume (cubic m) of building activity (per capita) in each Greek prefecture for the period 2000−2019 (NUTS-III level), along with their lower (Fig. 4b) and upper (Fig. 4c) bounds of a 95% confidence interval for the mean. As it can be observed, in the average case (Fig. 4a): the island prefectures of Corfu (20), Cephalonia (28), and Lefkada (34), in the Ionian Sea; the insular Dodecanese (47) and Rethymno, in the Aegean Sea; and the coastal prefecture Achaea (35), in Peloponnese, are described by the lowest volumes of building activity per capita. In terms of spatial distribution, the regions with a very low and low average building activity are located (*i*) in western Greece (the Ionian Sea prefectures 20, 24, 25, 34, and 43); (*ii*) in the Peloponnese (including the capital prefecture 35 of the region, along with prefectures 45 and 50); in central and northern Greece (prefectures 13, 14, 16, and 18); in Crete (prefectures 51−53); and in the south and east Aegean (prefectures 44 and 47).

Overall, whether the medium (yellow) class regions are also considered, we can observe that regions with below the medium average building activity are scattered throughout the Greek territory, shaping almost an even pattern of dispersion regardless of (insular, coastal, mainland, and mountainous) geomorphology.

On the contrary, the mainland prefectures of Kilkis (5) and Ioannina (15); the coastal metropolitan Attica (49) and Thessaloniki (8); and the island Lasithi (54) have the highest averages of building activity per capita. In terms of spatial distribution, we can observe that the regions with a very high and high average building activity are clustered (*i*) in north-eastern Greece (prefectures 5, 8, 12, and 7); (*ii*) in central Greece (prefectures 15, 21, and 26−31); in the metropolitan region of Attica (49); in Laconia prefecture (48) in the Peloponnese; and Lasithi (54), Cyclades (42), and Chios (33), in the Aegean Sea. This arrangement configures a linear spatial pattern described by an arc of a very high and a high average building activity, composed by prefectures 15, 21, 26−31, 33, 42, 49, and 51, ranging from mainland north-western Greece to the insular south Aegean Sea. From both sides of this arc, another cluster of northern Greece prefectures (5, 7, 8, and 12) and the Peloponnese prefecture 48 of low building activity is located. This composite "%-shape" (composed of the central arc and clusters from both sides) spatial pattern of a high average building activity appears to be an effect of demographic concentration (to the extent the metropolitan regions of the country are concerned), tourism development (as far as tourism developed insular and coastal prefectures is concerned), and mainland geomorphology related to a high specialisation in the primary sector. To the extent that the building activity is related to regional development, we can observe that the potential drivers of this spatial configuration are the major drivers (population, tourism, and agriculture) stimulating regional development in Greece (Polyzos, 2019; Tsiotas, 2021; Tsiotas *et al.*, 2021; Kranioti *et al.*, 2022). This observation can also drive the selection of the covariates in the regression models.

Furthermore, as far as metropolitan regions are concerned, we can observe that (*i*) two (31 and 42) out of four (50%) neighbour prefectures (31, 36, 39, and 42) of Attica (49) have a high building activity; whereas (*ii*) two (5 and 12) out of six (30%) neighbour prefectures (3, 5, 10−12, and 17) of Thessaloniki (8) have a high building activity. In the context of the growth pole theory (Capello, 2016; Polyzos, 2019; Tsiotas *et al.*, 2022), this observation enables one to configure a composite model of the corporate neighbourhood between the metropolitan and satellite regions in Greece in terms of building activity, according to which there seems to be a "selective" diffusion of building activity from the metropolitan regions to their satellites, of an intensity almost proportional to the metropolitan regions' population density. This observation addresses the avenues of further research. Finally, we can observe that, in the majority of cases, Fig. 4b and Fig. 4c illustrate the same patterns as the average cases, except the prefectures of (*i*) Kozani (13), which climbs (2→3) a class in building activity at the upper bound case (Fig. 4b,c); (*ii*) Pieria (17), which climbs and falls (2→3→2) one class in building activity across cases (Fig. 4a,b); (*iii*) Thesprotia (24), which

climbs and falls (2→3→2) one class in building activity across cases (Fig. 4a,b,c); (*iv*) Karditsa (26), which climbs (4→5) a class in building activity at the upper bound case (Fig. 4b,c); (*v*) Evrytania (27), which falls and climbs (4→3→4) one class in building activity during cases (Fig. 4a,b,c); (*vi*) Boeotia (36), which climbs (2→3) a class in building activity at the upper bound case (Fig. 4b,c); and (*vii*) Rethymno (36), which climbs (1→2) a class in building activity at the upper bound case (Fig. 4b,c). These "commuting" cases in classification can be of particular interest in terms of regional policy as they appear the most "sensitive" in transitions between classes of building activities, and, therefore, the measures of regional policy motivating building activity can be more effective by dint of their "sensitivity".



Code	Name	Code	Name	Code	Name
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14	Kastoria	31	Euboea	51	Chania
15	Ioannina	32	Lefkada	52	Rethymno
16	Grevena	33	Chios	53	Heraklion
17	Pieria	34	Cephalonia	54	Lasithi

Fig. 4. Spatial distribution of (in cubic m) of building activity's volume per capita by Greek prefectures expressed in (a) average values of building activity (mba); (b) lower bound of a 95% confidence interval (lb_ba); and (c) upper bound of a 95% confidence interval (lb_ba). Data of the period 2000-2019

Source: own work.

Finally, Fig. 5 shows the volume (in cubic m) of private building activity in the Greek regions (NUTS-II level) for the years 2021−2022. As of March 2022, the cases of Attiki (region 10), Kentriki Makedonia (Central Macedonia, 02), and the Peloponnisos (Peloponnese, 09) were the leading regions in building activity whilst the cases of Voreio Aigaio (North Aegean, 11), Dytiki Makedonia (West Macedonia, 03), and Sterea Ellada (Sterea Hellas, 08) showed the lowest building volume levels (ELSTAT, 2022). Further, the number of firms operating broadly in the Greek construction sector reached 158,305 in 2019, representing a decline of 11.2% since 2010. In contrast, the real estate and architectural/engineering sub-sectors reported in 2019 a 50.5% and a 21.3% increase in the number of firms, respectively, compared to the levels in 2010. In terms of employment, the number of individuals employed in the broad construction sector stood at 280,280 in 2019, representing a decline of 25.8% since 2010. Conversely, the number of persons employed in the property and architectural/engineering activities sub-sectors increased by 46.0% and 26.7% from 2010 to 2019, respectively (ECSO, 2020).

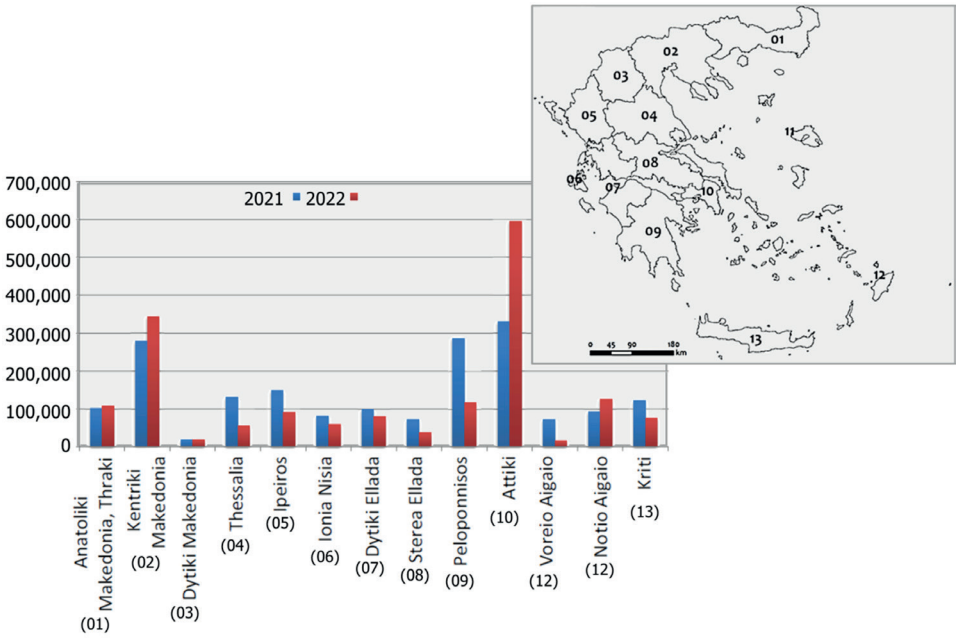

Fig. 5. Private building activity (in cubic m) by Greek regions (2021–2022)
Source: own work created on data extracted from ELSTAT (2022).

3. METHODOLOGY AND DATA

This study aims at exploring significant socio-economic factors that affected Greek building activity. The analysis builds on a multinomial logistic approach applied at the third (III) level of spatial administration, according to the Nomenclature of Territorial Units for Statistics (NUTS). The dependent variable represents the variance in building activity (vba) for the study period, as reported by the Hellenic Statistical Authority (ELSTAT, 2022) for the fifty-one (51) Greek prefectures (see Fig. 1). In particular, the dependent variable expresses the variance in the volume (in cubic m) of building activity per capita in each prefecture and is allocated to low, medium, high or very high levels. Due to the data availability of the independent variables, a list-wise analysis restricts the availability of the respective building activity's data (as shown in Fig. 2 and Fig. 3) to the period 2000−2019. To repair this loss of information, a composite multinomial logistic regression has been used, consisting of a collection of three models conceived in a statistical inference context based on a confidence interval computation. In particular, three multinomial logistic regression models were constructed including collections of (*i*) lower bound, (*ii*) average, and (*iii*) upper bound variables, and, therefore, the analysis was run three times (instead of once) to incorporate in the results a 95% certainty level captured by the confidence intervals computed across the time dimension (2000−2019) of the available variables. In the final step, this approach enables one to consider in common the results of the analysis based on signs' intersection and, therefore, to repair and better manage the uncertainty caused by the definition of the period 2000−2019.

The total surface area of Greece is 132,049 sq. km (Polyzos, 2019; Tsiotas, 2021) with Kentriki Makedonia representing the biggest region (19,166 sq. km) and the Ionian Islands the smallest one (2,306 sq. km). According to the 2011 Population – Housing Census, the total population of Greece was 10,816,286 residents. The prefecture of Attiki (1) has the greatest regional population with 3,828,434 residents (35.4% of the country's population) and the lowest population with 199,231 residents (only 1.8% of the country's population) has the Voreio Aigaio (11) region. The total number of households reaches 4,134,540, with 2-membered ones representing 29.5% (1,218,466 households). Furthermore, according to the 2016 Farm Structure Survey, the total utilised agricultural area in Greece is 3.1526 thousand ha. The independent variables which are considered in the analysis regard economic and social regional characteristics.

All models in this paper were constructed through the use of the IBM SPSS® statistical package (Norusis, 2011). Next, a description of the methodology adopted is provided and the composite model's structure is explained in more detail.

3.1. Multinomial Logistic Regression models

The spatial effect of the observed differences in building activity variance can be described by a categorical variable that assigns spatial ranges to a specific number of categories concerning the magnitude of variance so that the dimensions of the phenomenon under study can be reduced and sustain only its major trends in variance. The result contributes to a clearer and more intuitive understanding of any spatial dissimilarity (Polyzos and Minetos, 2008). For this presented analysis, a set of three multinomial logistic regression (MLR) models is used (Norusis, 2011), described by four classes (dimensions) of building activity variance. The MLR is useful when there is a need to classify subjects based on the values of a set of predictor variables. This type of regression is like a logistic regression, but the dependent variable is not restricted to two categories. Logistic regression treats the distribution in a probabilistic manner and expresses each dimension of the issue under investigation in terms of probability (Agresti, 1996). The MLR technique is an extension of the binomial logistic model to the cases where the dependent variable has more than two categories (e.g., low variance, medium variance, high variance, etc.). In this case, the dependent variable of interest exhibits a multinomial distribution and not a binomial as in simple logistic modelling. This type of regression requires no linear relationship between the dependent and independent variables to apply. Furthermore, it does not assume that the dependent variable and residuals are normally distributed (Norusis, 2011). The "very high variance" category (cat) is set as a reference category, and three non-redundant classes (logits) are formed for (*i*) the "high variance"; (*ii*) "medium variance"; and (*iii*) "low variance" categories, to observe differences in building activity variance. Using the general formula of logistic regression (Norusis, 2011):

$$Pr\left(Y=j\right)=\frac{e^{(b_{0j}+b_{1j}X_1+\ldots+b_{nj}X_n)}}{\sum_{i=1}^{m}e^{(b_{0i}+b_{1i}X_1+\ldots+b_{ni}X_n)}} \tag{1}$$

which is equivalent to:

$$\log\left[\frac{Pr_{(i-cat)}}{Pr_{(j-cat)}}\right]=b_{0i}+b_{1i}X_1+b_{2i}X_2+\ldots+b_{ni}X_n+\varepsilon_i \tag{2}$$

the following logits can be constructed for a single model:

$$\text{logitA}=\ln\left[\frac{Pr_{(low-cat)}}{Pr_{(very\ high-cat)}}\right]=b_{0A}+b_{1A}X_1+b_{2A}X_2+\ldots+b_{nA}X_n+\varepsilon_A \tag{3}$$

$$\text{logitB} = \ln\left[\frac{Pr_{(medium-cat)}}{Pr_{(very\ high-cat)}}\right] = b_{0B} + b_{1B}X_1 + b_{2B}X_2 + \ldots + b_{nB}X_n + \varepsilon_B \quad (4)$$

$$\text{logitC} = \ln\left[\frac{Pr_{(high-cat)}}{Pr_{(very\ high-cat)}}\right] = b_{0C} + b_{1C}X_1 + b_{2C}X_2 + \ldots + b_{nC}X_n + \varepsilon_C \quad (5)$$

where:

Y:	the dependent categorical variable
j:	the baseline category (j-cat)
i:	the alternative (different than the baseline) categories (i-cat), numbered 1, …, m
$Pr_{(j\text{-cat})}$:	the likelihood that the dependent categorical variable Y is in the j category (j-cat)
$Pr_{(i\text{-cat})}$:	the likelihood that the dependent categorical variable Y is in the i category (i-cat)
X_n:	the independent variables (predictors), numbered as 1, …, n
b_{0i}:	the intercept for logit i
$b_{1i} \sim b_{ni}$:	the regression coefficients of the n independent variables (predictors) for logit i
ε_i:	the error terms (residuals) for logit i.

Logit A captures the log of the odds of the probability that a prefecture is in the "low building activity variance" category rather than in the very high category. Logit B incorporates the log of the odds of the probability of being in the "medium building activity variance" category compared to the very high variance category. Logit C captures the log of the odds of the probability that a prefecture is in the "high building activity variance" category rather than in the very high category. The MLR's main output result is the logistic coefficient (B) for each predictor variable, for each alternative category (not the reference category) of the outcome variable. This B coefficient is the expected amount of change in the logit for each one-unit change in the predictor variable. The logit is what is being predicted, namely, it is the odds of being in the category of the outcome variable which has been specified. The closer B coefficient is to zero, the less influence the predictor has in predicting the logit. The results also entail the standard error, t-statistic, and p-value. The t-test for each coefficient is used to determine whether the coefficient is significantly different from zero. The Pseudo R-Square statistics (e.g., McFadden) are treated as measures

of effect size, like how R^2 is treated in standard multiple regression. However, these types of metrics do not always represent the amount of variance in the outcome variable accounted for by predictor variables. Higher values generally indicate a better fit, but they should be interpreted with caution. The likelihood ratio chi-square test is the alternative test of goodness-of-fit. The use of the MLR and relevant discussion can be found in Hosmer and Lemeshow (1989), Long (1997), and Menard (2000).

3.2. Dependent variables

Data for estimating regional differences in building activity was extracted from the Hellenic Statistical Authority (ELSTAT). The dependent variables (vba) are estimations of the variance (σ^2) in the building activity within each Greek prefecture (NUTS-III level) for the years 2000−2019, expressed in volume (cubic m) per capita. In particular, the first dependent variable $Y_1 \equiv$ vba(LB) expresses the lower bound of the average variance in building activity, estimated by a 95% confidence interval that is computed (based on Student's distribution) across the available time data (2000−2019) for each prefecture. The second dependent variable $Y_2 \equiv$ vba(M) expresses the average variance in building activity, estimated (point estimation) across the available time data for each prefecture. The third dependent variable $Y_3 \equiv$ vba(UB) expresses the upper bound of the average variance in building activity, estimated by a 95% confidence interval that is computed (again based on Student's distribution) across the available time data (2000−2019) for each prefecture. The collection of these three models Y=$\{Y_1, Y_2, Y_3,\}$ is implemented to repair uncertainty due to the data availability, and is expressed in a system format as follows:

$$Pr(\boldsymbol{Y}=\boldsymbol{i}) = Pr((Y_1,Y_2,Y_3)=(i,j,k)) = \\ = \begin{cases} Pr(Y_1 = vba(LB) = i) = \dfrac{e^{(b_{0i}+b_{1i}\boldsymbol{X}_1+\ldots+b_{ni}X_n)}}{\sum_{p=1}^{m} e^{(b_{0p}+b_{1p}X_1+\ldots+b_{np}X_n)}} \\ Pr(Y_2 = vba(M) = j) = \dfrac{e^{(b_{0j}+b_{1j}X_1+\ldots+b_{nj}X_n)}}{\sum_{p=1}^{m} e^{(b_{0p}+b_{1p}X_1+\ldots+b_{np}X_n)}} \\ Pr(Y_3 = vba(UB) = k) = \dfrac{e^{(b_{0k}+b_{1k}X_1+\ldots+b_{nk}X_n)}}{\sum_{p=1}^{m} e^{(b_{0p}+b_{1p}X_1+\ldots+b_{np}X_n)}} \end{cases} \quad (6)$$

All these latent variables were derived from the mean values (see Fig. 3) and the standard deviation of building activity volume divided by the population of each prefecture. These original values of variances were transformed to construct a broader variance classification of building activity and subsequently to investigate the relative performance of the building sector against a diverse group of numerical variables considered hereinafter as significant driving factors of building activity fluctuations. Hence, the 51 prefectures were classified into four categories according to the magnitudes of variance that they exhibited during the study period. These categories (cat) are equally weighted and, indicatively for the second model (Y_2), are shown as follows:

cat(1): Prefectures with *low* variance in building activity (vba(MB) ≤ 4.27)
cat(2): Prefectures with *medium* variance in building activity (4.27 < vba(MB) ≤ 6.45)
cat(3): Prefectures with *high* variance in building activity (6.45 < vba(MB) ≤ 9.76)
cat(4): Prefectures with *very high* variance in building activity (9.76 < vba(MB))

The corresponding categories for the other two models (Y_1 and Y_2) arise from the previous ones by the confidence intervals calculation.

3.3. Independent variables and research hypotheses

This section presents the total eight independent variables (predictors) selected to be included in the empirical model together with the main research hypothesis assigned to each variable. The relevant data was retrieved from ELSTAT databases and covers the study period of the years 2000−2019. These explanatory variables are considered to be related to several economic and social regional characteristics and are shown in Table 1. As far as the pre-variable is concerned (prefecture's GDP to the GNP), according to Myers (2008), GDP figures are used worldwide as a proxy for a territory's progress towards prosperity. Since "the more money made," the higher the GDP growth, it is generally accepted that an increased GDP is associated with a higher standard of living for the citizens of that territory.

Table 1. Predictor (independent) variables participating in the analysis

Label	Name	Description	Source
pre	Prefecture's gross domestic product (GDP) contribution to the gross national product (GNP)	Represents the prosperity level of residents in each prefecture and is used to investigate whether there is a positive influence of the level of economic development in each prefecture on the variance of building activity (expressed as a percentage).	Polyzos (2019); Tsiotas (2021)

Label	Name	Description	Source
dic	The declared income per resident in each prefecture	It also relates to residents' prosperity level in each prefecture and is used to explore whether there is a positive effect of higher declared income in each prefecture on the building activity variance (expressed as euro per capita).	Polyzos (2019); Tsiotas (2021)
pit	Personal income tax in each prefecture	It examines whether there is a negative relationship between higher levels of taxation on personal income and the variance of building activity in each prefecture (expressed as euro per capita).	Polyzos (2019)
upd	Urban population density	It measures the level of urbanisation of each prefecture; due to the phenomenon of real estate cycles, the relationship between the growth of urban population and the level of building activity is rather a complex one and, therefore, the hypothesis under investigation is whether prefectures with larger urban concentrations are associated with more stable patterns of building activity. The extent of building activity in an economy is closely linked in particular to the extent of urbanization in that economy (expressed as the number of residents per sq. km of each prefecture's surface area).	Tsiotas (2021)
con	Construction industry's contribution to each prefecture's GDP	It is used to assess whether increased levels of construction activity within a prefecture could be associated with more volatile building activity levels (expressed as a percentage).	Polyzos (2019)
agr	Agricultural sector's contribution to each prefecture's GDP	It is used to check whether the growth of agricultural activity within a prefecture could be associated with higher levels of building activity variance (expressed as a percentage).	Tsiotas (2021); Sdrolias *et al.* (2022)
srv	Services sector's contribution to each prefecture's GDP	It is used to check whether an increased level of activities related to the services industry within a prefecture could be associated with more unstable building activity patterns (expressed as a percentage).	Tsiotas (2021)
toa	Tourists' overnight accommodation	It captures the magnitude of touristic demand for each prefecture and, thus, it is investigated whether higher demand for tourists' overnight staying is connected to an increased level of building activity variance (expressed as the number of nights spent by tourists in each prefecture per capita of that prefecture).	Tsiotas *et al.* (2021)

Source: own work.

4. RESULTS AND DISCUSSION

Table 2a reports no missing values for the binned categorical (ordinal) dependent variables (vba(LB), vba(M), vba(UB)). Table 2b presents Models Fitting Information with the Likelihood Ratio Test (Chi-Square), used to test the hypothesis that the values for all coefficients in the multinomial logistic model are zero. Since the observed level of significance is asymptotically zero, the null hypothesis that all coefficients for the independent variables are zero can be rejected in all cases of the three models. Thus, it is concluded that the final models outperform the intercept-only models. The null hypothesis that the models adequately fit the data can be examined by the Deviance Goodness-of-Fit test results shown in Table 2c. However, in the cross-tabulation, there are 153 (75%) cells (i.e., dependent variable levels by subpopulations) with zero frequencies due to a large number of regressors in the model (eight covariates). Therefore, it is advisable not to rely on the above tests. Pseudo R-Square statistics (Table 2d) are measures capturing the goodness-of-fit of the model, to the extent that (Pseudo R-Square) values closer to 1 show that the logistic model explains well the variation in the dependent variable. The Cox and Snell and Nagelkerke scores can be considered satisfactory (Nagelkerke, 1991) for all three models, although we can observe that they slightly decline across models configuring an inequality $R^2_{(\text{vba(LB)})} > R^2_{(\text{vba(M)})} > R^2_{(\text{vba(UB)})}$.

Table 2. Comparative model summary for the three constructed "vba" models

Sub-Table 2a. Ordered categories for the dependent variable (vba)

Model (Dependent variable)		**vba(LB)** (Lower bound)		**vba(M)** (Mean)		**vba(UB)** (Upper bound)	
Descriptives		N	Marginal Percentage	N	Marginal Percentage	N	Marginal Percentage
Categories	(1)	39*	76.5%*	39*	76.5%*	39*	76.5%*
	(2)						
	(3)						
	(4)	12	23.5%	12	23.5%	12	23.5%
Valid		51	100.0%	51	100.0%	51	100.0%
Missing		0					
Total		51					
Subpopulation		51*					

* Equivalently distributed across categories 1, 2, and 3

Sub-Table 2b. Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Model: **vba(LB)**				
Intercept Only	141.342			
Final	70.843	70.500	24	.000
Model: **vba(M)**				
Intercept Only	141.342			
Final	79.051	62.291	24	.000
Model: **vba(UB)**				
Intercept Only	141.342			
Final	83.138	58.204	24	.000

Sub-Table 2c. Goodness-of-Fit Tests

Type	Chi-Square	df	Sig.
Model: **vba(LB)**			
Pearson	88.040	126	.996
Deviance	70.843	126	1
Model: **vba(M)**			
Pearson	95.204	126	.981
Deviance	79.051	126	1
Model: **vba(UB)**			
Pearson	100.791	126	.952
Deviance	83.138	126	.999

Sub-Table 2d. Pseudo R-Square Statistics

↓Statistic / Model→	**vba(LB)**	**vba(M)**	**vba(UB)**
Cox and Snell	.749	.705	.681
Nagelkerke	.799	.752	.726
McFadden	.499	.441	.412

* The dependent variable has only one value observed in 51 (100%) subpopulations

Source: own work.

The Likelihood Ratio Tests that are reported in Table 3 evaluate the contribution of each effect to the corresponding model. Thus, each coefficient is tested and the hypothesis that each coefficient is zero is examined. The -2 Log-likelihood is computed for each effect for the reduced model, i.e., a model without

the effect. In cases where the significance of the test is small (less than 0.05 or 0.10), the effect contributes to the corresponding model. This test can be used instead of the Wald test for the parameter estimates. As it can be observed, five (pre, pit, con, agr, toa) out of the total eight covariates make a significant contribution to the lower bound model (Y_1 = vba(LB)); another five (pit, con, agr, srv, toa) covariates (62.5% of the total) make a significant contribution to the average vba model (Y_1 = vba(LB)); whereas four (pit, con, srv, toa) covariates (50% of the total) make a significant contribution to the lower bound model (Y_1 = vba(LB)). Amongst these covariates, pit, con, and toa are in common in all these three models; covariates agr and srv appear significant in two out of three models, whereas covariate pre appears significant in a single model. This observation enables one to put into a hierarchy the contribution of the covariates to the model as follows whether multiplying their significances for all three models and concluding to the following ranking: con (average significance: ≤0.001), pit (average significance: 0.043), toa (average significance: 0.045), agr (average significance: 0.07), srv (average significance: 0.157), and pre (average significance: 0.392), where the first four in ranking covariates are on average significant (≤0.01).

The Classification matrix in Table 4 shows that the models on average perform satisfactorily (>60.0%) in identifying the prefectures that experience high (class 4) low (class 2) and very high (class 5) variances in building activity. Overall, for all three models, more than 60% of the predictions have been classified correctly. Although this percentage cannot be claimed as an uncontested high one, it can be considered satisfactory to the extent that the models' results are interpreted structurally, namely based on their significance (to differ from zero) and their (positive or negative) sign indicating the analogy of their contribution to the model. Towards this direction, the construction of a composite (three-layer) model, based on the confidence interval estimations of the available dependent and independent variables, contributes to the increase of our structural certainty about the relationship vba=*f*(pre, dic, pit, upd, con, agr, srv, toa). Within this context, being aware of such limitations, we focus on the sign interpretations of the model results and not on their detailed numeric values.

The results of parameter estimates for the three logits A, B, and C and per model (vba(LB), vba(M), vba(UB)) are shown in Table 5, which summarises the effect of each independent variable. Predictors that significantly contribute to the separation of low, medium, and high building activity variance categories from the very high variance reference category are highlighted (see variables and associated values) in bold font, whereas those of marginal contribution is shown in italics. In general, parameters with negative coefficients decrease the likelihood of that response category for the reference category. Conversely, parameters with positive coefficients increase the likelihood of the response category concerning the reference one.

Table 3. Likelihood Ratio Tests*

Model	vba(LB)				vba(M)				vba(UB)			
Effect	Fitting Criteria	Likelihood Ratio Tests			Fitting Criteria	Likelihood Ratio Tests			Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced** Model	x^{2} (***)	df	Sig.	-2 LL of Reduced Model	x^{2}	df	Sig.	-2 LL of Reduced Model	x^{2}	df	Sig.
Intercept	78.639	7.796	3	.050	90.109	11.058	3	.011	93.277	10.139	3	.017
pre	80.411	**9.568**	**3**	**.023**	81.322	2.270	3	.518	84.843	1.706	3	.636
dic	75.849	5.006	3	.171	80.816	1.764	3	.623	84.366	1.228	3	.746
pit	81.946	11.103	3	.011	86.045	6.994	3	.072	91.077	7.939	3	.047
upd	75.959	5.116	3	.163	80.213	1.161	3	.762	83.791	.653	3	.884
con	86.221	15.379	3	.002	97.495	18.444	3	.000	100.475	17.337	3	.001
agr	**78.039**	**7.196**	**3**	**.066**	**87.434**	**8.382**	**3**	**.039**	89.305	6.167	3	.104
srv	74.090	3.247	3	.355	**86.284**	**7.233**	**3**	**.065**	**90.935**	**7.797**	**3**	**.050**
toa	78.765	7.922	3	.048	87.987	8.936	3	.030	90.667	7.529	3	.057

* The null hypothesis is that all parameters of that effect are 0
** The reduced model is formed by omitting an effect from the final model
*** The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model

Source: own work.

Table 4. Classification matrix

Observed	Predicted				
	cat (1)	**cat (2)**	**cat (3)**	**cat (4)**	**Percent Correct**
Model: **vba(LB)**					
cat (1)	8	3	1	1	61.5%
cat (2)	3	7	3	0	53.8%
cat (3)	1	1	9	2	69.2%
cat (4)	1	1	2	8	66.7%
Overall Percentage	25.5%	23.5%	29.4%	21.6%	62.7%
Model: **vba(M)**					
cat (1)	7	3	2	1	53.8%
cat (2)	2	10	0	1	76.9%
cat (3)	4	1	6	2	46.2%
cat (4)	1	0	3	8	66.7%
Overall Percentage	27.5%	27.5%	21.6%	23.5%	60.8%
Model: **vba(UB)**					
cat (1)	7	3	2	1	53.8%
cat (2)	4	7	2	0	53.8%
cat (3)	3	1	7	2	53.8%
cat (4)	1	0	3	8	66.7%
Overall Percentage	29.4%	21.6%	27.5%	21.6%	56.9%

Source: own work.

For the first logit A grouping (low variance), significant variables across all three vba models are the size of the construction sector (con) and the tourists' overnight accommodation (toa), whereas the size of the agricultural sector (agr) is significant in one model, and the share of the services to the total GDP of each prefecture (srv) appear marginally significant in two out of three models. Next, for the second logit B grouping (medium variance), the size of the construction sector (con) remains a significant covariate across all three models, whereas the number of tourists overnight accommodation (toa) appears significant in two out of three models and in one marginally significant. Further, the share of the services sector to the prefecture's GDP (srv) appears this time significant in two out of three models, and the prefecture's contribution to total GNP (pre) in one out of three models. Next, according to the third logit C grouping (high variance), the personal income tax (pit), the share of the services sector to the prefecture's GDP (srv), and the number of tourists' overnight accommodation (toa) can be considered marginally significant in one out of three models.

Table 5. Parameter Estimates for logit A, logit B, and logit C functions[a]

Type		vba(LB)					vba(M)					vba(UB)				
		b	s.e.	Wald	Sig.	e^b	b	s.e.	Wald	Sig.	e^b	b	s.e.	Wald	Sig.	e^b
cat (1)	Intercept	76.584	63.954	1.434	.231		32.954	33.519	.967	.326		34.863	31.198	1.249	.264	
logit A	pre	-.541	2.074	.068	.794	.582	-1.478	1.761	.704	.401	.228	-1.322	1.749	.572	.450	.266
	dic	-6.475	6.913	.877	.349	.002	.647	2.090	.096	.757	1.909	.477	1.560	.094	.760	1.612
	pit	-1.527	10.271	.022	.882	.217	-6.888	9.549	.520	.471	.001	-8.952	9.723	.848	.357	.000
	upd	-.694	2.151	.104	.747	.499	-.445	1.768	.063	.801	.641	-.002	1.732	.000	.999	.998
	con	-11.926[b]	5.162	5.338	.021	<0.001	-12.776	4.836	6.980	.008	<0.001	-11.089	4.301	6.647	**.010**	**<0.001**
	agr	-2.381	2.617	.828	.363	.092	-2.721	2.270	1.437	.231	.066	-2.682	2.170	1.527	**.217**	**.068**
	srv	*5.634*	*3.841*	*2.152*	*.142*	*279.887*	4.325	3.369	1.648	.199	75.548	4.707	2.996	2.469	.116	110.747
	toa	-2.303	1.025	5.047	.025	.100	-2.235	.913	5.999	.014	.107	-1.946	.912	4.557	**.033**	**.143**
cat (2)	Intercept	-17.932	28.055	.409	.523		-8.980	29.737	.091	.763		-5.721	29.854	.037	.848	
logit B	pre	-4.901	2.278	4.629	.031	.007	-2.563	1.832	1.957	.162	.077	-2.143	1.760	1.482	.223	.117
	dic	-.963	2.074	.215	.643	.382	1.313	1.179	1.240	.265	3.718	.980	1.127	.756	.385	2.663
	pit	14.848	11.080	1.796	.180	$2.81 \cdot 10^6$	3.000	9.790	.094	.759	20.095	3.911	9.921	.155	.693	49.930
	upd	2.904	2.345	1.534	.216	18.246	.886	1.801	.242	.623	2.426	.971	1.766	.302	.582	2.640
	con	-13.293	5.285	6.326	.012	<0.001	-13.765	4.944	7.750	.005	<0.001	-12.298	4.356	7.971	**.005**	**<0.001**
	agr	2.588	2.576	1.009	.315	13.307	1.350	2.241	.363	.547	3.856	.326	2.186	.022	.881	1.386
	srv	4.402	3.678	1.432	.231	81.619	**6.701**	**3.353**	**3.994**	**.046**	**813.574**	6.114	2.992	4.176	.041	452.239
	toa	**-1.677**	**.944**	**3.158**	**.076**	**.187**	*-1.476*	.905	2.661	.103	.229	-1.761	.877	4.030	**.045**	**.172**
cat (3)	Intercept	53.664	57.123	.883	.347		-27.674	26.834	1.064	.302		-21.838	26.503	.679	.410	
logit C	pre	-1.201	1.697	.501	.479	.301	-1.012	1.420	.507	.476	.364	-.761	1.349	.318	.573	.467
	dic	-10.069	7.083	2.020	.155	<0.001	.784	1.025	.585	.444	2.190	.684	.981	.485	.486	1.981

Type		vba(LB)					vba(M)					vba(UB)				
		b	s.e.	Wald	Sig.	e^b	b	s.e.	Wald	Sig.	e^b	b	s.e.	Wald	Sig.	e^b
logit C	pit	*15.509*	*10.518*	*2.174*	*.140*	*$5.44 \cdot 10^6$*	8.908	8.996	.980	.322	7390.986	7.246	9.066	.639	.424	1402.527
	upd	.898	1.845	.237	.626	2.456	.560	1.575	.126	.722	1.750	.487	1.535	.101	.751	1.627
	con	-4.046	4.479	.816	.366	.017	-3.274	3.677	.793	.373	.038	-3.337	3.263	1.046	.306	.036
	agr	.484	2.226	.047	.828	1.622	.779	1.837	.180	.672	2.178	.479	1.764	.074	.786	1.615
	srv	4.530	3.247	1.946	.163	92.750	*4.122*	*2.763*	*2.225*	*.136*	*61.658*	3.577	2.534	1.991	.158	35.750
	toa	*-1.091*	*.761*	*2.058*	*.151*	*.336*	-.849	.631	1.812	.178	.428	-.798	.610	1.710	.191	.450

a. The reference category is cat (4), i.e., very high variance in building activity.
b. Significant cases (at the 0.10 level and below) are shown in **bold**
c. Marginally significant cases (at the 0.10-0.15 level) are shown in *italics*

Source: own work.

By multiplying the significances per covariate, for all 9 cases composed by the multiplication of 3 vba models and 2 logit categories, it can be observed in Table 6 that (*i*) those covariates that remain significant at the 0.10 level ($\leq 0.10^9$) are the size of the construction sector (con) and the number of tourists overnight accommodation (toa); (*ii*) the covariate that remains marginally significant at the 0.12 level ($\leq 0.12^9$) is the share of the services sector to the prefecture's GDP (srv); whereas (*iii*) the fourth covariate in the ranking, the prefecture's contribution to total GNP (pre), has a product of significance $>0.30^9$ and cannot be considered as significant along with its following ones.

As far as the significant predictors are concerned, the size of the construction sector (con) appears the most significant one, having a negative coefficient in all cases that absolutely increases and afterward decreases across the logit groups (in an inverse U-shaped pattern). This outcome first indicates that the size of building activity in a prefecture (as it represents a major constituent of its total construction volume) is positively associated with its variance. This observation, in the context of the Williamsons' curve of inequalities, which describes an inverse U-shaped engine between economic national economic growth and regional inequalities (Capello, 2016; Polyzos, 2019), enables one to assume (by loosely assigning the size of the construction sector to the economic growth's axis and the variability of building activity to the regional inequalities' axis) a similar engine describing the vba's distribution by the size of the construction sector, interpreting that as the size of the construction section increases (from low to high) the variability in the sector first increases and afterward decreases. This interpretation may imply that intermediate stages of growth in the construction sector appear more unevenly distributing the returns of growth in the structural elements of the spatial economic system (e.g., a prefecture), whereas the cases of low and high size in the construction sector appear more convergent, addressing avenues of further research for testing this hypothesis.

Next, the second most significant predictor is the number of tourists overnight accommodation (toa), showing also a negative coefficient across all cases, which, however, absolutely decreases across the logit groups. This outcome supports the hypothesis that prefectures with an increased touristic demand are more likely to experience high levels of variance in their building activity, however, this engine is possibly implemented through decreasing returns of scale (as the decreasing coefficient across logit groups may illustrate) implying that tourism growth may stabilise vba. In terms of regional policy, this outcome can instruct policy-makers in Greece to rely on tourism development motives as a stabiliser of variability observed in building activity, thus highlighting that the concrete industry/sector in a country, as tourism is for Greece (Polyzos, 2019; Tsiotas *et al.*, 2021; Sdrolias *et al.*, 2022), can operate towards inequalities' convergence to other sectors also (obviously based on the level of the basic industry's integration in the economic structures).

Table 6. Aggregate (total) significances Estimates for logit A, logit B, and logit C functions[a]

	Significance										**Test: Sig.$_{total}$ < p_i^9**		
	cat(1): Logit A			cat(2): Logit B			cat(3): Logit C				p^1=	p^2=	p_3=
Predictors	vba(LB)	vba(M)	vba(UB)	vba(LB)	vba(M)	vba(UB)	vba(LB)	vba(M)	vba(UB)	Sig.$_{total}$	0.1	0.12	0.31
Intercept	0.231	0.326	0.264	0.523	0.763	0.848	0.347	0.302	0.41	0.000289	FALSE	FALSE	FALSE
pre	0.794	0.401	0.45	0.031	0.162	0.223	0.479	0.476	0.573	$2.1 \cdot 10^{-5}$	FALSE	FALSE	*TRUE*
dic	0.349	0.757	0.76	0.643	0.265	0.385	0.155	0.444	0.486	0.000441	FALSE	FALSE	FALSE
pit	0.882	0.471	0.357	0.18	0.759	0.693	0.14	0.322	0.424	0.000268	FALSE	FALSE	FALSE
upd	0.747	0.801	0.999	0.216	0.623	0.582	0.626	0.722	0.751	0.01589	FALSE	FALSE	FALSE
con	0.021	0.008	0.01	0.012	0.005	0.005	0.366	0.373	0.306	$2.11 \cdot 10^{-14}$	TRUE	TRUE	TRUE
agr	0.363	0.231	0.217	0.315	0.547	0.881	0.828	0.672	0.786	0.001208	FALSE	FALSE	FALSE
srv	0.142	0.199	0.116	0.231	0.046	0.041	0.163	0.136	0.158	$\boldsymbol{5 \cdot 10^{-9}}$	FALSE	***TRUE***	***TRUE***
toa	0.025	0.014	0.033	0.076	0.103	0.045	0.151	0.178	0.191	$2.09 \cdot 10^{-11}$	TRUE	TRUE	TRUE

Source: own work.

Finally, the share of the services industry to the total GDP of each prefecture (srv) can be also considered statistically significant, having a positive coefficient in all cases, increasing, and afterward decreasing, in an inverse U-shaped context, as previously described. This outcome first indicates that the tertiary specialisation in a prefecture is negatively associated with the variance of building activity, describing a competitive relationship between these variables (describing that specialized in the tertiary sector prefectures are less likely to have high variability in vba). In a more detailed context of the inverse U-shaped pattern, we can assume that intermediate stages of tertiary growth appear this time more convergent in terms of their building activity, describing that low and high specialized regions in the tertiary sector are described by a higher entropy in their variability.

5. CONCLUSIONS

The empirical econometric analysis presented in this article has indicated several critical factors which may influence the relative stability of economic activity in the building sector in Greece. Overall, when medium (yellow colored) class regions are also considered, it can be observed that regions with below the medium average building activity are scattered throughout the Greek territory, shaping almost an even pattern of dispersion regardless of geomorphology (insular, coastal, mainland, and mountainous). A composite "%-shape" (composed of the central arc and clusters from both sides) spatial pattern of high average building activity was detected as an effect of demographic concentration (to the extent that the metropolitan regions of the country are concerned), tourism development (as far as tourism developed insular and coastal prefectures are concerned), and mainland geomorphology related to a high specialisation in the primary sector. To the extent that the building activity is related to regional development, it can be observed that the potential drivers of this spatial configuration are the major drivers (i.e., population, tourism, and agriculture) stimulating regional development in Greece.

The regression analysis showed that the level of economic activity in each prefecture, as measured by the prosperity level of its residents, is positively connected to the variance of its building activity sector. Greater urban population density places a prefecture in the medium and high categories of building activity variance. Prefectures with increased touristic demand are more likely to experience high levels of variance in their building activity. The size of the construction sector in a prefecture is positively associated with the variance in its building activity volume.

Generally, these results on building volume variability can be useful to property planning and land use policy decision-making in reducing economic forecasting uncertainties: by helping to understand more clearly where to stimulate build-

ing production growth by providing a flexible business environment for capital investments in building development; by assisting in the determination of the advantages and the limitations of different regions that have attracted but also failed to attract building construction investors; and by enhancing the apprehension of the strengths and weaknesses of current spatial variations in attempts to develop sustainable development strategies.

This study focuses on investigating spatial differences in the variability of the Greek building activity based on statistical data for the third prefectural (NUTS-III) level. In future research, the introduced methodology could be implemented to explore spatial differences in the variability of specific prefectures building activity at the fourth territorial level, i.e., at the first level of Local Administrative Units (LAU-I) for Greece.

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CENTRES AND PERIPHERIES REFLECTED IN DISTRIBUTION PATTERNS OF EU COHESION POLICY FUNDING ON THE EXAMPLE OF THE BARANYA COUNTY, HUNGARY

Abstract. The cohesion policy of the EU plays a key role in overcoming territorial disparities. The emergence of the policy was accompanied by a debate on a place-neutral or place-based approach. In the case of Hungary, the first fully implemented programming period of 2007–2013 and the still ongoing 2014–2020 period provide a good tool for comparison. Overall, the aim of the research was to provide an in-depth look into the change of territorial patterns of EU-funding distribution, on the example of the Baranya county, being part of one of the 20 least developed regions of the EU; how territorial patterns of EU funding changed between the two periods and how the county-level territorial objectives were reflected in the funding patters.

The introduction of the paper provides a review of relevant literature on EU cohesion policy, then the selection of the Baranya county as a case study is justified. The following part shortly presents the framework of regional development in Hungary, highlighting the relevant documents for the case study county. The presentation of the empirical study is divided into two parts. First, as qualitative research perceptions of the stakeholders of the key levels of regional policy decision-making are analysed. Second, a quantitative analysis of the territorial funding patterns of the two periods is presented, in light of established territorial objectives.

Key words: multi-level governance, cohesion policy, place-based policy, peripheral areas.

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1. INTRODUCTION: THE ROLE OF COHESION POLICY IN THE DEVELOPMENT OF LAGGING REGIONS

Decreasing regional disparities as an objective dates back to the Rome Treaty, as a precondition for an effective common market. The establishment of the European Regional Development Fund in 1975 was a major step in the European integration process. The European regional policy has become a synonym for the European social model: for the sake of the common market lagging regions should be helped to catch up, and promote their competitiveness (Streitenberger, 2013), which also contributed to creating legitimacy for the integration process (Manzella and Mendez, 2009). Although the policy is referred to as "regional," the allocation of funding is made, in fact, at the national level, during negotiations with the European Commission, in coherence with EU level objectives.

Individual periods of the policy show a particular evolution process: while the policy moves towards complexity, tendencies of simplification and standardisation are also apparent. EU regional policy has been assessed from several aspects: numerous scholars examine its efficiency, providing mixed results. Although convergence is detected at the EU level among countries, it often follows a divergence between regions within a country (Bachtler and Gorzelak, 2007; Butkus and Matuzevičiūtė, 2016; EC, 2022). During its evolution, regional policy has become the second largest policy area in terms of funding provided, the majority of financial sources of which go to Objective 1 regions, those being below the 75% threshold in terms of GDP per capita compared to the EU average. Concerning the objective of reducing territorial disparities, some scholars claim that the policy in its current form is more an income support or redistribution mechanism than a tool of long-term sustainable development; it is not sufficient to offset market forces, rather prevent or slow down divergence tendencies (Rodríguez-Pose and Fratesi, 2004). As they represent a large share of projects that receive funding, large transport infrastructure projects – despite a positive impact on accessibility – generate an unfavourable macro-regional situation (Ecorys, 2006), while direct SME support schemes may negatively impact competitiveness, in the form of conservation of existing technologies (Varga, 2016) and generation of inflation (Varga and in't Veld, 2010).

Reforms of the cohesion policy have attempted to target both cohesion and competitiveness, with changing focus. The strengthening of the sub-national level and the primacy of regional focus was challenged by several reforms and debates. The Lisbon Strategy (2006) put faster growth, innovation and employment into focus (Bachtler and Gorzelak, 2007), requesting Member States to earmark funding for the achievement of Lisbon goals (Mendez, 2011). This was in line with the approach of the World Development Report (2009) of the World Bank that promoted the focus on major centres, expecting cohesion to be achieved by a spill-over effect (Barca *et al.*, 2012). The Barca Report in 2009, as an alternative, advocated the place-based

approach, deriving from the European spatial structure (Barca *et al.*, 2012). The document, along with the necessity of territorial strategies and territorially owned public goods, highlights the importance of appropriate institutions, and multi-level governance, which is a composition of endogen and exogen resources (Barca, 2009). The EU 2020 strategy once again put a stronger accent on the EU-level coordination of reaching key targets (smart, sustainable and inclusive growth – EC, 2010), defined also at the national and regional levels, which was the key guiding principle of the regulation for the 2014−2020 programming period of the cohesion policy.

In research on territorial cohesion, macro-level issues prevail. Studies focusing on institutions often highlight the quality of governance and its role in absorption (Mendez and Bachtler, 2022), including some analyses at the regional level (Fazekas and Czibik, 2021), and the connection between absorption and political changes (Hagemann, 2019). These analyses were made with nationally available indicators and absorption figures, however, regional analyses need local-level absorption data and qualitative research, i.e., interviews with stakeholders positioned outside the programme management bodies, which are done only sporadically, usually as case studies.

Hungary has been a member of the EU since 2004 and, therefore, one completed and one nearly finished programming periods are available for analysis. The 2007−2013 programming period was the first to be implemented completely after the accession. Those seven years were influenced by turbulent institutional changes: a centralised programme management system was established and accompanied by a structure of sectoral and regional (seven NUTS 2) operational programmes. Subsequent public administration and local government reforms led to some re-design of the programmes, resulting in the dominance of centrally made decisions and a decreased role of regional institutions. The 2014−2020 period, unlike the previous one, was prepared and implemented with a relatively stable political and institutional background, however, it was much more heavily influenced by the more uniform, EU2020-oriented regulation background. As programmes of the period must be closed by the end of 2023, some projects are still under implementation, final conclusions cannot be drawn. However, a comparison of the two periods from place-based policy point of view is possible, highlighting coherence and conflicts between programme-level objectives and implementation practices.

After the introduction and justification of the selection of the Baranya county as the case study, major stages of regional development policy in Hungary are presented, with special attention applied to the case study region. Research questions and the applied methodology is described in brief, which is followed by details of the qualitative analysis. The section about the quantitative analysis is introduced with a detailed methodological description, which is followed by a presentation of the results. The paper is closed with a conclusion that highlights the relevance of the results and outcome of some parallel research on the investigated topic.

2. CASE STUDY: WHY BARANYA, HUNGARY?

Baranya has been in a particular position within Hungary since the political and economic change of the 1990s. Although it is located in the more developed "west" of Hungary, it has been one of the 20 least developed NUTS 2 regions of the EU (South Transdanubia or Dél-Dunántúl), being currently at 32% of the EU average in terms of GDP per capita.

Unlike the north-eastern counties of Hungary where the transitional crisis of the 1990s hit particularly strongly, Baranya showed an average level of development within Hungary in the 90s, without signs of severe economic or social crises. Despite its significant mining industry, the overall picture of the county's economy showed a solid share of agriculture, a relatively low level of industry and an above-average service sector, which was only typical for the capital region of Hungary. While unemployment had been the main indicator of economic downturn in Hungary's economy in the 1990s, Baranya was not critically affected by this phenomenon (Schwertner, 1994). Despite certain crisis tendencies of the 1990s, Pécs and Baranya seemed to be ready to open their economies (Faragó and Horváth, 1995), however, the war in the former Yugoslavia negatively affected them and made the county isolated. Baranya, in the end, failed to renew its industry through FDI (Nagy, 1995).

Baranya's lagging in terms of GDP per capita started as early as in the 1990s. The economic upturn in the early 2000s showed signs of cohesion in Baranya as well. The economic crisis of 2007 hit the region somewhat less than Hungary in general, however, while at the national level one could observe a slow recovery process, in the case of Baranya it was rather a period of stagnation (Fig.1). Baranya currently is among the least developed counties in the western part of Hungary, and the country in general (Fig. 2).

3. REGIONAL DEVELOPMENT IN HUNGARY AND BARANYA SINCE THE EU ACCESSION

The framework of regional development in Hungary was defined by the Act 1996: XXI on Regional Development and Spatial Planning, which used to be referred as a positive example of a newly established regional development institutional system since the end of the 1990s (Pálné Kovács, 2021). Although its main objective (reducing territorial disparities) was an integrated element throughout, it underwent several modifications, swings in terms of centralisation and decentralisation (Pálné Kovács and Mezei, 2016). Relevant development documents since 2000, regulated by this act, as well as by EU cohesion policy, are shown in Table 1.

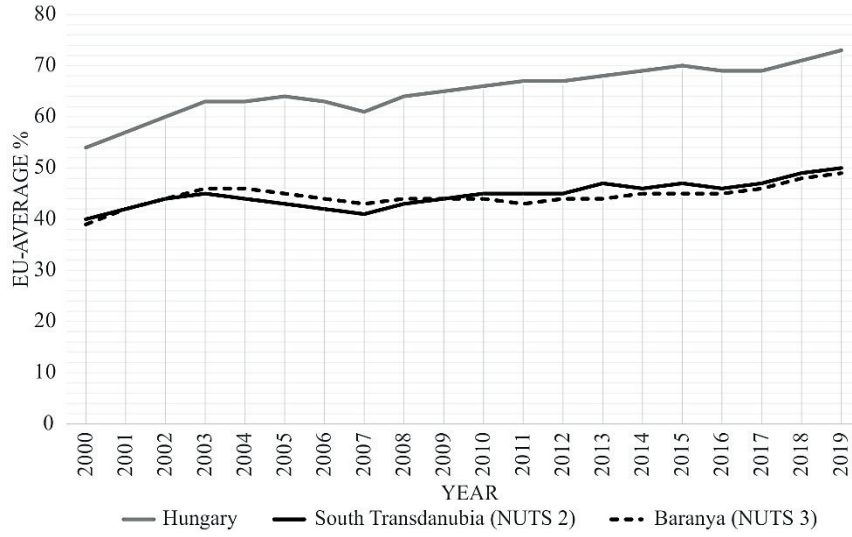

Fig. 1. GDP per capita on current prices, as % of EU average
Source: Eurostat, own work.

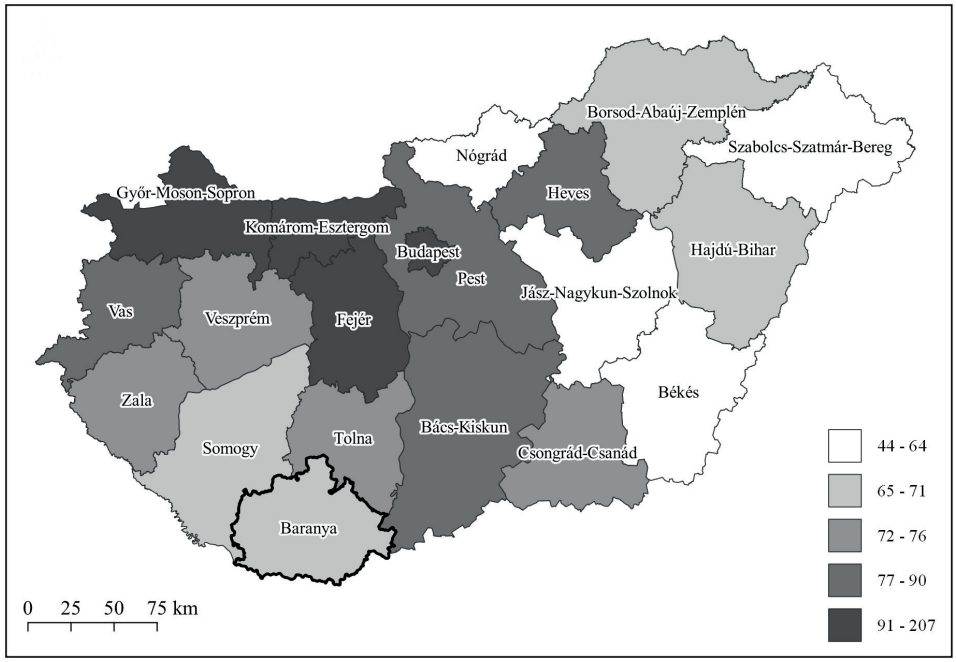

Fig. 2. GDP per capita in percentage of national average, 2019 (%)
Source: own work based on Central Statistical Office of Hungary.

Table 1. Regional development documents in Baranya since Hungary's EU accession

Title of document	Type of document	Regulation
Regional Development Programme of Baranya County 2003	county programme	Act on Regional Development and Spatial Planning
South Transdanubian Operational Programme (STOP) 2007–2013	regional operational programme	EU cohesion policy – National Strategic Reference Framework 2007–2013
Baranya County Regional Development Concept 2014–2020	county concept	Act on Regional Development and Spatial Planning
Baranya County Regional Development Programme 2014–2020	county programme	Act on Regional Development and Spatial Planning
Integrated Territorial Programme of Baranya County 2015–2020	county integrated territorial programme	EU cohesion policy – Partnership Agreement

Source: own work.

The 2003 county development programme, designed in parallel with regional documents, rather focused on internal disparities, highlighting some institutional shortcomings as well (Pámer, 2021). The bottom-up approach of the document was considered as adequate to the role of the county at that time, which focused on small-scale local development interventions, mostly small settlements (Márton, 2009).

The 2007–2013 period, the first full programming period after Hungary's EU accession, brought the emergence of the NUTS 2 regions. As part of the National Strategic Reference Framework for 2007–2013 each seven region got their own regional operational programme, including South Transdanubia (STOP). This resulted a significant shift from county to region in the institutional system as well. This meant in that period that no county level document was adopted in Baranya. The preparation of the STOP had been a long-running and thorough job, including the preparation of several sectoral strategic development plans and the creation of a wide regional stakeholder network (Márton, 2004). The document, again, focused on internal disparities, the main objective of the STOP was to halt further decline. The programme was designed with sectoral priorities, however, each priority applied certain place-based elements. The programme promoted the strengthening of small towns as the backbone of the settlement network, for the sake of concentrating services. Regionalisation of regional development brought the strengthening of the role of regional development councils and regional development agencies went through significant organisational development (Józsa, 2018). Regional development councils had the role of expressing their support for projects, however, the final decision was made at the national level.

The agencies were involved in programming, the preparation of action plans, the evaluation of applications, preparation for decision-making, which resulted in an institution dominated by skilled professionals and unavoidable in case of regional development related initiatives in the region.

The 2011 amendment of the Act on Regional Development and Spatial Planning seized the regional development councils, the coordination of regional development was delegated to the counties, which seemed to be a rational step towards simplification and democratisation: decision-making on funding schemes was delegated from state-dominated regional development councils to locally elected counties. While the counties, which prior to the reform had been responsible for education, health and social care institutions, got regional development coordination as their only responsibility. Despite rhetorical decentralisation, the reform, in the end, led to a significant weakening of the county's competences and human resources (Pámer, 2021).

The Baranya development concept and programme for the 2014−2020 period was prepared by the county administration. The applied methodology was centrally defined, laying down the process of involvement and partnership in the designing phase. Unlike the two previous documents, the 2014−2020 concept aimed to position the county within Hungary as well. The document defined three territorial objectives: lagging areas, transitional areas, and rural and economy development areas (Fig. 3). This division reflected the long-lasting internal division of the county: the county's core area (Pécs) and its north-eastern periphery (Komló) still suffered from the consequences of the unsuccessful economic recovery and incomplete re-industrialisation. The eastern and south-eastern peripheries of the county – with Mohács being the largest town – were more successful in the economic transition, due to relatively active SMEs. This area has also a better physical position, close to the main transport axis. As an opposite, the western periphery (around Szigetvár) lacks any particular perspective, not being close enough to the county's core area or transport routes.

The Integrated Territorial Programme (ITP) of the Baranya County provided the link between the county-level development objectives and the nationally implemented ERDF-funded Territorial and Settlement Development Operational Programme (TSDOP) for the 2014−2020 period. The ITP, as a tool, is not to be confused with the Integrated Territorial Investment (ITI) defined by Common Provisions Regulation (CPR) of EU cohesion policy. While the ITI focuses on urban areas and finances interventions from multiple programmes with a strong territorial focus, the Hungary ITPs are established at the county level, dividing the county-ranked cities and the rural areas. Thus, besides the Baranya ITP, a particular ITP has been developed for the county-ranked city of Pécs as well. The Baranya ITP, unlike the urban-focused STOP, emphasised the importance of developing the lagging and peripheral areas.

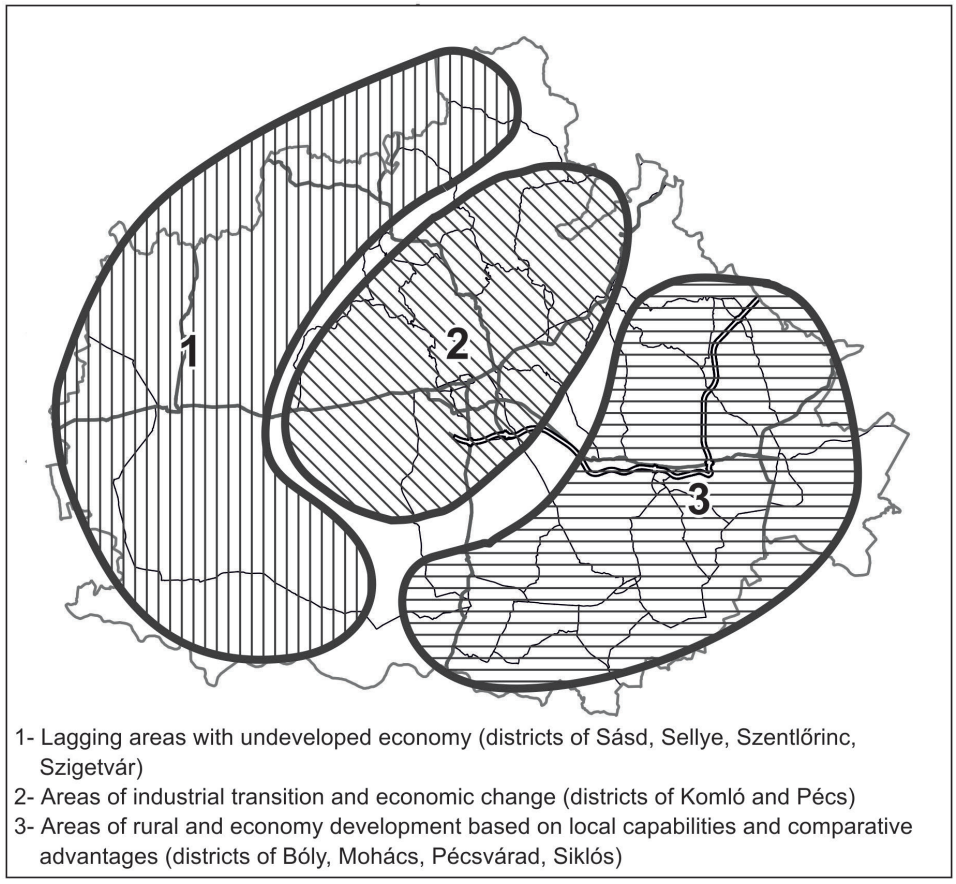

Fig. 3. Territorial development objectives in Baranya county, according to the Baranya County Concept 2014–2020

Source: Baranya (2014, 21), own work.

In terms of decision-making, the place-based approach was applied through the co-decision system in terms of project selection. The "territorial project selection system" means the definition of county-specific evaluation criteria (coherence with the county concept and programme) for each centrally designed call, as well as joint decision-making on project selection between the state-led management of the TSDOP and the county concerned. In this regard, although the TSDOP is a more centralised programme in its design, in terms of decision-making it happened to be more decentralised than the regionally designed and centrally implemented STOP.

4. RESEARCH QUESTIONS

The overall aim of the research was to provide an in-depth insight into the change of territorial patterns of EU-funding distribution, on the example of the lagging region of the Baranya county. The presented research was divided into two parts. The qualitative research, on the one hand, aims at measuring the perception of the stakeholders at the relevant level of decision-making in regional development and its changing tendencies. The quantitative analyses, on the other, attempts to answer the following two questions:

– How territorial patterns of EU funding changed within Baranya between the two periods (2007–2013 and 2014–2020) and how they are in coherence with the territorial approach of the two funding programmes; and

– How the established county-level territorial objectives (Fig. 3) defined in the 2014–2020 concept were reflected in the funding patters of the two programmes.

5. METHODOLOGY AND RESULTS OF THE QUALITATIVE ANALYSIS AT RELEVANT LEVELS OF DECISION-MAKING

In order to measure how the delegation of decision-making on regional development to the county level was perceived among stakeholders, on the sample of the Baranya county a questionnaire survey was conducted. The survey covered a total of 233 people from 66 local units. The involved people were not essentially key decision-makers; they included various segments of the local elite (former mayors, key persons of administration, entrepreneurs, education staff, etc.). Although not territorially representative, the survey covered all ten district centre towns, all four further towns, 22 municipalities with a population above 1,000 and 31 small municipalities up to 1,000 inhabitants. Pécs, as the county's seat, was not included in the survey, as administratively the county does not include its seat. The questionnaire survey was followed by a serial of semi-structured in-depth interviews.

As for the key level of decision-making, a majority of the respondents considered the local level as the most important one, followed by the national level, which was particularly visible in the case of municipalities above 1,000 inhabitants. Despite re-introducing the county as regional development policy-maker, its importance has been proven as surprisingly low, particularly in towns. The district was also re-introduced in 2012, only for state administration purposes, without any regional development relevance, therefore, its low level of importance is not a surprise (Table 2).

Table 2. Most important level of decision making from local development point of view

Type of settlement	Most important level of decision making (share of responses)					
	local	district	county	national	EU	total
district centres	**0.328**	0.156	0.078	0.188	0.250	1.000
other towns	**0.500**	0.000	0.000	0.250	0.250	1.000
municipalities above 1,000	0.311	0.095	0.122	**0.338**	0.135	1.000
other municipalities	**0.351**	0.052	0.195	0.260	0.143	1.000
total	**0.339**	0.093	0.128	0.264	0.176	1.000

Source: questionnaire survey, own work.

A different question assessed the tendency of the change in the importance in the case of different territorial levels. Answers were provided in the interval of [-2; 2] as: significantly decreased, slightly decreased, did not change, slightly increased, and significantly increased. The most significant increase was measured at the local level, followed by the influence of the national level. The two intermediary levels were not perceived with growing importance (Table 3).

Table 3. Perceptions about the change of significance of the single decision making levels, by types of settlements

Type of settlement	Change in the importance of decision making (weighted perception in the interval [-2; 2])			
	local	district	county	national
district centres	**0.966**	0.250	0.291	0.875
other towns	**1.333**	0.000	0.917	**1.583**
municipalities above 1,000	**1.110**	0.200	0.444	0.718
other municipalities	**0.900**	0.379	0.418	0.657
total	**1.014**	0.264	0.422	0.791

Source: questionnaire survey, own work.

Although the survey showed a clear preference towards the local level, the in-depth interviews revealed that a majority of the respondents had a clear experience about the increasing role of the state, even in the case of the smallest municipalities. The county level was perceived dominantly in the small villages. Members of parliament were perceived as players with significant growth of importance nearly by all respondents, however, judgement on their role varied. Some opinion leaders said they were the key players in decision-making, their involvement in each development initiative was

a must. Others said their activities were limited to raising awareness about government policies, collecting and distributing information, and conducting political campaigns. Respondents oriented towards the nationally ruling Fidesz party were more eager to treat members of the parliament as being more important than local actors who identify themselves as opposition or independent (Pámer, 2022).

6. METHODOLOGY OF THE QUANTITATIVE ANALYSIS ON TERRITORIAL PATTERNS OF EU FUNDING

The analysis of the distribution of EU cohesion policy funding was done on the basis of a database provided by the Prime Minister's Office of Hungary, responsible for the coordination of EU cohesion policy at the state level. The database was compiled at the municipality (LAU 2) level, thereof the data of the municipalities of Baranya were used. The data shows EU cohesion policy spending in Hungarian forints, without the beneficiaries' own contribution, which may be used for comparison.

Data analysis took place in two dimensions and at three levels:

– District (LAU 1) and settlement (LAU 2): the district structure introduced in 2012 was considered (ten districts in Baranya). Settlements were grouped into four categories: district centres, other towns, municipalities above 1,000, and other municipalities.

– Territorial objectives: according to the 2014 county concept and programme the districts were grouped into three categories: lagging areas with undeveloped economy; areas of industrial transition and economic change; areas of rural and economy development based on local capabilities and comparative advantages (see Fig. 3).

Intensity of funding (F) in the case of the analysed level (district, settlement, group of districts) was measured as the deviation from the average per capita funding in Baranya. In terms of the population, the data provided by the Central Statistical Office of Hungary as of 1 January 2019 was taken into consideration.

$$F = \frac{\text{funding per capita of the assessed territory} - \text{funding per capita on county level}}{\text{funding per capita on county level}}$$

For measuring the concentration of funding in centres, a weighted core-periphery indicator was calculated from the settlement-level data: distribution rates by type of settlement were weighted then summed, as follows:

– district centres: 1;
– other towns: 0.5;
– municipalities above 1,000: –0.5;
– other municipalities: –1.

The weighted core-periphery indicator is in the range of [–1; +1], i.e., 1 if the funding was entirely spent by beneficiaries from district centres, while –1 if the funding was completely absorbed by municipalities not having more inhabitants than 1,000.

This simple method was developed for this analysis. The applied settlement type categories were defined with a functional approach. District centre towns obviously stand out in terms of function within their districts. Further (non-district-centre) towns have a considerably weaker role, however, they are usually towns with special characteristics (tourism, commuting settlements around Pécs) that may be either a strength or a weakness in terms of the accumulation of funding. Grouping municipalities from the functional point of view was complicated. The existing category of "large municipalities" includes only three municipalities in Baranya, which, in the case of a county of very small municipalities, does not represent all low-level area centres. Therefore, the population limit of 1,000 people was used, as – in the rural Baranya which is dominated by very small municipalities – all those above 1,000 play some kind of central roles in their area. There are some 26 of such municipalities in the county, while the number of 'other municipalities' is 261.

7. FUNDING PATTERNS IN THE CASE OF THE TWO PERIODS

Funding absorbed in 2007−2013 and its distribution between Pécs and the countryside is listed in Table 4. In the case of the regional development focused STOP majority of the funding was provided outside Pécs, while in case of the economy development oriented EDOP – which primarily focused on SMEs – more than 50% of the financial resources landed in the county centre. Considering the weighted core-periphery indicator, STOP showed very low concentration, while EDOP showed a very high one, meaning that successful SME projects concentrated in the central settlements.

Table 4. Payments executed in Baranya county under programmes of the National Strategic Reference Framework 2007−2013

Operational programme	Total payment made in Baranya (million HUF)	Spent in Pécs (%)	Spent outside Pécs (%)	Weighted core-periphery indicator
South Transdanubia (STOP)	117,124	43.65	56.35	0.032
Economy development (EDOP)	35,003	56.21	43.79	0.521
Total mainstream EU funding	305,658	58.41	41.59	0.171

Source: Prime Minister's Office, own work.

In the case of the 2014−2020 period the regional development focused TSDOP was, on the one hand, significantly smaller than STOP in the previous period,

showing that territorial cohesion was somewhat less emphasised in the second period. On the other, spending from the SME-oriented EDIOP was doubled in Baranya, compared to EDOP in the previous period. Distribution of the funding of these two programmes between the county seat and the rest of Baranya was similar: TSDOP preferred more the countryside, while EDIOP rather concentrated in Pécs. The weighted core-periphery indicator shows a significant change: regional development funding was more concentrated in centres than before, while SME development support became less concentrated than in 2007−2013 (Table 5).

Table 5. Payments executed in Baranya county under programmes of the Partnership Agreement (2014−2020)

Operational programme	Total payment made in Baranya (million HUF)	Spent in Pécs (%)	Spent outside Pécs (%)	Weighted core-periphery indicator
Territorial and Settlement Development (TSDOP)	74,454	44.25	55.58	0.379
Economy Development and Innovation (EDIOP)	77,869	57.36	42.64	0.187
Total mainstream EU funding	257,612	46.41	53.39	0.205

Source: Prime Minister's Office, own work.

For the sake of a more in-depth comparison of the two territorial cohesion programmes, a scatterplot of the intensity of funding and the weighted core-periphery indicator was performed for the ten districts. As Fig. 4 shows in the 2007−2013 period, districts with relatively low per capita funding showed higher concentrations. The Szigetvár district, as an exception, was relatively poorly funded, also, most of the funding landed in its rural area. The town of Szigetvár proved to be a weak centre from the regional development point of view. In the case of districts with relatively high per capita funding, the weighted core-periphery indicator was lower, as the trendline shows.

The general approach of the STOP, i.e., territorial cohesion should be promoted through the area centres, was more or less fulfilled, as in the districts with lower funding the centres were more preferred, while in better absorbing districts also the rural areas could benefit.

The 2014−2020 period provides a completely different picture, showcasing the growth of absorption gaps between individual districts. Most of the districts were funded below average. Although Szigetvár is now funded around the average, it, again, showed a rather low concentration, maintaining its weak position as a district centre. Besides the gap between the poorly and the average-funded districts, an even larger gap is visible between the extreme standout of Mohács and all the

rest (Fig. 5). Although the TSDOP advocated for a preference of peripheral areas, a concentration of funding has grown in the centres.

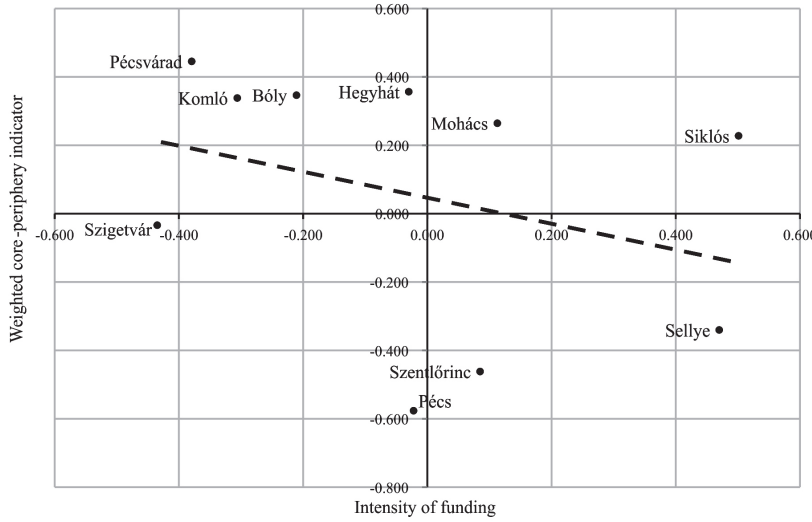

Fig. 4. Position of districts of Baranya county in terms of absorption of STOP funding per capita and the weighted core-periphery coefficient

Source: Prime Minister's Office, own work.

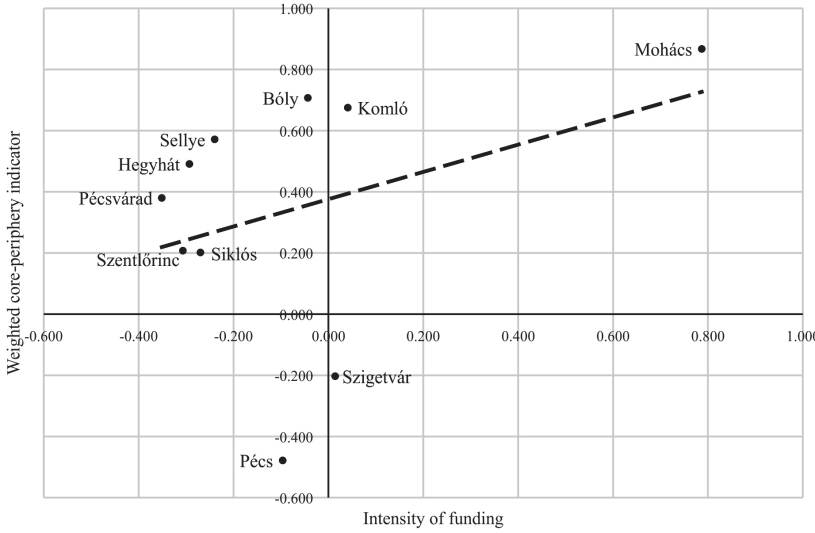

Fig. 5. Position of districts of Baranya county in terms of absorption of TSDOP funding per capita and the weighted core-periphery coefficient

Source: Prime Minister's Office, own work.

The comparison of funding patterns in areas according to the territorial objectives defined in the county development concept for the 2014−2020 period shows that lagging areas with undeveloped economies (1) were relatively low funded in both periods, their position even worsened in 2014−2020: less funding with higher concentration. In the case of the areas of industrial transition and economic change (2) more funding was provided in the second period, also with growing concentration. These figures resulted from the generous funding of the industrial town of Komló. In both periods most funding was accumulated in the areas of rural and economy development (3), however, concentration was also growing in this area (Fig. 6).

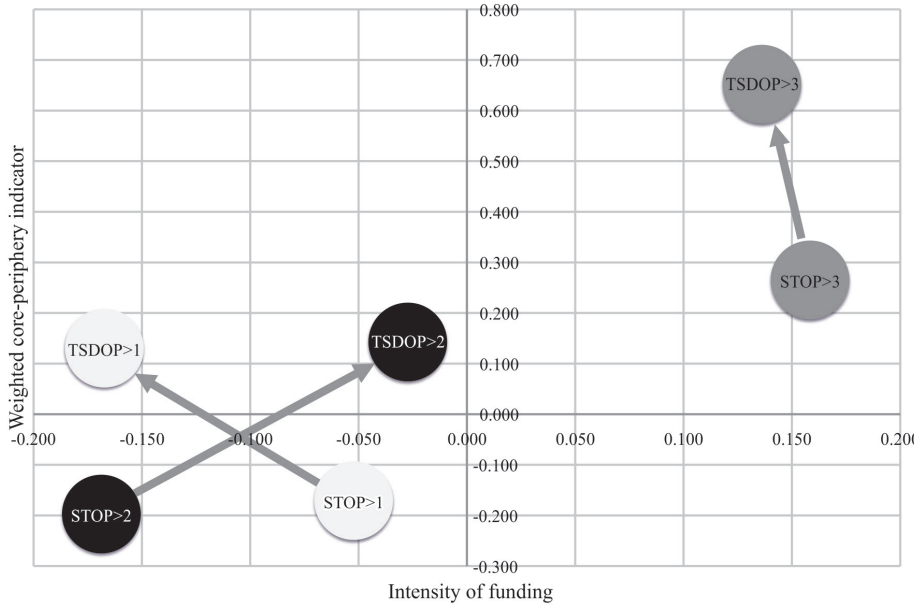

Fig. 6. Position of the different area categories in terms of intensity of funding and the weighted core-periphery indicator, in case of STOP (2007–2013) and TSDOP (2014–2020)

Source: Prime Minister's Office, own work.

8. DISCUSSION AND CONCLUSIONS

On the basis of the presented regional analysis, several conclusions can be drawn. In spite of the institutional change, the county is barely recognised as decision-making body. Instead, a growing importance of the state, through the emerging role of the members of parliament, is experienced.

Concerning funding patterns, regional development represented a significantly higher share in the first period than in the second one, meaning the county was left with much less funding to decide on since 2014 than the region did before. Funding from other programmes could not compensate for this decrease, resulting in a generally worsening position for Baranya. Although STOP in the first period promoted area centres as agents of territorial cohesion, funding was relatively balanced between the centres and the periphery. In the second period, when the TSDOP targeted the lagging and rural areas more, funding rather concentrated in the relatively developed districts and in the area centres. Thus, the rural shift of TSDOP did not occur, the biggest beneficiaries were the largest urban settlements (Komló and Mohács, in particular). It means the 2007−2013 programme better served the territorial objectives defined for the 2014−2020 period than the programme for which it had been developed.

A parallel related study revealed that in the 2014−2020 period at the national level more EU funding was spent in the less developed districts than in 2007−2013, while funding to more developed districts slightly decreased (Finta, 2022). It is important to note that the largest number of settlements – mostly those below 1,000 inhabitants – that did not receive funding from any of the two programmes, were in the Baranya county (Finta, 2022). These results highlight the importance of regional and subregional research, in order to test whether a more territorially balanced or a more concentrated approach may be more beneficial.

In general, the growing concentration of EU cohesion policy benefits in some selected urban areas that lead to a greater urban-rural divide. The decrease in access and visibility of EU funding (and a less visible EU in general) in the rural areas will need stronger governmental intervention, in the form of tailored and place-based regional schemes that, at the current stage, do not exist in Hungary. This would not only require a more intensive involvement of the state, but strong regional institutions as well.

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Géza SALAMIN *

THE MAPPING OF FORMS OF SPATIAL PLANNING: AN INSTRUMENT-ORIENTED TOOL FOR THE INTERNATIONAL COMPARISON OF SPATIAL PLANNING ACTIVITIES

Abstract. The paper contributes to European comparative research on spatial planning by providing an instrument-oriented methodological framework for forms of spatial planning. Based on the main efforts to date, the main challenges of comparative research on European planning systems are identified. The multi-dimensional nature of spatial planning, language barriers, the diversity of planning practices within national systems, the emergence of informal practices, and the dynamic changes of forms are the main limitations of the comparison. The author introduces a comparative four-dimensional model and related visual tool that can be used to bridge different national languages and practices of planning and compare various forms of spatial planning. With the tool, the nature of planning regimes, specific plans, and other planning-related activities can be identified in accordance with the dimensions of Motivation, Geography, Scope, and Instruments, making them comparable. Drawing on literature on European trends in spatial planning, the model can be used to capture both old and new forms of planning.

Key words: spatial planning, urban planning, European Union, territorial governance, comparative studies.

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1. INTRODUCTION

Regional planning, urban planning, and other public mechanisms that address the shaping of spatial development take different forms worldwide. Planning systems aimed at spatial development are quite different, even within the EU. The territorial levels, instruments, professional-disciplinary bases, and even the fundamental mission of planning may be totally different. These differences can be traced back to the variation in the constitutional and institutional arrangements, political ideologies, and geographical and cultural characteristics of countries. In fact, even the terms used in the national languages of Member States for various fields of spatial planning cannot be fully translated into other languages because of their deep embeddedness in country-specific contexts. Despite some efforts, regional and urban planning have not become part of the community policy of the European Union (Faludi, 2011), although many EU policies and increasing cooperation among Member States indirectly but effectively influence the planning practices of the latter (Dallhammer *et al.*, 2018). Despite this process (called Europeanisation) and the fact that planning faces the same global challenges, most authors (e.g. Purkarthofer, 2016; Stead, 2013; Böhme and Waterhout, 2008) agree that there has been no obvious convergence among the spatial planning systems of the respective countries and, as Nadin has stated (2012), Europe still has many varieties of planning which – despite reform and Europeanisation – remain distinctive.

As European integration has progressed, the need to link different national spatial planning systems has grown as EU policies increasingly require the coordination of territorial development. Moreover, the implementation of EU policies like Cohesion Policy and EU agendas like the Green Deal, smart growth, etc., require the integrated contribution of spatial planning at various levels. This European interest in spatial planning has triggered extensive international cooperation and exchange concerning planning mechanisms and policies (Dühr *et al*., 2010) during the last three decades. The cross-national comparison of spatial planning is increasingly demanded due to the single market of the EU, the necessity of reacting jointly to global challenges, the multi-level governance exerted within the EU, and the increasing need for cross-border cooperation related to spatial development.

These developments have generated a wave of comparative policy research in Europe since the 2000s, spurred by research funding from EU research framework programs that often require international collaboration and comparison. Other EU funding has been specifically targeted spatial planning – notably, the INTERREG and ESPON programmes, which fund targeted research, together with direct funding from EU and Council of Europe institutions, especially for evaluating the impact of EU policies in Member States (Nadin, 2012). Other authors (Verweij and Trell, 2019; Assche *et al.*, 2020) emphasize that the need for learning from

other planning systems is a demand for comparison. Not surprisingly, international comparative subjects are now starting to be introduced into planning education, too (Othengrafen and Galland, 2019).

The first condition for comparing different spatial planning systems has been the establishment of a common *European conceptual framework*. In the past three decades, the term 'spatial planning' has expanded to uniformly cover and highlight various styles of spatial planning that are present in Europe (in its emergence see Williams, 1996; Tewdwr-Jones, 2001; Kunzmann, 2006). Although this concept emerged as a result of policy efforts, the researchers of the development and institutionalisation of Europe-wide spatial planning have played an important role in the academic conceptualisation of the term (Böhme, 2002; Faludi and Waterhout, 2002; Faludi, 2004, 2011; Janin Rivolin, 2012; Kunzmann, 2006). In European institutions since the early 2000s, there has been a shift in the terms used to imply the coordination or integration of the territorial impacts of sectoral policies – from 'spatial planning' through 'spatial development' to 'territorial governance' (ESPON, 2018, p. 8) (Territorial governance expresses more the coordinating nature and multi-actor character of shaping spatial development, although in this paper, the broader meaning of 'spatial planning' is used, which includes territorial governance[1]). Besides its other interpretations, spatial planning has become a neutral umbrella concept – as applied in this paper – that encompasses both the different planning concepts of different countries and, in addition to more traditional urban and regional planning, other public coordination mechanisms that address spatial (including urban) development (from transport planning to place-based economic and community development to the spatial coordination of sectoral policies), while spatial plans at different geographical scales, from the local to the national and even transnational regions, are also part of this (Salamin and Péti, 2019).[2]

The diversity of planning can be experienced not only among countries, but their nature and character also change over time mainly due to the necessity to respond adaptively to changing societal and political conditions[3] resulting in new forms of plannings.

The goal of the paper is to methodologically contribute to attempts at comparing various forms of spatial planning by proposing an instrument-oriented comparative model – a 'map' of spatial planning forms. This model and its

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[1] For more about definitions of territorial governance see Van Well and Schmitt, 2017, p. 13.

[2] The use of the term 'spatial planning' is diverse. Mainly in the English translations of national pieces of work but also in Larsson's book (2006) spatial planning is often referred to as physical planning. The authors of the most recent related ESPON project (2018) have narrowed down spatial planning to more traditional physical planning, and its new, more comprehensive forms are classified under the concept of territorial governance, while others believe that planning is spatial governance (Assche *et al*., 2020).

[3] According to Nadin *et al.* (2021) this adaptivity is one of the key features of spatial planning to be succesful in dealing with wicked problems of the society.

visual tool enable the comparative identification of the nature of specific plans, planning regimes, and planning in a broader sense, and to differentiate traditional and new forms of planning that are being understood in line with European spatial planning trends. The methodology behind the development of the tool includes the identification of the possible forms of planning and a review of European empirical comparative studies on spatial planning to identify the current challenges of comparative research in this field. The proposed model reflects on some of these challenges, and some illustrations of the use of the tool are also provided. Besides the analysis of European spatial planning literature, consultations with experts (see acknowledgements) on European planning systems and the author's domestic and international planning experience were essential for understanding the various aspects of planning and validating the author's assumptions.

2. LESSONS LEARNED FROM ATTEMPTS TO COMPARATIVELY TYPIFY PLANNING SYSTEMS

While the need for comparing different national policies is as old as European integration, the systemic comparison of spatial planning systems started in the early 1990s and gained particular momentum in the mid-2010s (See Davies *et al.*, 1989; Newman and Thornley, 1996; ECE, 1997; Farinós Dasí, 2006; Reimer *et al.*, 2014). The analysis of these classifications by Nadin and Stead (2012, 2013) and Nadin (2012) led to significant progress in understanding the interpretations of comparative studies. Several theoretical frameworks[4] have been developed to conceptualise how spatial planning systems and cultures may be compared: Ernste suggested the frame analysis of planning cultures (2012); Janin Rivolin proposed the consideration of planning systems as institutional technologies to be relevant grounds for comparison (2012); Servillo and Broeck introduced a strategic-relational institutionalist approach (2012); and Reimer and Blotevogel (2012) and Knieling and Othengrafen (2016) argued for the analysis of planning *cultures.* In what follows, we focus on the methods applied in the main empirical studies, particularly the aspects they considered relevant for comparisons. Various small-scale comparative studies have provided in-depth analyses of two or three systems, but very few studies have attempted a more comprehensive comparison of a large number of planning systems (Nadin and Stead, 2013).

[4] In 2012, the Planning Practice and Research journal published a separate thematic issue dedicated to the topic (Nadin, 2012) based on the work of the European Working Group on the Comparison of Planning Systems and the Commun project funded by the INTERREG initiative, thereby specifying several theoretical approaches to comparative research in European spatial planning.

Nadin and Stead (2013) distinguished two approaches to constructing typologies for planning systems: classifications based primarily on legal and administrative structures, and typologies that use 'ideal types.'[5] In the first approach, comparing the characteristics of planning 'systems' can be used to systematically classify or categorise systems in a mutually exclusive and exhaustive way. Thus, each system is allocated to one category only. It should be possible to categorise all systems, but in practice, a meaningful categorisation of complex planning systems is very difficult. Systems may, for example, be similar according to some criteria but dissimilar according to other. Nadin and Stead (2013) analysed and drew up the first empirical classifications on the basis of legal-institutional aspects, defining the legal 'families' of planning: Davies *et al.* (1989) distinguished the planning systems of Common Law in England and the Napoleonic codes of continental Europe, while Newman and Thornley (1996) distinguished Nordic, British, Germanic and Napoleonic, and East European groups. The 'ideal-types' approach was introduced in 1997 by the Commission of the European Communities' (CEC) report entitled The *EU compendium of Spatial Planning Systems and Policies* (Compendium), which represented the most powerful typology-driven approach to date. This study was born in response to the increasing demand for the coordination of national spatial planning practices from the 1990s onwards – a period Faludi (2011) called the 'Boom era' of European spatial planning. The compendium introduced four distinctive planning types specified as traditions in Europe. The *land-use management* tradition focuses on the regulation of changes in the use of land; regional *economic planning* concerns the pursuit of a wide range of socioeconomic objectives, focusing on managing development processes and public investment; in the *comprehensive integrated* tradition, a systemic and formal hierarchy of plans focus on coordinating different sectors to support spatial coordination; finally, the *urbanism* tradition has a strong architectural flavour and is concerned with urban design, townscapes, and building control (for details, see Table 2). These traditions were developed as ideal types and applied in the study as measures against which the reality in Member States could be compared. As Nadin – one of the authors of the Compendium – has claimed, national planning systems in all Member States show some degree of affiliation with all four traditions. However, they are more closely related to certain traditions than others. The Compendium applied seven variables for analysis: (1) legal family context, (2) scope in terms of policy topics, (3) the extent of national and regional

[5] Additionally, a more geography based typology should be mentioned. In several works (e.g. TANGO, 2013; Newman and Thornley, 1996; Knielling and Othengrafen, 2016; Salamin, 2018) macroregions of Europe are considered as entities with countries having similar spatial planning and territorial governance characteristics. These macroregional divisions are in relation with the macroregions of Northern-, Western-, Southern and Central-Eastern Europe synthetised for the common policy framework for territorial development of the EU in the Territorial Agenda process (Sütő *et al*., 2010).

planning, (4) the locus of power and distribution of competence between central and local government, (5) the relative roles of public and private sectors, (6) the maturity of the systems (i.e., how well they are established in government and public life), and (7) the apparent distance between the expressed spatial development goals and the outcomes (Nadin and Stead, 2013) (Table 1). It is important to recognise that the final two aspects involve judgement about the quality of the systems, which infers the sensitive issue of making political critiques when comparing countries.

Table 1. Dimensions and categories applied to describe the nature of the four planning traditions of the Compendium

Spatial planning traditions/ models	**Legal family**	**Scope**	**National and regional planning**	**Locus of power**	**Public or private**	**Maturity**	**Distance**
Regional economic planning	Mixed	Wide	National planning	Centre and local	Public	Mature	Mixed
Comprehen-sive integrated	Mixed	Wide	Multi-level	Mixed	Public	Mature	Narrow
Land-use management	Di-scretion	Narrow	Local	Centre	Mixed	Mature	Narrow
Urbanism	Code	Narrow	Local	Local	Mixed	Immature	Wide

Source: Nadin and Stead (2013, p. 1553).

In the mid-2000s, the *ESPON 2.3.2* project entitled the Governance of Territorial and Urban Policies from Local to EU level (Farinós Dasí, 2006) represented the second comprehensive comparative analysis at the European level. It used the four models of the Compendium and modestly updated them with developments that had taken place since then, also including the new Member States at that time and Switzerland and Norway (as partners in the ESPON programme). By revealing the shifts between models employed by countries, it moved the focus on planning from a static system to the dynamics of change. In this report, Farinós Dasí *et al.* proposed a three-dimensional approach to identify the characteristics of spatial planning systems (Fig. 1): (1) Level (from local to supra-national), (2) Style (including the models of the Compendium), and (3) Focus of planning in relation to the scope (physical, economic, environmental). For each dimension, the soft vs. hard dichotomy was introduced. In the authors' understanding, the terms 'hard' and 'soft' referred to how instruments and rules in spatial planning were more ('hard') or less ('less') formal and clearly (closed) established from a legislative or juridical point of view. Higher levels and more comprehensive integrated models were understood as 'softer'.

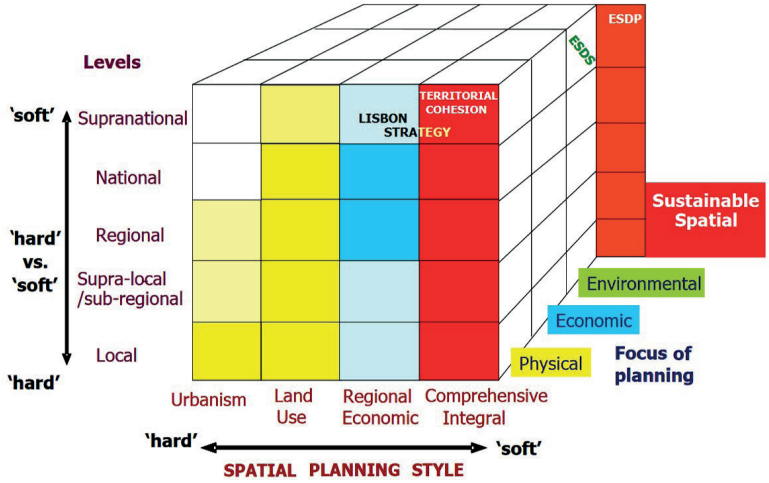

Fig. 1. Dimensions of identifying spatial development planning using the ESPON 2.3 approach
Source: Farinós Dasí (2006, p. 110).

As one of the results of the ESPON COMPASS research project (2018) Berisha *et al.* (2021) created a more focused classification of European spatial governance and planning systems according to the latter's *capacity for public control over spatial development*. Based on the analysis of the relation to the mechanisms to allocate land use and spatial development rights as well as to the prevalence of the state vs. the market in guiding the development decisions in the planning systems, they classified the systems of 39 countries in an exclusive and exhaustive manner. By this work this type of distinctive classification has proved to be more appropriate in the case of such a focused comparison, than in a more general comparison.

Various authors have drawn attention to various limitations of former classifications. Getimis (2012) has emphasized the need for a multi-scalar approach to understanding spatial planning and has claimed that comparative analysis should focus on the changes emerging in actor arenas at different scales of planning practices (project/local, city, regional, cross/border, and national level). In Reimer's and Botevogel's (2012) view, the category of 'national planning system' – which inherently implies an internal homogeneity – masks a natural diversity of planning practices and forms and, as a deterministic structure, exhibits a high degree of resistance to the processes of transformation. In reality, planning practices vary widely even within countries. Classifications based on legal traditions are rigid and fail to describe reality well because planning practices are characterised by a wide range of different forms of planning activities. Recent decades have seen a rise in the importance assigned to the forms of planning which are not based on coercion as the modus of the coordination of action but rather on

bargaining, consensus, and agreement. The integration of new actors and the pressure to embrace an intersectoral approach to the planning action suggest that established forms of spatial planning are being supplemented with new action logics, resulting in a high degree of local variation. Reimer and Botevogel have stated that a culture-oriented perspective is more appropriate, which explicitly addresses the diversity of planning activities and the various related practices, mechanisms, and principles associated with the individual systems. The authors thus proposed four core cultural aspects of planning that they recommended for future research: (1) traditions of action, (2) processes of self-perception and constructing reality, (3) adaptation and learning, and (4) established power structure (Reimer and Botevogel, 2012).

At this point, it is important to note that measuring these aspects is more likely to be possible using small-scale in-depth analysis – for example, as in the several case studies introduced in Othengrafen's book (2016) – but large-scale comparative studies that employ this approach have not yet been delivered due to the challenges of measurement and quantification.

Due to the highly complex nature of spatial planning, the cross-country comparison of spatial planning faces several limitations. Based on the consequences of the experiences above and the conclusions of Nadin and Stead (2013), as well as the final report of the COMPASS (ESPON, 2018) project, the following challenges may be identified:

– There are problems with linguistic and conceptual equivalence, and there is a shortage of common spatial planning terminology. The sharp differences in disciplinary-professional bases and ideologies[6] also create barriers in understanding[7].

– The nature of planning systems can be identified and described using several criteria in different dimensions, which makes it very difficult to create complex categories. Furthermore, these dimensions are often independent.[8]

– National systems (and their legal components) are typically units of evaluation that are not internally homogeneous. Therefore, domestic planning variation is less well addressed.

– It is not sufficient to record the formal structure and instruments of spatial planning systems and territorial governance, but it is necessary to understand their operation in practice.

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[6] Frank *et al.*, 2014.

[7] Salamin, 2021.

[8] For instance, in decentralised countries, the local-regional planning autonomy might be strongly limited, while in the UK, with a unitarian constitutional structure, where formal competences rest firmly with central government planning, competences at the local level are stronger. The correlation between the locus of power (as a legal feature) and the actual role of levels may be insignificant. As Nadin and Stead have concluded (2012), in spite of the fact that planning systems are deeply embedded in national social systems, reflecting fundamental values in society, there are clearly limitations to using ideal social models to classify planning systems and explain their evolution.

– Empirical comparative studies have not yet successfully covered informal, experimental, and soft forms of planning.

– Planning practices (methods, forms, function, etc.) are changing over time. Therefore, the identification of trends is needed rather than a snapshot of systems (see Chapter 3).

– Large-scale comparative studies are more complex and expensive, and demand considerable resources.

– Planning systems operate through a fluid, multi-scalar and iterative process among multiple institutions and actors.

– The comparison of politically embedded planning systems that involves normative judgement is associated with the danger of making political critiques.

All of the above highlight the methodological difficulties involved in appraising planning systems in a reliable manner and preferably in a quantifiable way. Due to the complexity of planning and the limitations of resources, for studies covering large number of countries the main information sources are typically the expert opinions gathered through surveys or interviews, which method may entail the risk of subjectivity (Nadin *et al*., 2021). However, the analysis of planning documents has also occurred in more targeted studies (see Perić *et al.* 2021; Salamin, 2018). For a case-oriented comparative research (e.g., a project), more qualitative methods can be used, such as the Qualitative comparative analysis (QCA) recommended and analysed by Verweij and Trell (2019) and Assche *et al.* (2020).

3. THE CHALLENGE OF THE CHANGING NATURE OF SPATIAL PLANNING: DOMINANT EUROPEAN TRENDS ACCORDING TO LITERATURE

In order to identify new forms, it is worthwhile examining the main transformational trends in planning. Making a comprehensive analysis of the contemporary trends in spatial planning is not the ambition of this paper, although there is such a rich European literature about the dynamics of the last decades that the main characteristics of a simplified new spatial planning approach can be identified (in contrast to more traditional forms). The European spatial planning trends can be captured by three processes that appear in the planning literature as distinct, trending topics: first, the prominence of the more flexible and multi-actor *governance* in contrast to government (see Fürst, 2009; Getimis, 2012; Stead and Cotella, 2011; Stead and Pálné, 2016; Van Well and Schmitt, 2016). Second, the appearance of new spaces of planning, which are often soft spaces with fuzzy boundaries that are related also to the increasing multi-scalar character of planning systems (see Allmendinger and Haughton, 2009; Faludi, 2013; Gänzle and Kern, 2016;

Heley, 2013; Metzger and Schmitt, 2012; Walsh, 2014, etc.). Third, the impact of the EU, as *Europeanisation*, which influences the understanding, instruments and spaces, and scales and methods of domestic spatial planning – about which Faludi (2011) wrote and which Salamin (2018) attempted to make measurable. All these processes may be associated with the issues of *post-modern, post-structuralist philosophy* (multiple interpretations, narratives, relational space, etc.) (Allmandinger, 2000, 2016; Haughton *et al*., 2010).

In order to make these changes tangible and identifiable from a comparative perspective, we attempt to identify the ideal 'new spatial planning' using a significant simplification. Within the framework of this study, we may only list the main characteristics of this that result from the latter trends based mainly on the work of Böhme and Waterhout (2008), Cotella and Janin Rivolin (2011), Dühr, Colomb, and Nadin (2010), ESPON (2018), Faludi (2011), Getimis (2012), Nadin (2006), Salamin (2018), and Salamin and Péti (2019) in particular. Namely, the new spatial planning:

– is coping with the contemporary challenges of society (instead of its narrower own mission), such as promoting sustainable development and competitiveness, regarding which its capacities to promote the integration of sectors, adaptivity, and the involvement of citizens are considered crucial features (Nadin *et al.*, 2021), therefore, its thematic scope is broadening,

– represents the spatial dimension of national (sectoral) policies and aspires to incorporate the latter's spatial harmonisation-coordination, and even integration, sometimes adopting the role of the rescaling policy of states,

– is often used as a vehicle to implement other policies, while spatial planning policy is decreasingly a distinct policy branch,

– has a much broader scope (socioeconomic and environmental phenomena are also addressed) in contrast to the narrow fields of traditional urban and regional planning (such as land use, infrastructure networks, etc.),

– increasingly plays a role as a strategic framework for resource allocation and investment,

– takes a governance approach (multi-level, multi-actor coordinative, and cooperative nature),

– involves the proliferation of instruments, including soft ones (strategies, visions, cooperation, coordination, etc.), integrated instruments and even informal planning actions in addition to the previously used hard instruments (e.g., regulation),

– is associated, in addition to the territorial approach, with a wider spatial approach that is even becoming a primary imperative (i.e., instead of territories delimited physically or by borders or jurisdictions, the development of spatial contexts such as the formation of relative [relational] spaces),

– gives more room to functional soft spaces and networks as the units of planning,

– awards more importance to the role of national and supranational levels, occasionally also accompanied by decentralisation.

This[9] new planning approach is intensely inspired by the EU strategies and territorial cooperation programs, especially the awareness-raising ESPON and URBACT programmes (see Perić *et al.*, 2021; Luukkonnen, 2011; Faludi, 2011; and Salamin, 2018).

4. THE PLANNING MAP: A VISUAL TOOL FOR IDENTIFYING AND COMPARING THE NATURE OF PLANNING

The model described below is based on the assumption that the nature of spatial planning action(s) should be described in parallel in different dimensions which do not necessarily interact. Instead of quantitatively combining different variables into a complex indicator, with the model it becomes possible to visually compare several factors simultaneously (after all, human perception using the visual dimension is considerably better than when it comes to understanding text or numbers). The other starting point is that before extensive investigations of legislative and institutional systems and cultural contexts, and other systems that include spatial planning – which are resource-consuming – perceptible forms of planning can be analysed (planning instruments in particular) through their tangible manifestations (such as plans, activities) that can provide meaningful information about the entire planning system. The visual synthesis of potential planning forms is presented in Fig. 2. The definitions of spatial planning in specific countries and organisations are different: most national practices do not include all the types included in Fig. 2 as part of their spatial planning system or understanding of the latter. Accordingly, Fig. 2 represents the widest European interpretation of spatial planning as an umbrella term.

To make various forms of planning comparable, four dimensions of the characteristics of spatial planning have been selected for the model called the Planning Map: Mission, Geography, Scope, and Instruments. In the understanding of this model, the concept of planning form refers to the representation of planning actions in these four dimensions. Given the large number of variables that could be used to describe the nature of spatial planning, the choice of four may seem too limited. However, those that have been selected are strongly connected to other dimensions. For instance, geographical levels and spaces are normally interconnected with the legal system (the locus of power) and institutions and with the existence of a governance approach (as new governance approach creates more soft and flexible spaces of planning).

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[9] Reimer, Getimis, and Blotevogel's book (2014a) is a comparative introduction to spatial planning systems in Europe; it focuses on the changes in national planning systems. Their results confirms the trends above.

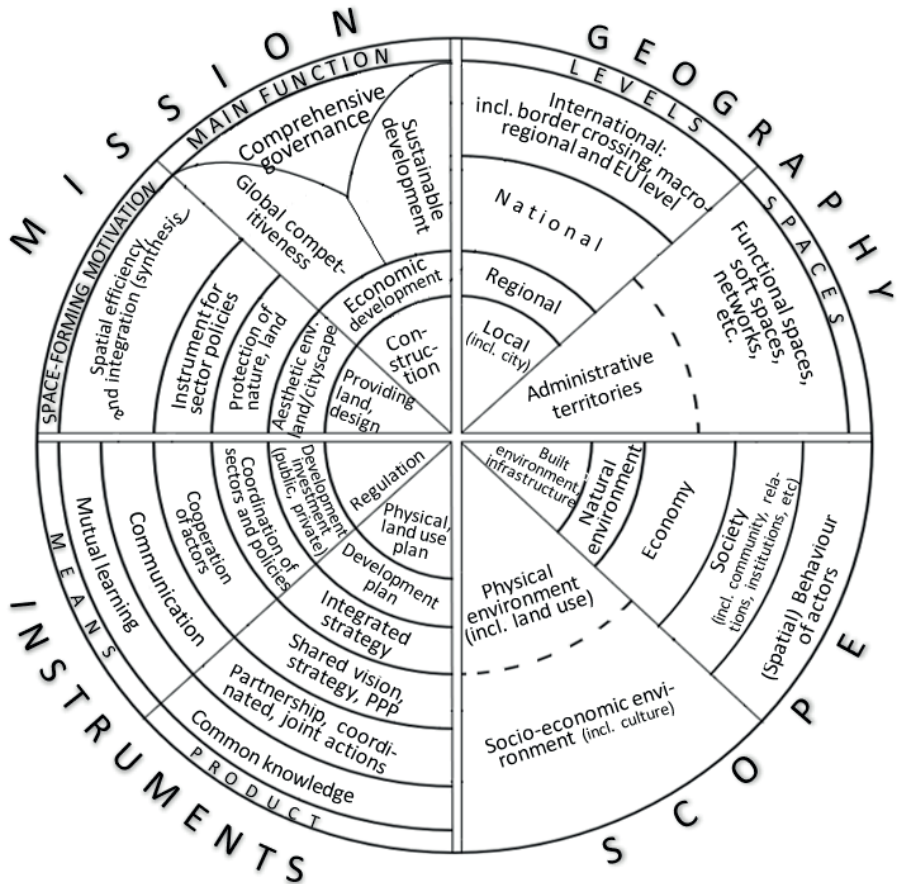

Fig. 2. Map of spatial planning forms (Planning Map): The potential types of spatial planning activities according to four dimensions

Source: own work based on European planning literature.

The mission of planning is related to the goals and approaches of legally defined institutions and legitimate policy agendas and to the characteristics of the planning profession (e.g., its country-specific disciplinary). The general motivation for planning in a country is influenced by several cultural aspects, too, which may represent essential information about the position of this policy branch in the policy system. In the dimension of instruments, traditional hard instruments reflect legislation, while the existence of softer ones may indicate the existence of a new governance approach, participation and cultural characteristics, while the specific planning professional approach and the applied methods of planning are reflected in the types of instruments in every case. Additionally, the existence of different forms of planning instruments may also inform about the role of spatial coordina-

tion in policy practices and the relationship between the public and private sectors (e.g., regulatory tools can only limit public and private actors, while integrated strategies, and forms of cooperation in particular, can support partnerships). The scope reflects the actual professional-scientific approach and the function of spatial planning in the governance of a country, region, or city.

4.1. Dimensions of the Planning Map

The potential forms within each dimension have been elaborated on the basis of the European planning literature – which tends to understand spatial planning and its new form, often called territorial governance, more and more broadly – and on the 15 years of planning experience of the author, while consultation with key European experts in the field (see the acknowledgements) also supported this work.

The Planning Map is designed to allow the user to distinguish between traditional and new forms of planning. The new planning trends (described in Chapter 3) of the last three decades represent changes in all four planning-grouping dimensions. In Fig. 2, forms of planning near the centre of the circle are typically associated with the more traditional and typically hard planning practices but are accompanied by newer forms over time. These new forms – in line with the changes documented in the literature – are indicated by a shift from the centre towards the outside of the wheel in the case of all the dimensions that appear as sectors. The forms of planning closer to the periphery are typically soft forms and may be associated more with the approach of territorial governance.

'Mission' is understood as the broader societal function with which the spatial planning action is associated. It answers the very essential question "why" concerning the existence of specific planning. The rationale for the creation/ operation/ development of planning has changed slowly on a historical scale, although in recent decades it has been more rapid. It has shifted from the task of managing the construction of cities through developing a liveable urban environment to supporting economic prosperity, while nowadays, supporting competitiveness is often a key driver. Most recently, the most important mission has been to promote sustainable development – an endeavour which spatial planning could, in theory, perhaps do the most to achieve (Péti, 2011)[10]. In line with the new approach, spatial planning appears as a harmonisation of actors and policies that influence spatial development (with the participation of considerably more people) rather than the preparation of regulated planning documents that may prevail at different scales and in a variety of spaces.

[10] At the level of cities, the new Leipzig Charter (EU Ministers, 2020) as the main European level guiding document for urban planning puts the transformative power of cities at the centre in relation to sustainability transition.

The dimension of 'Geography' is meant here as the geographical reference area of the planning activity.[11] This can vary according to different territorial levels, but the place of planning can be administrative (with legally defined borders) in nature or functional. Spatial planning has recently emerged at larger spatial scales, and as described above, new soft functional spaces with fuzzy boundaries, and even networks are increasingly becoming the units of planning processes. However, as many authors highlight (Allmendinger *et al.*, 2015; Metzger and Schmitt, 2012; Zimmerbauer and Paasi, 2019; Smas and Schmitt 2021), the appearance of new spaces does not result in the elimination of traditional, formal planning spaces (administrative units), but rather supplements them. It is important to note that these trends in the geographies of planning do not have obviously one way direction, as soft spaces are often eliminated, and contradictory changes may be revealed. This can be experienced in the case of (subnational) formal regional level planning, which is claimed to be both dead (Harrison, 2020) and still one of the most fundamental elements of European planning systems (Purkarthofer *et al.*, 2021; Smas and Schmitt, 2021).

Regarding the 'Scope' of planning – which delineates what is to be planned – a clear shift can be identified over the last 50 years. In traditional urban and spatial planning, the primary focus was on linear infrastructure, built development, and land use, i.e., physical space. Today, the focus is clearly on shaping socioeconomic relations, but in postmodern-style planning, the space-specific behaviour of actors has increasingly become an object of planning. However, physical planning remains (and is sometimes even more) significant.

Spatial planning 'Instruments' are defined here as all those direct outputs of planning action that, according to their function, directly shape the development of a territory or place, i.e., give effect to the planning intent. Traditionally, these are blueprints or planning documents. However, planning is no longer synonymous with plan-making but refers to a broader set of coordination processes that shape spatial development, even if no planning document is produced. In terms of instruments, there has been a simultaneous shift in emphasis and a multiplication of tools. Further, the new trends include soft instruments such as shared visions, fostering cooperation between actors, and even shared intentions and new knowledge. Integrated strategies which can integrate more traditional physical spatial planning and sectoral policies, supporting economic and social development, are becoming increasingly important, with the essential function of coordinating the activities of the various actors. Much greater emphasis is being placed on implementation and periodic feedback (evaluation and monitoring), but the continuous shaping of intentions and planning is being intertwined with implementation in the form of territorial governance.

[11] In the case of the Geography dimension, it should be noted that the subdimensions of 'spaces' and 'levels' are not directly connected (e.g., functional spaces may also occur at a local level, and vice-versa).

4.2. Using the Planning Map - examples

The Planning Map can be used to identify a wide range of levels, planning tools, or even a national planning system, by visualising their (e.g., with colours) forms along the four dimensions. The more complex a set of planning to be represented is, the more it is necessary to use multiple markups. For example, for a single plan, a single colour can be used to indicate its range of references, while different colours can be used to indicate the totality of planning forms present in a country. Beyond the simple visual presentation of the model, textual information can be included for each feature form, and its presence can also be quantified according to pre-defined formulae. The following illustrates the possibility of identifying some typical types of plans and planning systems.

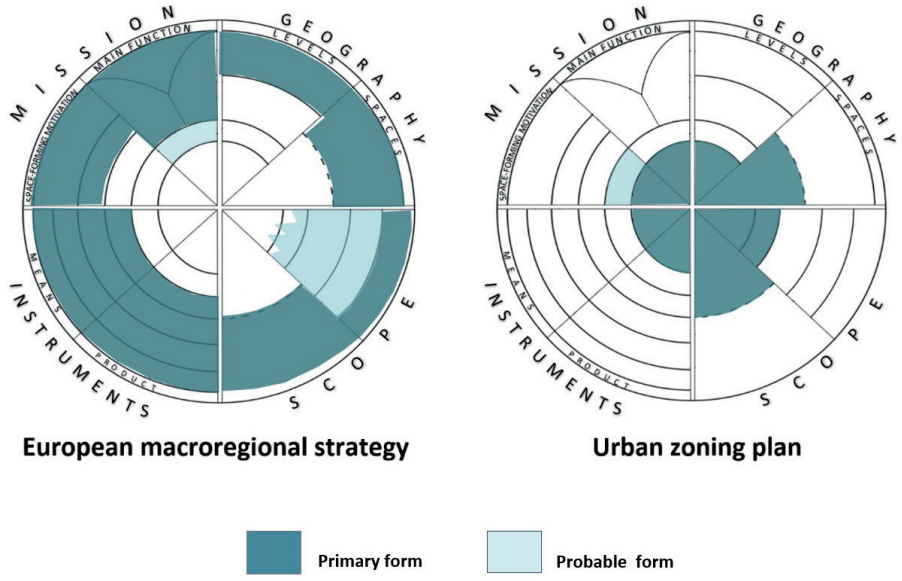

Fig. 3. Comparing radically different planning using the Map of Spatial Planning Forms
Source: own work.

To illustrate the visibility of sharp differences between traditional and new forms of planning on the Planning Map, one can take as an example the urban zoning plan and an international planning instrument, the European macro-regional strategies strategy, of which four have so far been adopted and are operational (Fig. 3). According to the EC definition, a macro-regional strategy (MRS) is an integrated framework endorsed by the European Council, which is applicable to Member States and third countries located in the same geographical area.

These frameworks address common challenges and opportunities of their geographical area by setting shared, long-term objectives. The MRS are essentially cooperation frameworks that establish networks of stakeholders that represent a transnational, cross-sectorial mosaic of expertise with the potential for further cooperation, value, and prosperity creation. The aim is to improve institutional capacity by improving the ability to create innovative and inclusive services that can empower people and stakeholders, helping them actively contribute to the development of prosperous and open macro-regions in the medium to long term. It may be supported by the European Structural and Investment Funds (EC, 2022). The geography of these strategies includes multiple countries, and the main instruments are cooperation and partnership, while public investment is also relevant, and implementation may be supported by EU funds, which indicates how the related mission is closely linked to the goals of the European Union (social, economic, and territorial cohesion), as interpreted in a specific geographical area.

In contrast with this focus there are the local zoning plans used, which are utilised in most countries in different variations. These are typically used to define the limitations on the development activities (e.g., constructions) and land use changes of private and public actors (by setting up codes and land use change rules) and designate networks of public infrastructure, thereby ensuring public control of various actors. They use regulatory instruments and focus on physical consequences of development projects but might protect non-built-up areas and green spaces as well. Fig. 3 shows that the macro-regional strategy, which seems to be a very soft type of planning approach, while the features of an urban zoning plan are concentrated around the focal point. In terms of the four dimensions, there is no overlap between the former and the latter, and only a broad understanding of the international (European) spatial planning concept permits the consideration of both as forms of planning and the Planning Map helps to understand the differences between them.

To illustrate the use of the Planning Map for identifying more complex entities, the four ideal European planning models (or traditions) introduced in Chapter 2 can be taken as examples, the main characteristics of which are summarised in Table 2. When visualising more complex types – in contrast to a specific plan – the interpretation of forms might need more clarification of the meaning of the various forms. In this case the use categories might be needed to differentiate primary and probable forms, and possibly even more. In Fig. 4, one can see that Urbanism is obviously a more traditional, hard form of planning and Comprehensive integrated planning is closest to what new studies on new trends suggest. The use of the Planning Map in the case of planning systems of specific countries (or regions, cities) can also support the understanding of their relation also to the European ideal models.

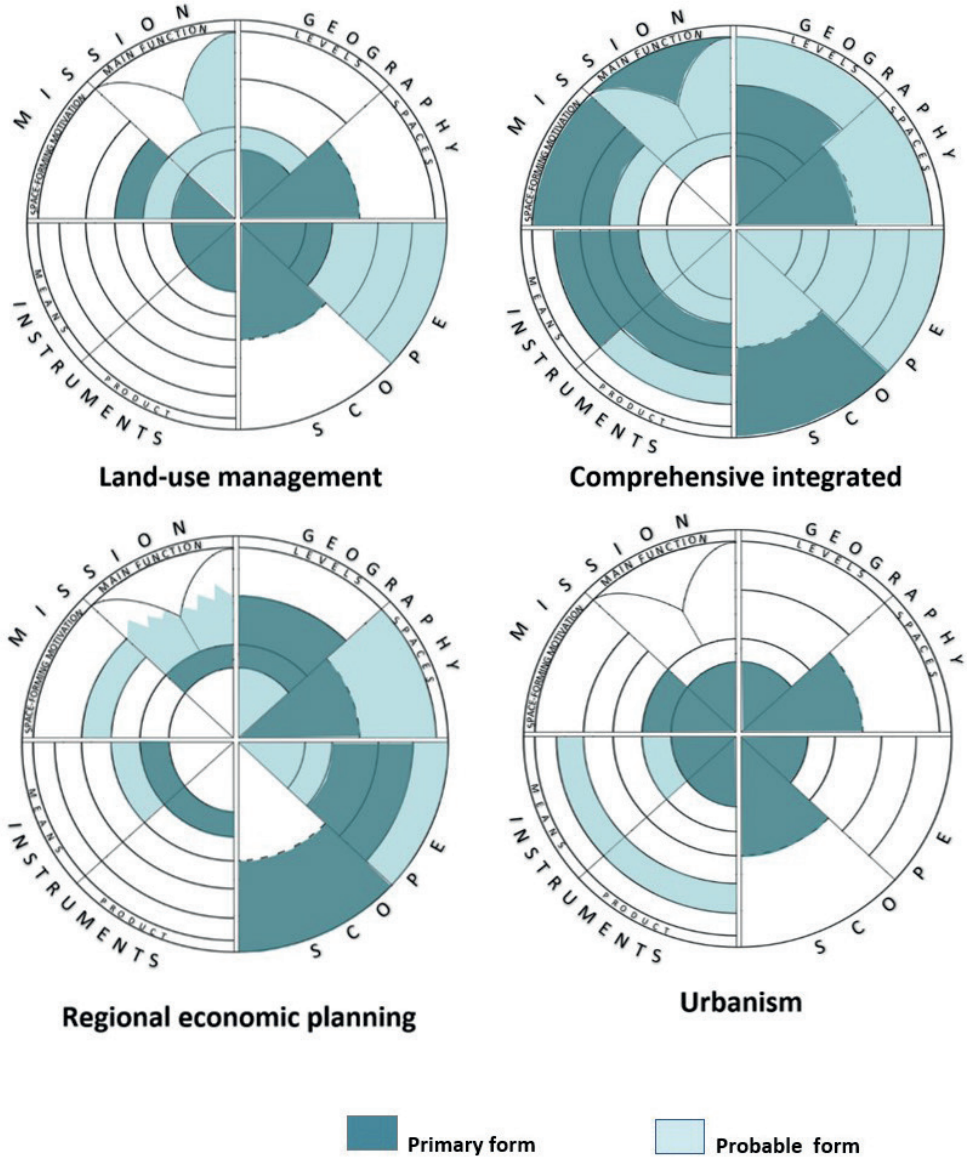

Fig. 4. Comparing the European ideal planning models (traditions) using the Map of Spatial Planning Forms

Source: own work *The European models were developed by the EU Compendium of Spatial Planning Systems and Policies (CEC, 1997), and the visualisation above is based on their description by Nadin and Stead (2013) (see Table 2).

Table 2. Short Description of the Compendium's four planning traditions

Regional economic planning	This regional economic planning tradition concerns "the pursuit of wide social and economic objectives, especially in relation to disparities in wealth, employment and social conditions between different regions of the country's territory. Where this approach to planning is dominant, central government inevitably plays an important role in managing development pressures across the country and in undertaking public sector investment."
Comprehensive integrated	In line with the comprehensive, integrated tradition, "spatial planning is conducted through a very systematic and formal hierarchy of plans from national to local level, which coordinate public sector activity across different sectors but focus more specifically on spatial coordination than economic development. This tradition is necessarily associated with mature systems. It requires responsive and sophisticated planning Institutions and mechanisms and considerable political commitment to the planning process. Public sector investment In bringing about the realization of the planning framework is also the norm."
Land-use management	The land-use management tradition is "closely associated with the narrower task of controlling land use change at the strategic and local levels. In this situation, local authorities undertake most of the planning work, but the central administration is also able to exercise a degree of power, either through supervising the system [or by] setting central policy objectives."
Urbanism	The urbanism tradition has "a strong architectural flavour and concern with urban design, townscape, and building control. In these cases regulation [is] undertaken through rigid zoning and codes There is a multiplicity of laws and regulations but the systems are not so well established, and [do not command] great political priority or general public support. As a result, they … [are] less effective [at] controlling development."

Source: Nadin and Stead (2013, p. 1552) based on CEC (1997).

5. CONCLUSIONS

The Planning Map necessarily has several limitations. This approach lacks the identification of actors, stakeholder engagement processes, and most of the cultural elements of planning. It may provide only indirect information about the methods of planning (in the dimension of 'Instruments') and the relation of planning to other policies (in the 'Mission' dimension). It does not deliver direct information about the legal and institutional system, efficiency (distance between goals and outcomes), or the maturity of planning systems. However, as the method is not normative, it does not define any of the forms of planning as better or worse. Finally, as it is not connected to any planning ideology, it avoids the sensitive issue of making judgements in comparative research and is not appropriate for

the normative evaluation of programmes. However, the proposed Planning Map seems to address the following challenges of comparative planning studies that were earlier listed:

– it can be used to address various scales of planning activities, thus it offers insights that go beyond understanding national planning systems,

– it avoids using formal legal-administrative structures as the basis of categorisation, but through the analysis of instruments and spaces of planning some implications about forms of planning can be defined,

– it can be used in a simple way to analyse planning documents and processes and requires relatively few resources, however, the crucial issue is a clear definition of categories used in the same comparison,

– besides formal planning processes, it can also be used to identify and compare informal, experimental, and even unique planning activities,

– it can be used on both the large and micro scales, for international and intranational comparisons,

– it does not make normative judgements; it may be considered a neutral means of classification,

– in essence, the four dimensions help break down the content of the type of planning into its specific elements of forms, thus, the latter can be made independent from the planning concepts of national languages, which necessarily involve complexity and differences in planning approaches. Accordingly, it provides help with bridging the planning terms of different countries.

In the paper, the Planning Map is illustrated using some rather abstract examples. According to the author's experience this tool can be used efficiently in university education of planning to introduce rational and diversity-of spatial planning. However, its suitability can be demonstrated through its further practical application, and its further development can be ensured by its application to specific planning processes. The effectiveness of this comparative tool can be evaluated by using it either in comparative empirical research – on a large scale, or in case studies – or even for policy transfer and planning collaborative processes. Furthermore, the tool may be modified or developed further, supporting the identification of new spatial-planning ideal models that go beyond the four traditions identified in the Compendium.

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THE ROLE OF SOCIAL MOVEMENTS IN TRANSFORMATIVE TOURISM DEVELOPMENT: LESSONS LEARNT FROM A CASE STUDY IN LITHUANIA

Abstract. This study responds to the need for theoretical and empirical research on value co-creation in tourism. Previous research has mainly adopted a perspective centred on the collaborative relationships between tourists and service providers, i.e., has been focused on a relationship called 'one-to-one'. According to the emerging trends in value co-creation theory, value co-creation activities, however, are more complex. The research provides empirical support to previous general conceptualisations of value-creation and brings some new insights to value co-creation involving multiple actors from a perspective called 'many-to-one'. The research is focused on the role of the most active stakeholder in transformative tourism that represents 'many' actors as a whole – the social movement. The paper describes a case on a transformative tourism initiative that is a particularly rich setting for expanding value-cocreation in a network of activities' research for a more complex understanding of value networks in the tourism sector. The case study examines extensively the role of social movements in transformative tourism development through value co-creation. The findings develop a more complex value co-creation mechanism and enable the conceptualisation of the value co-creation process by identifying drivers of collaboration, value co-creation activities, and outcomes. The research demonstrates the potential of social movements for the development of transformative tourism in value co-creation and has implications for both entrepreneurs and policymakers seeking to develop transformative tourism and leaders of a new generation of social movements aiming to transform society.

Key words: business model, collaborative relationships, social movements, transformative tourism, value co-creation.

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1. INTRODUCTION

In past decades, tourism was considered the fastest growing and most widespread industry worldwide (UN World Tourism Organization, 2018) and recognised as an important driver of regional development. However, the post-industrial economy has led to the emergence of a new mode of consumption that is overturning the consumption patterns and laws of the product-oriented market (Moustaid *et al.*, 2022). Post-industrial service economy is opposed to a linear model of mass production and mass consumption. Surveys of trends in the tourism industry show that travellers also are shifting away from mass tourism offers. Many tourists are looking for personalised offers designed according to specific client needs. In parallel with pleasure tourism developed in the industrial era, the so-called 'serious leisure' became a predictor of travel intentions and flow in post-industrial tourism. According to many studies, tourists are looking for services that reflect a fundamentally changing lifestyle that manifests itself by evolution towards a more complex personality and a desire to live in a more responsible and environmentally friendly way (e.g., Skift report, 2014; Perdomo, 2016; UN World Tourism Organization, 2018). Among a variety of recent scientific observations of tourism trends, the following is worth considering in this research:

> […] The serious leisure participants are committed to selected leisure activities to an extent that can influence their lives, they change their daily lives around these activities and place these activities in the center of their lives (Isik, 2018, p. 147).

In response to new needs of customers, specific innovative types and forms of tourism are emerging and are oriented on serious leisure activities. One of the newest forms of serious leisure is an emerging sub-sector of tourism called 'transformative tourism' (some people use the term 'transformational tourism'). Any travel has a greater or lesser transformative effect, but the segment of transformative tourists differs by its deliberate intention to use travel for transformation. "Transformative tourism is a new form of tourism business focused on how to use the cultural and natural resources of visited places for individual or collective transformation. Transformative tourism may be defined as an innovative form of transformative learning because getting involved in transformative travels is based on the same reasons as transformative learning – frustration with the current situation and the search for innovative solutions" (Vidickiene *et al.*, 2020, p. 279). There is a growing interest among tourists to learn about spiritual, physical, emotional, cultural, and technological self-transformation. In parallel with the individual search for the purpose of life from and through secular pilgrimage travel, the voluntary transformation of other areas of human lifestyle became popular, including alternative agricul-

ture and eating culture, healing, eco-housing, community building culture, etc. The new generation of tourists also seek to transform their physical and emotional qualities by participating in physically challenging outdoor activities in remote or exotic locations. This kind of transformative tourism is often called 'heroic' or 'adventure' travels.

Transformative tourism can be used as a powerful catalyst for regional development, especially in peripheral territories. Delivering transformative tourism services is a low-investment business idea as it enables the creation of new livelihoods for local people by employing unused intangible and tangible resources. Alternative social and technological practices with capacity to encourage radical changes in consumption patterns, lifestyles, and values are available in every region but in many cases they are unused as business resources. Another important role of transformative tourism development is its contribution to territorial servitisation. Territorial servitisation policies have a long-term perspective as, according to studies, regions benefit from servitisation processes via the interplay of generating employment opportunities, opening up new markets, contributing to rebuilding the competitive advantage of local businesses, enabling an efficient allocation of technology resources, etc. (Vendrell-Herrero and Wilson, 2017; Lafuente *et al*., 2019; Gebauer and Binz, 2019; Lombardi *et al*., 2022).

To fully understand and exploit the potential of transformative tourism one needs to emphasize its post-industrial character. However, the examination of transformative tourism like other "current serious leisure studies focuses predominantly on individual experiences while overlooking the broader sociocultural context" (Lee, 2020, p. 77), above the fact that the new consumer behaviour paradigm has led to changes in the business model and value creation activities (Payne *et al*., 2008; Vargo *et al*., 2008). In the 21st century, essential changes occurred in business logic that shifted the value creation process from a traditional product-oriented business model to a service-oriented business one or to a Product-Service System as a combination of product-oriented and service-oriented business models. This process, called 'servitisation', helps product-oriented firms introduce value-adding services into their operations (Cusumano *et al*., 2015). Transformative tourism is the best specimen for research of post-industrial business model innovation in the tourism sector as most transformative tourism initiatives represent a radically new tourism business model based on the servitisation concept. Entrepreneurs are shifting their business focus from designing and selling only physical products to delivering a business model of 'products plus services', including various tourism services. Business servitisation through Product-Service System involves many new actors in the transformative tourism sector as transformative tourism covers all possible areas of transformation (cultural, physical, and spiritual). Most providers of transformative tourism services are early adopters of new technologies

and ideas. They try to use the full potential of implemented product or process innovation by adding to their main activities transformative learning and hospitality services for tourists. Currently, the most popular are tourism projects dealing with green transformation (eco-settlements, natural, regenerative, and biodynamic agriculture, slow food, agroforestry, permaculture, etc.) (Palojärvi *et al.*, 2013; Vidickiene, 2013; Skift report, 2014; Reisinger, 2015; Zeybek and Arslan, 2015).

There is no service without co-creation (Galvagno and Dalli, 2014) but previous research has mainly adopted a perspective centred on the collaborative relationships between tourists and service providers. Inspired by the service-dominant logic researchers aim to provide an insight into value co-creation, including all steps in the value co-creation process. This study responds to the need for theoretical and empirical research on the extended value co-creation process analysis in tourism. Defining a more complex picture of value co-creation enables one to focus on the role of the new important stakeholders in the transformative tourism business model – social movements. The new generation of social movements is focused on the creation, implementation and propagation of transformative practices and represent 'many' different stakeholders of the transformative tourism business. An analysis of value co-creation processes through collaboration between the transformative tourism service provider and the social movement enables one to examine transformative tourism through the prism of a multiple-actor perspective. The article is structured as follows. The first section introduces transformative tourism as a new form of tourism business with a focus on its post-industrial character which encourages a shift of the value creation process from a traditional product-oriented business model to a Product-Service System. The second section provides a theoretical background on why and how the integration of transformative tourism business and activities of social development movements happens and what the role of their collaboration in value co-creation processes is. The third section describes the case study methodology which is intended to examine the role of local social movement in transformative tourism development with the aim to enable the conceptualisation of the key components of the value co-creation process. The fourth section describes the case study on the transformative tourism initiative which is a particularly rich setting for extending value co-creation process analysis in tourism research for a more complex understanding. The main findings of the case study on value co-creation activities in transformative tourism through the collaboration of a small farm involved in transformative tourism business with a social movement help provide guidelines for value co-creation management. The last section gives logical explanations for the results from the case study and discusses how to fully use the potential of the new generation of social movements for the development of transformative tourism.

2. THEORETICAL BACKGROUND

Value creation is the starting point for every start-up project and an essential base to support a profitable and lasting business. A breakthrough in the thinking about value creation was developed in the 21st century as the post-industrial service economy has demonstrated a shift from an exchange paradigm to a value co-creation perspective. According to the emerging trends in value creation theory, successful value creation activities currently are led by new theoretical insights into value-chain building and analysis (Saha *et al*., 2020). They are oriented on a value co-creation approach based on the empirical evidence that value creation is no longer only within firms' boundaries. The first conceptualisations of value co-creation emphasized that the customer becomes a co-creator of value. In a value chain, customers and suppliers capture value from their relationships, and the relationship is the source of value creation that affects value appropriation (Prahalad and Ramaswamy, 2000, 2004; Miguel *et al.*, 2014; Tescari and Brito, 2016; Bharti and Agrawal, 2018). Research on value co-creation in the tourism sector has also mainly adopted a perspective centred on the collaborative relationships between tourists and service providers, i.e., has been focused on the relationship called 'one-to-one'. However, according to emerging trends in value co-creation theory, value co-creation activities are more complex. The development of relational marketing theory opens the need to focus on networks instead of dyadic relationships by looking at many-to-many and many-to-one relationships and analysing the whole context of a complex reality (Gummesson, 2007). Value is co-created in a collaborative network when many actors integrate resources through their interactions with each other. Resources may include people, technology, organisations, and shared information. The network approach emphasizes the growing input of different actors in the value creation process and the focal point of the value co-creation strategy currently is the management of relationships between the entrepreneur and other stakeholders. "Despite thorough conceptualizations of value co-creation in the service field, empirical applications showing the relationship, and interaction phenomena from a multiple actor perspective are scarce" (Pinho *et al*., 2014, p. 471). Tourism research especially lacks progress on this issue.

The examination of transformative tourism through the prism of a multiple-actor perspective can provide empirical support to conceptualisations of value creation. In our opinion, transformative tourism is a particularly relevant phenomenon for expanding research for a more complex understanding of value networks. In the case of small and medium-sized enterprises that dominate in transformative tourism sectors, value co-creation is a critical issue (Buonincontri *et al*., 2017; Camilleri and Neuhofer, 2017; France *et al*., 2018; Gustafsson *et al*., 2012; Meynhardt *et al*., 2016; Schwetschke and Durugbo, 2018) and most transformative tourism initiatives are involved in value co-creation with customers and other

stakeholders. Transformative tourism initiatives try to exploit all four theoretically defined relationships: 'one-to-one,' 'many-to-many,' 'many-to-one,' and 'one-to-many.' The co-creation of value through all the mentioned types of relationships enables them to enjoy the resources of all stakeholders.

Our research is focused on the least studied type of relationship called 'many-to-one.' Empirical studies (Palojärvi *et al*., 2013; Vidickiene, 2013, 2021; Adalilar, 2015; Zeybek and Arslan, 2015; Perdomo, 2016; Magnaye, 2019; Roysen and Cruz, 2020) have shown that the most active actor in the transformative tourism business model that represents 'many' actors as a whole is a new generation of social movements because they are focused on the creation, implementation, and promotion of transformative practices. National and transnational social movements, particularly the Global ecovillage movement, La Via Campesina, Slow Food, Cittaslow, and World Food Travel Association, spend a lot of effort on the transformation of unsustainable lifestyles and business models. They indicate practical ways how tourism can be used as an educational tool by creating a range of transformative learning sites attractive to tourists that are frustrated with the current situation of their daily practices. At the same time, social movements act as a catalyst for the transformation of social, economic, political, and technological patterns of regional development.

For a better understanding of why and how the integration of business and social development movements happens, the differences between the aims and activities of social movements in the industrial and post-industrial eras should be discussed. "Many people often think of social movements as synonymous with left activism" (Tilly *et al*., 2019, p. 167), but the progression of social movement theory emphasizes the shift from the proletarian movements of the industrial era towards collective action for a wider array of motivations (Berberoglu, 2015; Buechler, 2016). Historically, social movements have been centred on the struggle of workers against precarious working conditions, gender inequality, sex discrimination, healthcare services, social exclusion, and the privatisation of education (Cohen and Rai, 2000). Newly emerging social movements, however, are focussed on social, ecological, and cultural innovations as a response to socio-political, economic, and environmental grievances. They are organised around agendas of inclusion and are critical of mainstream systems and policies (Weaver, 2017). Social movements of the post-industrial era do not just highlight the failure of established paradigms and conventional solutions but are involved in innovation creation and implementation by pilot projects. Grassroots innovation movements seek innovation processes that are socially inclusive towards local communities in terms of the knowledge, processes, and outcomes involved (Smith *et al*., 2014). The participants of new-generation social movements have an entrepreneurial spirit and want to make some positive changes in the world. At the same time, they are active participants in the transformative tourism business.

The value co-created by transformative tourism service providers through collaboration with the social movement occurs as a result of various value co-creation activities and motivation to collaborate. On the one hand, value-added grassroots social and cultural innovations are driven typically by socially or economically disadvantaged people who find practical and creative solutions using modern and indigenous knowledge to solve their localised problems (Gupta, 2020, Vilke *et al*., 2021). Consequently, the members of social movements are very promising clients for the transformative tourism business. The intention of participants in a social movement to acquire more knowledge on different versions of alternative solutions is a strong incentive for traveling and being a client of transformative tourism initiatives. The collaboration of transformative tourism businesses with social movements is an important success factor for attracting new clients and the will to revisit. On the other hand, empirical studies have also shown that activists of social movements are successfully involved in the transformative tourism business as guides or managers (Gedminaite-Raudone and Simonaityte, 2021; Roysen and Cruz, 2020; McGehee *et al*., 2014; Zeybek and Arslan, 2015). They are not just sharing the transformative practices with tourists during their visits, but also communicate and support recipients over time as they adopt and adapt the practices. All the mentioned effects that generate the 'Product-Service System' business model and collaboration of transformative tourism business with social movements must be considered if we want to build a cumulative feedback loop between the ideas and actions of hosts involved in a specific transformative practice, tourists, and insights of social movements focusing on world change through transformation.

3. METHODOLOGY

The case study methodology serves to provide a framework for the evaluation and analysis of complex issues and the interest in the case study as a method for generating, and the testing theory has recently gained strength in management research (Eisenhardt and Graebner, 2007; Mariotto *et al*., 2014). This research applies a conceptually-related case study approach as "the case study approach allows in-depth, multi-faceted explorations of complex issues in their real-life settings" (Crowe *et al*., 2011, p. 1). In our opinion, the case study approach is most suitable as all key requirements of the case analysis method (Yin, 2003) are important to the analysis of the chosen research phenomenon – value co-creation from the many-to-one perspective. First, contextuality is important to the research of value co-creation; second, there is no possibility of manipulating the behaviour of the actors under study; third, this approach helps explain the object of study by

seeking answers to the questions of *'how'* and *'why'* value co-creation happens. It is also worth stating that in the case study the methods commonly used include interviews, observation of archival records, and direct observation of study participants (Yin, 1994).

The case study examines the transformative tourism initiative that is a particularly rich setting for the analysis of value co-creation processes from the many-to-one perspective. The subject of the study may potentially contribute significantly to value cocreation theory-building as it offers context-specific, empirically rich, holistic accounts covering a long period (data was collected during the period from January 2019 to July 2022). To answer the key case study questions of *why* and *how* the social movement becomes a decisive factor in value co-creation for business, the following subsidiary case study questions were asked:

1. How did the social movement encourage the farmer to implement business model innovation?
2. Why did the farmer decide to combine agricultural activities with transformative tourism services?
3. How did the social movement influence the design of transformative tourism services at the farm?
4. How did the social movement help find customers?
5. Why and how the social movement plays an important role in customer retention?
6. How the collaboration of the farmer with a social movement can be managed in the context of a many-to-one relationship?

Each of the 6 questions corresponds to a particular stage of the life cycle of the social movement, and they serve to compose the overall holistic picture of *why* and *how* the social movement becomes a decisive factor in value co-creation for a business.

Different research methods had been combined to collect information for the case study:

1. Data collection from various open sources of information, such as websites of both organisations, newswires, blogs, radio, and tv transcripts.
2. Interviews with the owner and manager of the "Alternative Gardening" farm which provides transformative tourism services (3 interviews at different stages of the farm business model development).
3. Observations (direct observation of the "Lithuanian Natural Agriculture Network" (LNAN) events and tourism services at the farm).
4. Interviews with leaders of the LNAN social movement (3 interviews at different stages of the social movement life cycle).

In analysing data from different periods, spaces, and people, triangulation has been used. It helped the researchers develop a comprehensive understanding of phenomena and test validity through the convergence of information from different sources.

4. RESULTS

Two actors – the social movement called "Lithuanian Natural Agriculture Network" and the "Alternative Gardening" farm are key players in researching the role of social movement in transformative tourism development by value co-creation. Firstly, both actors are introduced in this section. Secondly, four steps in the value co-creation process are presented based on the analysis of the business development processes at the "Alternative Gardening" farm. Finally, the value co-creation activities is summarised for the conceptualisation of the value co-creation mechanism in a network of activities involving multiple actors from the many-to-one perspective.

4.1. Introduction of the "Lithuanian Natural Agriculture Network" social movement

The LNAN was created in 2008 as a grass-roots social movement connecting enthusiasts of natural agriculture. The LNAN is an open organisation, and it does not have a formal structure, where members of the network are considered to be all persons interested in the principles of natural agriculture, participating in the activities of the network, forums, meetings and other various activities organised by the members of the network. Natural agriculture is different from conventional or organic farming because it is based on purely natural processes. This eco-agricultural method uses no digging and hoeing; in this way, the soil keeps its own natural structure, which ensures good air circulation, humidity, and a beneficial environment for living organisms. The founders of the social movement put a lot of effort into developing and adapting the proposed agricultural methods to the Lithuanian natural resources and climate. In the beginning, the network connected people wishing to grow vegetables and fruit using natural agricultural methods. These were owners of small family farms and other stakeholders who owned and/or used a plot of the land. Later, various non-governmental organisations, private consultants, and scientific institutions involved in agroecology, or their individual representatives, began to show interest in participating in the activities of the Network.

The number of movement participants grew rapidly as interest in eating natural and healthy vegetables and fruit became popular in Lithuania. In the opinion of movement members, it makes a significant difference if you buy products in shopping centres and markets or grow vegetables and fruit by yourself using natural agriculture methods (Vidickiene *et al*., 2021). Along with caring for their health and eating habits, the movement participants also aim to live in a nature-friendly and sustainable manner (Vidickiene, 2013). Members of this network are continuously searching for attractive ways how to spread knowledge about natural

agriculture. The movement offers practical workshops and consultations, fests with natural agriculture products tasting, an annual event of exchanging seeds and sprouts seeds of local historical varieties, etc. (Gedminaite-Raudone and Simonaityte, 2021). The movement also encourages the network participants to sell over-production to other people. The requirements for the certification of natural agriculture products have been prepared, which define agricultural technology, mandatory characteristics of the place of cultivation, and deadlines for the sales of the harvest (products grown according to the principles of natural agriculture, except for those stored for winter, should be sold no later than a day after being harvested). Commercial activities of the network have greatly expanded the diversity of network participants. Consumers of natural farming products, sellers and producers of material resources needed for this business (for example, sellers of seeds, seedlings, grass, and hay used for mulching), and service providers needed for business (small shops located in the city, transporters, etc.) joined the network. As a result, the movement evolved into a multi-lateral collaboration network that joins very different stakeholders. According to all the mentioned characteristics the social movement brings many different people with diverse motivations together to work towards a common goal and can be classified as a representative of 'many' for the examination of value-cocreation activities.

4.2. Introduction of the "Alternative Gardening" farm

The "Alternative Gardening" family farm was founded as an independent business and relies primarily on family labour. In the analysis of value-cocreation activities, it can be classified as a representative of the 'one'. The farm was founded in 2010 when the family decided to build a house and move to live on the inherited agricultural land in the eastern part of Lithuania, Vilnius county. The land is located in a hilly area where traditional farming would be difficult, but it favours organic agriculture because in the neighbouring area there were no traditional farms that used a lot of chemical fertilizers or pesticides. The founders of this farm were interested in nature-friendly agriculture and healthy food but had little experience in chemical-free gardening. They have found that getting more knowledge on this issue could help the LNAN. They became members and actively participated in all activities organised by the social movement. As a result, the family learned a lot about natural agriculture and became an advocate for clean and healthy agriculture and a nature-friendly lifestyle. Inspired by the experiences of other movement participants, the "Alternative Gardening" farm has started to grow vegetables, fruit and berries for sale, applying the principles of natural agriculture.

The farm is an example of collaboration with a social movement. The social movement acted as a major catalyst for innovative approaches and a value co-creator during all the stages of the farm business life cycle: start-up, growth, and

maturity. In the beginning, the mix of products and services was used to create value for customers making agricultural products according to their orders. The business servitisation has been inspired by the Lithuanian Natural Agriculture Network social movement. Currently, the farm applies the 'Product-Service System' business model that provides for the delivery of agricultural products and services. Later, the movement helped to design services attractive to tourists and the farm supplemented agricultural business with transformative tourism services. Currently, when the farm entered the maturity stage, collaboration with the movement helps with customer retention. The process in detail, including the drivers of collaboration between the farmer and the social movement, value co-creation activities, and the outcomes, are described in the following sections.

4.3. Value co-creation by business model innovation – the Product-Service System

The LNAN is encouraging people to produce high-quality products not only for themselves but also for sale. However, the movement participants have experienced that the starting of natural farming is a very risky business idea. Vegetables, fruit, and berries that are grown according to the principles of natural agriculture are completely new products to the Lithuanian food market and it is difficult to find enough buyers. The quantities of production are very small and it is difficult to predict exactly when a vegetable or fruit will grow and ripen. Consequently, it is impossible to sell them via traditional channels by making contracts with supermarkets or e-commerce stores. The sale of natural farming products at farmers' markets is also complicated as potential buyers do not believe that the products are different from regular ones. Therefore, the movement participants looked for non-traditional ways of selling. In 2011, the network started to organise its own commercial system based on a made-to-order strategy. This business model is based on the servitisation concept and requires a shift from a product-oriented farming business model to an innovative service-oriented farming one.

The movement participants tested several ordering systems with natural agriculture products and the founders of "Alternative Gardening" were active actors in the experimentation process. Like other movement participants, in the beginning, the family organised the farming activities according to the traditional product-oriented farming business model consisting of growing and selling the harvest at an anonymous market. Marketing activities have started with efforts to sell a part of the harvest in a farmers' market. It did not take a long to see that this way was not working. The farmers also explored marketing through the farm's website, which enabled people to order farm-grown products. However, the ordering process was very vague; the comments on the website indicated that the main obstacles were a lack of knowledge about natural agriculture products and the need to trust an unknown producer. During the discussions with other movement

participants, the farmers developed an vegetable basket subscription idea. In the beginning, they asked customers in early spring to declare how many baskets of vegetables they would buy, how often, and what content and size of the baskets would be. This business model helps obtain information at the beginning of the season on how much and what vegetables need to be grown and reduces the risk of losses due to unsold production. But later it became clear that the formation of individual baskets was a very complicated and labour-intensive process. Therefore, the family decided to standardise the baskets of vegetables. The "Alternative Gardening" farm implemented an online ordering system and started providing product delivery services. In the farmers' opinion, a combination of product-oriented and service-oriented business models in a 'Product-Service System' is the only way to sell products of natural agriculture because they are unknown to the mass market customer. The implementation of this innovative business model led to farm business growth and increased the long-term value of their businesses.

While a business model represents the "design or architecture of the value creation, delivery, and capture mechanisms" of a firm (Teece, 2010, p. 172), value creation through the evolution of the business model is an important issue for the LNAN. The experimentation with different versions of the business model is one of the key value creation activities as it generates higher-order value by spreading innovations in business and agriculture while increasing the number of natural agriculture farms in Lithuania.

4.4. Value co-creation by input to transformative tourism services design

The second important input to value creation by the collaboration of the "Alternative Gardening" farm with the Lithuanian Natural Agriculture Network was generated by the joint design of new services. In the start-up stage, the farm founder identified that an important challenge to business development was high production and marketing costs. Natural farming is very labour intensive as farms does not use machinery. The applied make-to-order business model also requires labour-intensive product delivery services and a lot of marketing efforts. After assessing the business operational costs, the farmers decided that they needed to reduce the costs significantly. The solution to the question of how to cut operating costs was found in close collaboration with participants of the LNAN. It was based on the idea of starting providing transformative tourism services at the farm as part of the social movement activities.

Since its establishment, the movement has organised and run various seminars on natural agriculture. According to the experience of the organisers, participants do not like sitting in a lecture hall but prefer training workshops because they offer the possibility of 'learning by doing.' However, the gardens of active lecturers are too small to develop the skills of the participants through practical actions. There

is a need for more locations for gardening practices if the movement wants to organise attractive and effective courses on natural agriculture. The "Alternative Gardening" farm is the perfect location for training on natural agriculture. The collaboration started with short visits as a demonstration of a natural garden for the participants of the courses. Later, the range of educational services provided on the farm was expanded. Accommodation services have also been introduced: anyone who wants to see how vegetables, fruits, and berries are grown according to the principles of natural gardening can rent a holiday home. If tourists express a desire to contribute to natural farming through their work, they can stay in the summer house for free.

The newly introduced services can be defined as transformative tourism services because the farm became a travel destination for learning how to transform industrial agrotechnology into more permaculture. They include the following transformative learning services:

- Tours on the farm as an introduction to natural agriculture,
- Training on specific agricultural operations,
- Training on regenerative land management,
- Workshops on food quality,
- Volunteering work with the possibility to get free accommodation,
- Consultations.

All the services have been developed through collaboration with the movement participants. Adding to natural farming transformative tourism services, the farm has succeeded in bringing several benefits to the business. In particular, they were manifested in the reduction of operational costs. First, tourism services enabled them to cut the cost of product delivery as tourists bought a lot of products after the farm tour and brought them home themselves. Another benefit deals with volunteering work, while farmers reduces the cost of work. Volunteers also help farmers avoid hard and routine agricultural procedures and they have the time for other tasks important to the farm business. In the farmers' opinion, diversification of farming activities allows them to better manage their business risks and helps generate a higher level of income. Adding transformative tourism services to the main business brought not only financial but many non-financial benefits, including an opportunity to maintain a desirable lifestyle and promote it in the society.

The development of transformative tourism services at the "Alternative Gardening" farm has also created added value for the social movement. The participants of the LNAN especially emphasize the role of partnership in the development of agricultural advisory services with the aim to enhance innovative agriculture and its products in Lithuania. Transformative tourism initiative at the "Alternative Gardening" farm created new opportunities for people to learn about natural agriculture. The value co-creation activities focused on the design of new services increased the number of movement participants and inspired them to become advocates of natural agriculture. Collaboration in providing agricultural

advisory services also resulted in modelling new joint business projects that involved a group of movement participants.

The set of designed transformative tourism services was an effective tool to increase business profitability by cost reduction, however, the farm identified a new important barrier to business growth – the lack of customer flow. The next step in collaboration with the social movement was a search for solutions on how to overcome said barrier.

4.5. Value co-creation for the acquisition of customers

The efforts for acquiring clients for transformative tourism services and new customers for natural agriculture products were another significant stage in the collaboration of the farm with the social movement. At this stage, the main driver of collaboration was the need for direct contact with people interested in natural agriculture as the farmers decided to apply a market segmentation strategy. In their opinion, the best place to reach the target audience were the events organised by the LNAN. The founders of "Alternative Gardening" focused on marketing activities during the lectures, seminars, training, and fests on natural agriculture by encouraging event participants to come to the farm for transformative experiences and natural agriculture products. Direct contact with event participants is an advantageous value co-creation mechanism because it helps:

– to reach the right customers, and
– to form groups of tourists.

Both mentioned aspects are especially valuable for the volunteering component in transformative tourism. Volunteers can be a huge help on the farm but not in all cases. People with an elementary knowledge of natural agriculture can get a surprising amount of work done in a small amount of time. But a volunteer having no basics of natural agriculture who arrives individually and only for a couple of hours will achieve less than the farmer could in the time spent explaining the task and making them feel welcome.

The farmers have realised that live communication with movement participants is a very important element of the farm business. Attending events organised by the LNAN help create an emotional connection and build mutual trust between the farmer and potential clients of transformative tourism services. It works as an effective acquisition marketing channel because it targets people who have heard of natural agriculture and convert them into paying clients for transformative tourism services and new customers for natural agriculture products. Moreover, the cost of this customer acquisition channel is low.

Inspired by the success of the "Alternative Gardening" farm and several other farms involved in natural agriculture, the Lithuanian Natural Agriculture Network started special marketing campaigns. Joint marketing campaigns use both

online and offline customer acquisition channels. They took place on social media channels using the Facebook platform of the LNAN, or as events where network participants endorsed and supported each other by sharing their experiences. The "Alternative Gardening" farm often is the host of joint events. The marketing campaigns and other events result in more intensive interactions among movement participants and make movement activities more attractive. They help increase the number of active movement participants and amplify customer commitment to the natural agriculture value proposition.

The experience of hosting and attending the seminars and other events organised by the movement inspired the next step in the collaboration between the "Alternative Gardening" farm and the Lithuanian Natural Agriculture Network.

4.6. Value co-creation for customer retention

A customer acquisition channel is any place where businesses meet their customers for the first time. However, finding a new customer is not enough. The business should nurture them into trusted, profitable repeat business. After the growth stage, customer retention became a serious challenge to the "Alternative Gardening" farm. It is looking for creative solutions on how to retain the acquired customers for a long time and make them purchase the farm's products and services regularly. According to relationship marketing theory, networking is a common strategy for growing a small business, but small business owners do not always think of networking in relation to customer retention. The owners of the "Alternative Gardening" farm avoided this mistake. In the farmers' opinion, collaboration with participants of the social movement helps with customer retention, including customers of transformative tourism services and customers of natural agriculture products, because, during visits to the farm, tourists buy agricultural products. Active participation in the activities of the LNAN is the best way to retain both groups of customers by value co-creation based on loyalty, satisfaction, and experience.

The main driver to continue collaboration is the wish to get new ideas on how to improve the services of transformative tourism and delivery of natural agriculture products. From the farm's perspective, collaboration with other movement participants on customer retention is the key to value creation in the most productive way. Good group brainstorming sessions give the opportunity to make a comparative analysis with other similar businesses and consider how the farm can operate better, faster, and cheaper. Discussions on the weaknesses and strengths of the natural agriculture business are valuable sources of ideas on how to make transformative tourism services more attractive. For example, the special shadowing technique has been designed for the training of transformative tourists on specific agricultural operations. According to this advanced teaching method, the training is organised as

a process when a tourist repeats what the farmer is doing in the garden, i.e., acts like a farmer's shadow. The original teaching method attracts more clients because it creates value for them by facilitating learning. Moreover, the innovative teaching method covers a lot of different gardening operations that are dependant on the season. Real enthusiasts of natural agriculture want to learn all the operations. As a result, the innovative transformative tourism service is making an emotional connection with potential customers of farm products and services, building customer trust, and creating long-term relationships with the clients. Increased quality of transformative tourism services helps to involve new members in the natural agriculture movement because "getting involved in transformative travels is based on the same reasons as transformative learning – frustration with the current situation and the search for something new" (Vidickiene *et al*., 2020, p. 279).

The discussions are creating new possibilities for movement participants to learn from each other and inspire service redesign or new service designs according to the most interesting ideas. They have already resulted in value co-creation through several joint business maintenance decisions. One especially successful was to start to jointly managing delivery services which helped save resources for involved participants of the LNAN and increased the quality of services. In the opinion of the movement's leaders, all the mentioned collaboration activities are relevant and important to the social movement as new tools for the reorganisation of the Lithuanian food system towards more organic food supply and spreading the ideas of a healthier, cleaner, and more sustainable life in the region.

4.7. Guidelines for transformative tourism business development by value co-creation management

The examination of the farm business model development shows how the social movement enables the farm to enjoy the knowledge, competencies, and tangible resources of movement participants for value creation. Movement participants are actively engaged in farming processes, especially as a source of knowledge. They play different roles, and the farmers have the opportunity to more deeply recognise the aspirations, needs, inspirations, and behaviours of the following key stakeholders: producers, sellers, and customers of natural agriculture products, transformative tourists, and sellers and producers of material resources needed for this business.

The case study findings explain why and how collaboration helps the emergence and development of a transformative tourism business through the prism of the business model. The case analysis showed that the collaboration of the innovative farm with the social movement was based on intensive interaction for the development of the following business model components: 1) business model innovation, 2) design of transformative tourism services, 3) customer acquisition, and 4) customer retention. The identified business model components evolve

as a step-by-step process which represents different stages of the transformative tourism business life cycle. During the stage of business model innovation, the farmers built their skills in customer service providing delivery of agricultural products and made-to-order services. The shift to the 'Product-Service System' business model created the conditions for the development of the service business. The second business model component has been created during the next stage of the farm's business life cycle as the design of transformative tourism services. The collaboration of the farmers with participants of the social movement encouraged the former to start providing transformative tourism with services at the farm and made a significant contribution to value creation. The third stage of business model development was devoted to customer acquisition. The collaboration was helpful not only for the attraction of new transformative tourists. During visits to the farm, the tourists bought agricultural products and recommended them to their friends. The fourth stage of business model development was focused on customer retention. Collaboration increased the quality of services and helped build long-term relationships with customers.

The findings of the case study identify the value co-creation mechanism in collaboration between the small innovative farm and a social movement, and can be used as guidelines for transformative tourism business development by value co-creation management. The guidelines are suitable for various kinds of transformative tourism services, not only in the field of agriculture. The empirical studies (e.g., Palojärvi *et al*., 2013; Vidickiene, 2013; Reisinger, 2015; Zeybek and Arslan, 2015; Vilke *et al*., 2021) show that collaboration between the new generation of social movements and business entities that put ideas of movements into practice is evolving through similar pathways independently of the area of transformation. The value co-creation mechanism consisting of drivers of collaboration, value co-creation activities, and outcomes as value for the innovative business entity and the social movement is presented in Table 1.

Table 1. The value co-creation mechanism in collaboration between the innovative business entity and social movement

Business model components	**Drivers of collaboration**	**Value co-creation activities**	**Outcomes**	
			Value for the business entity	**Value for the social movement**
Business model innovation	Risks of starting a new business	Acquisition and transfer of knowledge during training and seminars	Combination of product-oriented and service-oriented business models	• Spread of business model innovations • Increased number of innovative business entities

Table 1 (cont.)

Business model components	Drivers of collaboration	Value co-creation activities	Outcomes	
			Value for the business entity	Value for the social movement
Design of transformative tourism services	High costs	• Common events for transformative tourists • Modelling of new joint business projects	• Cost reduction • Diversification of activities	• New opportunities for people to learn about product, process and business model innovations • Increased number of movement participants
Customer acquisition	The need for direct contact with people interested in innovative products and services	• Experience sharing • Joint marketing campaigns	• Emotional connection with potential customers • Customer trust	• More intensive interactions among movement participants • Increased number of active movement participants • Customer commitment to the innovative products and services
Customer retention	Aspiration to improve service quality	• Discussions on weaknesses and strengths of similar businesses • Joint service (re)design according to the most interesting ideas • Joint business maintenance decisions	• Long-term relationships with customers through innovative services of transformative tourism • Joint projects for delivery and marketing of innovative products and services	• New possibilities for movement participants to learn from each other • Desirable transformations in thinking and behaviour in society, e.g., reorganization of the Lithuanian food system toward a more organic food supply

Source: own work.

The findings of the case study help better understand the value co-creation mechanism from the 'many-to-one' perspective for several types of stakeholders, including business entities, the new generation of social movements, and policymakers. Guidelines for business entities emphasises value co-creation management in different stages of innovation-oriented business development. The research findings show that value co-creation activities and outcomes are different at each stage. Using a value co-creation approach that is oriented on the 'many-to-one' relationship, a business model can be tailored to the specific needs of strate-

gic management at each stage of the business life cycle. The research results also provide some guidelines from the 'many-to-one' perspective for the management of new-generation social movements focused on the creation and implementation of innovations by pilot projects. The case study findings explain how collaborative value creation activities help the social movement achieve the overall goal through multi-lateral collaboration network activities because the movement participants can play many roles and receive individual benefits depending on their roles in value-co-creation activities. For example, in the study case, the participants of the LNAN collaborate as transformative tourists, farmers, food customers, distributors, etc. to achieve the overall goal – the popularisation of natural agriculture in Lithuania. The findings of the case study are also informative for scholars and policymakers interested in how to promote the revitalisation of farming by territorial servitisation. All the mentioned outcomes that generate collaboration of transformative tourism business with social movements must be considered and used as tools for the development of rural and remote regions through new solutions of regional, rural, and innovation policies.

5. CONCLUSIONS AND DISCUSSION

Transformative tourism is a brand new branch of the tourism industry, but it has great potential to be developed in the post-industrial environment. "Transformative tourism development policies have a long-term perspective as regions benefit by enabling an efficient allocation of intangible resources, generating employment opportunities, opening up new markets, contributing to the sustainability of local small businesses, etc." (Vidickiene *et al.*, 2021, p. 738). However, this type of tourism requires a different value creation mechanism than the one currently dominant. A review of transformative tourism initiatives shows that key players in the development of transformative tourism are not traveling agencies, but lifestyle entrepreneurs involved in the creation and implementation of various innovations. Most of them use the innovative business model of 'Product Service System' and employ value co-creation (Reisinger, 2015; Perdomo, 2016; Vidickiene *et al*., 2019; Vidickiene *et al*., 2020). Moreover, in contrast to mass tourism focused on the 'one-to-one' perspective, which employs collaboration with customers or other businesses, the best partners in the value co-creation activities are the social movements of a new generation as they offer a platform for the transformation of thinking and behaviour. The value co-creation theory still lacks practical guidance on how to build a value co-creation strategy from the 'many-to-one' perspective and managers of transformative tourism projects must use the trial-and-error method.

This article aims to fill the cognitive gap in the value-based management of the relationship between transformative tourism business and social movements. The research findings demonstrate the huge potential of the new generation of social movements for the development of transformative tourism in value co-creation. The research findings are suitable for various kinds of transformative tourism services as a conceptually-related case study approach helps capture the general value co-creation mechanism in a network of activities. The research enables the conceptualisation of the value co-creation process by identifying drivers of collaboration, value co-creation activities in a multi-lateral collaboration network, and outcomes by answering the questions of why and how a social movement becomes a decisive factor for transformative tourism development via a value co-creation process. This systematic knowledge can be used as guidelines on how to facilitate the value proposition offered by several groups of stakeholders:

– Entrepreneurs seeking to start or develop transformative tourism services according to the innovative business model,

– Leaders of a new generation of social movements aiming to transform the society,

– Policymakers seeking to develop transformative tourism as an effective way of territorial servitisation.

Study results indicate a more complex value co-creation framework in comparison with value co-creation from the 'one-to-one' perspective and enable further development of the value co-creation concept in complex environments with multiple actors. Naturally, the empirical results reported herein should consider some limitations to the generalisation of the value co-creation mechanism as the research findings are based on a single case study. Research limitations from the many-to-one perspective could be addressed in future research based on multiple case studies.

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THE FUTURE OF WELLNESS TOURISM AFTER COVID-19

Abstract. The tourism industry has drastically reduced its activity since the emergence of the COVID-19 pandemic, yet there has been an undeniable rise in demand for wellness tourism which now represents one of the fastest growing tourism market segments globally. Admittedly, while the COVID-19 pandemic has delayed the forecasted wellness tourism growth trend, this segment has stood fast at USD 4.4 trillion in 2020 while global GDP declined by 2.8%. In 2020, the wellness tourism market was valued at USD 436 billion, projected to rise to USD 816 billion by 2022 with more than 1.2 billion trips being realised and anticipated growth estimated at USD 1.0 trillion by 2025. The main purpose of this study is to ascertain the future trends of wellness tourism, and to investigate the extent to which this upward growth trend can be sustainably maintained post COVID-19. A qualitative structured interview methodology was employed using email interviews comprising six pre-determined questions with three expert wellness tourism participants. These expert interviewees were based in countries that were severely impacted by COVID-19, namely Brazil, USA, and Portugal. NVivo Nudist was used to analyse the primary data collected. In validating previous research findings, this study indicates that despite the challenges facing the sector, upward growth patterns in wellness tourism will continue beyond the COVID-19 pandemic.
Key words: wellness, wellness tourism, trends, COVID-19 pandemic.

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1. INTRODUCTION

The appearance of a new lethal disease, COVID-19, resulted in a combined health and financial crisis globally. This has been especially apparent in the tourism industry where COVID-19 continues to be a major disruption with potential far-reaching economic and psychological consequences and as the progress of the virus as yet unknown (Lew *et al.*, 2020; Orîndaru *et al.*, 2021). Consequently, the tourism industry has drastically reduced its activity and as Rahman *et al.* (2021) and Rokni (2021) contend tourist behaviour and mental well-being continue to be adversely affected by the pandemic. During such epidemics, the number of people whose mental health is affected tends to be greater than the number of people affected by the infection itself (Reardon, 2015; Shigemura *et al.*, 2020). While tourism is one of the world's largest industries it is also one of the most fragile ones vulnerable to crises and uncertainty. Despite such challenges, the tourism industry is preparing for recovery post COVID-19 (Sibi *et al.*, 2020) with wellness tourism pivotal to this recovery (Majeed and Ramkissoon, 2020). Wellness tourism is considered one of the most rapidly advancing tourism segments globally and is expected to grow exponentially post COVID-19 (Mohan and Lamba, 2021).

Collectively, the tourism and wellness industries make a valuable contribution to both the global economy and social and cultural advancement. Wellness and wellness tourism are not new concepts with the search for self-care increasing following the imposed lockdown periods that affected almost all countries in the world. It is unsurprising, therefore, that wellness tourism is an expanding segment worldwide with the Global Wellness Institute (GWI, 2021) reporting that the wellness industry reached pre-pandemic levels recording up to USD 4.3 trillion in 2017 and USD 4.9 trillion in 2019. Following the COVID-19 outbreak, the global wellness economy declined by 11% to USD 4.4 trillion in 2020, yet the GWI (2021) predicted that global wellness will return to pre-pandemic values in 2021 and will grow by 10% annually until 2025. In the GWI's (2021) 'Global Wellness Economy: Looking Beyond COVID' report, the wellness travel market is projected to reach almost USD1 trillion in 2020 representing 20% of global tourism and will grow by 7.5% annually by 2022. This forecasted trend is especially impactful to the tourism industry given that wellness tourists are typically higher spenders than most other tourists (GWI, 2018). For example, in 2017, international wellness tourists spent on average USD 1,528 per trip which was 53% more than the average international tourist. The premium for domestic wellness tourists was even higher, at USD 609 per trip which was 178% more than the typical domestic tourist (Global Wellness Institute, 2018). Overall, wellness tourism accounted for 830 million international and domestic visits in 2017, representing 17% of all tourism trips.

The current COVID-19 pandemic has enabled every destination to reflect, and assess strategies and propose new approaches to strengthen their wellness tourism offerings (Mohan and Lamba, 2021). This has stimulated new and emerging markets such

as Asia, Latin America, and North Africa which according to the Global Wellness Institute (2021) will continue to experience rapid growth and expansion in this segment.

This present study contributes to the existing literature by considering the impact of COVID-19 on the future of wellness tourism with a particular focus on the extent to which the current upward trend in wellness tourism can be maintained. By investigating future wellness tourism trends, it is anticipated that this study will be of interest to policy makers, wellness tourism providers, tourism agencies, developers, and academic researchers.

2. WELLNESS

Historically, the concept of wellness included the body, mind, spirit, and the environment associated with disease prevention, health well-being and happiness (Dunn, 1959). More recently, Laing and Weiler (2008) have observed that wellness is a holistic view of human life reflecting a physical and psychological peaceful mindset. According to Nahrstedt (2008), the definition of wellness echoes the World Health Organization's search for well-being with the concept of "fitness." As such, well-being involves much more than the physical, rather it is a quest to balance different aspects of life with historical, cultural, and linguistic differences influencing the interpretations of health and wellness. For example, in Hebrew, the term wellness is translated as health, yet health and wellness are not interchangeable terms. Myers *et al.* (2000) defined wellness as a way of life guided by the pursuit of health and well-being, bringing together the body, mind, and spirit. Similarly, Muller and Kaufmann (2000) have agreed that wellness is the sum of elements merging harmony with the body, mind, spirit, self-responsibility, physical activities, beauty care, nutritional health, relaxation, meditation, mental activity, education, sensitivity to the environment, and social contacts. Therefore, wellness is associated with psychological (behaviour, emotional, and cognitive) aspects rather than physical aspects alone. In agreement with Muller and Kaufmann (2000, p.7):

> "Wellness tourism is the sum of all the relationships and phenomena resulting from a journey and residence by people whose main motive is to preserve or promote their health. They stay in a specialized hotel which provides the appropriate professional know-how and individual care. They require a comprehensive service package comprising physical fitness/ beauty care, healthy nutrition/ diet, relaxation/ meditation, and mental activity/ education."

Adams (2003) extended this definition in referring to four wellness principles: a) Wellness is multi-dimensional; b) the practice of Wellness must be guided, seeking the causes of wellness and not diseases; c) Wellness is about balance; d) Wellness is relative, subjective, and perceptive. In addition, Adams (2003) has recognised that

wellness is composed of at least six components in his proposed wellness model which includes emotional, intellectual, psychological, physical, spiritual, and social components. More recently, GWI (2020) defined wellness as an active pursuit of lifestyle choices that in turn leads to a state of holistic health. As with many definitions of wellness, the GWI has stressed that wellness is individual given that one person's wellness may be another person's stress. Evidence suggests that wellness is much more than physical health, rather it incorporates a series of dimensions that have the potential to work together to create harmony and happiness (Global Wellness Institute, 2020). Reflecting Adams (2003), the GWI has recognised that wellness includes dimensions of the physical, mental, spiritual, emotional, social, and environmental. These dimensions suggest that wellness strives to create harmony through mental, physical, spiritual, and biological health and it is the GWI's (2020) definition of wellness which guides this study.

3. WELLNESS TOURISM

Ryan (1997) has contended that tourism has always been a process of self-regeneration, relaxation, education, and indulgence while Seaton and Bennett (1996) have suggested that the psychological and physical effects of tourism are increasingly significant. More recently, emphasis has been placed more on the mind than on the physical, and while people continue to travel for the purposes of physical health and fitness, the pursuit of relaxation and wellness dominates (Koncul, 2012). In response to this growing demand, countries, medical providers, and hospitality and tourism organisations are adapting to offer a broader set of wellness tourism experiences. Unsurprisingly, there is consensus that wellness is not just about the physical, but rather that wellness relates to a desire to feel complete, to take care of the mind and to feel good about oneself, even though wellness activities are predominantly physical, such as thermal water therapies, detoxification, yoga, and massage treatments. Thus, wellness as Adams (2003) has suggested is relative, subjective, perceptual, and multi-dimensional, and is impacting the growth of wellness tourism with the holistic concept of wellness tourism draws together health, wellbeing, hospitality, and transportation to deliver numerous tourists services. According to Voigt and Pforr (2013) increases in human stress have expanded demand for more personalised services while the ageing of populations predisposes the further development of wellness tourism.

Lounsbury and Hoops (1986) claimed there was a positive correlation between travel, health, and wellbeing. More specifically, satisfying travel, relaxation, escape, marriage and family, food, and accommodation needs through travel experiences can contribute significantly to human well-being (Lounsbury and Hoopes, 1986; Neal *et al.*, 2007) with such benefits felt before, during, and after the travel experience.

The GWI (2018) has suggested that wellness tourists consist of people who already have a healthy lifestyle and seek to maintain or improve their wellbeing with wellness tourism understood as one of the many layers of health tourism (Chen *et al.*, 2007; Global Wellness Institute, 2018; Medina-Muñoz and Medina-Muñoz, 2013; Voigt *et al.*, 2011). Thus, wellness tourism is a combination of concepts encompassing spirituality, hedonism, escapism, relaxation, lifestyle, intellectual, socialisation, the physical, and the mind (Smith and Puczkó, 2009). Mueller and Kaufman's (2001) definition of wellness tourism as activities associated with traveling to improve physical, mental and social health and promote well-being echoes Smith and Puczkó's (2009) understanding of wellness tourism. Voigt *et al.* (2011) and Dillette *et al.* (2020) have included specific wellness places and activities while Ellis (2013) referred to:

a) physical aspects: treatments and activities include massages, baths, dietary interventions, health-focused hotels and resorts, clinics, spas, and organic/natural/detox restaurants;

b) social aspect: fitness activities at locations such as Pilates and fitness centres, as well as gyms;

c) environmental aspect: might involve outdoor adventure activities such as hiking, hillwalking, and mountaineering;

d) emotional aspects: recreational activities such as music and art classes;

e) spiritual aspects, visiting temples and churches to reflect and prayer;

f) mental aspects: meditation and yoga classes and activities related to connecting body and mind.

4. WELLNESS TOURIST PROFILE

People searching for wellness products tend to have a higher sociocultural and economic status than conventional tourists as observed by the GWI (2021) report proposing there are two types of wellness tourists. Primary wellness travellers are motivated to travel or choose their destination based on the wellness activities offered (such as a wellness resort or participating in a yoga retreat), while secondary wellness travellers are those seeking to maintain their well-being or participate in wellness activities such as going to the gym, receiving a massage, and prioritising healthy eating when traveling.

As indicated in Fig. 1, the secondary tourist comprised 89% of wellness tourism trips and 86% of tourist spending in 2020 with greatest growth anticipated in this tourist profile. The domestic traveller accounts for 82% of wellness tourism and 65% of tourist spending with an expected growth of 9% per year. Given the increased transport and accommodation costs for international travel, the highest

spending is most likely for the international wellness tourist with an anticipated growth rate of 12%. Collectively, therefore, wellness travellers spend more than traditional tourists, both domestically and internationally. In 2020, international wellness tourists spent an average of USD 1,601.00 per trip, 35% more than the traditional tourist while the domestic tourists' average spending was USD 609.00 per trip. As such, wellness travellers are typically more affluent and educated, tend to be early adopters, and they frequently engage in new and more novel experiences (Global Wellness Institute, 2021). Interestingly, Deesilatham (2016) has observed that women are the most likely wellness tourists supporting Puczkó and Bachvarov's (2006) previous study which contended that women under 30 years of age dominated in this segment. Similarly, both Smith and Puczkó's (2014) study and an extensive report undertaken by Spafinder Wellness Travel (2015) commented that Gen x (36–45) and baby boomers (46–65) were the top two consumer groups most likely to book wellness holidays. Both studies agreed that wellness tourists were typically consumers under the age 49, had high-incomes, were well-educated and sought new experiences, pampering, lifestyle, and luxury wellness services.

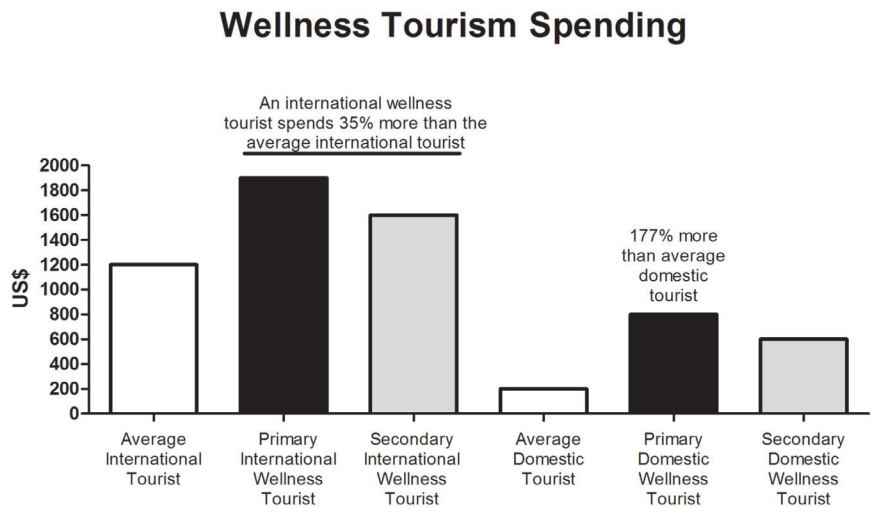

Fig. 1. Wellness Tourism Spending Premiums (2020)

Source: adapted from *The Global Wellness Economy: Looking Beyond COVID* (Global Wellness Institute, 2021).

Studies indicate that the COVID-19 pandemic has negatively impacted quality of life for younger people in particular citing confinement during lockdown leading to a significant rise in mental illness including anxiety, irritability, depression, and other mood disorders (Anser*et al.*, 2021; Sahoo *et al.*, 2020; Wang *et al.*, 2020; Ahorsu *et al.*, 2020; Õri *et al.*, 2021). While young people engaged with

digital technologies for long periods pre-COVID-19, isolation and imposed confinement resulting from COVID-19 intensified young people's tendency to consume social media. This has exacerbated anxiety and unhappy mood levels among young people (Gudiño *et al.*, 2022; Mustafa *et al.*, 2020). In addition, Duan *et al.* (2020) have suggested that during the COVID-19 pandemic young people were typically engaging in physical exercise less than once a week while their intake of soft drinks and junk food increased significantly.

According to the GWI (2021) the top five wellness countries include the United States, Germany, China, France, and Japan. In addition, destinations with a long association with traditional wellness lifestyles are gaining significant momentum in attracting wellness tourists as illustrated in Table 1.

Table 1. Wellness Tourism: Top Twenty Destination Markets in 2020

Country	**Rank in 2020**	**Wellness Tourism Expenditures (USD billions)**			**Number of trips (millions)**
		2017	2019	2020	2020
United States	1	226	263.5	162.1	114.8
Germany	2	65.7	73.5	59.0	57.4
France	3	30.7	34.7	21.3	21.8
China	4	26.4	34.4	19.5	67.5
Japan	5	23.9	26.6	19.1	33.8
Austria	6	16.5	18.9	11.9	13.1
Switzerland	7	13.4	15.5	10.8	8.4
Italy	8	13.4	14.5	9.0	8.6
United Kingdom	9	13.5	15.1	9.0	16.4
Australia	10	12.3	14.0	8.5	8.6
Canada	11	12.5	13.9	8.4	10.0
India	12	11.4	13.3	7.2	48.2
Mexico	13	9.7	12.5	6.2	11.9
Spain	14	9.9	10.8	5.2	12.7
Thailand	15	12.0	16.9	4.7	6.5
South Korea	16	6.8	8.3	4.3	16.8
Malaysia	17	5.0	6.1	3.5	7.5
Portugal	18	3.4	4.4	2.8	4.0
Denmark	19	3.2	3.8	2.8	6.6
Turkey	20	4.5	5.7	2.7	6.7

Source: adapted from *The Global Wellness Economy: Looking Beyond COVID* (Global Wellness Institute, 2021).

5. WELLNESS TOURISM TRENDS BEYOND COVID-19

Wellness tourism research focuses on benefiting community development, rural places, and green areas such as national parks (Bell *et al.*, 2015) which is reflective of the market segment. For example, airports and airlines are promoting wellness programmes such as Fly Healthy and Fly Well, while the provision of such services as spas at airports and gyms, meditations on the flights, healthy catering, and clean design at airports are evident. Such a partnership between wellness companies and travel brands seeks to harness routine consumer wellness habits while travelling to leverage wellness trends, as the collaboration between Peloton and Westin Hotels, Intrepid travel and tours offering, and the birth of micro trips (Law, 2022) demonstrate. According to Smith and Puczkó (2009), the tourism industry is harnessing what Law (2022) declared as a 'wellness boom' in several ways including:

a) Hotels (clean and healthy hotels) incorporating clean aesthetics, healthy, natural, and organic foods, and activities to provide a calm and relaxing atmosphere for the guests through biophilic design. Such design is a philosophy that encourages the use of natural systems and processes in the process to build the environment (Kellert *et al.*, 2008) based on the Biophilia hypothesis. This hypothesis proposes that humans have an innate connection with the natural world (Wilson, 1984) and that exposure to the natural world is, therefore, important for human wellbeing.

b) Building the connection between travel, work, and wellness with coworking becoming very common because of the COVID-19 pandemic. People are travelling more and working at the same time demonstrating that a person can live, work and experience new cultures while maintaining wellness in any location.

c) Blending traditional hospitals with spas to offer medical treatments and spa services for a more holistic experience. As Smith and Puczkó (2009) have argued, Wellpitals and Medhotels offer the blended services and qualities of hospitals, hotels and spas without the hospital, clinic or standard hotel image or feel becoming either an extended spa, adapted hospital or cruise ship which is a blend between hospitals and spas, that offers medical treatments and spa services (Wellness Tourism Worldwide WTW, 2020).

d) Offering Spa Living Environments (Navarrete and Shaw, 2021) and EcoFit Resorts/Eco-Friendly Resorts (Smith and Puczkó,2009) to provide spaces to relax and improve physical and physiological health through comfortable pet-friendly or natural surroundings. Such places include outdoor activities, massages, yoga, natural and organic foods, and physical activity facilities.

e) Developing dreamscapes, which are luxury products targeted at younger age groups, offering futuristic experience, like a cinema in a spa, with music, and games to induce another world feeling.

f) Designing well-working environments to create a calm and relaxed space for employees through the provision of workplace gyms, healthy food options and medical incentive travel opportunities.

In agreement with Law (2022) this study recognises that there is a wide range of available wellness tourism assets reflected in the diverse and creative offerings available across the world. However, while diverse wellness tourism services and products are available across the globe reflecting increasing consumer demand, such services and products are not universally consumed or accessed in the same way. Therefore, this study contends that new wellness tourism strategies are required to assist in the recovery of the global tourism industry post the COVID-19 outbreak. Given that 56% of people prioritise their well-being while 42% will seek wellness travel options following the COVID-19 pandemic according to GWI (2021), a new era of wellness tourism is unfolding. However, as noted by the WTW (2020, p. 41) a major threat to this upward growth trend is the anticipated 'globalization of standardized and uniform products and services which can only serve to undermine uniqueness and competitiveness.'

Existing literature suggests that customising the wellness tourist's experience is necessary due to the standard protocols imposed to curb the spread of the virus and to fulfil consumers' need for a more bespoke consumer experience. Indications suggest that a combination of maintaining the availability of wellness assets and enhancing product diversification through the creation of new luxury and more personalised wellness services to ensure sustainable future growth is the key to the future development of wellness tourism.

6. METHODOLOGICAL PROCEDURE

To extend this line of enquiry, primary research was conducted using a qualitative research approach employing three structured email interviews with representative experts to further discovery of anticipated wellness tourism trends. Email interviews were considered an appropriate data collection instrument based on an assessment of the research aim, confidence of credible findings, ease of accessibility, and the subject population's familiarisation with the technology. Notwithstanding the small sample size this approach can produce a substantial amount of data (Jones and Gratton, 2010), promotes a deeper investigation, and allows the researchers to focus on the context of the information gathered whilst also gaining a broad understanding of it (Pechlaner and Volgger, 2012). As Meho (2006) has agreed, email interviews give respondents time to answer questions at their own pace over an extended period while Ratislavová and Ratislav (2014) have advised that email interviewing provides extended access to participants compared

to other types of interviews so interviewees can better formulate answers without disruption. Access during the pandemic was particularly relevant in this study. The interviewees included a Vice President of a Wellness Association in Portugal, a Chair of a Wellness Institute in the United States, and a Wellness Hotel Marketing Supervisor in Brazil. These interview exchanges occurred between May and July 2021, a time when the impact of COVID-19 on the tourism industry was severe in all three destinations. The back-and-forth email conversations allowed for prolonged engagement with participants to connect and establish relationships, enabled the researchers to clarify descriptive data, pursue further discovery, and ensure accuracy in describing wellness tourism trends from the perspective of the interviewees. To maintain discretion respondents' names were coded. A content analysis approach was employed to systematically describe the content of each email message as advised by Bardin (1977), and Franco (2008). Data input and analysis was conducted using the NVivo Nudist software to code and categorise the email content as recommended by Zamawe (2015) before generating Word Clouds based on the frequency of emerging themes. Word Clouds are useful visual depictions of text data (Cappelli *et al.*, 2017) and such pictorial representation of data was deemed appropriate to organise and summarise the research data in this study.

7. RESULTS AND DISCUSSION

Six pre-determined questions were posed to three expert wellness tourism participants to uncover their perceptions of wellness tourism, assessment of the challenges facing the sector, and to ascertain the extent to which, if any, the upward growth in wellness tourism will be realised post COVID-19. As such, the results of this study reflect the perceptions of three prominent tourism wellness representatives in three different destinations during the COVID-19 outbreak. While the small sample size will evidently restrain the generalisability of the results, the deeply reflective answers arising from across three geographically diverse samples have resulted in findings that may have application outside of these research settings. The results offer insights and understanding with wider relevance to wellness tourism to stimulate further research that will assist researchers, policy makers and industry stakeholders to move forward as destinations embrace the wellness boom.

In articulating the meaning of wellness tourism, expert (A) considered:

> 'Wellness Tourism is travel that seeks physical, mental, and spiritual well-being, associated with the infrastructure that tourism offers, such as transportation and lodging. Although there is a wide dissemination of tourism and health, the population still has little understanding of

the relationship and interdependence between the two areas. There is a certain rejection by the medical segment of the term tourism or other health-related terms, thus failing to recognize the importance and relationship of the two areas that would be a major stimulus to the development of health and wellness tourism in the world. If health and medical authorities publicly recognized that travel related to wellness in all segments brings benefits to society and were more encouraged, we would have a greater acceptance by the whole society.' (Expert A).

Expert B contended that wellness tourism '*is a trip to create, to maintain well-being, whether mental, physical, or social*' (Expert B), while Expert (C) defined Wellness Tourism as '*a kind of tourism focused on maintaining or improving the well-being of the tourist who enjoys it'* (Expert C).

In assessing the value and importance of wellness tourism to the economy, Expert A noted that:

'The Tourism and Health Industries move trillions in the world economy separately, and together they end up generating much more income, and jobs, in virtually every country around the globe. These are two segments that are always investing in innovations, equipment, structure improvements, hiring and qualification of new professionals, among others, which make it possible for many places to be positively affected by Wellness Tourism.' (Expert A).

In the context of the industry post COVID-19, Expert A claimed that:

'Thinking about the activity in the post-pandemic future will only grow this activity and always increase the economy. Due to the Covid-19 pandemic travel has been restricted, but this has not diminished people's desire and needs to travel. Now there are many more people who want to take better care of themselves and their health. This concern with well-being often includes places other than one's own home, such as clinics, hotels, and spas. And many of these establishments are preparing for the increase in this damned and potential demand for the coming years. An important detail that was mentioned is that only the places that suffered travel restrictions had a significant drop in the volume of visitors to Wellness-related establishments. Where they were allowed to operate, the impact was minimal, showing that the activity, which was already growing, only tends to increase after this pandemic period. It will be a time when people will take much more care of themselves, whether physical or mental, and these places will be increasingly sought out to meet these needs.' (Expert A).

In continuing this discussion, Expert A noted that:

'Concerning the challenges that Wellness Tourism will face after the Covid19 Pandemic, it is believed that convincing public authorities of the high importance of people's physical, mental, and psychological well-being will be the most difficult. This type of service needs to be considered essential since during the pandemic most places were closed. It has been found that due to the restrictions imposed by the Covid19 Pandemics many people's health has worsened, such as high rates of suicide, depression, and anxiety, so depriving people of using Wellness services is making them sick early. We believe that strengthening safety protocols is paramount, since institutions that work with Wellness already have strict protocols to avoid infection and contamination, and a broad campaign publicizing the benefits that outweigh the risks will be of great importance to stimulate Wellness in the coming years.' (Expert A).

Expert B noted that:

> 'According to the research done this segment tends to grow a lot, after the coronavirus restrictions pass. The focus on taking care of wellness had a very big increase during the pandemic, and it will be very important for people to stay healthy afterward. It is important to stress that the demand needs to remain strong and willing to consume, one of the challenges of the sector, because many borders are still closed and it is necessary to train the employees well, who offer wellness activities. The connection with nature is a major focus of the activity, along with healthy food, good accommodations, and staff trained to provide the best service.' (Expert B).

For Expert C:

> 'Tourism tends to increase due to the pandemic because people are looking for better health, to improve their physical and mental well-being, and these are points that Wellness can solve, besides being the key factor to happen, the confidence that the tourist's health is being taken care of.' (Expert C),

and noted that:

> 'The great challenge for growth and continuity to be maintained is that people still do not feel as confident to travel, due to the restrictions imposed by the pandemic. How to get to the destination is what worries the agents of this segment' and reflects that wellness tourism is (Expert C);
> 'A type of tourism that brings foreign exchange with shopping that is a unique experience for the users' (Expert C).

In evaluating the potential growth of wellness tourism, Expert (A) suggested that:

> 'Regarding the main trends of the segment for the future, it should be noted that there will be a large increase in demand for health and wellness services in the coming years. People are becoming aware of how necessary physical and mental well-being is. Studies have shown that Covid-19 was more deadly in those who were obese, sedentary, and had comorbidities or health problems, and much of it was preventable like hypertension, diabetes, etc. In other words, it has only increased the awareness of how important and necessary good health linked to wellness is in facing new diseases. There will be more options for activities within Wellness Tourism in the coming years, even thinking about adaptation to new diseases. One increase already seen is that of remote assistance, something that was not so common in Wellness, since physical contact needs to be made with great caution, an alternative to this has already begun to be created.' (Expert A).

Expert (B) identified the tourism industry as:

> 'one of the great pillars of the economy, bringing many jobs, foreign exchange, and helping other sectors as well. Tourism helps in the growth and development of local communities when inserted into the activity. Some trends pointed out are travel with transformative experiences, regenerative travel, the return to ancient traditions and rituals, the inclusion of pets in therapies, physical experiences in nature, such as cycling, hiking, camping, and places that rely on biophilic design, always integrating nature in the activities.'(Expert B),

while Expert (C) proposed that:

> 'The main trends for the future are believed to be the search for treatments for the sequelae of Covid-19, the search for Mind Detox, the search for weight loss, treatments for anxiety and depression, and socialization in healthy environments.' (Expert C).

Following the data collection phase, a detailed content analysis was undertaken generating three Word Clouds to visually present and determine shared perspectives and consensus arising from the data set. Keywords most frequently mentioned by respondents were captured in larger orange text with those mentioned less often were presented in smaller black text. Figure 2 depicts the most frequently cited words comprising a minimum of eight letters and Figure3 illustrates words most frequently mentioned that contain at least five letters. Given that health was one of the most dominant words cited across all interviews, Figure 4 presents a word cloud that concentrates on health-related terms which was designed after interviewees' responses were categorised. Given the proliferation of a number of key terms such as restrictions, experiences, challenges, physical, wellness, pandemic, increase, offerings, travel, tourism, increase, people, health, and challenge a shared perspective between the interviewees is apparent.

Fig. 2. Word Cloud Content Analysis comprising words with at least 8 letters

Source: own work based on data provided by the three structured email interviews.

Fig. 3. Word Cloud Content Analysis comprising words with at least 5 letters

Source: own work based on data provided by the three structured email interviews.

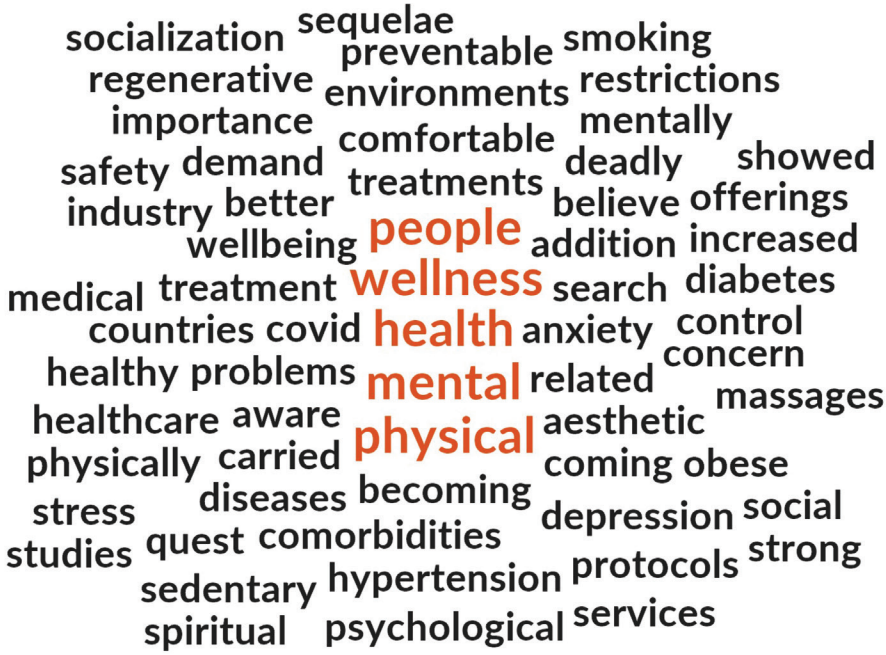

Fig. 4. Word Cloud Content Analysis categorized by health-related and comprising words with at least 5 letters

Source: own work based on data provided by the three structured email interviews.

The research findings in this study reinforce and corroborate the work of other researchers and strives to further inform academics, governments, developers, and other decision-makers in the tourism wellness industry. As observed by Abbas *et al.* (2021), the wellness tourism segment will increase exponentially. The outbreak of COVID-19 has not dampened growth – rather the pandemic has accelerated the growth of tourism wellness primarily due to a heightened awareness of health and most notably mental health concerns. On the one hand, rapidly expanding demand requires new strategies to personalise and differentiate products and services while on the other hand alleviating the simultaneous increase in tourists risk perceptions and risk averse tendencies to mitigate the spread of the virus need attention (Rahman *et al.*, 2021) .

A recent study by Han and An (2022) assessed the perception of wellness tourism before and after the COVID-19 pandemic in Korea by extracting and analysing keywords related to wellness tourism from online social networks. Their results indicated that the desire for healing of both body and mind appeared more significant after the outbreak and concluded that government action was needed to revitalise and boost local wellness tourism (Han and An, 2022). In a related study, Sivanandamoorthy (2021) evaluated the impact of the pandemic on the wellness tourism of Sri Lanka, a traditional destination for western European travellers using semi-structured interviews. The study determined that wellness tourism in Sri Lanka has been severely disrupted, faced significant challenges and advocated that authorities and hotel brands explored the potential of local nature resources and focused on ethical strategies and regulations to assist in mitigating the effects of the pandemic.

Fontoura, Lusby and Romagosa (2020) adopted qualitative research methodologies including personal communication, secondary data analysis and one-on-one interviews with experts to analyse the tourism industry post-COVID-19 in Brazil and USA. In the case of Brazil, the lack of consistent action from the central government demonstrated through examples of inadequate local public administration and the need for private initiatives such as the provision of sanitary measures and funding to address the tourism crisis. In the context of the USA, Fontoura *et al.* (2020) have suggested the COVID-19 crisis is more negatively impactful than the Great Depression and the September 11th attacks, and estimate that the travel industry would report losses of USD 519 billion this year (US Travel Association, 2020). According to the US Travel Association, geographical differences were observed with 75% of residents in the Northeast planning to halt all travel, compared to only 59% of residents in the South and 57% of residents in the Midwest. The majority of Americans agreed that the compulsory use face masks was a positive measure noting that American tourists preferred destinations that imposed a mask mandate and offered local and outdoors activities which suggested that natural attractions, national parks and smaller communities would become more popular among US tourists (US Travel Association, 2020). Finally, Fontoura *et al.* (2020) noted the importance of introducing sustainable initiatives was necessary to harness wellness

tourism in these destinations. This is consistent with Dionísio and Rodrigue's (2021) study which investigated the tourism industry crisis in Portugal during the pandemic outbreak and concluded that sustainable strategies were central to the revival of the Portuguese tourism industry advising that the creation of initiatives such as the 'Clean and Safe' stamp were necessary for the visitor experience in the new 'normal'.

In line with the results of previous studies, this current research study recognises that changing consumer attitudes and demands for health and wellness requires destinations to embrace this phenomenon by investing in sustainable wellness tourism. "Welltodo" website (2020) has declared that operators are becoming more competitive with new offerings disturbing traditional wellness tourism players from wellness tourism to spa tourism, workplace wellness, personal care, traditional health, complementary therapies, mindfulness, and fitness. With many borders reopened, it is now time to follow a multi-step approach for wellness tourism to overcome the COVID-19 crisis. It is also time for governments and authorities to create new regulations and safety guidelines, for tourism policy-makers and practitioners to design new wellness luxury and safety strategies, and for destinations to provide the enhanced and authentic experiences demanded by wellness consumers post-COVID-19.

This study identified the upward trend in wellness tourism and assessed the many significant challenges the industry is facing from the perspective of prominent wellness tourism experts. Notably two of these experts represent destinations featured in the top twenty wellness tourism places in the world, are among the countries most affected by COVID-19 with few wellness tourism research studies specifically focusing on these specific destinations. Notwithstanding its contribution, this study has several limitations. Firstly, the small sample size restricts the generalisability of the findings and future research could capitalise on this research by employing a more extensive sample to allow for greater depth of understanding across multiple wellness tourism destinations. Secondly, perceptions of wellness tourists post COVID-19 have not been explored and it is proposed that capturing such perceptions represent an important research agenda to inform sustainable wellness tourism strategies. Thirdly, some researchers argue that written responses of email interview lack the social cues that assist the full understanding of the respondent's experience as it is not possible to observe or interpret visual cues, tone, silence, or hesitation (Fritz and Vandermause, 2017). However, the researchers in this study contend that even with additional written cues, researchers cannot respond in real-time or capture emotions. Finally, the consideration of participant characteristics is essential for determining that email interviews are appropriate in terms of internet connectivity, cyber security breachers, and discomfort with email communication. All participants in this study were wellness tourism experts, had computer access, have consistent internet connectivity, routinely communicated via email, and no data breach concerns were noticeable.

8. CONCLUDING REMARKS

The results and trends observed in this study from the perspective of wellness tourism experts anticipate ongoing and exponential growth of wellness tourism after the COVID-19 pandemic. The value and importance of wellness tourism destinations that support physical and physiological outdoor, fitness, and spiritual activities is central to recovery which can only be achieved through sustainable, personalised, authentic, and distinctive wellness tourism offerings.

This study aims to advance wellness tourism academic research and to inspire new and creative future research stands in this important field of study. The effects of the COVID-19 pandemic on the tourism industry are unquestionable and wellness tourism is well placed to drive the industry's recovery. This will require planning and strategies informed by multiple stakeholders so that destinations can sustainably embrace this declared wellness boom.

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REVIEW ARTICLES

Cristina CATALANOTTI

COMPETING LANDSCAPES OF COMMERCE AND TOURISM: CRITICAL RELATIONS AND POSSIBLE STRATEGIES IN VENICE'S HISTORICAL CITY

Abstract. This article investigates the relationship between tourism-related economic activities and neighbourhood shops in the historical centre of Venice, in terms of both their spatial distribution and the conflictual uses of the city. In questioning how to inhabit and revitalise the city through commercial activities, the paper wishes to contribute to the discussion proposed in the special number, by presenting a specific yet paradigmatic context and by reflecting on urban regeneration and revitalisation bottom-up practices. The research first unfolds the landscapes of commerce in the city and identifies polarised geographies of tourism-related activities focusing on retail and catering businesses; secondly, it interrogates spatialised strategies that local actors are developing to reflect on their relation with urban planning and policy design processes.
Key words: Venice, commerce, neighbourhood shops, quality of urban spaces, urban regeneration.

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1. INTRODUCTION

Sustainable tourism planning practices inevitably deal with the need to balance multiple forces and needs (UNWTO, World Tourism Organization, 2018; Bertocchi *et al.*, 2020; Fennell and Cooper, 2020). The protection and conservation of tangible and intangible assets (human, cultural, and natural) and the valorisation of (local) economies and socio-cultural capitals, imply a delicate activity of balancing human and non-human inhabitants of a territory with an alien population: tourists and tourism-related investments. Such a conflictual perspective, the 'tragedy of tourism commons' (Briassoulis, 2002; Holden, 2005) not only relates to the safeguarding of material and non-material resources but also regards the pursuit of economic growth and competitiveness of tourist destinations.

While the concept of 'commons' draws attention to the competition to access scarce resources, the relatively new concept of 'overtourism' (Ali, 2016; UNWTO, World Tourism Organization, 2018), has pointed attention to a raising wave of discontent that crosses cities overwhelmed and consumed by tourism. Overtourism certainly relates to the perception of locals being invaded by tourists as the raising anti-tourism movements and protests demonstrate (Goodwin, 2017; UNWTO, World Tourism Organization, 2018; Bertocchi and Visentin, 2019; Milano *et al.*, 2019; Novy and Colomb, 2019; Séraphin *et al.*, 2020). In this sense, there is an extensive conflict pervading those cities radically transformed by tourism that has produced a shared 'tourismophobia' (Milano, 2017).

Nevertheless, the conflictual narrative and binary oppositions between local inhabitants and tourists often express wider concerns related to city liveability: what is at stake is the right to the city of local inhabitants, and diverse city users, and their possibility to access urban resources and services, enjoy urban and tourism commons, and share the socio-economic benefits of tourist economy (Colomb and Novy, 2016; Bertocchi and Visentin, 2019; Novy and Colomb, 2019).

Following this assumption, policies that effectively address tourism can not only deal with it from a sectoral perspective, but they should move from an integrated vision that considers environmental, social and economic issues. Moreover, the role of local communities with sustainable planning practices becomes particularly relevant; their survival and their living standards should be the leading element of planning and design processes.

Furthermore, overtourism is strongly linked with the effective capacity of a place or a city to sustain a certain number of city users; in other words, there is a tourist carrying capacity that is an intrinsic characteristic of each territory and that determines a maximum level of tourism development (Canestrelli and Costa, 1991; Bertocchi and Visentin, 2019). For what regards 'tourist-historic city' (Ashworth and Tunbridge, 1990, p. 3) and local inhabitants, implications of overcoming the carrying capacity lay at the link between heritagisation, tourism, gentrification, and the

displacement of pre-existing communities (Ashworth and Tunbridge, 1990; Novy and Colomb, 2019; López-Gay *et al.*, 2021; Salerno, 2022). This link, intended as an outcome of a process of an extraction of an urban surplus part of an intentional political project, often results "in the production of the city-as-an-attraction, in which residents are progressively crowded-out by the tourism industry" (Salerno, 2022, p. 9).

In other words, focusing on the Venice case study, Salerno (ibidem) demonstrates that the political process of touristification in tourist cities is the result of long-term cultural, social, and territorial transformations for the benefit of private interests and it produces the expulsion of the local inhabitants from the historical city (gentrification). Displacement dynamics are particularly evident looking at the commercial and residential sectors (Colomb and Novy, 2016), both relevant indicators of changes happening in the demography, economy, and living standards of a city (Olm *et al.*, 2012). The typology and the distribution of commercial activities are largely influenced by tourism flows, particularly in heritage cities; at the same time, those elements contribute to the complexity of urban life (Tamini, 2016; Limonta and Paris, 2019) that both tourists and local inhabitants experience.

The devastating effects of tourism regarding neighbourhood shops targeting tourists instead of stable inhabitants imply a loss of basic services and quality in the products (Russo, 2002; Salerno and Russo, 2022; Van Der Borg, 2022).

Following these considerations, and assuming that (i) there is a need for an integrated vision that (ii) includes bottom-up perspectives to effectively build a dialogue with local inhabitants, this contribution investigates the spatial distribution of tourism-related economic activities and bottom-up urban policies that address the survival of neighbourhood shops.

The aim is to explore the bottom-up strategies of survival and integrated urban policies that not only relate to commerce but a more complex perspective regarding urban life. The research focusses on a particularly fragile environment, i.e., the historical city of Venice, commonly assumed as a symbol of the devastating effects of tourism in heritage cities (Russo, 2002; Van Der Borg, 2017; Bertocchi and Visentin, 2019).

Within this exceptional "planetary kaleidoscope for all the dynamics that characterise the Anthropocene" (Iovino and Beggiora, 2021, p. 8), the extreme conflict between tourists and local inhabitants, the displacement dynamics happening in the commercial activities, caused by the overlapping of the alien population with other daily dynamics (Cocola-Gant, 2015; Van Der Borg, 2022) and the loss of stable inhabitants, impose policies that can regulate the distribution of the typology and the transformation of commercial activities to ensure both access for the stable population to basic services provided by neighbourhood shops and the survival of those neighbourhood shops within a tourist globalised economy.

To frame the relationship between tourism and commercial activities in Venice, the paper first explores Venice's economy from a historical perspective and identifies three main phases leading to a process of commodification of the entire historical

city and a monofunctional economy based on low-quality shops for tourists. The central section of the paper is divided into two main parts, the first exploring and presenting the contemporary distribution of activities, the second exploring two cases of bottom-up self-organisation within the city that exemplify sustainable strategies of survival for neighbourhood shops and local entrepreneurs. The discussion reviews the presented case studies in relation to urban planning and policy instruments and possible directions.

As they point to the need to foster local and regional supply chains, conclusions call for an integrated strategy and a coherent program of actions and policies that move from the opposition and the distinction between residents and visitors, "to consider instead how the population restructuring of central areas in contemporary cities could be the result of an assemblage of emerging forms of temporary dwelling, among which tourism is a powerful driver" (López-Gay *et al.*, 2021, p. 2) and move from a regulatory perspective to the implementation of soft (Russo, 2002) and more pro-active trans-sectoral policies.

2. THE EVOLUTION OF COMMERCIAL ACTIVITIES IN VENICE: A PLACE-BASED LITERATURE REVIEW

As briefly mentioned in the previous section, Venice is a paradigmatic case (Settis, 2014). Despite its unique and non-repeatable situation, it seems to concentrate and accelerate all the challenges that our (historical) cities are facing. Venice's historical centre, as a limited but also iconic space, is an exceptional laboratory to discuss environmental conservation and protection, socio-economic development, and the safeguarding of existing local communities (Costa, 1993; Borelli and Busacca, 2020). Furthermore, the historical city has a distinctive relationship with its periphery and with the transformations of the urban form; this relationship has evolved towards a conservatory approach to the historical city and has resulted in both the expulsion of inhabitants and productive functions to the mainland, and a growth of a tourism monoculture (Salerno, 2018).

The transition towards a tourism-based economy in Venice has been largely addressed and criticised in terms of depopulation and the expulsion of inhabitants from the city (see, for example, Borelli and Busacca, 2020; Salerno, 2018, 2020, 2022; Salerno and Russo, 2022; Zanardi, 2020; Settis, 2014). The causes are a complex and interrelated system that is hardly separable without looking at a historical perspective and at the long (political) project that commodified the city and tied its future.

Such an intentional process of touristification or museumification (Salerno, 2018) has resulted in intense demographic changes and severe overtourism, or

hyper-touristification (Costa and Martinotti, 2003; Van Der Borg, 2017). The severe overtourism and the friction between diverse users are exacerbated by the morphology of the city itself, which makes it impossible to move fluxes and infrastructures out of the city (Bertocchi *et al.*, 2020).

While the debate is ongoing and the city experiments with unprecedented approaches to overtourism (Bertocchi and Camatti, 2022; Hughes, 2022b), this section focuses on the spatial effects of this phenomenon in the economic geography of the city. Numerous scholars have given specific attention to the distribution of commercial activities within the historical city of Venice and the transformation process that has resulted in what Salerno defined as "a Fordist standardization of low quality Disneyfied shops [that] smoothly coexists alongside expanding luxury commerce, both at the expense of local-oriented and neighbourhood shops" (Salerno, 2022, p. 6). This section marks three relevant steps that explain the evolution of commercial activities and point to the growing conflict between diverse types of activities.

Firstly, already in the 1980s, services directed to the resident population decreased (from 46.9% in 1971 to 37.7% in 1981) while bars and tourist shops spread (Andreozzi *et al.*, 1983). Despite that the same research also stated that the growing competition with residential uses was not only related to tourism but also to other kinds of services and enterprises that occupied the limited space of the city. In other words, there was an overall growth of the service sector that subtracted space for residents (e.g., transformation of apartments into offices and studios). Such a shift was also related to a huge shift in the economy of the city: while it was first based on the production and circulation of material goods, in the 1980s it moved towards an economy based on cultural information (IRSEV, COSES, Comune di Venezia, Assessorato all'urbanistica, 1990).

Secondly, at the beginning of the 1990s, it became evident that there was an ongoing process of delocalisation of private offices and studios toward peripheral parts of the historical city. Moreover, while central districts started to be severely transformed by tourism (Dorsoduro, San Polo, Santa Croce), commercial zones within more residential districts (Giudecca, Cannaregio, Castello Est) appeared impoverished and incapable of innovating themselves (IRSEV, COSES, Comune di Venezia, Assessorato all'urbanistica, 1990; COSES, 1996). In the following decade, a city-funded study about the shopping habits of Venetian families also showed the impoverishment of small distribution and neighbourhood shops, compensated by supermarkets and higher mobility of consumers, who also moved to the mainland; yet, traditional shops kept their niche in the shopping habits of some Venetian families (Pedenzini and Scaramuzzi, 1997).

The third step that marks the evolution of the economic geography of the historical city emerged in the new century. According to Olm *et al.* (2012) and Zanini

et al. (2008), the number and types of stores in Venice changed significantly between 1976 and 2007, and the number of stores catering to tourists increased dramatically: from 303 to 997, a total incremental variation of 694 units meaning by 229%. Oppositely, the number of grocery stores and other stores reduced significantly, moving from 720 units to 276, with a variation of –444 units (61.67%). Commercial activities (retail) were rapidly expanding throughout the city. Despite that the increment concentrated in specific pathways, such as Strada Nuova, leaving apart marginal areas, such as Castello (Fig. 1) and concerned specific categories of shops (Zanini *et al.*, 2008).

A new set of categories is needed to describe Venetian tourists shops (Lando and Zanini, 2008; Zanini *et al.*, 2008; Olm *et al.*, 2012), even though, in some cases, it is hard to acutely distinguish between shops and services entirely dedicated to tourists or residents, both in Venice and elsewhere (Andreozzi *et al.*, 1983; Azevedo and Melo, 2021).

On the one hand, there are "banal shops", a category that includes mass-produced souvenirs, common paintings and sketches, and all the items sold by street vendors (excluding clothes); those products feature both low price and quality, and even though they are considered to be Venetian specialities, the products, in reality, have no relationship to local production or craftsmanship and have no artistic value. Confirming general tendencies in tourist shops, Zanini *et al.* (2008) have underlined that from 1976 to 2007 the number of banal shops increased by 265% throughout the city; in 2007, 538 units out of 694 (total incremental variation) were dedicated to "banal" articles.

On the other, though, "traditional tourist stores" include antique dealers, art galleries, and traditional, high-quality Venetian products such as masks, lace, and Murano glass. From 1976 to 2007 the number of traditional tourist shops increased by 156% (from 56 to 122 units) throughout the city. The growth mainly related to new traditional Venetian products rather than to traditional craftworks, antiques or art galleries (Zanini *et al.*, 2008).

Based on the open data provided by the Municipality of Venice, and assuming the persistence of the trends noted by Zanini *et al.* (2008), a recent study about sustainable tourism in Venice (Bertocchi and Visentin, 2019), compared data from 2008 and 2019. The research, briefly focusing on commercial activities, highlighted a modest increase in the number of stores (from 2,605 to 2,705, meaning an increase by 4%); yet there have been visible transformations regarding the proliferation of restaurants, pizzerias and ice-cream shops, and of sunglasses and clothes stores, especially along the routes towards the central zone (Rialto, San Marco). Those activities address the needs of both tourists and commuters; in addition to that, there is a tendency to transform former inns and shops or small warehouses located on the ground floors into food service activities.

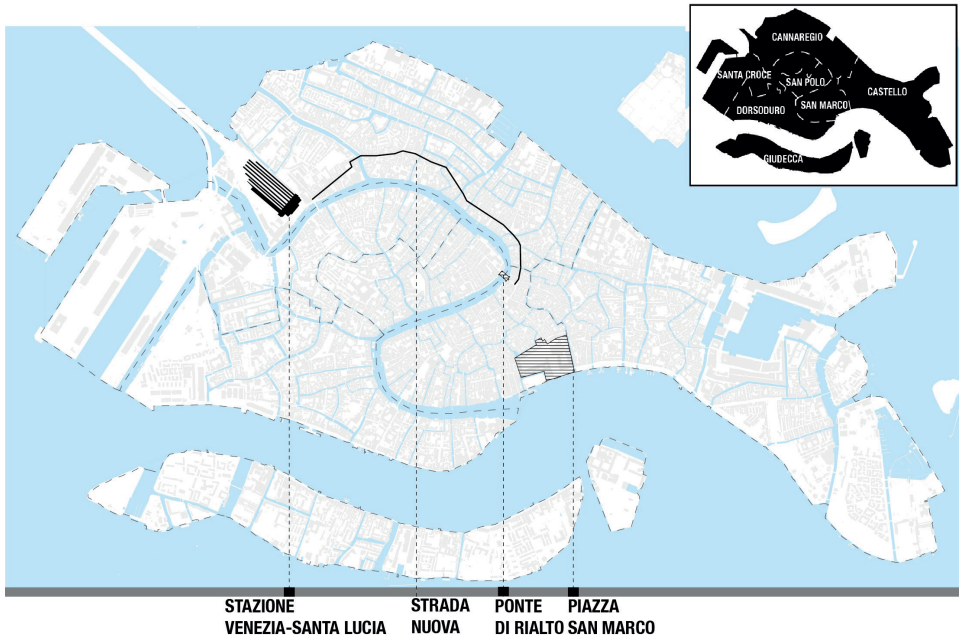

Fig. 1. The historical city of Venice, Sestieri and main touristic attractions and routes
Source: own work.

3. DATA AND METHODOLOGY

Existing literature has provided evidence regarding (i) the transition towards an economy based on tourism, (ii) the impoverishment of small distribution and neighbourhood shops, the increase of services directed to tourists parallel, and, oppositely the subtraction of spaces and services to the stable population, (iii) a general decrease in the quality of products sold to tourists, accompanied by a loss of stores dedicated to traditional Venetian products. To explore the unfolding of commercial activities in the historical city nowadays and mainly focusing on tourist shops, the following data uses the database provided by the Chamber of Commerce Venezia-Rovigo, Office for Communication and Statistics. The RAE (Registro attività economiche) dataset includes information regarding all the economic activities registered in the Municipality of Venice on 31 January 2021, both company headquarters and local business units.

The activities located in the main island of Venice (Cannareggio, Castello, Dorsoduro, Santa Croce, San Polo, Giudecca) have been selected for this research

and spatialised by using georeferencing tools, with the support of the technical office of IUAV University. Geolocation activities have been possible by interrelating the address registered in the database and the street directory shapefile provided by the city of Venice, through ArcGis georeferencing tools.

The following analysis is based on the ATECO 2007 classification of economic activities, which is the Italian application of the European Classification of Economic Activities NACE. Within the dataset provided by the Chamber of Commerce, each activity can be described by multiple codes including diverse typologies of activity, e.g., a café selling books or a tobacco shop selling children's toys or souvenirs. Any business can autonomously select the main business activity sector, a secondary one, etc. Within this research, only the main business activity sector has been analysed.

Moreover, considering studies about tourism and retail in Venice, this research uses two specific typologies of retail as proxies to describe shops' targets (tourists or residents) and the quality of the products sold in Venice: artisanal goods or low-quality/banal shops. According to the ATECO classification, the first refers to the retail sale of handicrafts, and the second to the retail sale of trinkets and costume jewellery (including souvenirs and advertising items).

The database provided by the Chamber of Commerce Venezia-Rovigo is a complete source, as it includes all the economic activities registered in the city of Venice, their official activity sectors and their locations. However, according to the Chamber of Commerce Venezia-Rovigo, it does not allow a comparison of spatialised data over time; this should be conducted by further research, comparing the new dataset each year.

While the mapping of economic activities highlights specific configurations and concentrations, due to the timeframe of the analysis, it does not allow further elaborations on trends or spatial transformations towards specific business activity sectors, resulting in a limited interpretative tool of the ongoing dynamics. To better represent the complexity and the effective forces at work in the historical city, interviews with selected stakeholders (trade associations and business owners) have been conducted.

4. THE DISTRIBUTION OF ACTIVITIES

There were 10,232 business activities registered in Venice on 31 January 2021 (Fig. 2). This number refers to a wide range of activities including the third sector (Table 1). The wholesale and retail sector represent a more consistent category (31.07%), accommodation and food services represent more than 30% of the economic activities. More specifically, within the category of "Wholesale and retail

trade; repair of motor vehicles and motorcycles," retail is the most prevalent one (2,876 units). Transportation and storage and real estate activities follow with 6.62% and 6.50%, respectively.

Nevertheless, retail, food services and accommodations represent the most prevalent sectors of economic activity (Table 2): with a total number of 5,970 activities, they represent more than 58% of all the economic activities within the city.

Table 1. Economic activities in Venice, 2021

Class of activity	Number	%
Agriculture, forestry and fishing	65	0.64
Manufacturing	566	5.53
Electricity, gas, steam and air conditioning supply	6	0.06
Water supply; sewerage, waste management and remediation activities	20	0.20
Construction	413	4.04
Wholesale and retail trade; repair of motor vehicles and motorcycles	3179	31.07
Transportation and storage	677	6.62
Accommodation and food service activities	3094	30.24
Information and communication	199	1.94
Financial and insurance activities	202	1.97
Real estate activities	665	6.50
Professional, scientific and technical activities	371	3.63
Administrative and support service activities	307	3.00
Education	44	0.43
Human health and social work activities	23	0.22
Arts, entertainment and recreation	183	1.79
Other service activities	218	2.13
TOTAL	**10232**	**100.00**

Source: own work based on data from the Chamber of Commerce VE RO (January 2021).

Table 2. Main tourism-related economic activities, 2021

Type of activity	Number	%
Accommodations (hotels, B&B, other)	1290	12.61
Food service activities	1804	17.63
Retail	2876	28.11
TOTAL	**5970**	**58.35**

Source: own work based on data from the Chamber of Commerce VE RO (January 2021).

The prevalence of retail activities is evident; to delve deeper into this data, some specific categories were used as indicators of the quality of goods sold in Venice. Within retail (Table 3), shops selling trinkets and souvenirs – herein assumed as proxies of *low-quality* goods – represent 2.93% of the entire economic activity. Moreover, retail sale of souvenirs, trinkets and costume jewellery represents 10.40% of all retail activities; to compare: retail sale of food, beverages and tobacco in specialised and non-specialised stores (such as supermarkets) represent 13.94% of retail activities. Shops selling artisanal goods (retail sale of craftwork) represent 4.90% of all retail activities.

Table 3. Specific categories of retail sale, 2021

Type of Activity	Number
Retail	2876
1. Retail sale of craftwork	141
2. Retail sale of souvenirs, trinkets and costume jewellery	299

Source: own work based on data from the Chamber of Commerce VE RO (January 2021).

4.1. Geographies of main tourist-related commercial activities

Retail, accommodations and food service activities constitute the economic backbone of the historical city of Venice. Furthermore, the amount of souvenir shops indicates a strong prevalence of retail shops targeting tourists; this data, compared to the number of shops selling craftwork, suggests the already mentioned tendency to sell lower quality goods.

The distribution of those activities around the city shows a tendency to concentrate within specific paths and areas. Hotels, B&B and other accommodations (that includes private apartments rented to tourists) are scattered around the city (Fig. 2). Foodservice activities, concentrate along certain routes and clusters, with growing intensity in the area around the Rialto Bridge and the Sestiere San Marco. In addition to that, food service activities also highlight axes that were not considered traditional touristic areas (e.g., the northern insulae of Cannaregio and the eastern part of Castello (via Garibaldi) (Fig. 3).

The retail sector shows a concentration along several axes, corresponding to what are the main touristic routes: as in the above-mentioned studies, Strada Nuova in Cannaregio, Sestiere San Marco and the area surrounding the Rialto Bridge, emerge as the commercial axes of the historical city. Other commercial districts are distributed along what were considered traditionally residential areas – Giudecca, Cannaregio, Castello Est (Fig. 4).

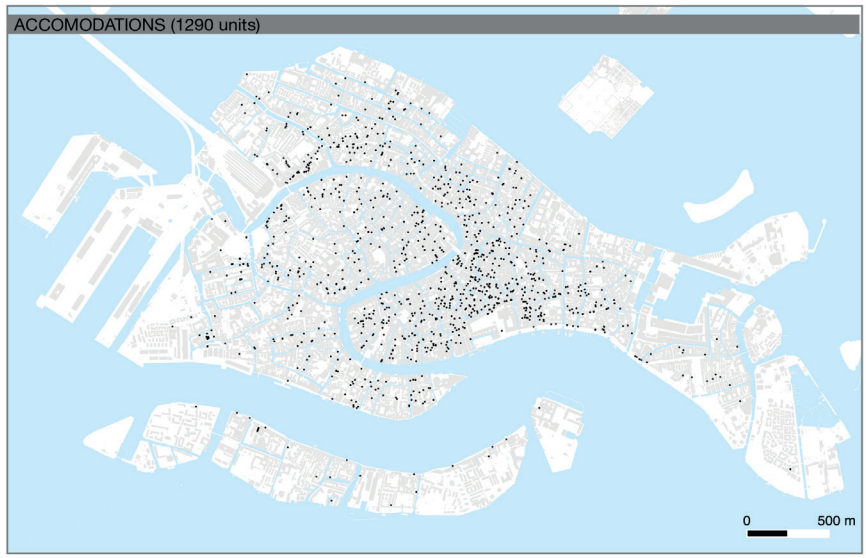

Fig. 2. Accommodations in the historical city of Venice
Source: own work, based on data by the Chamber of Commerce VE RO (January 2021)

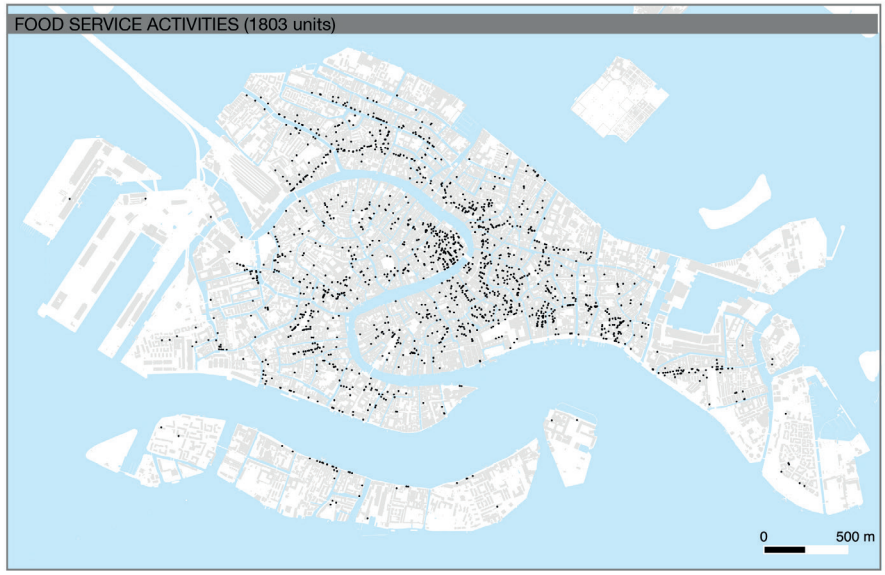

Fig. 3. Food Service Activities in the historical city of Venice
Source: own work, based on data by the Chamber of Commerce VE RO (January 2021).

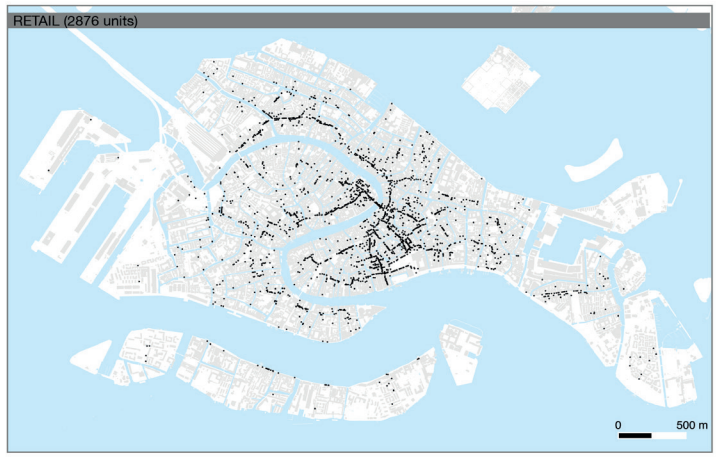

Fig. 4. Retail in the historical city of Venice
Source: own work, based on data by the Chamber of Commerce VE RO (January 2021).

Comparing this geography with the distribution of shops selling souvenirs (Fig. 5) and craftwork (Fig 6), – the former are mainly distributed in the central area of the historical city, the latter concentrated in the areas of San Marco, San Polo and Dorsoduro) – the maps reinforce the hypothesis that some areas are still excluded from the main tourists' routes and paths and the touristification of commercial activities, in particular the northern part of Cannareggio and some portions of Castello.

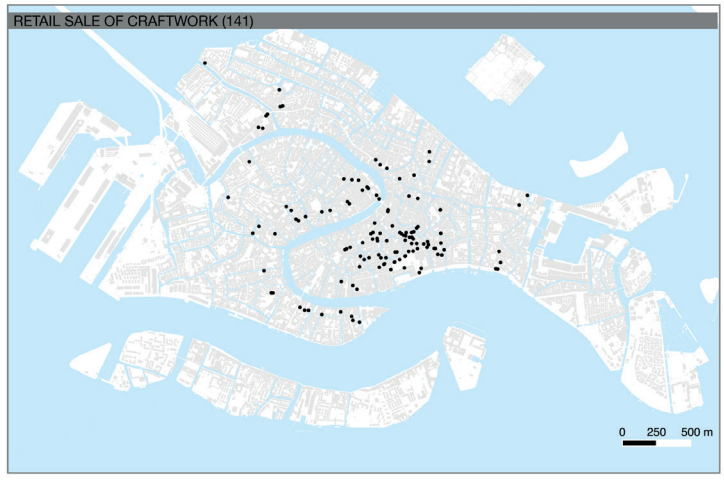

Fig. 5 Retail sale of souvenirs (299)
Source: own work based on data by the Chamber of Commerce VE RO (January 2021).

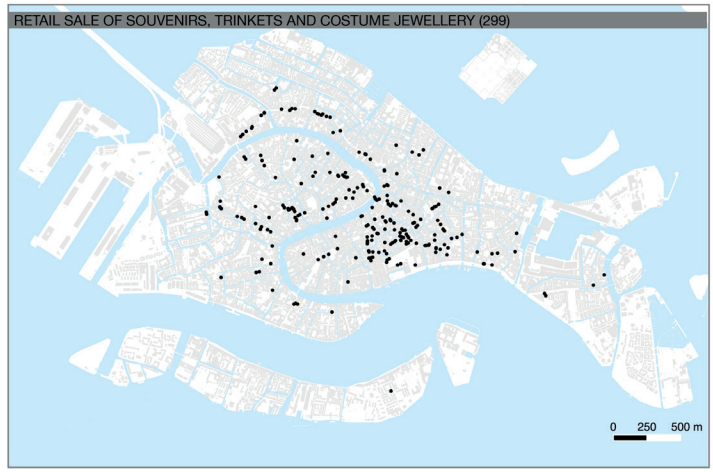

Fig. 6. Retail sale of craftwork (141)
Source: own work based on data by the Chamber of Commerce VE RO (January 2021).

Confirming the literature presented in section 2, the mapping operation highlights a prevalence of activities directed to tourists and the high number of low-quality retail shops selling souvenirs. Yet, due to the timeframe of the analysis, it does not allow any further elaboration on trends and spatial transformations towards specific activity sectors.

5. STRATEGIES OF SURVIVAL AND BOTTOM-UP EXPERIMENTS OF RESILIENCE FOR NEIGHBOURHOOD SHOPS

To complement the quantitative analysis interviews with selected stakeholders have been conducted. Interviews with representatives of trade associations and business owners draw the attention to:

– The role public actors and cultural institutions play in redistributing fluxes, driving them towards more marginal areas, such as Via Garibaldi (Castello) and the island of Giudecca. For example, fostering the activation of cultural and creative hubs with public calls and programs.

– The emergence of several groups of artisans and retail owners actively organising themselves to resist the transformation of the retail sector and the banalisation of the sector.

– Possible integrated urban regeneration policies that would, e.g., protect neighbourhood shops from turning into tourist-related activities.

Leaving apart the actions and the policies of public and cultural institutions, this contribution will focus on the bottom-up networking initiatives to question the possible interactions between the forms of active citizenship and urban policies. The following paragraphs present two selected case studies, the enterprise network of *San Francesco della Vigna* and the experience of *Calle della Mandola* (Fig. 7); both cases emphasise the claim of business owners to reshape the interaction between local business owners and neighbourhood shops and the tourist system not just to resist overtourism but also to collectively benefit from the tourists flows.

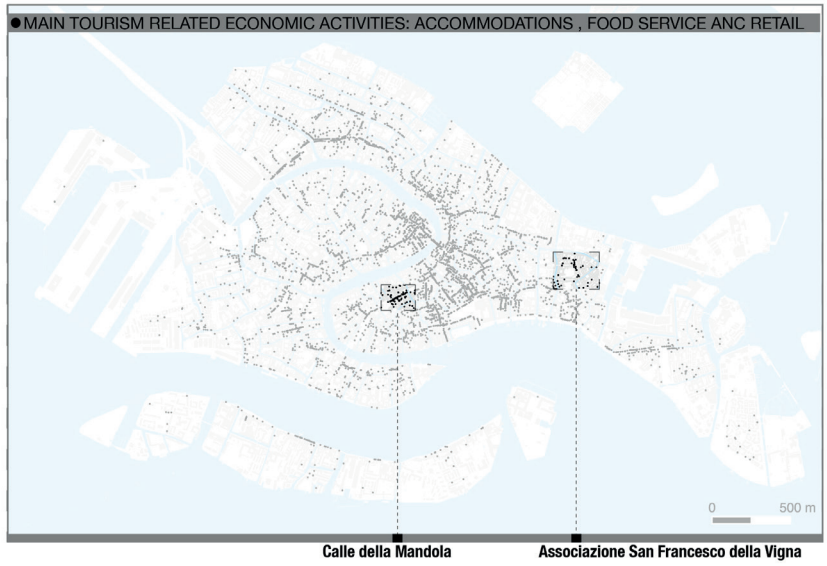

Fig. 7. Selected case studies and main tourism-related economic activities
Source: own work, based on data from the Chamber of Commerce VE RO (January 2021).

5.1. The case of San Francesco della Vigna: a network of retail owners

The area of San Francesco Della Vigna is in the northeast of Castello and it has for a long time been considered far from the touristification processes as they invest more in the central zones.

An association of retail owners was born in 1998, to sustain local shops and preserve the local culture and traditions. Most of the shops in that area are still providing goods and services for local inhabitants: among the 15 shops that compose nowadays the association there are a hardware store, a sewing store, a grocery store, and a butcher's. Most of them are rented spaces and only a few shop owners also own the space. The network of retail and other commercial activities

(artisans and bars) spreads along the three *salizada* (streets, in Venetian) and it actively acts to build a shared image of the neighbourhood. This active work consists of a small-scale branding operation: a series of events (open street market), the illumination of the streets during Christmas celebrations, and shared packaging that all the shops distribute to clients (mainly consisting of branded bags), as well as organising temporary and mobile exhibitions . The actions aim to foster a coherent and recognisable image of the area.

The main aim of the organisation is a branding and marketing project, intended to help local shops stay on the market, be competitive, and innovate their communication strategies, with a shared project. The association does not explicitly react against overtourism; instead, the strategy it has proposed is based on building an interaction to contrast the perceived severe desertification of commercial spaces and the loss of spaces dedicated to social activities and relations.

Formally, the association is a network of enterprises, regulated within Italian law (l. 122/2010): the enterprises network agreement formalises alliances between entrepreneurs to enhance individual or collective innovation capabilities and competitiveness. The association is based on participant commitment to cooperate in the management of their enterprises and collaborate in the management of certain activities (Cardoni and Tiacci, 2013).

In San Francesco della Vigna, the agreement supports local commercial activities in preventing them from being closed and preventing the opening of new banal shops, bypassing both the role of official trade associations and the local government. According to the interviews, the former are perceived as incapable of listening to local instances and/or effectively negotiating with public authorities and balancing the needs of smaller entrepreneurs versus more powerful ones. Moreover, they are too sectorial, while, in this case, the need was to work on a (micro) territorial scale, cooperating despite the ATECO category. The latter – the local government and its public policies – are generally perceived as not trustworthy, incapable of protecting and providing effective responses to the vanishing both of residents and neighbourhood shops.

The network of enterprises provides an alternative by building relations between neighbourhood shops and relevant local institutions (such as the Venice Biennale), proposing local shops as their main suppliers and, thus, suggesting the possibility of constructing local supply chains as a tool for resistance.

5.2. The case of Calle della Mandola: who owns the shops?

Calle della Mandola is located in the Sestiere San Marco, within the main commercial district, densely populated by all kinds of city users. According to the interviewed (Venetian) retail owners, the commercial street and its surroundings are quickly converting to banal shops, losing high-quality retail and artisan outlets.

The retail network is centred around the owner of a high-quality bookshop, selling rare books, art pieces and other antique goods to local and international clients and collectors. Contrasting the opening of banal shops and in collaboration with other young entrepreneurs, he started colonizing the street: renting (four) new retail spaces and opening new shops (similar to the representative of the San Francesco della Vigna association). His action, described as an attempt to preserve the quality of the shops and of the retail offer to preserve the quality of the city, is strictly linked with the need of attracting high-quality customers. As in the case of San Francesco della Vigna, the activity is not intended to protect against overtourism, but it rather focusses on a more integrated system that includes both residents and tourists.

The process of transformation of the street and the attempt to protect Venetian business owners gained attention in October 2021 when an owner of a retail space (the 'owner of the walls,' as Venetians call landlords) decided to rent it to an Asian businessman who offered more than the bookseller. This raised awareness and promoted a public call for a protectionist policy towards Venetian retailers, accompanied by posters that spread around the neighbour.

Despite the mediatic debate and the political voices raised around this event, some elements and issues proposed by the long-term retailers of Calle della Mandola should be indicated:

– Their entrepreneurial suggestion also looks at local (regional) supply chains, as their retail spaces would provide a unique showcase for the (excellent) Italian northeast industries. This is, according to the interviewed actors, a new element, motivated by the inability of the local production sector to produce those high-quality and innovative material goods.

– The understanding of the neighbourhood as a commercial district that would benefit from an integrated policy. Such integration would imply not only a shared district branding but also interventions in the public space, to ensure its coherence, and a generalised good quality to produce a pleasant urban environment.

– According to the interviewed bookseller, this management model would also impose a collective decision in terms of new inhabitants: new retails should be collectively accepted by the existing community.

Despite the challenges and threats of this approach, this proposal is directed towards an integrated urban and management model similar to the town centre retail districts (Morandi, 2011).

6. TOWARDS INTEGRATED URBAN POLICIES

Within the historical city of Venice, the prevailing economic activities are retail, food service activities, and accommodation; in total, they represent more than half of the business activities in the area. More specifically, within retail, even though

it is hard to acurately distinguish between stores targeting tourists, the amount of retail sale of souvenirs, trinkets, and costume jewellery – representing 10.40% of all retail – suggests a strong prevalence of stores catering to tourists, particularly if compared with the amount of retail sale of food, beverages and tobacco in specialised stores and non-specialised stores (including supermarkets), which represents about the 14% of retail. Also, the retail of craftwork is less than half of the retail sale of souvenirs.

In line with the literature, the analysis has shown the prevalence of shops targeting tourists instead of the local stable population, and the pervasiveness of banal shops selling low-quality goods with little relation to the local craftwork or artisanal activities. Indirectly, the data indicates that there has been a loss of basic services and quality in the products that amplifies the expulsion of local inhabitants. This is strongly evident with specific routes and paths, concentrating tourist-related activities along tourists' paths and routes. Yet, the banalisation process of Venice's urban life spreads all along the historic city.

In this sense, looking at the competition between local inhabitants and tourists to access scarce resources, the devastating effects of tourism regarding neighbourhood shops are already there. The current debate on overtourism, as much as urban policies proposing a fee to enter the historic city (Hughes, 2022b, 2022a), only seems to exacerbate the conflict and increase tourismophobia among certain groups of residents.

In their attempt to overcome such competition, the studied cases of San Francesco della Vigna and Calle della Mandola, even though located in diverse micro-contexts and acting with diverse premises, show a proactive milieu of entrepreneurs networking to survive in the historical city.

In San Francesco della Vigna the branding strategy aims to sustain neighbourhood shops by creating interactions and allowing their temporary appropriation of public space through events and shared visual identity. In this sense, the enterprise network aims at providing services to both residents and tourists and, by doing so, it contributes to the complexity of urban life in the neighbourhood. The formalised network represents a cooperative and flexible tool that businesses can use to provide shared services and undertake shared actions.

In Calle della Mandola, the call for neighbourhood retail districts refers to a specific season of (Italian) public policies to promote urban historical centres by enhancing neighbourhoods' atmosphere and (physical) spaces, integrating measures that supported retail into urban planning tools and instruments (Morandi, 2011; Giorgio and Vigilante, 2018).

While the city of Venice has already implemented a retail district in the mainland (Mestre), within the historical city, ongoing policies refer to (i) the regional programme to support historical retail, (ii) regulations forbidding the transformation of specific retail categories or food-services activities, and (iii) municipal calls for the opening of artisanal and/or retail activities, by reusing empty spaces

owned by the city. This last group of interventions suggests a more experimental approach towards public policies addressing retail; yet, by implementing targeted interventions, it might sustain a conservative approach aimed at preserving a sense of authenticity that does not solve issues related to overtourism in the retail sector.

7. CONCLUSIONS

To conclude, focusing on commercial activities, the competition between residents and tourists strongly relates to the types of activities and goods sold. In the historical city of Venice, the number of accommodation and food service activities, and – within retail – the activities selling souvenirs compared to food and beverage retail confirms a well-known trend: the transformation of neighbourhood shops and other services addressing resident needs to tourism-related activities (COSES, 2001; Zanini *et al.*, 2008; Olm *et al.*, 2012).

Such a process of transformation relates in Venice to the production of a city-as-an-attraction, which exacerbates conflicts among diverse populations using and inhabiting the city. The inclusion of bottom-up perspectives could, then, suggest alternative ways of action to start a dialogue between residents and public administrations. The presented case studies, although at different stages of implementation, are attempts to build a clear strategy and a coherent program to avoid the expulsion of neighbourhood shops addressing the needs of local inhabitants or their economies. They call for an integrated set of policies that involves multiple actors and not only uses soft instruments but combines physical, economic and communicative tools and interventions for neighbourhood shops and local economic activities to survive within the tourist industry.

In addition to that, the enterprise network of Fan Francesco della Vigna also suggests an additional path: the construction of local supply chains with major cultural institutions acting in the historical city represents a powerful tool that does not refer to any romantic view of localism but to share socio-economic benefits of the tourist economy.

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AHP AND TOPSIS AS METHODS ASSESSING THE ATTRACTIVENESS OF URBAN PARKS: THE CASE OF LODZ, POLAND

Abstract. Urban parks are significant elements that improve the quality of life in built-up areas. This research aims to identify the most attractive park in Lodz, Poland, using a set of assessment indicators. In our opinion, the decision-making process in assessing the attractiveness of urban parks may be assisted by Multiple Criteria Decision Analysis (MCDA). Two methods were chosen from the MCDA group, namely the Analytic Hierarchy Process (AHP) and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). The research shows that the proposed methods reveal which park needs support and calls for investment.

Key words: urban parks; park attractiveness; urban amenities; the AHP and TOPSIS methods.

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1. INTRODUCTION

The structure of a city is composed of architectural and urbanistic elements such as buildings, streets, and squares, accompanied by a network of appropriately designed and properly developed greenery. This green infrastructure is crucial for landscape aesthetics and for living standards. Green areas in cities contribute to the market value of real estate. The more attractive green spaces there are, the more investors are willing to locate their projects nearby. The specific and unique recreational and landscape value of parks and the increasing awareness of the advantages of green areas affect the prices of flats and business premises in the neighbourhood (Oleksiejuk and Jankowska, 2007; Czembrowski and Kronenberg, 2016).

Parks are natural components of cities, and they offer visitors contact with relatively wild nature without travel expenditure. Organised green spaces attract residents and visitors, offering them a professionally managed and diversified selection of plants, walking and cycling paths, natural routes, and elements of small architecture. Therefore, parks are the amenities of a city. Park equipment determines its attractiveness, since the attractiveness of a park depends on the facilities available and accessible to park visitors. As a result, its value depends on the sum or the subjective result of amenities both inside and outside it (Fig. 1).

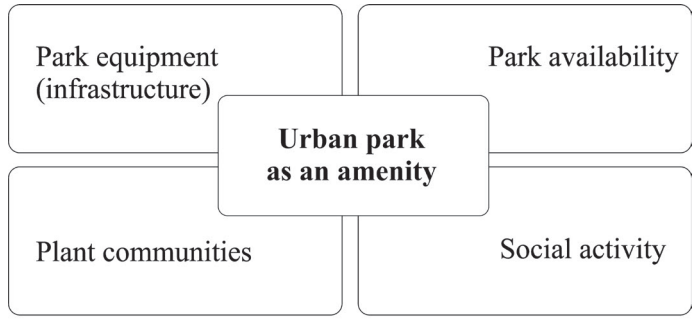


Fig. 1. Urban park as an amenity

Source: own work based on the conducted research.

The main purpose of the research is to assess the attractiveness of urban parks in the city of Lodz using two research methods: AHP – the Analytic Hierarchy Process (Saaty, 1980; Saaty, 2007; Saaty, 2008; Saaty and Vargas, 2012) and TOPSIS – the Technique for Order Preference by Similarity to Ideal Solution (Hwang and Yoon, 1981).

The expected results are as follows: firstly, assessments make it possible to identify the attractiveness of city parks. Secondly, both research methods may be used to assess other urban amenities (not only parks), and the key determinants

of city attractiveness are specified. Thirdly, the research should be a stimulus for local authorities to develop the attractiveness of city parks and to present the main directions of the desired changes.

In addition to the application dimension, the paper analyses the differences between the two Multiple Criteria Decision Analysis (MCDA) methods. Nine parks were chosen, and a group of experts was asked to give their opinions on the amenities. To assess the attractiveness of the selected city parks it was necessary to examine them and find the same data set in all the considered parks. This procedure made it possible to identify the amenities which were crucial for increasing the attractiveness of city parks. In our opinion, the elements of the city parks' space that were recognised by the expert group as being the most appropriate and necessary should help local authorities manage green infrastructure.

2. AMENITIES OF URBAN GREEN AREAS

Economics identifies a number of elements that may be decisive for the attractiveness of an urban space. Urban amenities are features or functions that increase the attractiveness and value of residential premises in urban areas. From the economic point of view, urban amenities are goods that have a specific location in space and that make human life easier, more pleasant, or more comfortable. Consequently, attractiveness may be defined as a set of advantages and better conditions for investment than in other locations. In other words, attractiveness is the ability to find investors for a given place. Hence, investment attractiveness is closely related to the competitiveness of a neighbourhood, i.e., the ability to achieve success in the economic competition. A practical metric of a location's attractiveness is the average price per square metre of an apartment by location, or "location rent" – after adjusting the price to other variables, such as the area, level, building type and condition, additional equipment, etc. (Czembrowski *et al.*, 2016; Xiao *et al.*, 2016; Pietrzyk-Kaszyńska *et al.*, 2017). To sum up, urban amenities have a significant impact on family decisions regarding the location of apartments and on the assessment of the attractiveness of various parts of cities (Sokołowicz, 2017). According to the discourse in the subject-matter literature, amenities include (Glaeser *et al.*, 2001, 2003; Markusen, 2006):

– the accessibility and availability of local goods, e.g., cultural, educational, safety, leisure, and environmental services;
– land use and public realm aesthetics;
– the accessibility and availability of public services;
– transport accessibility understood as the travel time to selected destinations (home, work, school, etc.).

The above criteria identify crucial urban amenities, i.e., green spaces or organised open spaces needed to develop leisure, recreational, and recovery functions. Thus, in spatial planning practice, urban parks should be perceived as necessary amenities and an attractive offer of the city.

Urban parks are organised and designed open green spaces covered with plants that are intentionally established, developed, maintained, and protected. They are necessary for the environmental and economic potential of cities, increasing their attractiveness and creating their image. The role of parks in cities is especially relevant in the context of ecosystem services, understood as a chain of relationships between an ecosystem and human wellbeing, where a service is seen as a "bridge" (de Groot *et al.*, 2010). Urban parks are flagships or symbols of cities and sources of identity. Well-known examples of iconic urban green spaces are the High Line in New York, Central Park in New York, Hyde Park in London, Park Guell in Barcelona, Park Rio in Madrid, Szczytnicki Park with Centennial Hall in Wroclaw, Oliwa Park in Gdansk, Royal Łazienki Park in Warsaw, and Saski Garden in Warsaw.

In social and economic terms, parks are public realm, understood as "a common good that is used collectively and is purposefully shaped by humans in accordance with social principles and values intended to meet the needs of local communities (…). Its public character is derived from it being used collectively" (Public Space Charter, 2009). Parks are the crucial elements of the entire urban greenery system since their main goal is to ensure the availability of nature for people in the most accessible and suitable way. Moreover, they provide a platform for interpersonal relationships and social interactions offering entertainment, sport, outdoor activities, and many other activities undertaken to ensure personal development. A resident in a city can relax in a park, away from the dense urban life, in a place that is best for leisure. Therefore, proper park development is an important task (Tołwiński, 1963; Wróblewski and Kroc, 2022).

According to Zachariasz (2006), urban parks "are intended for a large group of diverse audiences, as well as visitors to the city. Parks should protect unique historical, cultural, and natural areas in cities. These areas of active and passive recreation use local environmental advantages to the fullest, in particular, all kinds of water-related elements. They should offer an attractive landscape and diverse specialist equipment for different social groups (using various criteria, such as age, interests, or being fit). They also host elements and places of interest that create their identity, e.g., squares and entrance gates, fountains, gazebos, and specialist flower gardens, e.g., rosaria or flowerbeds. Parks are usually equipped with playgrounds for children, picnic grounds, meeting points, space for events or fairs (usually big lawns, sometimes with a stage or plaza where such a stage can be built), toilets, and parking lots".

The first group of factors related to a location's attractiveness is park accessibility, i.e. how one can reach or enter the park. Parks can be reached on foot, by bicycle, or by public transport systems. The first group of visitors, i.e., pedestrians, is difficult to evaluate due to parks having several entrances and walking paths which enable smooth and uncontrolled flow throughout the park. New data collection opportunities are available for bicycles since cities provide shared bicycle programs with installed GPS. New technologies help us find the number and routes of cyclists visiting a park. Elements of bicycle infrastructure may also be classified as amenities, just as public transport stops (Yamu and Frankhauser, 2015; Donahue *et al.*, 2018; Guo *et al.*, 2019; Podgórniak-Krzykacz and Trippner-Hrabi, 2021; Podgórniak-Krzykacz *et al.*, 2022).

The next factor group focuses on park equipment and how things are organised, which might attract elderly people, parents with children, or other specific groups of residents, to stay and spend time inside the park. The equipment tailored for each group includes not only park furniture but also the so-called small architecture enriching the landscape, or buildings hosting services that boost the attractiveness of the park, e.g., museums, galleries, or restaurants. Also, the immediate vicinity of the park matters and may be assessed in terms of the presence of heritage sites like the amenities (Chen and Wang, 2013; Biernacka and Kronenberg, 2018; Guo *et al.*, 2019).

The natural richness of a park is also a fundamental factor for its attractiveness. The environmental and social values of parks depend on biodiversity, the presence of trees, flowerbeds, and bushes, as well as unique and unusual plant species and protected natural areas. Natural monuments are positively perceived heritage elements, and they are important to park amenities and for the development of educational functions.

The social involvement in the park's development and activities is a derivative of attractiveness. Citizens are often inspired, motivated, and supported by participatory budgeting that democratically identifies the needs of residents. The financial value and the number of projects proposed and implemented in green spaces can be a source of data for the development or improvement of the attractiveness of city parks.

Urban amenities are key factors that improve quality of life and make neighbourhoods and whole cities more attractive. An increase in housing construction closely correlates with the demand for flats or houses. Personalised housing preferences are an important impulse to provide the necessary amenities to answer to the demand of inhabitants. City parks are one of the main factors that determine the value of real estate. Even small changes in the quality of green areas can have a huge impact on the urban environment and the social perception of a location (Baycan-Levent *et al.*, 2009; Yamu and Frankhauser, 2015; Czembrowski and Kronenberg, 2016; McNeur, 2016; Menke, 2016; Xiao *et al.*, 2016; Feltynowski, 2023).

3. MATERIALS AND METHODS

3.1. Methods and data used in the analysis

To identify the most attractive urban park, two research methods were applied: the Analytic Hierarchy Process (AHP), proposed by Thomas L. Saaty (1980; 2008), and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) (Hwang and Yoon, 1981). Both approaches belong to the group of Multiple Criteria Decision Analysis (MCDA) of the sub-discipline of operational research, and they can help choose an option through the appropriate composition and evaluation of decision-making criteria. These methods are used in decision-making in different spheres of life. In this paper, both were applied to identify the most attractive park based on the indicators used to make the assessment.

For the AHP, the selected indicators were assessed by a group of experts who made pairwise comparisons and then they ranked the indicators in descending order based on their impact on a phenomenon. The second method is the TOPSIS, which identifies objects that are the closest to the ideal and the most distant from the anti-ideal (Ozturk and Batuk, 2011).

We applied a procedure to both methods that complies with the assumptions defined in the subject-matter literature (Hwang and Yoon, 1981; Saaty, 2007; Saaty, 2008; Saaty and Vargas, 2012). From the theoretical assumptions we knew the weights for each constituent of the decision-making process for the TOPSIS method, in consequence we were able to use estimated weights from the AHP method. This solution is commonly found in the literature in relation to the AHP and TOPSIS methods used in research (Önüt and Soner, 2008; Ozturk and Batuk, 2011; Yue, 2011; Onder and Dag, 2013; Kobryń, 2014; Prakash and Barua, 2015; Hanine *et al.*, 2016). Such a solution helps compare results obtained from the two methods using the same weight. It estimates and identifies the park that is the most attractive to the users of a given urban space based on selected measures specific for the parks.

The AHP method is based on four analytical steps:

Step 1: Indicate the purpose of the study and assessment criteria;
Step 2: Perform pairwise comparisons using the indicators in Table 1;
Step 3: Determine the relative importance of the factors;
Step 4: Verify the consistency of judgments across the Consistency Index (CI) and the Consistency Ratio (CR) (equation 1).

$$CR = \frac{CI}{RI} \tag{1}$$

where:

CR – consistency ratio;
CI – consistency index

$$CI = \frac{L_{max} - n}{n - 1} \tag{2}$$

where:

L_{max} – the maximum eigenvalue of the comparison matrix;
n – the size of the comparison matrix;
RI – random consistency index value (Table 1).

Table 1. Random consistency index

Size of matrix	1	2	3	4	5	6	7	8	9
RI value	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45

Source: Saaty and Kearns, 1985.

The AHP method compares individual criteria as well as options that consider all criteria. Firstly, the evaluation is based on expert assessments. In this study, the experts were researchers and practitioners connected with the subject, i.e., with urban planning and spatial development. Regarding the evaluation of options for different criteria, the estimates depend on the value of the indicators. To operationalise the approach, the 20th, 40th, 60th and 80th percentile measure of location was used. Based on the calculated measures, we can pair indicators with values from the AHP fundamental scale while omitting indirect assessments. That is possible because, using the percentiles, we can divide the set into five intervals (see Table 2). To calculate individual weights, we need to identify the consistency index (CI) used to calculate the final measure, i.e., the consistency ratio (CR). The maximum CR value is 10%. Human perception allows one to deal with a certain amount of information, precisely with approximately seven pieces of information, ± 2 (Miller, 1994). Consequently, no level of the model in the AHP decision procedure should exceed nine elements (Saaty and Kearns, 1985).

Table 2. Indicators used in the AHP method

Intensity of Importance	**Definition**	**Explanation**	**Percentile range**
1	Equal importance	Two activities contribute equally to the objective	[0; 20th Percentile]
2	Weak or slight	-	-
3	Moderate importance	Experience and judgement slightly favour one activity over another	(20th Percentile; 40th Percentile]
4	Moderate plus	-	-

Table 2 (cont.)

Intensity of Importance	Definition	Explanation	Percentile range
5	Strong importance	Experience and judgement strongly favour one activity over another	(40th Percentile; 60th Percentile]
6	Strong plus	-	-
7	Very strong or demonstrated importance	An activity is favoured very strongly over another; its dominance demonstrated in practice	(60th Percentile; 80th Percentile]
8	Very, very strong	-	-
9	Extreme importance	The evidence favouring one activity over another is of the highest possible order of affirmation	Value higher than 80th Percentile

Source: Saaty, 2008 with own study elements.

In the case of the TOPSIS method, the analytical procedure was based on 7 steps (Kobryń, 2014; Hanine *et al.*, 2016):

Step 1: Indicate the purpose of the study and assessment criteria;

Step 2: Data normalisation[1];

Step 3: Determine the weights of each criterion in accordance with the research assumptions; the weights calculated for the AHP method were used;

Step 4: Identify the positive ideal solution and negative ideal solution based on the data in the research;

Step 5: Determine the Euclidean distance of each alternative from the positive and negative ideal solutions;

Step 6: Calculate the Relative Closeness (***C***i) to the positive ideal solution using equation (3).

$$C_i = \frac{D_i^-}{D_i^* + D_i^-} \tag{3}$$

where:

D_i^* – distance of the *i* th alternative to the positive ideal solution;

D_i^- – distance of the *i* th alternative to the negative ideal solution.

Step 7: Formulate ranking based on decreasing index $\boldsymbol{C}_i$ values.

---

[1] The formula used to normalised the data was: $n_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^{m} x_{ij}^2}}$, where n_{ij} – normalised data, x_{ij} – data before normalisation, $i \in [1..m]$ – alternative number; $j \in [1..n]$ – criterion number.

Parks were selected for the analysis based on data from the study conducted by the Sendzimir Foundation entitled "Count on Green" (in Polish: Licz na zieleń), in which the users of urban spaces identified the green spaces they visited most often. The study used the SoftGIS method, i.e., a specific approach to public participatory geographical information system (PPGIS) (Czembrowski *et al.*, 2016), which involves identifying formal and non-formal green areas in an urban space using a geo-questionnaire (Pietrzyk-Kaszyńska *et al.*, 2017). The study extends and deepens previous research of the Lodz urban park values (Czembrowski *et al.*, 2016; Pietrzyk-Kaszyńska *et al.*, 2017). In the first stage, we identified green areas that were available to residents free of charge and were classified in land survey documentation as urban parks. Green walkways were disregarded as they are mostly open green spaces in streets or links between streets. The analysis did not cover parks which are not seen as places where people spend their leisure time surrounded by greenery, because they are not very attractive to potential users. As a result, we constructed the index of indications per hectare and calculated the 80th percentile to identify the 20% of parks which had an index value highest. We used the measure suggested by the "Count of Green" study presenting a green space visited most often by respondents. We used the original indicators of the attractiveness of parks which could be obtained from the city authorities.

To assess the attractiveness of parks, we used indicators that help assess the density of walking paths per hectare of a park (K1), the number of natural monuments per 10 hectares of a park (K2), the percentage of resources earmarked in the participatory budgeting exercise compared to the value of projects proposed for urban parks (K3), bus/tram stops situated 400 m from the park per hectare of a park (K4), and historical monuments within the buffer belt of 200 m from a park per 10 hectares of park area (K5). In the case of two indicators, the constituents of final synthetic indicators were weighted. As for the accessibility of cycling infrastructure in parks (K6), the AHP entropy weights were calculated (Kobryń, 2014). Meanwhile, to assess the pieces of equipment in parks (see Table 3), we applied a method consistent with the AHP, i.e., a pairwise comparison of constituents conducted by a team of 5 experts. The expert assessments were used to identify the weights of elements which are fundamental for a park's attractiveness. These elements include park structures (e.g., caves, gazebos, etc.), buildings that provide additional attractions in parks (e.g., a palm house, museums, restaurants, etc.), sandboxes and playgrounds for children, outdoor gyms and playing fields, fountains, and, finally, sculptures and monuments found in the parks. The expert assessments and the field studies in the parks provided the basis to calculate a synthetic indicator of park attractiveness based on the proposed elements of equipment; it was labelled K7 in the AHP analysis. The indicators and their descriptions can be found in Table 3.

Table 3. Indicators used in the analysis of the attractiveness of parks in Lodz

Indicator symbol	Description	Components
K1	Walking paths per 1 ha of park area	
K2	Number of natural monuments per 10 ha of park area	
K3	Percentage of resources to be spent under participatory budgeting	
K4	Bus/tram stops located 400 m from a park per 1 ha of park area	
K5	Historical objects within the 200 m buffer from a park per 10 ha of park area	
K6	Availability of cycling infrastructure within 400 m from a park	K6.1 Bicycle routes per 1 ha of park area; K6.2 Public bike-share scheme stations per 10 ha of park area; K6.3 Bicycle racks per 1ha of park; K6.4 Public bicycle rides in parks in km per 1 ha of park.
K7	Elements of park equipment	K7.1 Park structures (e.g., caves, gazebos, etc.) [number per hectare]; K7.2 Additional premises in parks (e.g., a palm house, museums, restaurants, etc.) [number per hectare]; K7.3 Sandboxes for children, outdoor gyms and fields [number per hectare]; K7.4 Fountains [number per hectare]; K7.5 Sculptures and monuments in parks [number per hectare].

Source: own work based on collected data.

The selected indicators were developed based on the data made available by the Lodz Geodesy Centre, which runs the Land Information System for the city. Only for component K6, which deals with public bicycle rides, data obtained from Lodz Road and Transportation Board (in Polish: Zarząd Dróg i Transportu) was used. They collect and manage data from the GPS system installed on the bicycle sharing public scheme operated in Lodz. The K7 indicator was constructed based on field studies conducted in the parks selected for the final analysis. The use of buffer belts around parks influenced the value of indicators K4, K5 and K6. For K5, we applied a 200 metre buffer, which helps identify historical sites in the immediate vicinity of parks that can still be seen by people in the park. For indicators K4 and K6, wider buffers of 400 m, which on average translate to a 5-minute walk, were applied.

Since indicators K6 and K7 are composed of indexes, we decided to weight individual elements. The weights for the K6 indexes were calculated using the entropy method (Deng *et al.*, 2000; Huang, 2008). All components of K6 were regarded as stimulants which help normalise the value of indicators using the following equation 4:

$$p_{i,j} = \frac{x_{i,j}}{\sum_{i=1}^{m} x_{i,j}} \tag{4}$$

where:
$x_{i,j}$ – is the value of alternative A_i under criterion C_j and $i \in [1 .. m]$ where i is the alternative number; $j \in [1 .. n]$ where j is the criterion number.

The estimates enabled the calculation of entropy using equation (5) and the calculation of weights of individual criteria in accordance with equation (6).

$$e_j = -\frac{1}{\ln(m)} \sum_{i}^{m} p_{i,j} \ln p \tag{5}$$

where $i \in [1 .. m]$ where i is the alternative number; $j \in [1 .. n]$ where j is the criterion number.

$$w_j = \frac{d_j}{\sum_{j=1}^{n} d_j} \tag{6}$$

where $j \in [1 .. n]$ where j is the criterion number and $d_j = 1 - e_j$

In the case of K6, after the weights were calculated using the entropy method, we had to calculate the indicators used in further stages of the study in the AHP and TOPSIS methods. Since the constituents of the indicators are expressed in different units of measurement, we had to deploy normalised data in accordance with equation 4. It allowed us to use weights and specify the values of the indicators for the parks which were analysed later.

Because of the values achieved by the other indicators, for K7 we could not rely on entropy, and we had to estimate the weights for its components based on estimates from pairwise comparisons. We used expert assessments from the pairwise comparisons following the methodology applied for the AHP.

It is an increasingly common practice in research to use weights, determined by the AHP method, to conduct multi-criteria analyses using the TOPSIS method – cf. literature related to the research methods (Önüt and Soner, 2008; Prakash and Barua, 2015; Rokhsari and Sadeghi-Niaraki, 2015; Hanine *et al.*, 2016; Berdie *et al.*, 2017; Azimifard *et al.*, 2018).

3.2. The Lodz Case Study

Lodz is situated in the centre of Poland at the crossroads of two main motorways, the A1 and the A2. Nowadays, the city is inhabited by shy of 665,000 residents (data at the end of 2021) and is the fourth largest city in Poland by population. It covers an area of 293.25 sq. km and ranks fourth among cities in Poland in terms of territory. At present, the development of Lodz is taking place in two units connected with the history of the city, i.e., the metropolitan zone and the contemporary development core. The former has been delineated according to the presence of historical buildings, which determine the city's identity. Its most important feature is its layout, with tenements and adjacent factory complexes usually linked with parks. The contemporary part of the metropolitan development, often referred to as the Lodz Urban Zone, is situated within the borders of the railway loop line. The Historic Urban Core is home to 13 parks, but when we extend the area to include the metropolitan zone, there are 29 urban parks. According to data provided by the Lodz Geodesy Centre, in total there are 48 parks in Lodz, four green walkways, and three city squares which are green spaces (Fig. 2). Most parks in Lodz are the remains of the former Lodz Forest, the source of building material for the development of the industrial city back in the 19th century.

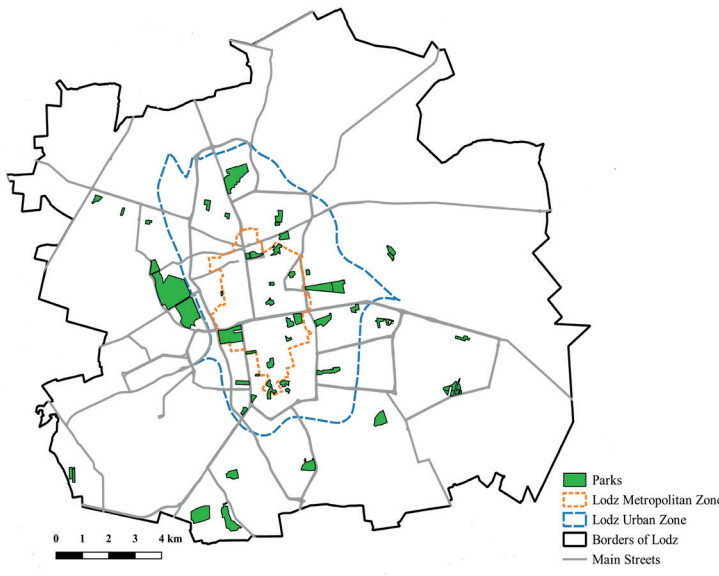
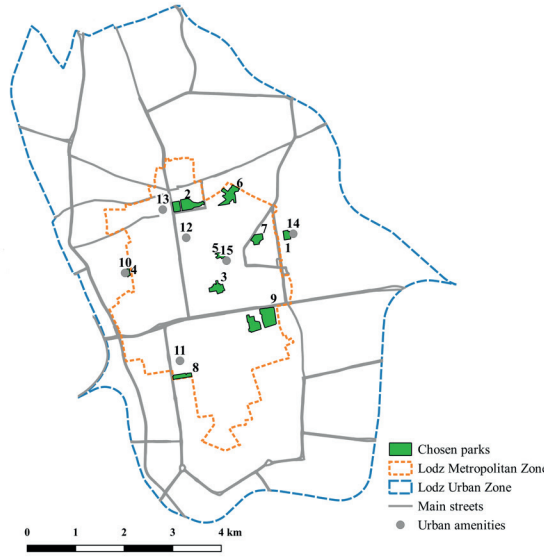


Fig. 2. Parks in Lodz and the location of the Lodz Metropolitan Zone and Lodz Urban Zone
Source: own work based on data from the Lodz Geodesy Centre and the Head Office of Geodesy and Cartography.

4. RESULTS

4.1. Results concerning the selection of parks

All parks selected in accordance with the methodology are located in the Lodz Urban Zone, within the borders of the so-called railway loop line (Fig. 3). For all the tested parks, the value of user indications per hectare was higher than 4.89/ha, which resulted from the calculations of the 80th percentile for this dataset.



Number on the map	Name of the park	Option number
1	Matejko's Park	V1
2	Old Town Park	V2
3	Sienkiewicz's Park	V3
4	Haller's Square	V4
5	Moniuszko's Park	V5
6	Helenów Park	V6
7	Staszic's Park	V7
8	Klepacz's Park	V8
9	Źródliska Park	V9

Number on the map	Name of the urban amenities
10	Clinical Medical Centre
11	Campus of the Lodz University of Technology
12	Piotrkowska Street
13	the City of Lodz Museum, Museum of Contemporary Art MS2, Manufaktura shopping mall
14	University Library
15	Fabryczna Railway Station

Fig. 3. Parks in Lodz selected for the analysis with urban amenities

Source: own work based on data from the Lodz Geodesy Centre and the Head Office of Geodesy and Cartography and Open Street Map.

Seven of the nine examined parks (Haller's Square and Old Town are the exceptions) are objects of historical and industrial origin, and they were built almost at the same time, i.e., in the 19th century. They were an important element in the landscape of the industrial city, although some of them were private. They were founded in relatively natural areas, and despite the planned arrangement, native species of the old forest still stand. Currently, all parks are public. The composition of their green species and, above all, the equipment contained within the parks, have changed significantly over the years. Also, the surroundings of these parks, the spatial structure of the city, and the objects located in it have changed significantly.

By selecting nine parks, we were able to calculate indicators connected with their respective locations. When it comes to indicators K6 and K7, the calculations were more complex. K6 was combined with weights whose estimates are given in Table 4. Looking at these weights, we can see that they are remarkably close for indices K6.1, K6.2 and K6.4, while K6.3, the index concerning the availability of bicycle racks in parks, is much less significant.

Table 4. Estimated weights for K6 indicator

Index	Weight
K6.1 Bicycle routes per 1 ha of park	0.289
K6.2 Public bike-share scheme stations per 10 ha of park	0.292
K6.3 Bicycle racks per 1 ha of park	0.143
K6.4 Public bicycle rides in parks per 1ha of park	0.276

Source: own work based on the collected data.

We also estimated the weights for indicator K7 using the pairwise comparison method. The weights demonstrate that the presence of recreational equipment and infrastructure was the most important element for the experts, since the highest weights were allocated to structures and elements that offered physical training and entertainment opportunities for children and youngsters. Amongst the components of K7, places which enrich the offer proposed by parks, i.e., museums, winter gardens or restaurants, played an important role. Similarly, a higher weight was assigned to structures in the park that were open to visitors and were available in selected green spaces across the city. The weights for fountains, sculptures, and monuments were much lower compared to the other components of K7. The weights of these indexes are presented in Table 5.

The estimated weights made it possible to generate a set of indicators that describe individual parks covered by the analysis. Data was also used to calculate the 20th, 40th, 60th and 80th percentiles, which is necessary to make calculations for the AHP method (see Table 6).

Table 5. Estimates of weights for indicator K7

Index	Weight
K7.1 Park structures (e.g., caves, gazebos, etc.)	0.202
K7.2 Premises in parks (e.g., palm house, museums, restaurants, etc.)	0.256
K7.3 Sandboxes for children, outdoor gyms, and playing fields	0.435
K7.4 Fountains	0.074
K7.5 Sculptures and monuments in the park	0.033

Source: own work based on the collected data.

Table 6. Data used in the analysis of the nine options

	K1	K2	K3	K4	K5	K6	K7
V1	618.6	0.0	2.7	7.1	7.1	0.08	0.8
V2	434.0	0.0	3.6	4.7	9.6	0.14	1.8
V3	553.8	43.0	25.3	4.9	24.1	0.07	1.2
V4	976.0	0.0	0.0	12.8	8.1	0.23	0.4
V5	594.8	0.0	50.1	22.7	38.7	0.16	0.3
V6	423.9	3.7	1.5	3.2	2.6	0.08	2.6
V7	461.6	15.9	100.0	9.0	11.1	0.06	0.9
V8	465.5	52.9	0.0	7.5	8.7	0.13	1.0
V9	437.0	1.8	0.0	2.1	65.7	0.05	3.1
Percentile							
20th	435.79	0.00	0.00	4.07	7.72	0.07	0.63
40th	462.42	0.36	1.73	5.38	8.90	0.08	0.92
60th	536.11	3.30	3.42	7.39	10.81	0.12	1.18
80th	604.32	26.72	35.24	10.51	29.93	0.15	2.11

Source: own work based on the collected data.

4.2. Results for the AHP method

Pairwise comparisons for all indicators and for individual options that consider individual criteria informed us which measures exerted the strongest impact upon the investigated phenomenon. As a result, we were able to rank the parks for their attractiveness to potential users.

In all calculations conducted for the AHP method, the Consistency Ratios (CR) were satisfactory. Thus, we were able to continue the analysis leaving the pairwise comparisons matrix unchanged (see Table 7).

Table 7. Consistency Ratio (CR) in AHP analysis

Type of matrix	Matrix size – n	Consistency ratio – CR [%]
Criteria matrix	7	7.8
Matrix of options based on K1	9	3.7
Matrix of options based on K2	9	2.8
Matrix of options based on K3	9	3.5
Matrix of options based on K4	9	3.7
Matrix of options based on K5	9	3.7
Matrix of options based on K6	9	3.7
Matrix of options based on K7	9	3.7

Source: own work.

An analysis of the data using the AHP method helped us conclude that, as shown by the experts' assessments, criterion K6, whose weight was 34.7%, was the most important. The second most important criterion was K7, i.e., the availability of leisure equipment and infrastructure in parks. In this case, the weight was 21.2%. According to the experts, the accessibility of a park by public transport also mattered, which could be seen in the weight of 17.1% for criterion K4. Other criteria proved less important, and their weights were lower than 10%. K1, the density of walking paths, scored 9.5%; historical sites located in the vicinity of the park (K5) scored 7.6%, and projects financed under the participatory budgeting exercise (K3) achieved 5.9%. The lowest weight was reported for natural heritage in parks expressed in the number of natural monuments per 1 ha (K2). For the experts, the relevance of this criterion for the analysis of park attractiveness was only 4% (see Table 8).

The weights of individual components used in the analysis made it possible to suggest which of the parks included in the study were the most attractive elements of green infrastructure in the Lodz Urban Zone. Moniuszko's Park, with the total weight exceeding 19.5%, ranked first among all the analysed locations. Haller's Square ranked second, with a weight of over 17.5% calculated from the data and the experts' assessments. Klepacz's Park was third in this ranking of attractiveness with a weight of over 10.8%. At the other extreme there were parks whose attractiveness was poor. Staszic's Park, whose weight was 7.329%, and Matejko's Park, with the weight slightly above 7.74%, scored the lowest. The assessment of Helenów Park's attractiveness based on the presented criteria was also unsatisfactory, as the park scored slightly more than 8.4%.

Table 8. Final priorities in the AHP method

Options	Criteria with weights							Weights for options [%]
	K1	K2	K3	K4	K5	K6	K7	
	9.5%	4.0%	5.9%	17.1%	7.6%	34.7%	21.2%	
V1	0.272	0.022	0.074	0.072	0.019	0.072	0.036	7.7458
V2	0.019	0.022	0.139	0.036	0.072	0.137	0.137	9.9097
V3	0.137	0.276	0.139	0.036	0.137	0.036	0.137	9.036
V4	0.272	0.022	0.02	0.272	0.036	0.272	0.019	17.556
V5	0.137	0.022	0.274	0.272	0.272	0.272	0.019	19.5657
V6	0.019	0.141	0.04	0.019	0.019	0.036	0.272	8.4654
V7	0.036	0.141	0.274	0.137	0.137	0.019	0.036	7.329
V8	0.072	0.276	0.02	0.137	0.036	0.137	0.072	10.8026
V9	0.036	0.078	0.02	0.019	0.272	0.019	0.272	9.5898
							Sum:	100

Source: own work.

4.3. Results for the TOPSIS method

The practical application of the TOPSIS method with weights estimated for the AHP allowed us to rank the parks. As demonstrated by the results, Haller's Square was the most attractive park (V4) scoring 0.541. The assessment for Moniuszko's Park was also high, at 0.531. All other parks included in the exercise scored below 0.400, which shows how much the leaders in attractiveness ranking were ahead of the rest of the sample. The full list is shown in Table 9.

Table 9. Final ranking in the TOPSIS method

Park	Option	Rating
Matejko's Park	V1	0.191
Old Town Park	V2	0.396
Sienkiewicz's Park	V3	0.224
Haller's Square	V4	0.541
Moniuszko's Park	V5	0.531
Helenów Park	V6	0.340
Staszic's Park	V7	0.257
Klepacz's Park	V8	0.360
Źródliska Park	V9	0.389

Source: own work.

By analysing the results, we identified parks whose attractiveness measured using the TOPSIS method was low. This group included Matejko's Park assessed at 0.191. Low assessments were also given to Sienkiewicz's Park and Staszic's Park, which scored 0.224 and 0.257, respectively.

4.4. Comparisons of the results from AHP and TOPSIS

By integrating elements of the AHP method with the TOPSIS method, we were able to obtain two rankings and decide which park should be considered the most attractive against a given set of indicators (criteria). The rankings based on these methods differ, although the estimates that were produced allowed us to believe that the differences were not bigger than two ranking positions. The results show that attractiveness assessments based on the AHP and TOPSIS methods correlate at the level of 0.85, which indicates a strong correlation in accordance with the Guilford scale (1942). The final rankings are shown in Table 10.

Table 10. Final rankings in AHP method and TOPSIS method

Park	Option	AHP ranking	TOPSIS ranking
Moniuszko's Park	V5	1	2
Haller's Square	V4	2	1
Klepacz's Park	V8	3	5
Old Town Park	V2	4	3
Źródliska Park	V9	5	4
Sienkiewicz's Park	V3	6	8
Helenów Park	V6	7	6
Matejko's Park	V1	8	9
Staszic's Park	V7	9	7

Source: own work.

An important conclusion is that the two most attractive parks simply switched their ranking positions in the methods. For the rest of the rankings, the results revealed much greater differentiations. We also need to stress that Haller's Square, the smallest park by area, was perceived as highly attractive by its users based on the measures (criteria) used in this assessment exercise. The same could be said about Moniuszko's Park, which is also one of the smallest parks in Lodz.

5. DISCUSSION

5.1. Data about the urban parks

Information and data about parks in cities come predominantly from local authorities, and they provide the basis for the assessment of amenities found in parks across a city. Additionally, information and knowledge come from data included in inventories for these areas made for scientific purposes. We need to bear in mind that data collected in local authorities' files is often not utilised properly. That is why there is a gap in the knowledge regarding the mathematical methods that help identify areas of high potential from the point of view of city dwellers assisting the decision-making process. Open Data, as a form of democracy and an element of building smart cities, could help researchers and NGOs collaborate when performing an independent analysis of various aspects of city functioning (Kitchin, 2014; Gray and Lämmerhirt, 2017).

The parks in Lodz which were covered by the study are located in very different areas, and this impacts their perception as amenities in the city. It also translates into how attractive these spaces are, which itself depends on the criteria against which attractiveness is measured. For our study, what mattered for the assessment of parks within the Lodz Urban Zone were the attributes that facilitate recreational, cultural or transportation functions. In the eyes of the experts, the ability to access parks using municipal transport was especially important.

The parks included in our study also helped us reveal differences among them, such as the area, plant species, and internal organisation. The differences also translate into how the parks are perceived by residents who cast their votes annually for projects proposed within the framework of participatory budgeting.

The issue of accessibility clearly comes to the fore, since it is determined by the existing transport system and the park's location in a neighbourhood full of urban amenities. For instance, Moniuszko's Park is located in the city centre close to the railway station, which is a public transport hub. Thus, apart from preserving heritage, the park performs the function of a pedestrian route. This function dominates the recreational function. Haller's Square, located in front of a hospital, functions as a green 'entrance hall' to the facility. Klepacz's Park is the front garden to the Campus of the Lodz University of Technology (with nearly 20,000 students). The Old Town Park links the historical city centre and the main street (Piotrkowska) with a huge, post-industrial complex adapted for retail, leisure and cultural purposes (the City of Lodz Museum, the Museum of Contemporary Art – MS2, and the Manufaktura shopping mall), therefore, the flow of people is dominant. The low position in the ranking is surprising. Matejko's Park, developed in the French style, looks extremely elegant and has natural values but it is located opposite the University Library without any chance of becoming a shortcut.

5.2. Amenities as components of park attractiveness

Our analysis has led us to believe that the facilities available in parks impact their attractiveness. As suggested by the experts – and in line with the weights for different criteria obtained from the AHP method – we may conclude that the accessibility of parks to cyclists is emerging as a crucial factor of their attractiveness. Other important criteria include the presence of small structures and park furniture. Based on the results, we may also say that our multiple-criteria analysis reflects the preferences of different groups of users, including experts.

In light of the above, we might suggest that the city should improve the accessibility of parks for cyclists and users of the city bike-share scheme, and install more sports facilities and playgrounds for children in parks. Concerning parks listed in the register of historical monuments, all design activities shall be agreed upon by the conservationist of historical monuments. We should not forget about attracting parents with children to enjoy peace and quiet in a nice green setting without having to leave the city. The city authorities need to consider such investment projects in their plans for developing green spaces because they satisfy the needs of different social groups living in the city.

The approach adopted for the paper has enabled us to conclude that multi-criteria methods do not have to be used exclusively to assess park attractiveness; by using partial results of the decision-making process, they may provide the basis for research-based decision-making at the level of local authorities.

5.3. Comparison of the AHP and TOPSIS methods

Parks in cities are used to assess components of green infrastructure in urban areas. By applying two research methods, AHP and TOPSIS, we were able to establish how priorities concerning the attractiveness of parks, and building their image, change depending on the method. Our results have shown two alternative methods which produced two different rankings of attractiveness for the same set of parks. We need to stress that the results increase the likelihood of finding optimal solutions (Nilsson *et al.*, 2016). When assessing the results from the two methods shows that, looking at the correlation of the two rankings, the results are strongly correlated despite having noticeable differences. The specification of user preferences in light of these methods lets us explain how selected MCDA methods assist decision-makers in Lodz to make decisions that are intended to improve the attractiveness of the parks in the city. Consequently, they also help identify strategies for improving the quality of green spaces in cities.

Importantly, the analysis, which was conducted in accordance with two MCDA methods, facilitated the understanding of the decision-making process by local

actors. Scientific analysis, as well as its practical application in everyday administrative practices, provides justification of the results at different stages of the procedure. It helps explain to local communities how decisions are made based on the specific indicators used in the process. We need to stress that extending the proposed model may be counterproductive as it may become impossible to understand due to the complexity of the relationships within it. Such a problem has indeed been observed in the subject-matter literature (Cheng and Mattor, 2006; Nordström *et al.*, 2010), especially for the AHP. It also explains why expert pairwise assessments are used in the analysis and the weights of criteria estimated in the AHP are used in the TOPSIS method.

5.4. Limitations on the use of the AHP and TOPSIS methods

Regarding the indicators that made it possible to apply both methods, we need to bear in mind that they change depending on the size of the city or its infrastructure. We adopted a comprehensive approach; however, the attractiveness of urban parks changes over time and is determined by season.

Additionally, while for the AHP method we must expect limitations resulting from the number of levels in the decision-making structure – which should not be greater than nine elements at each step – this limitation does not yet apply to TOPSIS. Yet when it comes to TOPSIS, we should remember to choose a procedure to calculate the weights of individual components or to make a subjective choice that allows that method to be used.

To apply the methods that we analysed here, we need data that can be used to assess the attractiveness of urban parks based on the facilities available within them and in their vicinity. The availability of data in a dynamic approach facilitates additional analysis designed to evaluate changes.

5.5. Knowing the city and MCDA methods

In accordance with our results, we need to stress that no matter where a park or a city is located, these research methods can also be used to assess the attractiveness of parks against different sets of criteria. In addition to what we can learn about a city from individual indicators describing parks, we can also gain knowledge about the city in the rankings of attractiveness prepared according to these methods. This is how local authorities may discover which parks need additional investments, as well as which factors are the most decisive for attractiveness. Such knowledge provides the foundations for planning the development of green infrastructure in the city (Meerow and Newell, 2017), which impacts the quality of life of its residents (Degórska and Degórski, 2017).

6. CONCLUSIONS

The pre-selection of parks based on earlier research has shown that small parks in the urban centre zone are more attractive than large parks on the outskirts. This phenomenon seems to be a result of higher urban density and hence a higher number of interactions per hectare. The choice of 9 parks is the highest possible number due to the limitations of the method. We have assumed that a park is an urban amenity, and its attractiveness is the result of the amenities inside and outside. The indicators are derived as quantitative parameters from earlier recognised location attractiveness factors. To sum up, the applied methods (AHP and TOPSIS) have made it possible to assign weights of value indicators to obtain an intersubjective result of attractiveness. In addition, TOPSIS has provided a ranking which is significantly correlated with the gradation of AHP results. Nevertheless, TOPSIS reorders position in the ranking groups at the top (1−2), in the middle (3−5), and at the bottom (6−9) of the table. The top 4 parks are, in fact, green walkways – a front garden, an "entrance hall," or a link to civic buildings and complexes. The heavy traffic and flow of people become pre-dominant because the assumed criteria promote various transport accessibility and a neighbourhood of high urban density. Consequently, aesthetic, compositional, and natural values are of secondary importance.

The presented methods seem ready to be used for city management purposes. They may allow municipal administration to efficiently aggregate citizens' needs since the public sector is the data collector and owner. In the deliberative model of city management, the use of these methods by NGOs or other independent researchers is possible, provided that open data is available. In the decision-making process concerning urban amenities, the criteria and indicators can be adjusted and adapted to the specificity of a city and its inhabitants. The indictor weights can be an intersubjective result of the opinions of experts who function as a link with the community, or they can be a broad aggregation based on a public survey. In conclusion, we recommend using these methods to make the right planning and economic decisions in a constantly evolving city.

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BOOK REVIEW

STADT, LAND, KLIMA: A REVIEW OF RECENT GERMAN CONTRIBUTIONS TO URBAN STUDIES

With a review of:

Uwe PRELL, *Die Stadt*, Verlag Barbara Budrich, Opladen & Toronto 2020, 148 pages, Sascha HENNINGER and Stephan WEBER, *Stadtklima*, Verlag Ferdinand Schöningh, Paderborn 2020, 260 pages and Freerk BAUMANN, *Und jetzt aufs Land. Wie die Natur unsere Gesundheit fördert*, Bastei Lübbe, Köln 2021, 271 pages

1. INTRODUCTION

In international academic literature, it is by now almost a cliché to begin a treatise on cities and their development with the observation that the world now counts more urbanites than rural residents. Two of the three German-language books we review here are no exception. Their authors rightly argue that advancing urbanisation presents cities with enormous challenges, whether in housing, economics, mobility or sustainability. The city is where global trends, as well as the problems

they bring, converge. At the same time, it is also the place par excellence where smart solutions are devised, simply because necessity is usually the mother of innovation.

In a way, the books reviewed below are also innovative, since they are written from the perspective of the German context. Due to the dominance of English as the academic lingua franca in urban studies, ideas and examples from the German language area tend to remain underexposed. For this reason alone, it is interesting to see how today's German scholars writing in their mother tongue deal with topical urban themes and what new insights their contributions provide. Below, we discuss a social science introduction to the 'city', a textbook on urban climate issues, and a book that, on the contrary, argues against the city and that we will find the future in the countryside.

2. WHAT IS A CITY?

The first book, written by Dr. Uwe Prell, is simply called *Die Stadt* (The city). The thesis of the author, originally trained as a political scientist, is that the complexity of cities requires an integral scientific approach. Starting from the question for which problem the city offers a solution – Prell sees the city as a tool in this respect – he first briefly discusses the perspectives that nine disciplines apply to the city, from sociology and geography to law and philosophy. Then, referring to a range of thinkers, he discusses 'the great stories' about the city. Alongside such household names as Aristotle ('the good city'), Saskia Sassen ('the global city') or Richard Sennet ('the open city'), lesser-known thinkers and their concepts pass in review, such as 'the ordinary city' (Ash Amin and Stephen Graham), 'the non-existing city' (Jürgen Friedrichs), and 'the multifunctional city' (Werner Sombart).

According to Prell, however, this conceptual review does not provide an unambiguous view on the city. Therefore, he joins the idea of the German sociologist and economist Sombart to approach the topic from a linguistic perspective. After all, a word has an embedded meaning of a phenomenon. Relying on the insights provided by languages and their speakers, Prell considers how the word 'city' has been defined in three ancient languages (Egyptian, Greek, Latin) and eight modern languages (including, for example, Chinese and Japanese in addition to English). This is by far the most innovative and interesting part of the book. For example, did you know that the Egyptian hieroglyph for 'city' is a circle with a cross through it (symbolising a concentration of roads, resources and power) or that in Chinese and Hindi, the term 'city' has particularly economic connotations?

Based on the concepts and meanings of the word discussed in different languages, Prell arrives at his own general definition: in his view, a city should be understood as a creative, compacted diversity within a structured unit. With this theoretical baggage, the author then explores and evaluates the numerous designations of cities we encounter in policy practice, such as the megacity, smart city, and shrinking city. His conclusion is that while such concepts refer to relevant urban themes and offer possible answers to sub-questions, they also unnecessarily narrow the view. This brings us back to the beginning of the book: the city is too multifaceted to engage with from a single perspective. This is why Prell once again calls for the necessity of interdisciplinary urban research. Such research also enhances the creativity that is needed to meet the urban challenges of the future.

The beauty of Prell's book is that the reader can quickly – the work has no more than 148 pages including references and indices – gain an overview of how the city is approached academically. The author has succeeded in capturing the essence of the main analytical perspectives and linking them to urban practice. And that is not all: he supplements this overview with his own linguistics-based analysis, which I think is an elegant way of connecting theory and practice. Scattered throughout the book are also figures, boxes and literature tips that enliven the text. Interesting, for instance, are the personal top ten-lists shared by Prell, listing his favourite cities, city books, city songs, and city homepages. Clearly, the author is someone who has set his heart on cities and wants to share his fascination with them with a wider audience, also outside the academic community.

3. URBAN CLIMATE ISSUES

One of the biggest challenges of contemporary cities is how to deal with climate change. It is, therefore, vital that city authorities, policy advisers, and spatial professionals understand the interplay between climate, air quality and urban planning. Sascha Henninger and Stephan Weber, professors at the Technical Universities of Kaiserslautern and Braunschweig, respectively, address this issue with their textbook *Stadtklima* (Urban climate). They discuss the physical principles and processes of urban climatology and urban air quality, and their application in policy practice around the world. In the first chapter, they show how a city's buildings, anthropogenic emissions of heat, and trace substances and their interaction with the atmosphere determine the urban climate. They argue that this field of study is relevant not only for European cities, but also precisely for cities in Asia and Africa, which are expected to experience huge population growths in the coming years.

The four chapters that follow deal successively with the key concept of 'urban boundary layer,' the interaction between urban surfaces and the atmosphere, urban heat islands, and urban air quality. The authors discuss not only relevant concepts and theories, but also statistical findings, such as the well-known 'heat island-effect,' i.e., the phenomenon that the average temperature in urban areas is usually higher than in the countryside. Technical terms and mathematical notations are not avoided, but non-technically-trained readers need not be deterred by this because the accompanying text provides clear explanations and figures in each case. The chapters show how much is known about the urban climate in detail, whether it is about the relationship between the urban morphology and wind speed or the reflex radiation of different types of building materials. By means of the application of smart maps, techniques, and methods it is possible to, for example, measure air quality at a district level. If anything, this theoretical part of the book demonstrates how popular slogans such as 'Paint your roof white' are based on empirical findings from carefully designed studies.

In the last two chapters of their textbook, Henninger and Weber discuss applied urban climatology, a domain they see as the link between urban climate theory and urban planning. Various mitigation and adaptation measures cities can take in response to climate change are discussed, as well what methods and tools city professionals can use in practice. In part, the authors draw on what is possible within German planning culture, but they also cover measures that are universally applicable, such as building pocket parks, investing in urban retention areas, and greening roofs. Preferred policies are 'no regret-strategies': measures that have a clear added value and that are widely accepted by the population. After all, climate adaptation ultimately depends on people's behaviour.

For me as a human geographer this book was an eyeopener because it introduced me to a new branch of urban studies. The authors consider urban climatology as a subfield of environmental meteorology, and emphasise that 'Despite the complexity of the study area, urban climatology is not a 'case study discipline,' but uses reproducible and scalable sizes for comparison, as well as for transferability of the research findings to other locations' (p. 41, *translation GJH*). Even though this is a strong claim, in the book we find numerous examples of research findings proving their value everywhere. For example, studies make clear that one urban tree does not necessarily equal another: deciduous trees have a different effect on urban climate than conifers. To achieve the desired effect of a green space, such findings could be used more in the discussion of urban greening. Another case in point is the 'park cool island' concept: research across cities in the world demonstrates that, thanks to the so-called 'urban park breeze,' a park may have a range of several hundred meters. In summary, the book provides food for thought, not only for academics, but also for urban practitioners.

4. THE CALL OF THE COUNTRY

Professor Baumann's book demonstrates that a health and sports scientist can also make a meaningful contribution to urban studies. Baumann is affiliated with the University Hospital of Cologne, among others, and in his book *Und jetzt aufs Land* (And now to the country) he makes a warm plea for the countryside as a habitat. In doing so, Baumann refers to numerous results of empirical studies published in authoritative medical and psychological journals. Unlike the two books discussed above, this book is less tightly structured and lends itself less well to study purposes. For example, it does not contain clarifying diagrams or illustrations. It also lacks an index that would be useful for checking terms used in the text. Instead, the author has included some interviews with experts and closes the book with tips for city dwellers who are considering moving to the countryside or who want to 'import' aspects of country life into their urban living environment.

The book begins with the grand and classic question of where people are better off living: in the city or in the countryside. From the start, it is clear that Baumann goes for the latter. While the advantages of the city are briefly listed in the introduction, the rest of the book is a tribute to the countryside. To be sure, the author admits that he is a rural resident himself and thus might be somewhat biased. But it must be said: the studies cited in the first part of the book on the value of rural life for people's health and life satisfaction seem to prove him right. In this respect, the book illustrates what has been termed 'the rural happiness-paradox' (Sørensen, 2021): even though the city is generally seen as the place to be, country dwellers tend to report higher subjective well-being than urbanites, at least in developed countries. Based on empirical research in Denmark Sørensen (2021) has explained this paradox with reference to two factors: higher access to natural amenities (e.g., a forest or a lake), and higher bonding social capital in local communities.

Back to Baumann's book: in the first four chapters, he reviews studies that highlight the value of nature for our well-being. For instance, apparently children in rural areas play outside more than urban children and, therefore, come into contact with more microorganisms, such as viruses, bacteria and fungi. As a result, their immune systems are challenged more, making them less susceptible to allergies. In addition, urban dwellers appear to be exposed to greater health risks (e.g., respiratory or hearing disorders) than rural dwellers due to the heavier traffic in cities. Furthermore, research shows that the easier access to green amenities in rural areas is valuable: nature invites outdoor and sports activities, while the abundance of green boost our bodies and minds.

However, in the penultimate two chapters on the social side of the countryside, i.e., village life, readers can notice that Baumann is less at home in the extensive sociological and geographical literature that has appeared on this subject,

both in international and German academic circles. He does not get much further than referring to results from social-psychological studies that social bonding is important. And when it comes to the issues at play in village communities, he has limited himself largely to observations from research and policy reports by German agencies. This is unfortunate because the book would be more convincing if these chapters were as thoroughly documented as those on the role of the natural environment of the countryside. For the village part of the book, Baumann could have collaborated with the German geography professors Henkel or Bätzing who have written standard works on the social characteristics of the countryside (Henkel, 2012; Bätzing, 2020).

5. THE CITY IS TOO IMPORTANT…

Each of the three recently published German-language books we reviewed in this article deals with interesting and relevant aspects of *Stadt*, *Land*, and *Klima* (city, country, and climate). Having browsed them, what can we conclude? If you ask me, all of the books are original in their own way and enrich the field of urban studies. For instance, I am charmed by Prell's linguistic perspective for approaching a complex geographical phenomenon such as the city, while I think an English translation of the accessible textbook *Stadtklima* could expect a broad international readership. However, because they are written in German, the books remain out of the picture among colleagues who are not fluent in the language. This is unfortunate but a fact of life in contemporary spatial research where 'international' actually equals 'Anglo-Saxon publication space' (cf. Paasi, 2005).

At the same time, the books show the value of not approaching the city from the traditional spatial disciplines of geography or planning. Especially as the city increasingly becomes the focal point of future-oriented developments, it is crucial to take a broad view. For social scientists it is also relevant to take note of insights from colleagues trained in, say, meteorology or health sciences – and vice versa. In this respect, Baumann's book makes it clear once again that interdisciplinary cooperation might be useful. Nobody expects scientists to be versed in all areas of their research focus. For those fields you are less familiar with, the credo simply applies: seek collaboration with colleagues, some of whom might even work within the same organisation. Paraphrasing the famous German philosopher Hannah Arendt, who wrote about the importance of politics and the role of politicians, one could say: 'The city is too important to be left to spatial scholars.'

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