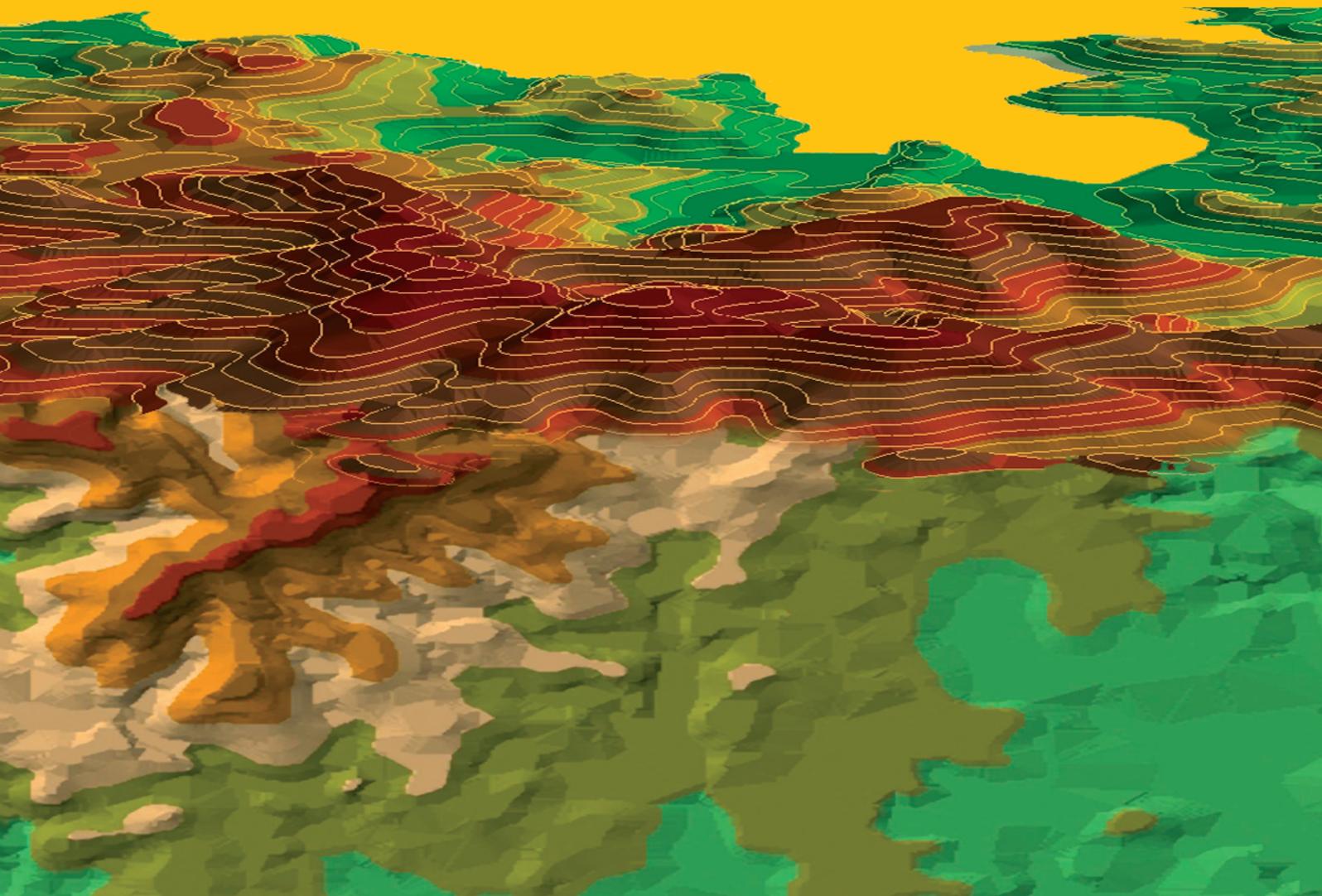


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# MORAVIAN GEOGRAPHICAL REPORTS





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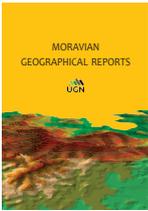
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# Transformation of the identity of a region: Theory and the empirical case of the perceptual regions of Bohemia and Moravia, Czech Republic

Petr MAREK <sup>a\*</sup>

## Abstract

*By using the concept of perceptual region – an essential part of the identity of a region and a part of every person’s mental map – this paper demonstrates a way to examine the understudied transformation of (the identity of) a region and, specifically, its territorial shape (boundaries). This concept effectively fuses the “institutionalisation of regions” theory and the methodologies of behavioural geography. This case study of the perceptual regions of Bohemia and Moravia shows how and why these historical regions and their boundary/boundaries developed, after a significant deinstitutionalisation by splitting into smaller regions in an administrative reform. Many people now perceive the Bohemian-Moravian boundary according to the newly-emerged regional boundaries, which often ignore old (historical) boundaries. Thus, the territorial shape of Bohemia and Moravia is transformed, with the Vysočina Region emerging as one of the new regions to witness the most eroded consciousness concerning these historical regions and their boundaries. The impact of administrative reforms on the perception and thus also the transformation of regions and boundaries is obvious, but the results also suggest that the more radical the administrative changes (in terms of toponyms and boundary mismatches), the fuzzier the collective perceptions of historical boundaries become, as well as peoples’ consciousness of historical regions.*

**Keywords:** perceptual region; transformation of the identity of a region; administrative reform; mental maps; Bohemian-Moravian boundary; Czech Republic

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## 1. Introduction

The Czech Lands have been important territorial units since the Middle Ages. Nevertheless, with an administrative reform in 1948, they were abolished de jure and split into smaller regions. In comparison to some other then-socialist countries where similar reforms took place, the historical regions in the Czech Republic were not restored after the fall of the totalitarian regime. Yet, Bohemia, Moravia, and (Czech) Silesia have remained part of the everydayness of the country until today. Their delimitation is problematic, nonetheless. People perceive historical land boundaries very differently – a transformation of their territorial shape has occurred. Some authors (Marek, 2015; Siwek and Kaňok, 2000a, 2000b; Vaishar and Zapletalová, 2016) attribute these effects to the administrative reforms after 1948. But is the extent of the transformation the same along the length of the historical land boundaries? Or does it somehow differ? And if so, how and why?

Although the need for theorising regions has already become a “mantra” (Van Langenhove, 2013, p. 476) within new regional geography, Paasi (2011b, p. 11) notes that “[r]elatively little attention has been paid to such major questions as what is a region [and] how it ‘becomes’”. It is necessary to examine regions as social constructs (Paasi, 2010) and dynamic processes (Paasi and Metzger, 2017), because it can develop not only knowledge of the concept of region but also the concepts of regional identity of people and regionalism (Marek, 2020a). “Understanding the region then is a means to understanding society itself” (Tomaney, 2009, p. 140), and uncovering the nature of regions as social constructs and dynamic processes can be seen as a “major goal of geography” (Johnston and Sidaway, 2016, p. 216).

This article draws on the institutionalisation of regions theory of Anssi Paasi (1986a) and deals mainly with one of Paasi’s dimensions of regional identity – subjective images of a region. These can be identified with perceptual regions,

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implying the existence of a region (Marek, 2020b), which allows us to also use them in researching the region's subsequent development – for example, its transformation (Marek, 2020a). In this paper, the perceptual regions of Bohemia and Moravia lingering in the minds of Bohemian-Moravian borderland inhabitants, are used to study the transformation of (the identity of) a region.

The main aim is to contribute to the discussion of the region as a social construct and a dynamic process, and it encompasses two secondary goals: (1) to demonstrate the usability of perceptual regions in researching the transformation of (the identity of) a region and, specifically, its territorial shape (boundaries); and (2) to explore the nature of the perception and transformation of historical regions/boundaries in areas with a diverse history of administrative regions/boundaries. The above questions will be examined using the example of the Bohemian-Moravian boundary.

Zimmerbauer et al. (2017) stressed the necessity for research into an insufficiently-studied region's deinstitutionalisation and one of its forms based on administrative reforms – regional amalgamation (Zimmerbauer and Paasi, 2013). This article, by focusing on an “Eastern-Bloc case”, suggests studying a second deinstitutionalisation form – regional splitting – which can contribute to the development of scientific knowledge as well.

## 2. Theoretical and methodological background

### 2.1 Region as a social construct

As Cresswell (2013, p. 71) puts it: “Central to new regional geographies was the belief that regions are social constructs.” Among geographers, this belief is increasingly apparent (Paasi, 2002a, 2010, 2011b; Paasi and Metzger, 2017) and some authors state that regions “are not ‘out there’ waiting to be discovered; they are our (and others’) constructions” (e.g. Allen et al., 1998, p. 2).

The majority of works on the new regional geography, however, lack the theme of the existence of region as a social construct. Based on the theory of the social construction of reality (Berger and Luckmann, 1971), it can be argued that if we know about some social fact – that is, we have knowledge or consciousness about it – this fact is real, existing (Marek, 2020b). As the region is also a social fact (Paasi, 2002a, 2002b, 2009a), we can say that “regions exist (as social constructions) only if they are in people's consciousness” (Zimmerbauer, 2011, p. 256). Hence, their existence depends on people and their communications about regions: regions “are talked and written into existence” (Neumann, 1994, p. 59; Van Langenhove, 2013). A region emerges or rather arises – it starts to exist – when it comes into a human's knowledge/consciousness, typically through the process of perception (Marek, 2020b).

There is a close two-way relationship between knowledge and perception. On the one hand, because of perception through our senses, our knowledge is being built (Lynch, 1960; Rose, 2001; Siwek, 2011; Tuan, 1975b), or as Tuan (1979, p. 410) put it: “To sense is to know.” On the other hand, such knowledge influences our perception as “perceptions are based on our accumulated knowledge”, and therefore, “[w]hat we know shapes our perceptions” (Fouberg et al., 2012, p. 26 and p. 13).

When thinking about regions as social constructions, emphasis needs to be given to the fact that regions are not arbitrarily created mental abstractions without a connection

to the “real world” (de Blij et al., 2010; Fouberg and Moseley, 2015; Kasala and Šifta, 2017; Paasi, 1986a, 1986b, 1991, 2009b, 2010; Roth, 2007). According to critical realist philosophy, regions as constructs are always based on “materials – not only physical materials in this case, like concrete, but ideational materials like people's beliefs and habits” (Sayer, 2006, p. 99). Thus, the significant role of communication between people and the perception associated with such interchanges, is evident.

### 2.2 Region as a dynamic process

Seeing regions as spatial structures (Giddens, 1984) and as historically contingent dynamic processes (Pred, 1984), were other important developments in establishing the new regional geography (Gilbert, 1988). Particularly due to Pred's incorporation of time, the region is no longer seen as static but as “constantly becoming” (Pred, 1984, p. 279). Paasi (1986a, 1986b, 1991, 2001, 2002a, 2009b, 2011b) developed these ideas in his institutionalisation of regions theory, where he outlined four stages in the process of regional formation: the emergence of (I) territorial shape (boundaries), (II) symbols, (III) institutions, and (IV) regional identity. The fourth stage permeates all three previous stages (Paasi, 1986a, 1986b, 1991); thus, regional identity emerges because of boundaries, symbols, and institutions. These are also three key features of every region, consisting of various characteristics of the region, its inhabitants, and so on (Marek, 2020b).

Although Paasi's theory focuses mainly on the emergence of regions, the subsequent development of a region (or an identity of region: see below) is also designed: “region [...], once established, is continually reproduced and gradually transformed in individual and institutional practices” (Paasi, 1986a, p. 110), “that is in the spheres of economics, politics, legislation, administration, culture, etc.” (Paasi, 1991, p. 244). Paasi (1986a, 1991, 2001, 2010) also mentions that a region may disappear or deinstitutionalise. Raagmaa (2002, pp. 58–60) outlines two main variations in a region's subsequent development: (I) continuous renewal and (II) disappearance. The former contains, among other elements, a process of re-institutionalisation, which can be seen, however, as part of an ongoing institutionalisation process during which new institutions of the region concerned emerge (Marek, 2020a). To Raagmaa (2002), the region can disappear due to (1) a radical transformation of population or (2) an administrative reform. Paasi (2009b, 2011b), Zimmerbauer et al. (2012) and Zimmerbauer and Paasi (2013) distinguish two forms of deinstitutionalisation based on administrative reforms:

- a. amalgamation of several regions, and
- b. splitting of a region.

With respect to the concrete processes extant during a region's existence, based on the previously-quoted researchers and several others (e.g. Chromý, 2003; Chromý et al., 2014; Kasala and Šifta, 2017; Semian, 2015, 2016; Šerý and Šimáček, 2013; Tomaney, 2009), it can be concluded that a region (I) emerges/arises, and is subsequently (II) reproduced, (III) transformed, and (IV) may disappear. The institutionalisation of a region concerns primarily its emergence, reproduction, and transformation, while the deinstitutionalisation of a region involves especially its reproduction, transformation, and disappearance. Therefore, region's reproduction and transformation may be studied from the perspective of both an institutionalising and deinstitutionalising region (Marek, 2020a).

### 2.3 Conceptualising perceptual region

In his influential theoretical framework, Paasi (1986a, 1986b, 2002a, 2003, 2009b, 2011b, 2013) explicitly links old concepts of region and the boundary/border with a new concept of regional identity, while distinguishing several dimensions of this identity: (I) identity of a region and (II) regional identity (or regional consciousness) of people – referring to (1) identification with a region or (2) identification with a regional community. The identity of a region can be divided, according to Paasi (1986a), into (1) “objective” classifications and (2) subjective images of a region. This author’s subsequent works (Paasi, 2001, 2002a, 2003, 2009b, 2011b), however, lack this distinction by omitting the subjective dimension. Hence, in these texts “the identity of a region refers to those features of nature, culture and inhabitants that distinguish [...] a region from others” and that are used in various regional classifications (Paasi, 2002a, p. 140; 2003). When treating regions as social constructs, which exist as both (collective) objective reality and (personal/individual) subjective reality (Berger and Luckmann, 1971), this neglect is problematic. Moreover, Paasi (2002a, p. 139) himself perceives it a problem, in that “the link between the personal and collective dimensions of identity remains unclear” – and something similar can be said about region as well.

In addition, in Paasi’s later works, there is an inconsistency regarding other previously-defined dimensions of regional identity and even their designations<sup>1</sup>. All of these aspects make it difficult to develop knowledge of the key concepts, such as region and regional identity (Marek, 2020b). Thus, it is hardly surprising that, even after many years of dealing with this topic, Paasi says: “While regional identity has been for a long time an important category in geographical research, its meanings are still vague” (Paasi, 2002a, p. 138). It “has remained thinly theorised – a sort of enigma” (Paasi, 2011b, p. 12).

In his critical discussion of Paasi’s conceptualisation of regional identity, Marek (2020b) focuses on the identity of a region, which – unlike the regional consciousness of people – is much less considered by various authors, including Paasi. After all, it is the identity of a region which can be seen as a primary dimension of regional identity, whilst “the regional consciousness of people is a mere ‘superstructure’ of region, for people must first know about region in order to identify with it” (Marek, 2020b, p. 67). Marek (2020b) also points out that the terms ‘consciousness’ and ‘regional consciousness’ must not be confused. The former means knowledge referring to the identity of region and implies the existence of region as a social fact (see above). The latter points to the regional identity of people associated with an identification or the sense of relationship (feeling) with a region or regional community. Even Paasi (2009b, p. 139) suggests that identification should refer to a feeling rather than to knowledge.

The identity of a region is thus a prerequisite for the emergence of the regional identity of people. As well, this is apparent from Keating’s three elements for an analysis of the relationship between regional identity and political action: the first element is ‘cognitive’ (“people must be aware of [...] a region”); the second is ‘affective’ (“how people feel about the region”); and the third is ‘instrumental’ (“whether

the region is used as a basis for mobilisation and collective action”) (Keating, 1998, p. 86). Similarly, according to Zimmerbauer (2011, p. 245):

“A sense of identification with a region is fundamentally based on consciousness of the existence of that regional entity [...], and it becomes evident in inhabitants’ awareness, feelings and actions and can eventually even lead to regional activism.”

Regional activism may be comprehended as regionalism, as for example in Soja (2009, p. 260), who defines regionalism as “the active promotion of regional perspectives” or “an actively practiced belief that regions are useful concepts for achieving a wide range of objectives”. In this respect, regional activists (regionalists) are, among others, politicians as well as voters in regionalist parties. Hence, we have the following argument: (I) the identity of a region based on knowledge/consciousness closely related to perception precedes (II) the regional consciousness of people, and the regional identity of people is a condition for (III) regional activism or regionalism (Marek, 2020b). In short, ‘to know about the region’ may be followed by ‘to feel with the region’ and this can manifest itself in ‘to do something regarding the region’. It should, however, be mentioned that besides ‘activists’ there is also another type of regional actor – these are the ‘advocates’ (Paasi, 2010; Paasi and Zimmerbauer, 2011). Advocates, such as planners, are often crucial in disseminating the identities of regions and in fostering the regional consciousness of people (thus they definitely “do something regarding the region”) but regional identity for them, personally, may in fact be unimportant (Paasi, 2013). Likely, then, they may have different motives for their agency.

As for the neglected subjective images of region, one of the few things Paasi (1986a, p. 123) mentions about them is that “[b]ehavioral geographers have been studying the images of regions for a long time”. He also states that “behavioural geographers began to study perceptual regions” (Paasi, 2011a, p. 169). This, among other things, suggests the possibility to identify subjective images of a region with perceptual regions (Marek, 2020b). According to Šerý and Šimáček (2012, p. 39), for instance, the “subjective images are the results of processes of perception”, and Siwek (2011, p. 70) describes perception as a “process during which the image of reality arises in human consciousness”.

In accordance with several authors (Dokoupil, 2004; Fellmann et al., 2003; Fouberg and Moseley, 2015; Hobbs, 2016; Klapka and Tonev, 2008; Kuby et al., 2013; Lynch, 1960; Paasi, 1986a; Relph, 1976; Roth, 2007; Siwek, 2011; Šerý and Šimáček, 2012, 2013; Tuan, 1991), it is fruitful to distinguish three dimensions of the identity of a region, that is, three regional types<sup>2</sup>:

1. ‘objective types’: (a) ‘a homogeneous/formal region’ delimited by consensus in agreeing to a particular criterion or criteria, and (b) ‘a functional region’ delimited on the basis of relations typically between a core and its surroundings; and
2. the ‘subjective’ image of region, in other words, ‘a perceptual region’ whose delimitation is based on the subjective perception of an individual person (Marek, 2020a, 2020b).

<sup>1</sup> Often is unclear whether it is, for example, the identity of the region, the regional consciousness of people, or both, which are being discussed.

<sup>2</sup> Indeed, it seems that the identity of region represents the region itself (Marek, 2020).

But, of course, not only delimitation/boundaries set the identity of a region apart, but also regions consist of symbols and institutions.

It needs to be stressed that the perceptual region is the most important dimension/type. “We now recognise that all humans relate not to some real physical or social environment but rather to their perception of that environment” (Norton, 2004, p. 63). As mentioned above, knowledge/consciousness about a region typically based on perception is a condition for the existence of region as a social fact/construct. Region does not exist without persistence in a person’s mind (people’s minds) in the form of perceptual region(s). That means every region is at least a perceptual region lingering in at least one person’s knowledge or consciousness. The same cannot be said for formal nor for functional regions, because not every region can also be seen as formal (e.g. urban areas are typically not homogenous in any respect) or as functional (e.g. geomorphological regions mostly lack relations between their parts) (Marek, 2020b).

Furthermore, as perceptual regions reflect “images rather than objective data”, they “may be more meaningful in individuals’ daily lives than the more objective regions of geographers” (Getis et al., 2014, p. 14). It is the subjective dimension of (the identity of) region which is the basis for the regional consciousness of people (Marek, 2020b; Paasi, 1986a), and for regional activism / regionalism as well. For example, as Siwek (2011, p. 49 and p. 88) puts it:

“Subjective perception is an important factor which determines how a certain person behaves in a particular situation in space. [...] Each person decides according to his/her subjective knowledge and the images he/she holds in his/her head – that is, on the basis of his/her mental map and not on the basis of objective reality.”

Formal, functional and perceptual regions are included in the American national geography standards (Heffron and Downs, 2012), which is probably why they all are described in many English-language textbooks (e.g. de Blij and Murphy, 1999; Fellmann et al., 2003; Fouberg and Moseley, 2015; Fouberg et al., 2012; Getis et al., 2014; Hobbs, 2016; Kuby et al., 2013; Rubenstein, 2014), whose authors agree that perceptual regions persist in people’s minds. Some authors (e.g. Fouberg et al., 2012; Getis et al., 2014), however, see the perceptual region rather as a collective than an individual/personal/subjective entity. Even Jordan, the author of the perceptual region definition, which has been used in some form by others<sup>3</sup> (e.g. Getis et al., 2014; Shortridge, 1980; Zelinsky, 1980), sees them as “composites of mental maps of the population” (Jordan, 1978, p. 293). If we assume that the region is both an objective and subjective reality, it is beneficial to treat perceptual regions as subjective. Only a combination of several perceptual regions creates an “objective” formal region (based on a consensus in perception). But because the term “objective” has several meanings (e.g. Searle, 1995; Williams, 2015), it would be misleading to see all “objective” (formal and functional) regions as collective objective realities – hence the quotation marks (Marek, 2020a; 2020b).

As they are based on perception, an important research interest in geography since the 1960s (Gould and White, 1986; Lynch, 1960; Relph, 1976; Tuan, 1975a), perceptual regions can be linked with the concept of the mental map. Perceptual

region can then be seen as part of a mental map just like a “real region” is part of a “real map” (Marek, 2020a). According to Rubenstein (2014, p. 17): “A useful way to identify a perceptual region is to get someone to draw a mental map.” It must, however, be a mental map in Lynch’s (1960) sense, which demonstrates the identity of region and is comparative. Thus, for example, a deviation in one’s perception (subjective reality) from the historical boundary (objective reality) of a particular region can be revealed (Marek, 2020a; Siwek, 2011; Siwek and Bogdová, 2007; Siwek and Kaňok, 2000b).

It is interesting to think again about the previously-made distinction for the identity of a region into three types of region (formal, functional, perceptual), where each region type consists of three features (bounded territory, symbols, institutions) and, after its emergence, undergoes subsequent development (reproduction, transformation, eventual disappearance). As the development of the concepts of a region, but also of regional identity and regionalism, is required, these analytical distinctions are very fruitful because they enable detailed investigation of some of the “basic components” in their combinations.

#### 2.4 Transformation of (the identity of) region

As the recognised institutionalisation of regions theory enables a straightforward connection with empirical data (Paasi, 1986b), there is extensive use of this theory in the research of various regions, as shown in many case studies (e.g. Chromý, 2003; Frisvoll and Rye, 2009; Hammarlund, 2004; Jones and MacLeod, 2004; Kašková and Chromý, 2014; MacLeod and Jones, 2001; Paasi, 2002a, 2013; Semian, 2015; Sepp and Veemaa, 2010; Šifta and Chromý, 2017; Zimmerbauer, 2011; Zimmerbauer et al., 2017). As indicated above, Paasi’s theory deals especially with the emergence of regions; therefore, naturally, many subsequent researchers study this process in particular. On the other hand, as “region” has been seen as a dynamic process since the 1980s, it is fairly surprising that analyses of a region’s subsequent development are still rare. Moreover, Paasi’s theory can be used for the study of such subsequent developments (Marek, 2020a). Hence, this paper aims to fill in this gap by focusing on the transformation of (the identity of) a region and, specifically, its territorial shape (boundaries).

Such a transformation is tightly bound with the reproduction of the identity of a region where institutions, in particular and in the broadest sense, play a crucial role (Paasi, 1986a, 1991, 2001, 2002a, 2009b, 2011b). Institutions constantly remind people of a given region, so they can perceive it. This ensures a region’s existence into the future. Depending on the nature of particular institutions, however, a region’s transformation can occur. The processes of the region’s transformation and reproduction are two sides of the same coin, but for analytical purposes, they can be dealt with in separate ways (Marek, 2020a).

Among those studies focusing on the transformation of region(s), we note the following features:

1. some concentrate on the transformation of administrative regional systems (e.g. Paasi and Zimmerbauer, 2011), rather than on the transformation of subjective images of particular region(s);

<sup>3</sup> Some of them (e.g. Zelinsky, 1980), however, write about “vernacular regions” and use other delimitation methods beyond asking people’s perceptions.

2. some deal also with the transformation of the regional consciousness of people (Melnychuk and Gnatiuk, 2018), which obscures an understanding of the transformation of (the identity of) region<sup>4</sup>;
3. some are concerned more with institutions and symbols than with territories/boundaries (see Zimmerbauer et al., 2017); and
4. some do not demonstrate the discussed territorial change or boundary transformations through empirical data grounded in the perceptions of ordinary people (Ambinakudige, 2009; Gnatiuk and Melnychuk, 2019; Paasi, 2001; Reed et al., 1990; Vukosav and Fuerst-Bjeliš, 2016).

On the other hand, there are many empirical works which, for the most part, touch on this issue: e.g. Brownell, 1960; Didelon-Loiseau et al., 2018; Good, 1981; Hale, 1984; Holmén, 2017; Homanyuk, 2019; Jordan, 1978; Lamme and Oldakowski, 2007; Lowry, 2013; Lowry et al., 2008; Shorridge, 1980, 1985, 1987; Siwek and Bogdová, 2007; Siwek and Kaňok 2000a, 2000b; Ulack and Raitz, 1981, 1982; Zdorkowski and Carney, 1985. The purpose of such studies, however, is mostly to delimit regions existing in people's minds – thus, the theory of regions is of little relevance to them. Others do care about the theory, but their contribution to the discussion of a region's transformation is rather limited (Heath, 1993; Semian, 2012a, 2012b; Šerý and Šimáček, 2012, 2013; Vaishar and Zapletalová, 2016, Vukosav, 2011).

To better understand not only the concept of a region (but also the concepts of the regional identity of people, and of regionalism), delimitation must be a means, not a goal. Subsequently, the transformation (and other processes in a region's subsequent development) must be handled explicitly and in great depth. The extreme usefulness of the perceptual region presented above can be seen here – as it is both an essential part of the identity of a region and a part of every person's mental map, it efficiently fuses the theory (of Paasi, especially) and the methodology (of behavioural geography) (Marek, 2020a).

The above-quoted empirical studies indicate that delimitation based on perception is widespread particularly for regions without administrative or *de jure* status, such as Asia or the US Middle West. Regions with a “lost” official (administrative / *de jure*) status (e.g. Moravia, Podolia [UKR]) are also appropriate in this respect. Although the perception-based delimitation can be applied to all regions (Marek, 2020a), such delimitations of administrative regions or states are almost always not conducted because these regions are typically perceived on the basis of their official boundaries. Perception of today's Poland, for example, is usually bound to contemporary official boundaries, but a century ago this region was undoubtedly perceived as partly “elsewhere”. This “simple” transformation would not have occurred without Poland's official status, as indicated by regions with a lost administrative/*de jure* status whose current perception-based delimitations are rather problematic. Nevertheless, focusing on regions without official status can help to reveal how and why people construct their perceptual regions, and how and why these subjective images develop over time.

The Czech Lands are very suitable regions for studying the transformation of (the identity of) regions. Moreover, some authors have already partly researched this theme. The perception of Silesia, Moravia, their boundary, and *de facto* also their transformation is described by Siwek and Kaňok (2000a, 2000b) and Šerý and Šimáček (2012, 2013). The first researchers to deal in part with the perception of the Bohemian-Moravian historical land boundary were Toušek et al. (1991), who mapped the inhabitants' opinions of which land they would like to live in, given the land restoration. In addition, Vaishar and Zapletalová (2016) outlined the role of administrative reforms on the perception of this boundary, but they also dealt with many other factors such that attention to the regions' transformation is overshadowed. The perception of the boundary between Bohemia and Moravia was examined using mental maps for the first time by Chalupa (2015), focusing on knowledge of the boundary's historical location, and by Marek (2015), who was more interested in present-day perceptions. The latter work constitutes the initial research phase of this article.

### 3. Case study regions

The development of the administrative regional system in what is the present-day Czech Republic has been described by many authors (e.g. Burda, 2014; Daněk, 1993; Hledíková et al., 2005; Jordan, 2001; Munzar and Drápela, 1999; Semian, 2015; Siwek and Kaňok, 2000a, 2000b; Yoder, 2003). These accounts include Bohemia, Moravia and Silesia, whose emergence dates back to the first millennium AD. In the 9<sup>th</sup> century, Moravia became a core of the Great Moravian Empire, the first predominantly West Slavic state, which ruled also several neighbouring areas, including Bohemia. After its fall early in the 10<sup>th</sup> century, however, the political centre moved to the Duchy of Bohemia. Since then, except for several interruptions, Bohemia (as the Kingdom of Bohemia since 1198) and Moravia (as the Margraviate of Moravia since 1182), and later also Silesia or at least its part, have formed the Czech state, with a dominant role for Bohemia. In spite of being part of the same state, the Czech Lands retained, due to various activists (e.g. some noblemen) and advocates (e.g. the Holy Roman Emperors), a relatively high level of autonomy – including their own legislatures – until the emergence of the Czechoslovak Republic in 1918. As a result, a strong identity and exclusiveness of these historical lands, as well as a strong rootedness of their boundaries (which had almost not changed for centuries), formed in people's consciousness.

For this research paper, administrative reforms of the last century are the most important – for the evolution of Czech regions, see Figure 1. Ten years after Czechoslovakia was created, the Czechoslovak/Czech part of Silesia<sup>5</sup> was amalgamated with Moravia in 1928. Moravia and (Czechoslovak/Czech) Silesia did not disappear, however. According to Paasi (1986a; 2002b; 2009a; 2009b), regions can exist on various spatial scales, and more importantly, a single region is not inevitably bound to one specific scale. Thus, because of a toponym, the newly-formed Moravia-Silesia continued to reproduce both historical lands for they were deinstitutionalised and (re)institutionalised at the same time. Moreover, many municipal names, among other things, continued to reproduce Moravia and Silesia.

<sup>4</sup> Texts emphasising the transformation of the regional consciousness of people do exist as well (e.g. Terlouw, 2017), but many authors do not distinguish between these two dimensions of regional identity.

<sup>5</sup> The major part of Silesia is now located in Poland.

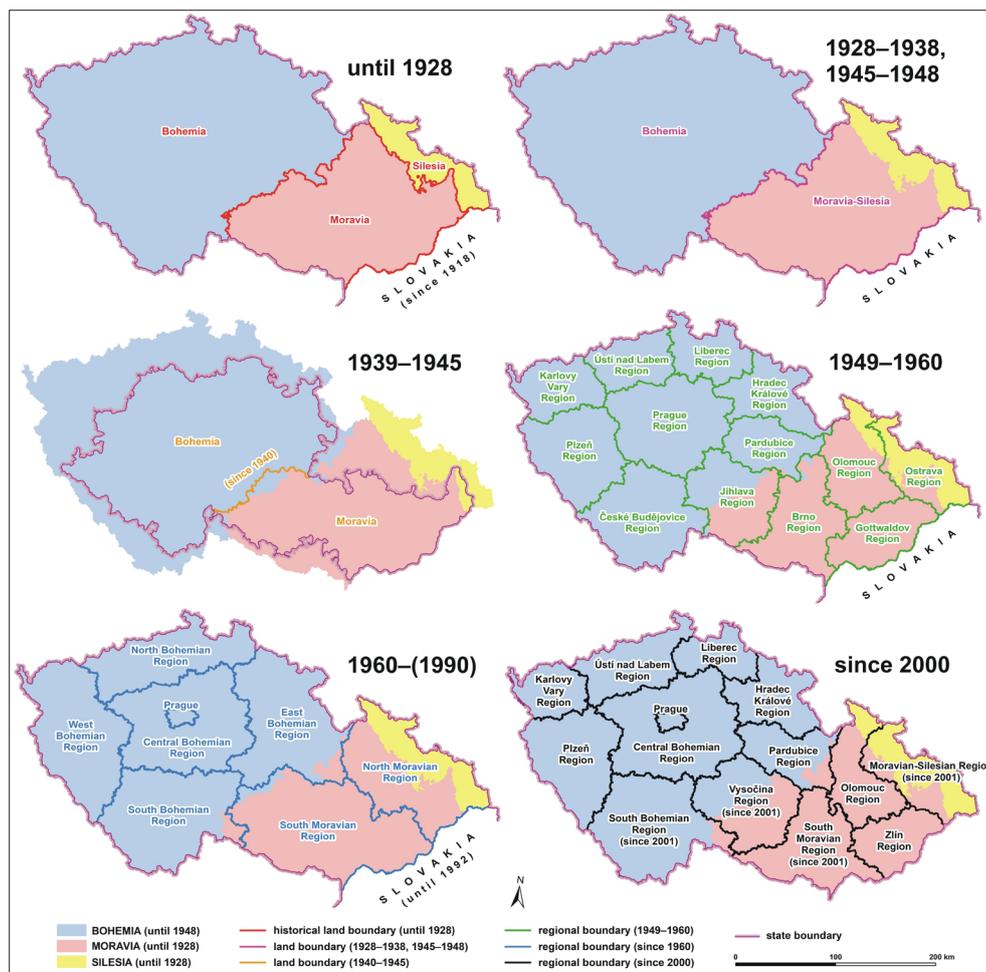


Fig. 1: Development of the highest-level *de jure* administrative regions in the area of the Czech Lands during the last century (except for the war-years 1939–1945, Slovakia and the present-day Czech Republic formed one state – Czechoslovakia, which emerged in 1918 and was split at the end of 1992).

Source: author's reconstruction based on Růžková and Škrabal (2006), Štůla and Semík (1941), and ArcČR® 500 Geographic Database

During the German occupation, the Protectorate of Bohemia and Moravia was established, and an ephemeral change in the Bohemian-Moravian boundary also occurred. After World War II, the two pre-war lands were restored – but they were abolished by the new communist government at the end of 1948. From 1<sup>st</sup> January 1949, the administrative layer of the Czech Lands was split into thirteen newly-formed regions (*kraje* in Czech) named after their capitals – and they did not respect historical land boundaries. This represents a significant deinstitutionalisation of the Czech Lands. Even so, they still persist.

Another administrative reform took place in 1960, during which eight new regions (*kraje*) were formed replacing the previous ones. These regions also did not respect the historical land boundaries, but seven of them referred to Bohemia or Moravia in their names, meaning a (re)institutionalisation of Bohemia and Moravia as the new regions began to reproduce previously (and partly) deinstitutionalised historical lands.

A year after the 1989 “Velvet Revolution”, regional committees were abolished, but this was not the case for the regions in their entirety, as they persisted in some agendas (e.g. the judiciary) to this day. Their boundaries are also adhered to by districts created during the same 1960 reform and replacing previous districts. During a subsequent debate about future administrative division, the restoration of

the Czech Lands as administrative units seemed logical. Political parties – mainly in Moravia – seeking restoration, initially succeeded in the elections but the dissolution of Czechoslovakia raised concerns about a further possible disintegration of the state. This led to a rejection of the restoration of large historical lands. Instead, fourteen much smaller regions (*kraje* still) emerged in 2000. Because of the renaming some of them in 2001, Bohemia, Moravia, and this time also Silesia, became (re)institutionalised and reproduced by four regions. The new regional boundaries ignored the historical land boundaries again, however.

In other states of the “Eastern Bloc”, centralised communist regimes also frequently changed administrative divisions in which historical regions were typically ignored and often split (Jordan, 2001; Melnychuk and Gnatiuk, 2018; Roth, 2007; Sepp and Veemaa, 2010; Yoder, 2003). Unlike some of them, in the Czech Republic historical regions (lands) were not restored as administrative units after the collapse of the socialist regime. They have no official status even in the European Union NUTS system.

#### 4. Data and methods

In the author's initial research (Marek, 2015), a significant role of the 1960/2000 administrative regions in the perception and transformation of Bohemia, Moravia,

and their boundary/boundaries was revealed. Therefore, subsequent research into two qualitatively different areas of the Bohemian-Moravian borderland was conducted, to further unravel the nature of these regions' perception and transformation. The location of the three study areas within the Czech Republic is shown in Figure 4.

The name of a region, a toponym, needs emphasis here. It is the most important regional symbol (Paasi, 1986a, 1986b, 1991; Raagmaa, 2002; Semian, 2012a; Simon et al., 2010) necessary for the existence of a region. According to Tuan (1991, p. 688): "Naming is power – the creative power to call something into being"; thus, there is "no region without a name" (Simon et al., 2010, p. 413). Regional names can then be used as a tool to study the territorial shapes of the regions in people's minds (Semian, 2012a, 2012b). In other words, thanks to toponyms, perceptual regions and their boundaries can be investigated.

The transformation will be studied following a comparison of perceptions:

1. "in time", as we can assume that, until the Czech Lands lost their official status, their perceived delimitation roughly coincided with then-official land boundaries; and
2. in three study areas where diverse administrative regions/boundaries emerged after 1948. The former focuses mainly on boundaries, the latter on territories.

In the first study area (hereinafter referred to as SA1) in the northern part of the Bohemian-Moravian borderland, a part of Moravia was inserted into the East Bohemian Region in 1960. The regions from 2000 are named after their capitals here. On the contrary, in the second study area (SA2), around the regional capital of Jihlava, a portion of Bohemia was inserted into the South Moravian Region in 1960. This whole area belongs to the current Vysočina Region<sup>6</sup>, making

the present-day regional boundary far from the historical one. The third study area (SA3) in the southern part of the borderland in question is similar to SA1, as the South Bohemian Region has included a part of Moravia since 1960. There are two differences, however: the course of regional boundaries (1960/2000) in the north of SA3 diverges, and one of the current regions still bears Bohemia in its name.

The necessary data were gathered during three field research activities. The first (initial) research was conducted in thirty-three municipalities of SA1 and took place in the period August – October, 2014. The other two field research projects, which took place in twenty-four municipalities in both SA2 and SA3, were carried out in July 2016 and September 2016, respectively. Altogether, 454 residents aged 15–88 were interviewed face-to-face: 240 in SA1, 107 in SA2, and 107 in SA3. The respondents were chosen by the author searching through all eighty-one municipalities on foot or by bicycle to conduct an interview with at least 1 per cent of permanent inhabitants aged fifteen and older in each researched municipality and, especially, to make a proper quota sampling according to sex, age, and place of residence to fit the requirement of a representative sample. In each study area, all requirements were met using data from the last census (CZSO, 2014, 2016a, 2016b).

Each field research activity used a questionnaire survey whose content is described by Marek (2015). In this article, only responses to one task have been employed – the only one respondents drew/wrote themselves. Each respondent was given a sufficiently large (approximately 16 × 18 cm) study area map with basic elements, particularly all the municipalities, their names, and also the main roads, needed for orientation and was asked to draw the Bohemian-Moravian boundary and to mark each historical land where she/he currently perceives it (see Fig. 2). To correctly

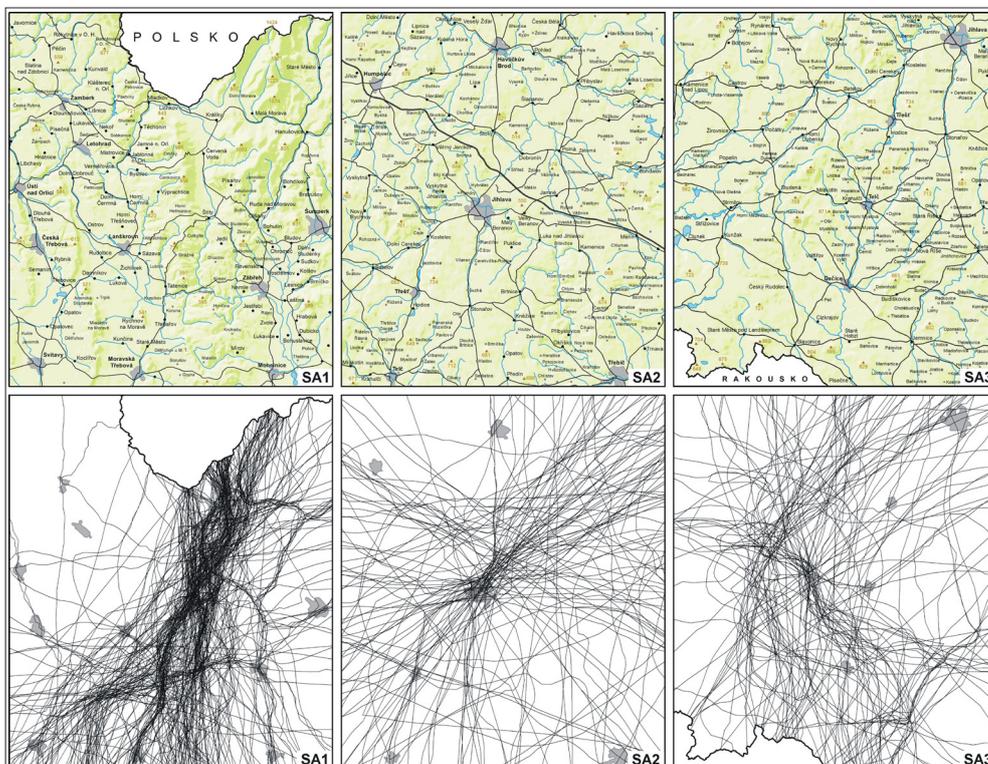


Fig. 2: Maps of the three study areas (top), and all perceptual region boundaries drawn by respondents (240 in SA1, 107 in SA2, and 107 in SA3; bottom). Source: author's field research, 2014–2016

<sup>6</sup> Vysočina means highlands.

interpret the data, various field notes written by the author-interviewer (usually during conversations with respondents) have also been taken into account.

All Lynch-type mental maps were analysed using a method introduced by Šerý and Šimáček (2012, 2013), which also offers the possibility of data presentation. In order to be more illustrative of the regions' transformations, however, it was partly modified. After these authors' stage of counting raster layers, the resulting clusters were simply categorised into ten classes and visualised to indicate the percentage of respondents who perceive a particular area in the respective historical land (see Fig. 4).

## 5. Results and discussion

According to the perceptual regions and their boundaries drawn by the respondents, the administrative reforms of 1960 and 2000 seem to be crucial in the transformation of (the identity of) Bohemia and Moravia. Right after the interview assignment, several interviewees asked, in the words of one of them: "Should I draw a historical boundary or a current one?" It was repeated to them to draw the Bohemian-Moravian boundary where they perceive it now. In all three study areas, though often conscious of the current regions, many people drew it in a similar way to the historical land boundary (1928). As one respondent said: "I still perceive it as it was historically." Others drew the "current" boundary, i.e. the regional boundary from 1960 or 2000. In all study areas, many respondents understood that the historical land boundary had changed with the reform in 1960 – some explicitly mentioned this year – and/or with the later reform in 2000. "Today, I comprehend it by the regions [kraje]", stated one of them. This corresponds to the assertion by Vaishar and Zapletalová (2016, p. 20): "The borderline [of historical regions] is often equated with administrative boundaries."

Nevertheless, it would be misleading to think that respondents perceive the Bohemian-Moravian boundary either in conformity with the historical land boundary or the regional boundaries. There are no such distinct groups of people. Rather interviewees drew their perceptual regions diversely – for example, partly along the 1928 historical land boundary, partly according to the regional boundary (1960 and/or 2000), and partly in keeping with something else (e.g. local specifics). As already stated, people's perceptions are based on their knowledge that, in turn, is highly dependent on distance (from place of residence, specifically), but also on various mediated representations. Perceptions/knowledge can be dependent also on a person's sex/gender, age, educational level, nativity, nationality, and so forth (Chalupa, 2015; Good, 1981; Gould and White, 1986; Lowry, 2013; Lowry et al., 2008; Lynch, 1960; Marek, 2015; Relph, 1976; Shortridge, 1985; Siwek, 2011; Šerý and Šimáček, 2012, 2013; Ulack and Raitz, 1982). Also, the power of institutions reproducing the regions and imprinting themselves into people's perceptual regions vary contextually (Marek, 2020a). Further discussion of these influences on respondents' perceptions, however, is beyond the scope of this paper.

According to some residents of SA1, Moravia in the East Bohemian Region, which is often regarded as East Bohemia, is no longer Moravia, but Bohemia – even the whole current Pardubice Region is perceived as Bohemian by some interviewees, since it is often considered a successor to the East Bohemian Region (which is probably supported by the coincidence of their boundaries)<sup>7</sup>. Thus, for example, even the former district town of Moravská Třebová (*Moravská* meaning Moravian) is now perceived by them to be located in Bohemia: "Moravská Třebová is today Bohemian and previously Moravian". Others would disagree, however. Although they are aware of the East Bohemian Region and/or the Pardubice Region, they still think/perceive that this town is located in Moravia. Moreover, some respondents, living further away and without knowledge of the regions to which this town belongs, drew it through common sense into Moravia: "Moravská Třebová – so it will probably be in Moravia". In this study area, interviewees were "confused" mainly in the south, where the historical land and regional boundaries diverge the most; therefore, subjective images of Bohemia and Moravia vary considerably here (see Fig. 2). On the contrary, in the middle of SA1, the respondents' perceptual regions mostly agree with one another, which can be elucidated through the accordance of the historical land and regional boundaries, although these results are partly influenced by the selection of researched municipalities (see below).

Similarly, in SA3, Moravia in the South Bohemian Region is perceived as Bohemia by some respondents because the South Bohemian Region is often identified with South Bohemia<sup>8</sup>. Thus, for instance, the former district town of Dačice is described by some people as having "used to belong to Moravia, now it is in Bohemia". Also, in this case, some would not agree because for them Dačice still lies in Moravia. Respondents in this study area were confused in the south while being in relative accordance in the middle (Fig. 2) for similar reasons to SA1. The northern part of SA3, where all three monitored boundaries diverge, causes the greatest confusion. Hence, before interviewees finally drew the borderline, though often by just guessing, some were refusing to complete this task for some time. Interestingly, several respondents talked about the Vysočina Region as if it was neither Bohemian nor Moravian. This may be explained by the strong identity of the Vysočina Region since its emergence (Chromý, 2004, 2009), as well as the partial deinstitutionalisation of the South Moravian Region and the South Bohemian Region in the Vysočina Region area, as they de jure "shrank" in 2001 (see Fig. 1). Therefore, the terms "South Moravia" and "South Bohemia" seem to be currently less used for this area, and the identity of the Vysočina Region somehow replaces the identities of the historical lands. Some interviewees also mentioned they perceived the Vysočina Region either as Bohemian or Moravian, instead of Bohemian-Moravian.

On the contrary, but similarly at the same time, in SA2 a part of Bohemia inserted into the South Moravian Region is seen as Moravia by some interviewees, as the South Moravian Region can be considered as South Moravia. Although, as outlined above, the identity of South Moravia

<sup>7</sup> Furthermore, the neighbouring Olomouc Region is typically perceived as Moravian, since Olomouc is one of two historical Moravian capitals (together with Brno).

<sup>8</sup> As seen from some interviews with the SA3 respondents, however, it is more complicated. Some people do not perceive a mutual exclusiveness between South Bohemia and Moravia; they have no problem stating that Dačice, for instance, is located in South Bohemia and in Moravia, at the same time. For them, the South Bohemian identity does not struggle with nor contest the Moravian identity. Thus, seeing South Bohemia as a part of Bohemia, which then eliminates Moravia in the minds of all people, would be too simplistic.

(and South Bohemia) has been weakened here, and according to many residents of SA2, their municipalities lie primarily in the Vysočina Region rather than in Moravia or Bohemia. Previous examples focused on towns beyond the researched municipalities, but of course, the 1960 administrative regions influence the perception of historical lands even inside the researched areas. For instance, a resident of Dobronín, the most populated researched Bohemian municipality in the South Moravian Region, described her village as follows: “Now it is the Vysočina Region but, previously, the South Moravian Region, therefore, Moravia”. Likewise, in other study areas, respondents typically began to draw in a familiar place. In SA2, it was in Jihlava in particular where many people perceived the Bohemian-Moravian boundary thanks to large boundary stones. This rare congruence on the course of the historical land boundary in the middle of the study area (Fig. 2) can also be explained by both the selection of studied municipalities (see below) and the absence of the Vysočina Region boundary in SA2. On the other hand, this absence of the most recent administrative boundary, as well as the existence of the Vysočina Region itself, contributes to the extreme confusion as to where the studied boundary leads. After drawing a point in Jihlava, one interviewee sighed: “I don’t know on which side to draw at all”. Thus, the interviewer had a difficult job in persuading many to finish the task. Of all three study areas, SA2 seems to possess the most eroded consciousness about Bohemia, Moravia, and their boundary.

As for the other administrative reforms, the 1949 regions are not imprinted in the respondents’ perceptual regions. It is probably because their names did not resemble historical lands and, moreover, they only functioned for eleven years. In addition, no one mentioned Moravia-Silesia while drawing the borderline. This land has presumably always been seen as artificial, serving as an administrative unit for only a limited time, unlike Moravia and Silesia, each with more than a millennium of history. On the contrary, ephemeral changes during World War II still influence people’s perceptions of the Bohemian-Moravian boundary in particular localities. Some interviewees were confused by the former affiliation to Moravia (in SA2 and SA3) and even by the Protectorate border (in SA1 and SA3). These influences are far less significant than those of 1960/2000, however.

It is possible to put forward examples of perceptual regions based on the 1928 historical land boundary or the 1960/2000 regional boundaries across the whole of

their documented courses (see Fig. 3), though the number is low – mainly in SA2 and SA3 where the monitored boundaries greatly diverge. It is worthless to count them because many others also drew the borderline according to these boundaries but, as indicated above, only partly. If, for example, an area of five kilometres from a certain boundary is considered, there are some people who fit within the tolerance accidentally, while others who perceive Bohemia and Moravia according to that boundary are just outside of it, since the knowledge of an area decreases with increasing distance (Gould and White, 1986). Or, they were partly confused by another administrative boundary or something else. Furthermore, the selected method has undisputed limitations as mental maps cannot be regarded as universal spatial representations; thus, it is not suitable for everyone (Muliček et al., 2013; Tuan, 1975a). There is a difference in what some people draw and what they think they draw. For instance, some interviewees mistook Králický Sněžník, the northernmost point of the historical land boundary, for a hill nearer to the town of Králíky, which distorts the results (see below). Another problem is that some stated what historical land a certain municipality was located in but drew the borderline through it. Some perceptual regions are also biased by elements indicated in the questionnaire maps (e.g. some respondents drew the boundary along the roads as seen in Fig. 2). Yet, it is obvious that the respondents’ perceptions of Bohemia and Moravia are highly structured by knowledge of the administrative regions/boundaries from 1928/1960/2000, and that the mental maps method is a satisfactory tool to illustrate where the Bohemian-Moravian boundary is perceived to be.

A mean boundary of Bohemia and Moravia – 50 per cent of all interviewees of the respective study area placed Bohemia on one side of this borderline with Moravia on the other – is approaching the 1960 regional boundaries in most places, except for the Králíky area, for instance (see Fig. 4). Towns between the boundaries from 1928 and 1960 are clear evidence of the impact that the 1960 reform had on the transformation of Bohemia and Moravia. All of them (or at least their parts) were drawn by no less than half of the respondents in the historical land opposite to that which would correspond to the 1928 boundary. Regarding this reform, the toponyms (of new administrative regions), in particular, seem to have played a crucial role in the historical lands’ transformation. The (non-)usage of toponyms can also explain the “retreat” of Silesia (towards the Polish border)

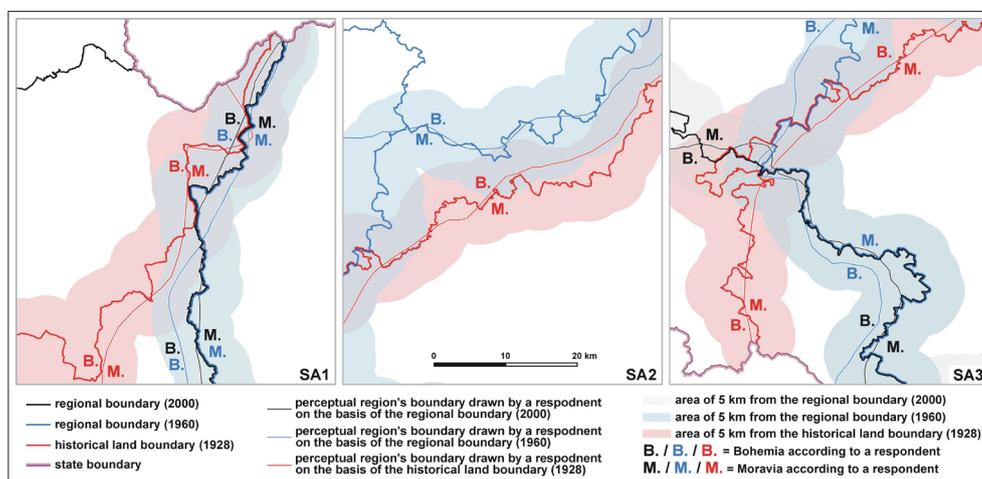


Fig. 3: Examples of respondents’ subjective images of Bohemia and Moravia based on the historical land boundary (1928) or the regional boundaries (1960/2000). Source: author’s field research, 2014–2016

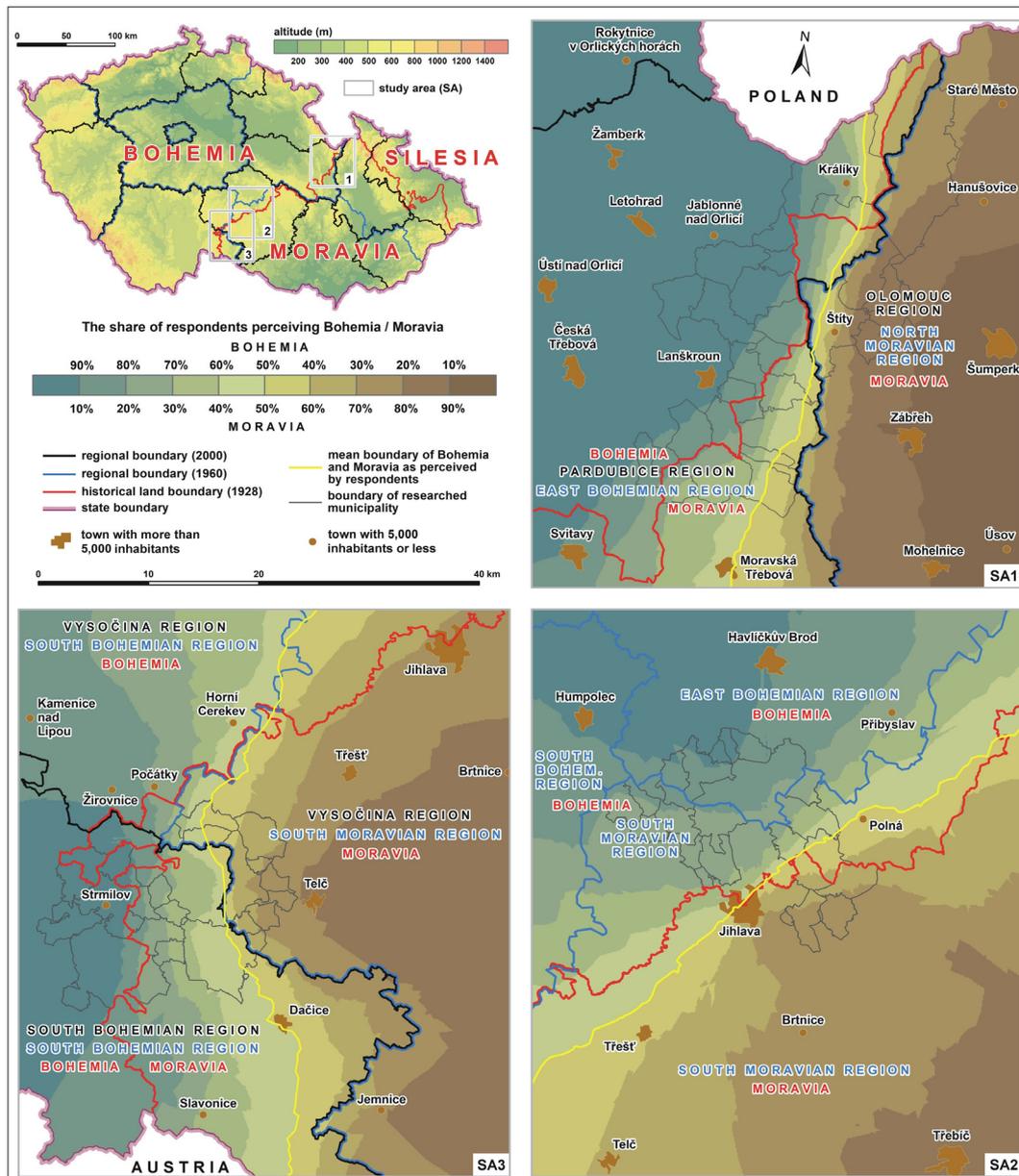


Fig. 4: Collective perception of Bohemia, Moravia, and their boundary by all interviewees of the three respective study areas. Source: author's field research, 2014–2016

in favour of Moravia, as recorded by Siwek and Kaňok (2000a; 2000b) and by Šerý and Šimáček (2012, 2013). For example, Siwek and Kaňok (2000a, p. 197) interpret the weak Silesian identity in the Czech Republic as “a consequence of the long-term marginalisation of the name of Silesia during the communist period” (see Fig. 1). Since 1960, the Czech part of Silesia has often been labelled as North Moravia.

The on-going transformation of Bohemia and Moravia associated with the administrative reforms (of 1960 as well as 2000) is also evident from the mapped “isolines”/“isopercepts”, as some of them strikingly resemble the 1960/2000 regional boundaries (see Fig. 4). The more the respondents' perceptual regions differ (Fig. 2), the more blurred the resulting map is (Fig. 4), and vice versa. Thus, a collective image of Bohemia and Moravia is the sharpest in the middle of SA1, while the most unclear is in the Vysočina Region. The Bohemian-Moravian boundary, whose course was already stabilised in some locations in the Middle Ages (Schulz, 1970), used to be one of the most stable administrative boundaries in East-Central and South-

East Europe over the last millennium (Gurňák, 2003). Presumably no later than 1960, however, it became fuzzy in people's perceptions, though naturally it could have been perceived slightly differently due to knowledge/distance also before that point in time. Contemporarily, the boundary is perceived by respondents in all study areas more or less fuzzily, particularly because of both the 1960/2000 administrative regions/boundaries, which are very actual in people's daily lives, and of the 1928 historical regions/boundaries still lingering in people's consciousness.

The research results thus correspond with two seemingly contradictory arguments. On the one hand, it was suggested that regions with official status in the past (historical regions) “are very durable in the minds of people” (Chromý et al., 2009, p. 18; Melnychuk and Gnatiuk, 2018; Vukosav, 2011; Vukosav and Fuerst-Bjeliš, 2016), and “administrative boundaries or political frontiers, once marked out, have substantial inertia and thus a tendency to persist” (Zimmerbauer et al., 2017, p. 12). On the other hand, the crucial role of administrative reforms – connected mainly with both the names and the

boundaries of the new regions – in the transformation of historical regions/boundaries was observed (Gnatiuk and Melnychuk, 2019; Melnychuk and Gnatiuk, 2018; Siwek and Kaňok, 2000a, 2000b; Vaishar and Zapletalová, 2016). Although, the transformation of historical regions/boundaries may occur (or actually be facilitated) even if they are not reflected in the later administrative divisions, as was illustrated in the example of Zagora (Vukosav and Fuerst-Bjeliš, 2016) or Tavria/Tauride (Homanyuk, 2019). Even in such cases, however, the role of toponyms (in various informal usages) is crucial.

In addition to these findings, the comparison of the three study areas shows how and why the transformation extent of historical regions/boundaries differs: Where the new regions' names and/or boundaries agree with the names/boundaries of historical regions, a collective perception of historical regions and historical boundaries is the sharpest<sup>9</sup>. On the contrary, where the most radical reforms took place (in terms of toponyms and boundary mismatches), the fuzziest collective perception of the Bohemian-Moravian historical land boundary, as well as the most eroded consciousness about Bohemia and Moravia, was documented. The absence of 90 per cent of Moravia in SA2 and SA3 is an excellent example of this (Fig. 4).

According to Gnatiuk and Melnychuk (2019, pp. 185–186), all Ukrainian modern administrative regions (*oblasti*), which do not respect historical boundaries as well, may be classified either as “anchor regions”, where unification/homogenisation process leads to a dominance of one historical identity in a given administrative region, or as “swing regions”, where several historical identities persist. In this respect, mainly thanks to its name, the South Bohemian Region seems to be an example of the former. In the Pardubice Region, however, the unification/homogenisation process is weaker – not only because of the region's name but also some other toponyms, such as Moravská Třebová, for instance. The Vysočina Region might be comprehended rather as a swing region, although in the minds of some people, it seems to be more a region with a lost historical (land) identity.

Bohemia and Moravia could be delimited not only on the basis of the 50% isoline but also by a consensus of say 60% or 80% of respondents, while creating a residual transitional or boundary zone between them. Nevertheless, the “objective” formal regions created this way are mere scientific constructs. Their objectivity is not ontological but epistemological, which means they contain the subjectivity of their creator(s) (Marek, 2020b; Paasi, 1986a; Searle, 1995). The author is well aware of this, particularly with respect to the chosen study areas and researched municipalities. The results are representative only for residents of these municipalities; they would differ if other municipalities were involved because

the perceptions depend strongly on knowledge/distance. For example, people from SA3 have much lower knowledge of the Jihlava boundary stones; therefore, a mean boundary of Bohemia and Moravia according to them does not lead through this city (instead in the north, it leads, quite accidentally, near the 1960 regional boundary). More importantly, the above-described results revealing the sharpest collective perception in the middle of all study areas, are partly influenced by the location of researched municipalities just in these middle zones. But still, the comparison of the study areas clearly illustrates the crucial role of the 1928/1960/2000 regions/boundaries in people's perceptions: in SA1, where all three monitored boundaries converge on the longest section, 90 per cent Bohemia and 90 per cent Moravia are the closest; while in SA2, where only two monitored boundaries approach, 90 per cent Bohemia and 80 per cent Moravia are the most distant from each other.

With an increase in distance from the studied municipalities, the collective image of Bohemia and Moravia is increasingly blurry. Yet, in SA1, the Olomouc Region, for example, is relatively clearly perceived as Moravian, while in SA2 and SA3 the Vysočina Region disturbs the perception of historical lands to the greatest degree. In addition to this, the content of the questionnaire maps, as well as their extent, were suggestive. Five interviewees in SA2 (and one each in SA1 and SA3) initially did not want to draw the borderline, as they did not perceive Moravia to be in the respective study area<sup>10</sup>. Geographers may indeed delimit “objective” regions, but these may be very distant from ordinary people's perceptions (Tuan, 1975b), even though such criteria are used in drawing these “objective” regions.

Although “objective” regions (collective perceptions) allowed us to assess the regions' transformation, it seems preferable to focus on individual subjective images of regions, for, as stated above, perceptual regions are a basis for regionalism. Some respondents felt “injustice” because of the perceived Bohemian-Moravian boundary change in 1960. “They stole us from Moravia”, as one said. Another commented that “Dačice residents are still angry that they are now in Bohemia”. According to Chromý (2004, p. 68): “Moravism [...] ‘survives’ in the local conditions of the Brno centre and in the areas ‘annexed by Bohemians/Czechs’<sup>11</sup> (e.g. in the Dačice area)”. This clearly illustrates that some people possess a resistance identity which may manifest in regionalism (Castells, 2010; Zimmerbauer and Paasi, 2013; Zimmerbauer et al., 2012). One of the most recent examples of such a resistance identity is the formation of the Moravian Land Movement (a political party) in 2018, symbolically based in Dačice, fighting against the above-outlined unification/homogenisation process and striving to restore the Czech Lands<sup>12</sup> (MZH, 2020).

<sup>9</sup> Additionally, if the two different historical regions are divided by a state border (for example, Bohemia and neighbouring German Saxony), their perceived delimitation may really be very sharp. Hence, one of the arguments of Vaishar and Zapletalová (2016, p. 20) that “the centres of historical regions are clear, while the borderline is fuzzy”, may not always be completely true. The context matters.

<sup>10</sup> For many respondents, the “real Moravia” is South Moravia, with its wine and hearty people (Marek, 2015), and therefore far from their homes. On the contrary, nobody refused to draw Bohemia, presumably because the term often serves as a synonym for the whole Czech Republic (Jeleček and Rubín, 1998). This, in fact, contributes to the fuzziness of the Bohemian-Moravian boundary as well. It then resembles the above-mentioned “retreat” of Silesia due to the usage of the term North Moravia, accompanied by the blurred perceptions of the Moravian-Silesian boundary (Siwek and Kaňok, 2000a; 2000b; Šerý and Šimáček, 2012; 2013).

<sup>11</sup> In Czech, there is only one expression (*Češi*) to describe the inhabitants of both Bohemia and the Czech Republic.

<sup>12</sup> The unification/homogenisation process in the South Bohemian Region is led by various activists (for example, there is a political party called *Jihočeši*, meaning South Bohemians) and advocates (for instance, the whole South Bohemian Region is officially propagated in tourism as South Bohemia). In its first elections (the 2018 elections to local/municipal councils), the Moravian Land Movement was supported by 15.7 per cent of Dačice voters, making it the third most successful party in this town (CZSO, 2018).

The most “problematic” in this respect are certain “schizophrenic regions” (Chromý, 2003; Marek, 2015) – areas between the 1928 historical land boundary and the 1960 regional boundary – where, due to toponyms, the identity of both Bohemia and Moravia is essentially reproduced and perceived to the present-day. Even then, the resistance identity and associated regionalism seem to concern only people from the historical land of Moravia, not Bohemia. It should also be noted that for the majority of our respondents it is not important whether they live in Bohemia or Moravia (which is basically understandable in the borderland), and thus these people often identify rather/more with other regions (e.g. municipalities or the state). For others, however, it is a significant topic. Therefore, regional consciousness of these people regarding the Czech Lands is more or less present. But only several of them – mainly in the Moravian municipalities of the Dačice area – mentioned they would support the restoration of the historical lands (the motive often seems to be both their resistance identity and regional consciousness). In general, land restoration is a marginal problem in the contemporary Czech Republic (cf. Siwek and Kaňok, 2000a). Hence, the politicians and other regionalists wishing to renew the “faded glory” of the historical lands face a huge challenge.

## 6. Conclusions

The perceptual region conceptualised in this paper as the subjective image of region is both an essential part of the identity of region and a part of every person’s mental map. This concept is employed to examine the understudied transformation of (the identity of) region and specifically its territorial shape (boundaries). In agreement with previous research, it can be concluded that the durability/persistence of historical regions and boundaries in people’s minds is strong. People are more or less influenced, however, by the new/older administrative regions and boundaries which emerged due to the split of old (historical) region(s). Historical boundaries are then often identified with the new regional boundaries, notwithstanding that their courses may diverge. This results in the transformation of historical regions/boundaries. But, as several “time layers” may persist and thus imprint themselves into people’s perceptual regions, the extent of the transformation may differ. For example, where the historical regions’ and the new regions’ names and boundaries agree the most, we find that the sharpest collective perception of historical regions/boundaries occurs. Conversely, the more radical the administrative changes (in terms of toponyms and boundary mismatches), the fuzzier the collective perception of historical boundaries, as well as the more eroded the consciousness about historical regions.

New regions, with their names and boundaries (among other less important institutions), may thus cause the transformation of historical regions – but they also reproduce them. In particular, the toponyms are significant. We see this effect when the new region’s name refers to the historical region: together with the deinstitutionalisation of the historical region, its significant re-institutionalisation takes place. This may happen regardless of the particular spatial scale, since regions are social constructs often institutionalised across scales. Nevertheless, the institutions as such are not enough for the existence of regions – in order for regions to exist as social facts, two conditions must be met: regions have names, and they “linger” (through the imprints of institutions) in people’s consciousness as perceptual regions. Regions are thus ideas about certain geographical areas,

while the toponyms are tools to handle such ideas. These ideas (regions) are dynamic processes that develop as our thinking about the areas in question change. In particular, the administrative reforms have a crucial impact on people’s perceptions of regions/boundaries and, therefore, also on the development of these regions and their boundaries – including their transformation. In particular, official (administrative or de jure) status seems to be an extremely powerful instrument. Before all administrative reforms, it is thus advisable to consider the perceptions of ordinary people, because later changes, potentially perceived by some as unjust, may feed into resistance identity manifesting in regionalism.

Such developments were illustrated in this case study of the Czech Lands and their boundaries, which have undergone several different administrative reforms over the last century – but did not disappear. Although significantly deinstitutionalised by abolishing de jure and splitting at the end of 1948, they were later (re)institutionalised by the new regions (*kraje*) and, presumably, mainly by some of their names. As these *kraje* started to reproduce Bohemia, Moravia, and Silesia, people can perceive the historical lands because of them. Presumably, every administrative reform in the last century created a certain new layer of historical land identity, but the 1960 and 2000 administrative regions/boundaries especially influenced respondents’ perceptual regions of Bohemia and Moravia. As the historical land boundaries are not respected by these new regions/boundaries, however, the above-mentioned transformation occurs, with the Vysočina Region being the region which has witnessed the most eroded consciousness about Bohemia, Moravia, and their boundary. Hence, the *kraje* can probably be considered the most important institutions for both the reproduction and transformation of the Czech Lands. But still, some interviewees “perceive it as it was historically”, though there are no distinct groups of people preferring a particular “time layer”.

From this research project, further work will be published in forthcoming articles, dealing mainly with the transformation of the regional identity of people, which occurs as well, and with the differences in perceptions based on respondents’ sex/gender, age, educational level, nativity, nationality, and place of residence. First of all, however, other institutions reproducing Bohemia and Moravia, besides the *kraje* as such and their names, must be explored to further explain the outlined transformation. Future research needs to focus on the *kraje* and their role not only in the reproduction/transformation of the Czech Lands, but also in Moravian (and eventually Silesian) regionalism. The question also remains as to where the Bohemian-Moravian boundary was perceived right after 1948, that is, whether it had already become fuzzy in 1949.

In addition, research into ordinary people’s perceptions of other (partly) deinstitutionalised – whether split or amalgamated – historical regions, as well as various other regions, is strongly suggested. It is possible to deal with the emergence, reproduction, transformation, and disappearance of both subjective perceptual regions and collective “objective” formal regions based upon the perceptual ones, while the focus may be placed more on their territories (boundaries, but also centres/cores), symbols, or institutions. All such research efforts will help us to understand regions as social constructs, and also the dynamic processes more profoundly. Knowledge of both the regional consciousness of people and regionalism can also be expanded as a result of such empirical research.

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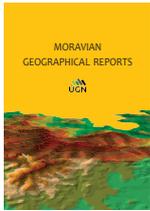
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# “Surely it will come again...”. Flood threat appraisal, mitigation strategies and protection motivation in Czech communities endangered by floods

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## Abstract

A recent “shift” in flood risk management is associated with putting more emphasis on private mitigation and protection measures, and on shared responsibility. Based on case study research in the South Bohemian municipalities (Czech Republic) endangered by floods, this paper reports floods-related attitudes and actions of local inhabitants. A total of 305 respondents participated in a survey; responses and additional commentaries were examined through qualitative content analysis. Results show that though most of the local residents are aware of the constant threat, a minority of them take up any mitigation measures or have some strategy to handle a flood. Several cognitive biases and non-protective responses, the lack of interest and personal responsibility, perceived costs, as well as the prevailing low perceived importance of floods for the local quality of life, hamper improvements in general preparedness. From the viewpoint of Protection Motivation Theory, neither the locals’ threat appraisal nor their coping appraisal is high enough to sufficiently incentivise them to adopt private mitigation strategies and measures. Flood information seems to be at hand for local residents, who are, however, mostly not interested in using it. Perceived obscurities in handling the financial resources contribute to the prevailing unwillingness to participate financially in flood protection. Differences in perceptions and actions are associated with respondents’ individual characteristics (age, gender, level of education, previous experience with floods). Based on our findings, we discuss several relevant policy implications.

**Keywords:** floods, perception, private measures, threat appraisal, funding, experience, responsibility, Protection Motivation Theory, South Bohemia, Czech Republic

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## 1. Introduction

In recent decades there has been a “shift” in flood risk management (Bubeck et al., 2012; Fox-Rogers et al., 2016; Kuhlicke et al., 2020; Raška et al., 2020). It has been recognised that the large-scale technological protection measures (e.g. dams), and technocratic solutions (e.g. safety standards) are financially unsustainable (Bird et al., 2013; Cashman, 2011; Raška, 2015), and that they cannot completely eliminate a flood threat (Birkholz et al., 2014; Cashman, 2011; Ho et al., 2008; Fox-Rogers et al., 2016;

Soane et al., 2010). In actuality and in association with factors such as the illusion of security provided by them (McPherson and Saarinen, 1977), as well as the ongoing socio-economic development in the flood-plains (Bubeck et al., 2012, 2013; Henstra et al., 2018; Osti and Nakasu, 2016; Siegrist and Gutscher, 2008; Soane et al., 2010), and the effects of global climate change (Blöschl et al., 2019; Duží et al., 2017; Fox-Rogers et al., 2016), these technocratic “solutions” can even worsen the course and consequences of floods.

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As a result, there are calls for “more holistic”, “integrated”, or “softer” approaches (Bamberg et al., 2017; Birkholz et al., 2014; Bubeck et al., 2012; Fox-Rogers et al., 2016; Haidu and Nicoară, 2011). Putting more emphasis on risk communication, awareness raising, information campaigns, participatory planning, non-technological and private protection and mitigation measures, risk transfer instruments and shared responsibility, these newer approaches are expected to progressively complement the older ones (Bubeck et al., 2012; Fox-Rogers et al., 2016; Henstra et al., 2018; Hudson, 2020; Slavíková, 2018; Vávra et al., 2017).

Yet, the “shift” still seems to be rather more desired by flood risk management authorities, experts, or researchers; in fact, those who should be foremostly concerned with the related changes, do not appear to be interested in getting involved. More specifically, the flood plains’ inhabitants and local property owners, though they are expected so to do, prevaillingly remain reluctant towards feeling responsible for, and taking their share in, flood-related planning, decision making, funding, and a take-up of protective and mitigation measures (Bird et al., 2013; Henstra et al., 2018; Terpstra and Gutteling, 2008; Vari et al., 2003); rather, they still prefer to rely on state or governmental support (Box et al., 2013; Brilly and Polic, 2005; Dzialek et al., 2013; Fox-Rogers et al., 2016; Klemešová and Andráško, 2015; Raška et al., 2020; Vari et al., 2003), and they refer the responsibility to “someone else” (Box et al., 2016, p. 1552). These issues are subject to examination in this paper.

## 2. Theoretical background and the recent state of knowledge

### 2.1 Private mitigation measures and strategies

As demonstrated, private protection and mitigation measures applied by people living in flood-prone areas can significantly reduce the risks, damages and losses associated with flooding (Grothmann and Reusswig, 2006; Kuhlicke et al., 2020; Lave and Lave, 1991). A variety of less or more demanding measures and strategies are at hand for individuals, as well as communities: some concern the arrangements of buildings and their equipment, others include the outer preventive and protection measures, or the activities related to proper reaction and coordination of activities (Bird et al., 2013; Brilly and Polic, 2005; Bubeck et al., 2013; Duží et al., 2017; Hudson, 2020; Kellens et al., 2013; Kuhlicke et al., 2020; Montgomery and Kunreuther, 2018). Yet, the lack of uptake of any of such measures is regularly observed (Box et al., 2013, 2016; Bird et al., 2013; Fox-Rogers et al., 2016; Osti and Nakasu, 2016; Soane et al., 2010). To address this societal “passivity”, and, through convenient political action to turn it into activities contributing to risk and damage reduction, a gamut of factors affecting people’s decision making and behaviour are currently studied. These include, though not exclusively, the perception and awareness of flood risk, information availability and sufficiency, the financial incentives and impediments, or the influences of personal experience and socio-demographic characteristics.

### 2.2 Threat appraisal and information availability

Perceptions of risk and awareness of the threat relate to the ways people subjectively assess the (potential) danger, and to the extent to which they possess and utilise the information about it. Thus, awareness includes the perception of a disaster’s probability and of its expected

consequences (Botzen et al., 2009; Bubeck et al., 2012; Frantál and Malý, 2017): these two components are currently combined within the concept of threat appraisal (Fox-Rogers et al., 2016). Since it has been found that awareness of the threat is an essential component of the flood preparedness (Armas et al., 2015; Box et al., 2016; Fox-Rogers et al., 2016; Grothmann and Reusswig, 2006; Kuhlicke et al., 2020; Osti and Nakasu, 2016), the availability and accuracy of relevant information are stressed in regard to the risk perception (see, e.g. Stuykens et al., 2016). Yet, it has also been recognised that information availability and awareness of the threat do not have necessarily lead to desired personal/societal action (Klemešová and Andráško, 2015; Lave and Lave, 1991; Soane et al., 2010; Wachinger et al., 2013). Various communications issues (Cashman, 2011; Osti and Nakasu, 2016) and cognitive biases (Armas et al., 2015; Botzen et al., 2009; Burningham et al., 2008), can hamper information acquisition and utilisation by individuals, and the uptake of private protection and mitigation measures (Bubeck et al., 2012; Dzialek et al., 2013).

### 2.3 Funding of protection, financial incentives and impediments

Another factor to be considered is the financial context of private mitigation activities, usually including instruments such as ex-post compensation/relief mechanisms, ad hoc subsidies, and insurance. These instruments, provided by the public (governments) and private, market-based (insurance companies) subjects (or, eventually, by their public-private partnerships [PPPs]), are intermingled and applied in various ways and intensities in particular countries (see Hudson, 2020; Hudson et al., 2020a; Raschky et al., 2013; Slavikova, 2018; Surminski, 2018; Stuykens et al., 2016).

Insurance is a prime risk transfer and recovery aid instrument: it tends to be voluntary, it is usually provided by the private market (or, eventually, by PPPs), and it is assumed that, through a price signal, it incentivises additional risk reduction by households (Hudson et al., 2019; Hudson, 2020; Hudson et al., 2020a; Kuhlicke et al., 2020; Montgomery and Kunreuther, 2018). Yet, the costs of taking out insurance, or of the private mitigation measures’ adoption, may be an issue (Duží et al., 2017; Montgomery and Kunreuther, 2018; Siegrist and Gutscher, 2008; Soane et al., 2010), especially for less wealthy people (Bera and Daněk, 2018; Kuhlicke et al., 2020). Associated also with social (in)justice concerns (Hudson, 2020; Surminski, 2018), the issue of costs is recently studied through the concept of affordability (Hudson, 2020; Kuhlicke et al., 2020). Not everyone has the financial resources needed to uptake the mitigation measures, and, similarly, not everyone can afford the insurance, especially if the premiums are high (Hudson, 2020). Moreover, paying for one of the options (insurance/mitigation measures) may, through a false sense of security, or through a lack of residual resources or willingness, rule out the other one (Bera and Daněk, 2018; Duží et al., 2017; Surminski, 2018). Furthermore, there is evidence of people’s negative experiences with the availability of insurance and the practices of insurance companies (Bird et al., 2013; Bubeck et al., 2013; Henstra et al., 2018; Lave and Lave, 1991; Surminski, 2018).

Another factor in the game is called the “charity hazard” (see Raschky et al., 2013) or, in the economics literature, the “crowding-out effect” (Slavikova, 2018, p. 96). In brief, this effect means that the existence of governmental relief programs and funds (funded, for example, by tax money) makes people passive regarding their own mitigation

activities, including the (lowered) insurance demand; thus, in the (macro)economic sense, the public sphere crowds-out the private one, and inflicts a “vicious cycle” (Raschky et al., 2013, p. 181) of insurance’s lower supply at higher prices. The more certain is the governmental relief, the larger is the crowding-out effect (Raschky et al., 2013). The validity and importance of crowding-out, however, has been recently questioned by several studies (see e.g. Slavikova, 2018).

Altogether, the relevant research suggests that to deal with the pertinent issues, and to provide reliable incentives for private flood-mitigation activities, there is a continual need to look for an “optimal mix” of the particular financial instruments (Hudson et al., 2019; Surminski, 2018; Suykens et al., 2016).

#### **2.4 The role of experience and socio-demographic characteristics**

A number of studies suggest that having a previous personal experience with floods has a profound impact upon the ways people perceive the threat or its potential consequences (Burningham et al., 2008; Kellens et al., 2013; Kuhlicke et al., 2020; Siegrist and Gutscher, 2008; Wachinger et al., 2013), or how are they prepared to face it (Bubeck et al., 2013; Kellens et al., 2013). This does not mean, however, that the concrete effects of experience on risk perceptions or mitigation behaviours are unambiguous or straightforward. For example, as Wachinger et al. (2013, p. 1052) put it, rather than by an experience with flood “in itself”, people’s perceptions are shaped by the severity of personal consequences experienced during past events. Moreover, mixed findings relate to the impact of the experiences of a flood on the likelihood of purchasing insurance (cf., Box et al., 2016; Bubeck et al., 2013). In addition, an experience of disaster does not necessarily lead to the higher odds that a household will adopt any private mitigation measures afterwards (Box et al., 2016; Duží et al., 2017; Soane et al., 2010).

In a similar fashion to personal experience, the role of people’s socio-demographic characteristics in affecting their floods-related attitudes and behaviours is widely investigated and discussed (Babcicky and Seebauer, 2017; Box et al., 2016; Cutter et al., 2003; Grothmann and Reusswig, 2006; Kuhlicke et al., 2020). Age is one of such characteristics, with increased attention paid to the social groups considered to be especially vulnerable, such as the elderly (Cutter et al., 2003; Fox-Rogers et al., 2016). Age can be also associated with the ways people perceive risk, or value and utilise different information sources (Babcicky and Seebauer, 2017; Box et al., 2016; Kellens et al., 2011). Moreover, it has been demonstrated that the differences related to other characteristics, such as gender (Armas et al., 2015; Brilly and Polic, 2005; Duží et al., 2017; Kellens et al., 2011) and education (Cutter et al., 2003; Henstra et al., 2018; Lave and Lave, 1991), are reflected in floods-related standpoints and activities as well. Yet, as in the case of experience, the role of socio-demographic characteristics has been recently questioned by studies seeing them as rather ambiguous predictors of floods-relevant standpoints and behaviour (Bubeck et al., 2012, 2013; Grothmann and Reusswig, 2006; Wachinger et al., 2013).

#### **2.5 Theoretical underpinnings**

A range of theories and social-cognitive models is currently applied to examine and explain the links between various components of risk-related attitudes and activities

(see for example: Kuhlicke et al., 2020). In these theories, the Protection Motivation Theory (PMT) has recently gained special attention and widespread application in flood risk research (e.g. Babcicky and Seebauer, 2017; Bamberg et al., 2017; Bubeck et al., 2012, 2013; Fox-Rogers et al., 2016; Grothmann and Reusswig, 2006; Hudson et al., 2020b; Kellens et al., 2013). The PMT model builds upon two main processes influencing motivation to protect oneself against certain risks: the threat appraisal (see Section 2.2, above); and the coping appraisal, which involves the perceived response (i.e. mitigation behaviour or a measure) efficiency, one’s own ability to carry out such response, and related costs (including time, effort etc.) of the response (Bubeck et al., 2012; Grothmann and Reusswig, 2006). The levels of the two appraisals, and their mutual combination, then result into two main kinds of responses, namely the protective (such as adoption of particular mitigation measure) and non-protective responses (see Sections 4.1, 4.2, 4.9). The basic PMT model has been extended recently through the inclusion of additional variables, such as personal characteristics, prior experiences, social environment and social capital features, and other factors (Babcicky and Seebauer, 2017; Fox-Rogers et al., 2016; Hudson et al., 2020b).

Yet, the overall explanatory or predictive power of the PMT, as well as of the other relevant theories and models, is still rather limited (Bamberg et al., 2017; Kuhlicke et al., 2020), and there are still no clear-cut links identified or even established between mitigation behaviours and its potential antecedents (Duží et al., 2017; Soane et al., 2010). The reasons for such a situation might reside in the presence of local (contextual) specifics (Duží et al., 2017; Vávra et al., 2017), and/or in the existence of additional, still unidentified and thus ignored factors (Babcicky and Seebauer, 2017; Kuhlicke et al., 2020).

### **3. The present study**

#### **3.1 Focus of the study**

In the current research project, conducted in flood-prone areas in the region of South Bohemia in the Czech Republic, we examined the floods-related attitudes, motivations, intentions and activities of local inhabitants and private property owners. Several themes and issues were covered by the research, including risk perceptions, protection and mitigation measures, local quality of life, funding, floods-relevant information and knowledge, responsibility-sharing, prior flood experiences, and personal characteristics, as well as the connotations of floods.

Building upon the theoretical background and recent knowledge (Section 2), the present study and the pertinent research questions, are focused upon five interrelated areas of interest:

1. Private mitigation measures and strategies: What kinds of measures and strategies to mitigate the flood threat or future floods’ consequences do local people carry out?
2. Threat appraisal: Are the locals aware of the presence of the threat? How do the locals perceive the influence of floods upon their quality of life?
3. Information availability, sufficiency and usage: Do the local people feel sufficiently informed about the threat? What kinds of information sources do they utilise?
4. Participation in funding of the flood protection: Are the locals willing to participate in financing the floods-related activities?

5. The role of experience and socio-demographic characteristics: How do the peoples' floods-related attitudes and actions differ, taking into account their personal characteristics such as age, gender, level of education, and previous experience with floods?

Several studies and surveys with a focus similar to our research were recently conducted in the Czech Republic (Bera and Daněk, 2018; Duží et al., 2017; Klemešová and Andráško, 2015; Raška et al., 2020; Vávra et al., 2017). These researchers investigated the floods-related issues and perceptions in one (Bera and Daněk, 2018), two (Raška et al., 2020), four (Klemešová and Andráško, 2015), and ten or more (Duží et al., 2017; Vávra et al., 2017) locations, mostly villages/smaller municipalities or peri-urban areas (Raška et al., 2020) regularly affected by floods, and located in various parts of the country. The study of Vávra et al. (2017) partially (spatially) overlaps with our research, yet it was conducted approximately seven years earlier.

In the current study, we build upon the findings of these investigations, and refer to them in the text where appropriate and applicable. Our study expands the empirical knowledge related to flood risk perceptions and several associated issues in the Czech Republic. Moreover, though the concepts of threat appraisal and coping appraisal have been utilised in the current work of Raška et al. (2020), our study is the first, to our knowledge, to explicitly apply Protection Motivation Theory to study flood risk perceptions and protection/mitigation behaviours in the Czech Republic.

### 3.2 Geographical context

For a long period in history, floods have represented the greatest natural hazard in the Czech Republic (Bera and Daněk, 2018; Brázdil et al., 2006). The country has a rich history of applied protection and mitigation measures, ranging from “landscape friendly” solutions, such as fish cultivation lakes, to large-scale technological “solutions” (e.g. dams, river-bed straightenings, etc.). Nevertheless, there are around 2,500 km of rivers in the country that have been preliminarily delimited as high-risk in accordance with flood directive guidelines (Dráb and Říha, 2010). During recent decades, numerous flood events have been recorded (e.g. in 1998, 2006, 2009, 2013). The flood of 1997 was the Czech Republic's largest in the 20<sup>th</sup> century in terms of flow culmination rate, duration, area affected, casualties (52 lives) and material damage (62 billion CZK = approximately 2.5 billion USD). Another flood in 2002 claimed 19 lives and led to 70 billion CZK in damages (= approximately 2.9 billion USD) (Brázdil et al., 2006).

Incentivised and influenced by the destructive floods in 1997, and by the adoption of the European Water Framework Directive and the Flood Directive, several planning, strategic and legislative documents and frameworks (such as the Czech Flood Protection Strategy) were approved in the Czech Republic during the last two decades (Duží et al., 2017; Slavikova, 2018; Vávra et al., 2017). Other than dealing with some related aspects of flood risk management, in financial terms these documents highlighted the need to support flood prevention, risk sharing and the financial participation of municipalities and property owners in flood defence construction, and the limited provision of central government disaster relief (Slavikova, 2018). The reality, however, rather differs from such proclamations: recovery (ex- post) expenditures prevail, organised mainly by the central government on an ad hoc basis, and financed by the state budget (Slavikova, 2018; Vávra et al., 2017). The funding of prevention plays a complementary role, with the technical/structural measures still prevailing. Moreover, inconsistencies and obscurities have been observed as regards some of the financial flows and final recipients of flood expenses (Klemešová and Andráško, 2015; Slavikova, 2018).

Flood insurance in the Czech Republic is voluntary (Raška et al., 2020), provided (in bundled forms) by private companies only. The floods in 1997 brought the growth of (until then relatively cheap) premiums, with another increase in 2005 (Duží et al., 2017). Certain issues associated with the practices of insurance companies can be mentioned: disputes about the terms “flood” and “deluge” after the 1997 floods; the fact that some endangered properties are currently almost uninsurable (or they simply cannot afford to purchase the insurance due to high premiums); or the perceived obscurities and lack of information related to risk calculations and compensations (Duží et al., 2017).

Our research took place in the Blanice river basin in South Bohemia, the Czech Republic (see Fig. 1). Throughout history, the area has suffered floods regularly (Broža, 2005); the most recent were the floods in 2002, 2006, 2009 and 2013. A significant potential risk of flooding continues to threaten the area (Klemešová, 2016); large parts of the (inhabited) territory lie within a  $Q_{100}$  flood zone.

### 3.3 Methods and procedures

Data were collected through a questionnaire survey carried out in six municipalities (see Tab. 1, Fig. 1) in May 2015. Respondents with a minimum age of 15 years were interviewed by trained researchers. We decided to use

Municipality	No. of inhabitants (age group 15+)	Sample size (% of inhabitants)*
Putim	393	4.0
Strunkovice nad Blanicí	1,014	4.0
Bavorov	1,272	4.5
Husinec	1,146	3.5
Vodňany	6,087	1.5
Protivín	4,099	1.5

Tab. 1: Municipalities, number of inhabitants and sample size

Note: \*The share of respondents was set at minimum of 3% of the total population in municipalities with less than 1,500 inhabitants, and at minimum of 1.5% in municipalities with more than 1,500 inhabitants)

Source: Czech Statistical Office, 2015; authors' processing

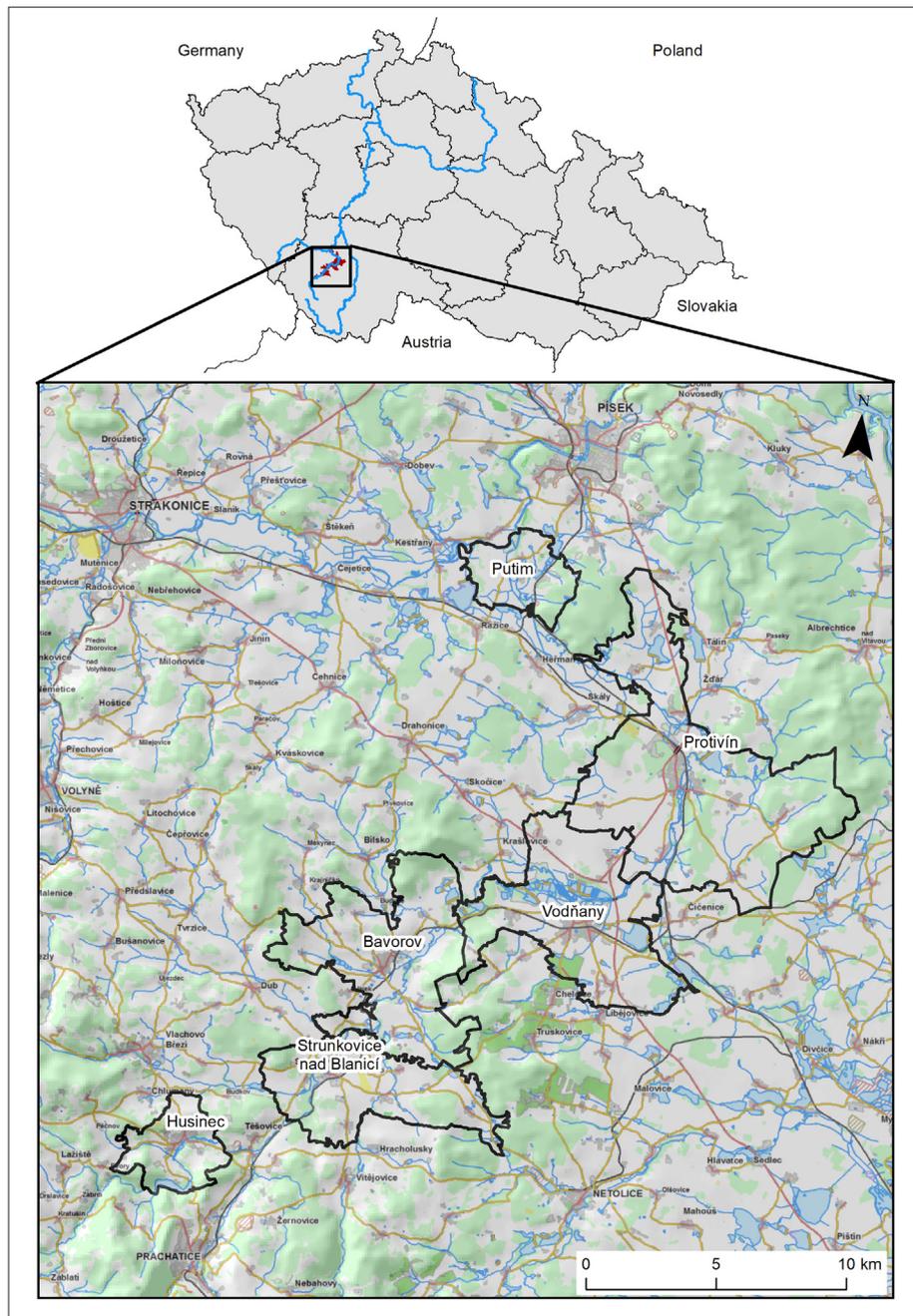


Fig. 1: Location of the study area in the Czech Republic, and the six research sites (named)  
Sources: Input data: ArcČR 500, 2019; ČÚZK, 2020; authors' processing

this age limit since in the Czech Republic, under common circumstances, 15 years is the age when persons obtain their first ID card or become responsible in terms of criminal law. Thus, from the viewpoint of flood risk perception and mitigation behaviour, we consider such persons knowledgeable enough for an appropriate (i.e. accordingly to their age) sense of responsibility, level of awareness, and abilities to assess the threat's significance, or to access and utilise the relevant information sources.

Furthermore, the pertinent research regularly reports on specifics associated with young persons' mitigation activities, or the ways they acquire relevant information (see Sections 2.4 and 4.6). For representativeness, according to the  $\chi^2$  test (comparison of  $\chi^2$  with critical values at significance level 0.05), the survey sample was adequate for each of the municipalities with respect to gender and age groups; but with respect to educational level it was partially

representative (see Tab. 2).

To cover the themes and issues of concern (Section 3.1), the questionnaire consisted of a set of open-ended and closed-ended questions. Such a combination of questions was designed to keep the questionnaire adequately concise and time responsive, yet still open and sufficiently exploratory to capture the respondents' individual, potentially idiosyncratic views of the relevant issues. The design also allowed, in most cases, for the closed-ended questions an option to accompany the response with further commentary.

This way, the survey reflected the still rather inadequate/incomplete state of knowledge regarding floods-related decision making and behaviours, and the limited explanatory power of the extant pertinent models and theories (Section 2.5). As opposed to assuming an a priori position with predefined categories of possible responses,

	Gender		Age group *		Educational level **	
	Critical value 3.84		Critical value 7.815		Critical value 7.815	
	Obtained statistic value ( $\chi^2$ ) and representativeness (yes/no)					
Putim	0.001	yes	2.168	yes	33.927	no
Strunkovice	3.324	yes	7.403	yes	2.252	yes
Bavorov	0.014	yes	3.653	yes	1.927	yes
Husinec	2.739	yes	7.259	yes	14.226	no
Vodňany	0.858	yes	3.801	yes	16.733	no
Protivín	2.650	yes	0.381	yes	11.244	no

Tab. 2: Representativeness of the questionnaire survey by means of the chi-square test

Notes: \*Classification: age groups: 15–29 yrs, 30–49 yrs, 50–64 yrs, 65+ yrs. \*\*Classification: incomplete/basic education; a high school without General Certificate of Secondary Education; a high school with General Certificate of Secondary Education; higher technical education/university graduation

Source: authors' processing

the approach we used stayed in touch with the recent state of knowledge and, at the same time, it was open enough to provide an insight into the local circumstances and specifics. Such an approach has been recently highlighted by several authors (see e.g. Duží et al., 2017, p. 260; Soane et al., 2010, p. 3035).

Data from a total of 305 questionnaires were analysed. Since the questionnaire covered a broad spectrum of research issues, not all of them, or, more precisely, not all of the questions used, could be analysed in this paper. Therefore, in the present study, we primarily focus on the questions (see Tab. 3) allowing us to answer the research questions set in Section 3.1. The responses are examined from the view of the whole sample, and in relation to four variables differentiating the respondents based on their age, gender, educational level, and whether they were, or were not, personally hit by floods in the past (e.g. their property has been damaged).

As regards the data examination, the qualitative content analysis (see for example: Hsieh and Shannon, 2005), used to code and categorise responses to the open-ended questions and the additional commentaries to closed-ended questions, was accompanied by descriptive statistics (especially cross-tabulations and frequency analyses).

## 4. Results and discussion

### 4.1 Private mitigation measures and strategies

Less than one half (44%) of the respondents stated that they have some strategy or have taken up any private measures to handle a flood. Reactive strategies (escape, evacuation) prevailed, together with “simple” and vague adaptive strategies and recommendations (e.g. not to live by a river), and with the utilisation of mitigation measures such as moving the furniture or usage of water resistant

Area of interest	Question	Type of question
Mitigation strategies and measures	Do you have any private strategy (or do you take up any measure) to handle a flood?	open-ended
Threat appraisal	Do you think that the flood might come to the municipality you live in again?	closed-ended with possibility of further commentary
	How much do the floods influence quality of life in the municipality you live in?	closed-ended with possibility of further commentary
Information availability and usage	Do you feel to be sufficiently informed about floods-related threats and options of protection?	closed-ended
	[in case of “no” answer to previous question] What would you like to learn more about, and in what way would you prefer to acquire the relevant information?	open-ended
	Do you know some web pages dealing with the floods-related issues?	closed-ended
	[in case of “yes” answer to previous question] Which of this kind of web pages do you know and use?	open-ended
Participation in funding of flood protection	How often (when) do you use the relevant web pages?	closed-ended with possibility of further commentary
	Do you think that the inhabitants of, and the owners of properties lying within, flood-prone areas, should participate in financing [whatever kinds of] the flood protection measures?	closed-ended with possibility of further commentary
	What is your view about the flood tax, introduced in the Czech Republic in 2011?	open-ended

Tab. 3: Areas of interest and wording of the questions used in the survey

Source: authors' processing

materials (see Tab. 4). Yet, the most frequent response was in the “miscellaneous/other” category, subsuming a mixture of answers, and often associated with resignation, mockery or wishful thinking.

The reasons for not having any private mitigation strategy were specified in about one quarter of such cases: the most frequent were signs of disinterest or ignorance (“I am not endangered by a flood”, “I live on a hill, so I don’t care”), avoidance, underestimation or mockery (“I’ll rather have a beer”, “I simply avoid news”), resignation (“you cannot stop the natural element”), or responsibility transfer (“why me?”, “ask the mayor”, “not my responsibility”).

Using the classification of adaptive behaviours proposed by Kuhlicke et al. (2020), our results show that in the surveyed communities:

- i. individual behaviours and actions, i.e. those focused upon protecting or saving oneself (or the members of the given household) and one’s own properties, dominated over the measures concerning other members of the community (such as “help to the victims”), or measures involving some kind of concerted common effort;
- ii. the investment/one-time behaviours (e.g. sandbagging, escape) prevailed over the routine/repetitive ones (e.g. regularly monitoring the weather forecast); and
- iii. the relatively minor, low-cost measures (e.g. sandbags, “flood suitcase”) prevailed over the high cost ones (such as more demanding house adjustments).

Similar findings have been recorded elsewhere (e.g. Bera and Daněk, 2018; Brilly and Polic, 2005; Duží et al., 2017; Fox-Rogers et al., 2016; Soane et al., 2010).

Furthermore, in concordance with Bird et al. (2013), we noticed more frequent utilisation of reactive strategies (escape) than of preventive ones. Similar to other studies, including those from the Czech Republic (e.g. Bera and Daněk, 2018; Duží et al., 2017), examples of both wet and dry flood-proofing (Hudson, 2020; Hudson et al., 2019; Montgomery and Kunreuther, 2018) were observed in the study area: the first one of them limits damage once water has entered a building, while the other one limits the likelihood of flood water entry (Kuhlicke et al., 2020).

Living outside of the flood-prone areas seems to be the most effective instance of dry flood-proofing, and so permanent relocation may look like an appropriate option; however, due to the related costs, or emotional attachment to the place, intentions to relocate permanently are rather rare (Bera and Daněk, 2018; Duží et al., 2017; Dzialek et al., 2013; Klemešová and Andráško, 2015). In our study area, the relatively frequent occurrence of recommendations such as “to live on the hill”, suggests that locals are aware of such a mitigation strategy and its effectiveness. On the other hand, such recommendations were almost absent amongst the respondents previously hit by floods (see Section 4.5), and the concrete intentions to move out were specified in singular cases only. An important methodological limitation needs to be taken into account in considering such findings, however: our survey did not cover people who (possibly) had already moved out of the area/municipality, but only those respondents who, for whatever reasons, stayed to live there.

Yet the most important finding seems to be a general prevalence of passivity, vagueness in what to do, lack of uptake of any private measures, unwillingness to engage personally, the transfer of responsibility to someone else, and non-protective responses such as wishful thinking, fatalism, resignation, avoidance, or mockery (see also Section 4.2). Our study is not an exception in this sense, as such observations are rather common (Box et al., 2013, 2016; Brilly and Polic, 2005; Fox-Rogers et al., 2016; Osti and Nakasu, 2016; Soane et al., 2010).

#### 4.2 Threat appraisal

Most of the respondents (94%) are aware of the constant threat, admitting that the municipality they live in might be flooded again. Additional commentaries regarding perceptions of the threat were divided into seven categories (see Tab. 5). Due to their frequency, most respondents acknowledged their awareness of the presence of the threat; resignation and fatalistic views that people are just not able to do anything against the floods followed; and third most frequent were wishful thoughts and remarks about environmental cues such as rain or river. The remaining commentaries were associated with emotions such as fear

Categories of strategies/measures (and examples of answers)	Frequency (%)
<i>reaction to the immediate threat</i> (“to pack up the most important things and to escape”, “just to leave”, “to take the kid, pack up the things and leave”)	19.6
<i>adaptation and avoidance</i> (“to avoid the flood areas”, “to live further from the river”, “to live on the hill”)	17.6
<i>mitigation measures</i> (“moving the furniture to the upper floor”, “to use the solid wood furniture”, “if possible, nothing from the glued materials”)	16.7
<i>weather forecast/news/internet</i>	11.8
<i>observing the river</i>	10.8
<i>sandbags</i>	9.8
<i>prepared for evacuation</i> (“to have the things ready”, “flood suitcase”, “to be prepared for evacuation”)	7.8
<i>protective walls/barriers around the house</i>	3.9
<i>help to the affected</i> (“I’ll help the victims”)	3.9
<i>preventive stock</i> (water, food)	2.9
<i>moving away</i>	2.9
<i>miscellaneous/other</i> (“just to hold on”, “to sit on the hill and have a beer”, “to buy a boat”, “to pray”, “to take out insurance” [one case only!], “to open the door and let the water run through”, “to follow the orders of the flood commission/mayor”)	23.5

Tab. 4: Categories of mitigation strategies and measures  
Source: authors’ field research and processing

Categories of commentaries (and examples of commentaries)	Frequency (%)
<i>awareness</i> (“so sure/surely it will come again”, “anytime”, “we expect it”, “the threat is permanent”, “maybe tomorrow”)	44.4
<i>fatalism</i> (“you cannot prevent it”, “people cannot do anything”, “it’s just nature”, “we are not able to influence it”, “you cannot change the weather”)	18.5
<i>wishful thinking</i> (“one hopes it won’t come anymore”, “hopefully the flood will not come again”)	9.3
<i>environmental cues</i> (“if it rains a lot [a flood will come again]”, “the Blanice river”)	9.3
<i>worries, fear</i> (“people are worried”, “I’m still scared”)	7.4
<i>blaming, responsibility transfer</i> (“stupid, they released the dam at once”, “dyke’s too low”, “it depends on the river board”, “there were no floods under the Communists”)	7.4
<i>optimism</i> (“probably, they [floods in the future] will be smaller”)	7.4

Tab. 5: Categories of commentaries concerning the potential flood threat  
Source: authors’ field research and processing

or worries, with the blaming of someone or something to be responsible for causing (or not preventing) the flood, or with optimism regarding the future course of floods.

Regarding the second component of the threat appraisal, the perception of a floods’ consequences, Figure 2 shows how respondents assessed the impact of floods upon the (quality of) life in their municipality: while 22% see such an impact as less significant, the shares of those seeing it as (rather) significant, and those perceiving it as insignificant (having no influence) were relatively balanced. Additional commentaries on this topic most often (one third of cases) mentioned feelings of fear or worries (“people are afraid”, “just a bit of rain, and people start to worry”, “life in fear”, “bad dreams”), followed by views that the impact of floods concerns those living by the water only, or that the floods’ influence is important only during the floods.

Lack of risk awareness has been observed only occasionally (Bird et al., 2013; Botzen et al., 2009; Burningham et al., 2008; Wallace et al., 2016), yet this is not the case in the area under investigation. Rather, similarly to some other studies (Box et al., 2016; Klemešová and Andráško, 2015; Lave and Lave, 1991), we recorded high awareness of the threat, which is, however, not accompanied by equivalent preparedness. A significant proportion of the awareness-related comments contained signs of various cognitive biases, recently described as the “ostrich effect” (Burningham et al., 2008) or “cognitive dissonance” (Armas et al., 2015), associated with the non-protective responses (Bubeck et al., 2012; Fox-Rogers et al., 2016), i.e. responses that cannot prevent future damages. Although wishful thinking or undue optimism might help to alleviate negative feelings, such fear and worries (Grothmann and Reusswig, 2006), together with standpoints of helplessness or fatalism (nothing can be done against floods), might hamper private activity and the uptake of mitigation measures (Bubeck et al., 2012, 2013; Dzialek et al., 2013). Possible underestimation of the threat, and its concurrence with the non-protective responses, need to be seriously taken into account. As Duží et al. (2017) suggest,

though people might be aware of the threat’s presence, this does not mean they do not underrate the risk’s actual degree. Another issue is the reliance upon someone/something else rather than one’s own activity (Box et al., 2013; Brilly and Polic, 2005; Duží et al., 2017; Dzialek et al., 2013; Fox-Rogers et al., 2016; Klemešová and Andráško, 2015). For example, in comparing two different Czech communities, Raška et al. (2020) showed that while people may acknowledge the floods to be somehow inevitable, their risk perceptions can be reduced through reliance upon public protection measures or, contrarily, increased by the experience of these measures’ unreliability.

The second part of risk perception, i.e. the perceived consequences, needs to be considered as well. In our study, large shares of local residents have seen the impact of floods upon their lives as less significant or insignificant, and such a situation has been observed elsewhere (Jakubcová et al., 2016; Vávra et al., 2017). A possible explanation can reside in a flood’s impermanence and low-frequency nature (Raška, 2015; Raška et al., 2020; Soane et al., 2010), or, if floods appear regularly, in people’s adaptation to them (Bera and Daněk, 2018; Duží et al., 2017; Jakubcová et al., 2016). In both cases, however, the motivation to take private precautionary measures might be inhibited. For instance, as found in another study from the Czech Republic (Vávra et al., 2017), many people living in flood-prone areas often consider floods to be a part of the regular land management regime, or even a unique, advantageous feature of local life. Thus, according to such people, these “natural events” should be rather respected, and there is no need to eliminate them completely. In our study, however, the negative or neutral and indifferent views of the floods’ impact upon local lives prevailed.

#### 4.3 Information availability and sufficiency

Most respondents (84%) felt that they were sufficiently informed both about the threat and about the protection and mitigation options. A minority of respondents (27%)

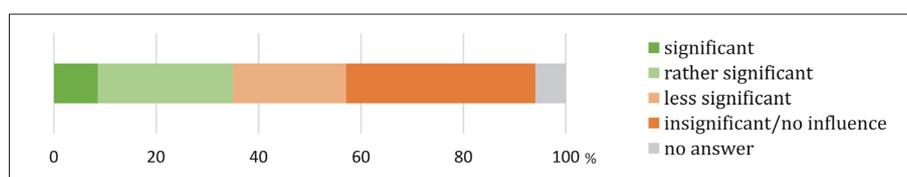


Fig. 2: Perceptions of floods’ influence upon local quality of life  
Source: authors’ field research and processing

asked for any additional information about floods: even if they did so, they were usually not able to specify what such information should cover (standpoints that nothing can be done better, or that it does not matter at all, prevailed, followed by comments such as “I do not know” or “I have got no idea”). Calls for earlier warnings, or for more information about private protection measures, or about the threat and its spatial extent, appeared in singular cases only. As for the sources of floods-related information, respondents chiefly relied on local broadcasting. Other sources included firemen and rescue services, the representatives of local government, neighbours (“people just tell each other”), the Internet and newspapers. In-between respondents asking for additional information, the preferred way to get such information was the Internet. Less than one quarter of all the respondents stated that they knew some floods-relevant web pages, and about 60% said they never use such web pages as sources of information. Out of the rest, most respondents used such sources of information only once the flood had already come (i.e. during the flood). The mostly utilised sources were the websites of the Czech Hydrometeorological Institute, of the Vltava River Board s.e., and of particular municipalities.

The lack of available information or the insufficiency of floods-relevant information are part of the factors traditionally considered in the insufficient uptake of private mitigation measures. The expectation of the “information deficit model” (Fox-Rogers et al., 2016, p. 331) is that once people are informed about a threat and options for its mitigation, they will act accordingly. As already demonstrated (Bubeck et al., 2012; Lave and Lave, 1991; Soane et al., 2010; Wachinger et al., 2013), however, the information availability alone is insufficient in promoting people’s mitigation behaviour. Rather, it seems to be important whether people actually appreciate, acquire/access and utilise the relevant information. In our study, the respondents were mostly satisfied with the information they have received, but this satisfaction was associated with generally low interest in this information and its usage (particular groups of locals, however, compared to the others, displayed higher interest in information utilisation – see the following Sections, especially 4.5 and 4.8). Thus, it cannot be clearly stated whether the available information

is really sufficient or, in fact, only perceived that way, since people do not take too much interest in it (especially in times when the threat is not imminent). Nevertheless, the underutilisation of information sources and lack of interest in being informed were recorded also elsewhere (Box et al., 2016; Lave and Lave, 1991; Osti and Nakasu, 2016; Soane et al., 2010), and our findings regarding the prevailing satisfaction with available information correspond with observations made in other Czech communities (Bera and Daněk, 2018; Raška et al., 2020). Furthermore, our findings that people prefer local sources of information (such as broadcasting, personal contacts) are in line with those of other researchers (Bera and Daněk, 2018; Brilly and Polić, 2005) as well. The importance of personal relations and informal social ties in speedy dissemination of the threat-related information was recently mentioned by Babcicky and Seebauer (2017).

#### 4.4 Funding of protection and mitigation measures

Slightly more than one half (55%) of respondents thought that the local owners of properties should not financially participate in the flood protection, while less than 30% held the opposite view. Further commentaries on the topic (see Tab. 6) most often mentioned the inappropriate excessiveness of any financial burden, or the issues of insurance such as its unavailability or unattainableness. The other recurring kind of commentary, the “why should they/we pay, when...”, was usually supplemented by some kind of “explanation” of the respondents’ reluctance towards participation. Most recurrent was the reference to “someone else’s responsibility”. Some respondents also pointed to “selective” participation (some people should pay, and some not), some focused on the personal responsibility of “them” (i.e. of those people living in the flood zones), and some agreed with some kind of “smaller” participation.

The flood tax, introduced in the Czech Republic in 2011, meant a further monthly deduction of 100 CZK (approximately €3.70) from the already-taxed income, and remained in force for only one single year, and that is probably why about one quarter of respondents expressed lack of knowledge about it. An agreement with the tax (i.e. a willingness to pay the tax in case of its reintroduction)

Categories of statements (and examples of statements)	Frequency (%)
<i>financial issues and insurance</i> (“who can afford it [financial participation] these days?”, “even if someone would like to insure the house, the amount is so high it is better to keep the money at home”, “they [insurance companies] didn’t want to insure them, cos they live in the flood area”)	34.2
<i>WHY TO PAY...</i>	
a) <i>...when someone else should pay/take care</i> (“rather the town”, “the state should take care of them”, “the construction was allowed in there, so why should people pay?”, “the whole community should take care”)	21.1
b) <i>...when there are taxes/insurance</i> (“and so why do they pay taxes?”, “they already pay bigger insurance just because they live next to the water”, “they are insured, so why should they pay?”, “once they pay insurance, the state should take care”)	10.5
c) <i>...when those people just live in there</i> (“why should they pay more just because of the place where they live?”, “they are beaten by the life in there, so why should they pay?”)	7.9
<i>selective participation</i> (“those who moved in there voluntarily, should pay, those who were born in there, shouldn’t”, “only those [should pay], who are concerned [get flooded] regularly”, “those should pay, who have got enough money for that”, “old people shouldn’t pay”)	21.1
<i>personal responsibility of “them”</i> (“it was their decision to live there”, “they chose the place for living”)	13.2
<i>“my” personal responsibility</i> (“it is just my responsibility”)	5.3
<i>“smaller” participation</i> (“with smaller amount of money, I would participate”)	5.3

Tab. 6: Categories of participation statements regarding financial participation  
Source: authors’ field research

Categories of statements (and examples of statements)	Frequency (%)
<i>absence of knowledge about the tax</i> (“never heard about it”)	23.2
<i>solidarity</i> (“people should help each other”, “we cannot turn our back on them”)	10.6
<i>rightfulness of the tax</i> (“it makes sense”, “right decision”)	10.2
<i>“conditioned” agreements</i> (“if it would serve the right purpose”, “if there was not corruption all around”, “if someone won’t steal the money”, “but the money must be used for help after the flood”, “but it must really help”)	8.9
<i>strict refusal</i> (“nonsense/crap”, “I wouldn’t accept the money”)	6.9
<i>undemanding tax amount</i> (“100 Czech crowns is not so much/it won’t hurt us”)	5.3
<i>obscurities in using the money</i> (“I don’t know what for it was used”, “solidarity is fine, but we pay for irresponsibility and sloppiness”, “government’s scam, where is the money?”)	5.3
<i>feelings of injustice</i> (“it is unfair”, “I won’t pay money to anybody!”)	4.5
<i>responsibility of someone else</i> (“why should it be paid by people?”, “there is enough money in the state cash register”, “politicians should take it off their salaries”, “it should be paid by those “experts” who straightened the river beds...”)	3.7
<i>distrust and suspicions</i> (“the money would have been stolen anyway”, “the politicians will just steal it”, “a lot of money gets “lost” in the Czech Republic”)	3.7
<i>overabundance of taxes</i> (“there is already enough of taxes...”)	2.0
<i>sufficiency of insurance</i> (“that is what the insurance companies are here for”, “I pay for the insurance, so why should I contribute?”)	1.6
<i>agreement with the tax without further commentary</i>	19.1
<i>disagreement with the tax without further commentary</i>	8.5

Tab. 7: Categories of statements about the flood tax  
Source: authors’ field research

was reported in 45% to 54% of responses (see Tab. 7). The numbers are approximate in this case, since some of the respondents’ commentaries were extensive and it was not always possible to decide clearly which kind of standpoint they expressed. Those agreeing with the tax often pointed to the need of solidarity, to the rightfulness of the tax, or to its undemanding amount. Some respondents conditioned their agreement with various “ifs” and “buts”, suggesting doubts about how the income from the tax would be used. Such doubts and suspicions served as reasons to refuse the tax by another groups of respondents: some pointed to obscurities in handling the money; some believed in the tax’s ineffectiveness; some argued that the financial issues are someone else’s responsibility; and some expressed distrust and worries that the money will “disappear” or will be stolen. Altogether, such opinions accounted for about one quarter of the responses.

Our research pointed to several issues associated with the funding of flood protection in the study area. Most of them have been observed elsewhere as well, and they are frequently discussed in the relevant literature (see also Section 2.3). The unwillingness to participate financially, noticed also in other Czech communities (Raška et al., 2020), is linked with expenditures often considered by people to be excessive (Bird et al., 2013) and unaffordable. This might be the case for insurance as well. Moreover, another issue often associated with insurance is its unavailability due to insurance restrictions (Bubeck et al., 2013; Lave and Lave, 1991). Once again, the “seeking out” of “someone” bearing responsibility, observed also in another study from the Czech Republic (Duží et al., 2017), appears to be an important factor here. As our findings suggest, in this way a local community might become polarised by those who should pay and those who should not. Typically, as well, the expenses are expected to be paid by government (Henstra et al., 2018; Vari et al., 2003). As stated by Raschky et al. (2013, p. 181), the actual existence of government relief funds, past personal experience and/

or media reports of past catastrophes and government aid, seems to feed individual beliefs that the government will provide financial catastrophe assistance.

The government can gain relevant financial resources through taxes, a step, which, as observed in our study, was rather acceptable to locals than direct participation. As our results suggest, the importance attributed to solidarity, recorded in another Czech community as well (Bera and Daněk, 2018), and the undemanding tax amount could be of importance in this case. Yet, the support for the tax seems to be tentative and it can easily turn to refusal due to distrust and suspicion about how the revenues will be used (Klemešová and Andráško, 2015; Thieken et al., 2006; Vari et al., 2003). The resulting situation then is a paradoxical one: people tend to rely on the government to take care of the expenses, yet it is the same government that many of them do not trust.

#### 4.5 The role of experience

Previous personal experience with floods is reflected in respondents’ floods-related standpoints and behaviour. Approximately 60% of the affected (i.e. of those respondents, who experienced, for example, damage to private property during previous floods) claimed to have some strategy to deal with a flood: reactive and mitigation strategies and measures (including the usage of sandbags) dominated (mentioned by about one third of responses), followed by (with much lower importance) preventive strategies and protective measures (e.g. to have the things packed, to build protective walls). Not having any strategy was, in this group, usually justified by the impossibility of doing anything against floods, or through reference to the responsibilities of someone else (mostly some authorities). The unaffected had some strategy in less than 37% of case: they preferred strategies such as to avoid living in flood-prone areas, and to watch the news or weather forecast, yet mostly they stated that they just do not need any strategy at all.

In additional commentaries associated with flood awareness, the affected (compared to the unaffected) more often mentioned the instant presence of a threat, wishful thoughts (the second most frequent kind of comments for this group), environmental cues such as rain or the river (more than twice more often), fear and worries. Fatalistic views and opinions that nothing can be done against floods, together with blaming someone or something to be responsible for causing (or not preventing) the flood, were rather stated by the unaffected.

While the affected and the unaffected were similarly aware of the threat (a slightly higher awareness was recorded amongst the affected), they differed markedly in their perception of the floods' impact upon the local quality of life: nearly four times more often (19%) did the affected see such an impact as significant (often emphasising the related fear and worries), and roughly two times less frequently (24%) they said floods have no influence upon life in their municipality.

For some of the sources of information about floods, the affected more often stated communication with firemen and local representatives, rescue services, and emergency warning sirens (never mentioned by the unaffected). About two times more frequently they also asked for improvements of the local broadcasting and lectures about floods. The usage of floods-relevant web pages was almost twice more frequent amongst the affected as well (nevertheless, half of them said they never use such web pages).

The willingness to financially participate in flood protection was significantly lower amongst the affected (68% disagreed), and three times more often they talked about the injustice of being expected to pay only because they live in flood zones, about the excessiveness of any additional financial burden, and about the issues of insurance unavailability. On the contrary, the unaffected often (18% of cases) talked about the inadequacy of paying (more) due to already paid taxes or insurance (such a commentary did not appear in a single case amongst the affected), and also three times more often than the affected pointed to the personal responsibility of the people living/owning properties in the flood zones.

Disagreement with the flood tax was expressed by one third of the unaffected, and more than one half of the affected. Twice more often the unaffected stated they do not know anything about the tax, or that the tax is unfair. Criticism and doubts associated with the ways of using the tax revenue appeared four times more often in the commentaries of the affected (it was one of the most frequent comments amongst these respondents). More often they also doubted the effect of the tax, stated that the tax is useless, a crap, or financially too demanding, and suggested that the money will be stolen anyway.

Similar to our findings, the significant role of personal experience with a flood in influencing the flood risk-related thinking, emotions and behaviour was previously indicated by many other studies on the topic (Bubeck et al., 2012, 2013; Grothmann and Reusswig, 2006; Ho et al., 2008; Kellens et al., 2013; Lave and Lave, 1991; Raška, 2015; Siegrist and Gutscher, 2008; Wachinger et al., 2013). Our study supports the view that being personally affected by a flood usually raises the chances that people will adopt some private mitigation strategies or measures (Bera and Daněk, 2018; Bubeck et al., 2013; Kellens et al., 2013). On the other hand, we found that there was still a large share of the affected not adopting any measure or strategy (cf. Soane

et al., 2010), and turning to a non-protective responses (Fox-Rogers et al., 2016) such as the wishful thoughts, fatalism or standpoints of helplessness (in our study, wishful thinking was markedly prevalent amongst the affected). Our findings also show that the affected associate flood threat with specific connotations (e.g. rain will bring a flood) or, as observed elsewhere (Siegrist and Gutscher, 2008), with emotions such as fear or anxiety. In accord with Soane et al. (2010), we observed the effect of experience with floods on a lowered sense of one's own responsibility for flood protection.

Another aspect is perception of the risk: when taking into account threat awareness, while we did not observe any significant difference between the affected and the unaffected, a noticeable difference appeared regarding the potential consequences of floods for local quality of life. More specifically, the affected envisaged such consequences as much more severe, a finding which accords with other studies (Bera and Daněk, 2018; Burningham et al., 2008; Kellens et al., 2013; Siegrist and Gutscher, 2008; Wachinger et al., 2013). Thus, overall threat appraisal is higher amongst the affected. Our results also show that being personally affected by a flood is associated with more frequent usage of more information resources, which is consonant with the findings of Box et al. (2016), and with less willingness to pay for flood protection (either through direct participation or taxes).

#### 4.6 The role of age

Regarding floods-related strategies, the youngest respondents most often (one third of answers) relied on (watching) news, weather forecasts, the Internet and other information sources (in comparison, among the oldest respondents no one mentioned this kind of strategy), or on reactive strategies such as escape and evacuation (while the preferences of such strategies gradually decreased with increasing age). Together with the oldest respondents, they also most often stated that it is not necessary to have any strategy at all. The youngest also least often talked about avoidance of life in flood-prone areas: this strategy was stated four to nearly seven times more often in the other age groups, most often amongst the oldest respondents. Mitigation strategies such as moving the furniture into the upper floor or using water-resistant materials were mostly mentioned by those aged 50 to 64 (more than one third of their commentaries), while in the other age groups the importance of such measures was much (approximately three times) lower.

The tendency to relegate the responsibility to someone else was relatively most frequent amongst the oldest respondents. The oldest respondents also attributed the least importance to the Internet as a source of floods-relevant information, as less than 7% of them mentioned it compared to the 32% average for all respondents. They rather relied on personal contacts with neighbours and local authorities. In general, the utilisation of floods-related web pages decreased with increasing age.

The youngest respondents were the only age group in which agreement with financial participation on flood protection prevailed – more than half of them agreed, while in the other groups this proportion did not exceed one third. Even so, these respondents also most often referred to the responsibility of the flood zones' inhabitants, in 33% of cases, which was more than three times more often than the other age groups. Simultaneously, they were also those least often "excusing" the inhabitants and owners of properties with the "why should they/we pay, when..." kind of answer (two to

five times less often than in the other age groups). The oldest respondents, on the other hand, most often pointed to the (excessive) financial burden and preferred some “smaller” kind of participation. The highest shares (around 40%) of those agreeing with the flood tax were recorded in the two older age groups. Yet it must be noted that in these groups the disagreement was highest as well (around 30%), since in the two younger age groups those leaving the question about the flood tax unanswered prevailed (most often they just did not know about the tax). The older two groups had also in common the highest frequency of doubts about the tax’s usefulness and effectiveness, of worries that the money will be stolen, and, especially, of complaints about the obscurity in handling them.

Our findings are partly in line with those of other researchers. As revealed by Duží et al. (2017), the presence of children can positively influence the adoption of flood risk protection measures by a household. Although the presence of children was not included in our survey items, the content of additional commentaries suggested that children really might be an important driving factor for adoption of, especially, reactive strategies (the “to take the kid, pack up the things and leave” kind of commentaries). We also observed that increasing age was associated with decreasing preferences for reactive strategies, and of information sources such as the Internet (Box et al., 2016). Similar findings were reported in another Czech community, where Bera and Daněk (2018) recorded higher reliance upon the Internet and mobile devices amongst the younger people, while the senior residents relied on more traditional ways of information acquisition. The view of Babčický and Seebauer (2017) that risk perception decreases with age was not supported by our study. The lack of experience amongst the youngest respondents, and the long-term experience of the oldest ones (Burningham et al., 2008), might be represented in the similarity in neglecting the need to have any specific mitigation strategy, yet also in differences in case some strategy is adopted (cf. Soane et al., 2010), as our study shows. Age-associated previous experience also seems to be reflected in the older respondents’ negative standpoints towards one’s own responsibility for flood protection. A Canadian study (Henstra et al., 2018) suggests that older people might be more willing to pay for flood protection, yet our findings are different. Possible explanations might reside in different financial opportunities (Czech respondents were not completely unwilling to pay, they preferred, however, some “smaller” participation) and, once again, in previous experience (Czech respondents were strongly sceptical about how the money will be used).

#### 4.7 The role of gender

Two times more often, men (20%) compared to women, stated they do not need any strategy to handle a flood. Their most preferred strategy was to avoid living/building houses near the river (they mentioned it twice as frequently as women). Women preferred (more than 20%) strategies such as moving the furniture and house equipment (into upper floors) and using water resistant materials. They also (three times more often than men) talked about the precautions of having things packed up and prepared for the sake of a possible evacuation.

Concerning their comments associated with a flood risk, men twice more often declared their awareness of the threat, and also more often blamed someone/something else. Women’s comments were more often associated with fear and worries,

but also optimism. Men demonstrated better knowledge of the floods-relevant web pages (more than one fourth of them specified such pages compared to 16% of women).

In association with financial participation in flood protection, men four times more often talked about the personal responsibility of those who live/own properties within the flood zones. Women more often mentioned “selective” participation, and they also tended more to “excuse” the people from paying – especially the “why should they pay only because they live there” kind of commentary. This assertion made the difference between them (it appeared in 15% of women’s answers) and men (who did not mention it at all). In general, however, women were less willing (24%) to participate directly. On the other hand, women in more than half of the cases, agreed with the flood tax (compared to about 40% in the case of men). Approximately twice more often women stated that the tax is a right thing, but also that someone else (predominantly the state/government) should secure the financial resources. Men nearly three times more frequently mentioned the obscurities related to the ways money were used during and after floods, and twice times more often said that paying the tax is unfair or that they just do not want to pay it.

Our results are rather at odds with the findings of other researchers. Studies of Box et al. (2016), Duží et al. (2017) or Miceli et al. (2008) suggest men’s propensity (a higher one compared to women) to adopt protective and mitigation behaviours. In our study, however, women were more concerned about, and involved in some practical mitigation measures and preparations. Based on other studies as well, higher risk perception (Bubeck et al., 2012; Ho et al., 2008; Kellens et al., 2011; Miceli et al., 2008) and evaluation of flood damages as more severe (Bird et al., 2013), could be expected among women. Yet our findings do not confirm such expectations, since in both cases men’s and women’s views were relatively equal. Unlike the studies of Raschky et al. (2013) or Henstra et al. (2018), suggesting there are no significant gender-associated differences in willingness to pay for flood protection, in our study such differences were found. Women are more in favour of this kind of aid than men, yet the amount of contribution cannot be too demanding. Indications of differences associated with preferred information resources (Box et al., 2016; Brilly and Polic, 2005) were supported by our findings only partly.

#### 4.8 The role of education

Amongst the respondents with the lowest educational level (basic education), the preference of floods-related strategy related to watching news, weather forecasts and the Internet attained the relatively highest value (almost 24%). On the contrary, higher educational levels (the highest values for those with a university degree) meant higher preferences for reactive strategies (escape, evacuation), mitigation strategies (moving the furniture and using appropriate materials, using sandbags), and precautionary and protective measures (having things packed and ready, building protective barriers).

Higher education meant also higher incidence of commentaries associated with the awareness of the constant threat, but also with optimism about the future course of floods. Lower educational levels were linked with more remarks about fear or about someone else’s blame for floods. Respondents with basic education also attributed the least significance to floods with respect to the local quality of life.

In line with the declared preferences for floods-related strategies, the lowest educational level was associated with the highest preference of the Internet as a source of floods-related information. Somewhat paradoxically, however, respondents from this group were not able (except in one single case) to specify any relevant web page at all, and three quarters of them stated they never use such web pages. For comparison, the higher educational level was associated with increasing interest in acquiring the information through personal contacts, public lectures, newspapers, and less traditional ways of spreading the information (e.g. leaflets, crisis line). Also, the higher the education level, the higher the knowledge about, and the more frequent utilisation of, relevant web pages (in the case of those with a university degree, the proportions reached about 50%).

Education also played a role with respect to funding. The higher the education, the larger the disinclination to participate directly. While nearly half of those with basic education agreed with financial participation, this holds true for less than one quarter of the university educated respondents. The latter group most often (38%) mentioned various “excuses” for why not to pay (“selective” participation or, especially, “someone else should pay” kind of statements). Yet, increasing educational level was also associated with increasing proportions of respondents agreeing with the flood tax (and the declining shares of those lacking knowledge about it); while around 71% of respondents with university degree agreed, the share dropped to 42% among those with basic education. The two groups with higher educational levels more often talked about solidarity and the inexpensiveness of the tax, but they also more often alluded to the overabundance of taxes. The other two groups more often doubted the effectiveness and usefulness of the tax.

Our findings relating to educational level are partly in line those of other researchers. In our study, respondents with higher levels of education were not willing to pay more for flood protection (cf. Henstra et al., 2018). As our data suggest, they rather preferred to pay the less demanding flood tax. Corresponding to Armas et al. (2015), we found that higher education was not linked with increased flood awareness – yet it is true that respondents with higher education more often, in their (additional) commentaries, talked about a constant flood threat. The studies of Botzen et al. (2009) or Hudson et al. (2020b) indicate that higher levels of education might be associated with lower perceived risk or flood probability (such a finding was not confirmed by our study) and with expectations of less severe consequences of floods. As for this second finding, our results show that, on the one hand, people with higher education, compared to those with lower levels of education, considered floods to be a more important factor in local quality of life; on the other hand, however, they more often stated optimistic views about future floods. A partial explanation of such optimism might reside in what was asserted by Ho et al. (2008): more educated people have a better overview of relevant information and of particular mitigation measures, and so they feel that they have more control over potential disaster. Similarly, Hudson et al. (2020b) think that higher levels of education may be associated with higher sense of self-efficacy, i.e. of capability to employ adaptive behaviours. Our data show that respondents with higher levels of education demonstrated better knowledge and higher frequency of utilisation of relevant web pages, more frequently they adopted some floods-relevant strategies or mitigation measures, and also less often blamed someone else for the presence of the threat. The views that higher educational

levels might mean higher personal responsibility and likelihood to adopt private mitigation measures (Henstra et al., 2018; Soane et al., 2010), as well as better knowledge about floods (Botzen et al., 2009; Ho et al., 2008; Lave and Lave, 1991), were thus supported by our study.

#### 4.9 Summary of findings and the viewpoint of PMT

We have found that most of the people living in the case study flood-prone areas do not actively engage in mitigation activities, especially when taking into account private mitigation measures. Since, as our data suggest, such a situation seems to result from an interplay of several factors, the PMT (Section 2.5) can serve as useful guidance for explanation.

From the viewpoint of PMT, individual motivations to adopt protection/mitigation behaviours are based on the interaction of the threat appraisal and the coping appraisal (Birkholz et al., 2014; Bubeck et al., 2013; Fox-Rogers et al., 2016; Grothmann and Reusswig, 2006). Both of these perceptual variables need to be at a high level in order to prompt mitigation action (Babcicky and Seebauer, 2017). Threat appraisal consists of the perceived probability of a threat (i.e. in this case, a flood), the level of which was, in our study area, generally high, and of the perceived consequences (and their severity) of a threat, the observed level of which was rather moderate to low. A partial explanation of why most local residents do not adopt any mitigation behaviours/measures/strategies or underutilise the relevant information, is thus that though they are aware of the threat’s constant presence, their overall threat appraisal is simply not high enough to motivate them to engage personally.

Another factor that needs to be considered as well is the frequent occurrence of wishful and fatalistic thoughts, resignation and a sense of helplessness, avoidance, or conjectures of someone else’s responsibility. Firstly, such views and standpoints (further) undermine the general motivation to act (Bubeck et al., 2013). Secondly, they do the same, even in cases of those people whose motivation to act should be presumably higher, i.e. of those who were personally affected by floods in the past, and who, compared to the unaffected, subjectively assessed the floods’ consequences as much more significant (and thus their overall threat appraisal could be, at least potentially, higher as well). A third factor is the effect, described in previous points, that can be reinforced if standpoints such as fatalism, resignation or helplessness, meet with emotions such as fear or worries, i.e. with the emotions which appeared regularly in the respondents’ commentaries as well (see previous parts of Section 4), and which should otherwise motivate people to take up precautionary measures (Grothmann and Reusswig, 2006). Another (fourth) issue is the propensity to take such views and standpoints usually means that people’s coping appraisal, i.e. the second main component of PMT (expressing how people assess their abilities, including the financial options, to adopt mitigation measures and their efficiency in reducing the risk), is low (Fox-Rogers et al., 2016; Grothmann and Reusswig, 2006).

In our study area, therefore, not only the threat appraisal but also the coping appraisal seems to be an issue. The vagueness in what to do, and the widespread presence of “strategies” not really able to mitigate the floods’ direct consequences, suggest that local residents doubt their own abilities and self-efficacy in adopting measures effective enough to reduce the damages and losses. Naturally, in cases of particular groups of locals the situation varies.

For instance, as our data suggest, the sense of self-efficacy seems to be higher among respondents with higher educational levels. Costs are an indispensable part of the coping appraisal as well, and our observation that perceived floods-related costs represent an issue for many people living in flood prone areas is a finding that is not exceptional in the Czech Republic (Bera and Daněk, 2018; Duží et al., 2017; Raška et al., 2020), or elsewhere (Kuhlicke et al., 2020; Soane et al., 2010). As recently shown by Hudson (2020), the Czech Republic belongs to a group of European countries displaying the highest rates of unaffordability – indeed, many respondents in our study clearly stated that participating financially in mitigation activities is, either for them personally or for their neighbours, unaffordable. Issues of costs and affordability are linked also with questions about insurance: not only do the pay-outs not completely cover the costs of eventual reconstruction, thus leaving the households to draw the resources from their fixed/limited budget (Duží et al., 2017), but the insurance itself is, as indicated by relatively high proportion of respondents, unaffordable or even inaccessible (see Sections 3.2 and 4.4) for many of them. Not surprisingly, then, some respondents expressed feelings of injustice as regards their potential (additional) financial participation, especially in cases where they already paid for the high insurance premiums. And the frequently occurring unwillingness to pay associated with references to the responsibility of somebody else, also does not seem to be a surprise since, as explained by Soane et al. (2010), perceived costs act as grounds for responsibility transfers.

The importance of costs is reflected also in the relatively higher support for the less demanding flood tax, suggesting that people tend to be solidary and do not have to principally refuse to financially participate, yet the expenses cannot be too high, and, moreover, the utilisation of the resources must be transparent. Naturally, it is not clear from our data what the prevailing standpoints regarding the tax would be in the case that it was better known to people, and how the local residents' views on costs and financial participation are influenced by the prevalence of the state's recovery expenditures and ex-post compensations in the Czech Republic (see Section 3.2). As indicated by the studies of Raschky et al. (2013) or Slavikova (2018), however, some of the issues of insurance, perceived costs, or personal responsibility and engagement, might be influenced by the crowding-out effect (Section 2.3).

## 5. Conclusions and policy implications

Building upon the recent state of knowledge and the relevant theoretical background, this study has explored floods-related attitudes and the behaviours of inhabitants of a flood-prone area in the region of South Bohemia. The study has supported some of the key factors previously identified as influencing flood-preparedness, but some of the findings were at odds with those recorded elsewhere. Moreover, several findings of the study brought out some novel insights and incentives for further research.

Our results show that:

1. A minority of the local population has some strategy or take some mitigation measures to deal with a flood. Furthermore, most of the stated “strategies”, in fact, cannot mitigate either the threat or the consequences of floods. A large part of them represent general or vague recommendations, ineffective procedures, statements of resignation, or even mockery. Reactive procedures associated with an already present threat outnumber
2. preparedness and prevention. Only a small proportion of the local population takes up any “real” mitigation measures, and if they do so, simple and less demanding measures prevail;
2. A dominant part of the study area's local population is very well aware of the constant threat of floods. In line with the previous conclusion, the general awareness and preparedness are undermined by widespread presence of wishful thinking, fatalism, and transfer of responsibility. A similar effect can be associated with the perception of floods' influence upon the local quality of life: while around one third of locals think such an influence is significant (or rather significant), those who consider floods to be less significant or insignificant prevail;
3. Local people, in general, feel sufficiently informed both about the threat, and about the possibilities of the threat's mitigation; a minority of them asks for any additional information. Local sources of information (broadcasting, personal contacts, warning systems) are preferred as well as the Internet. A minority of locals, however, knows and uses the relevant web pages, and if they do so, they mostly utilise them only once the threat is imminent;
4. An unwillingness to participate financially in flood protection or prevention activities and measures prevails. Yet, relatively large proportions of locals are in favour of such an idea. Especially in case of the flood tax, if conditions such as transparency in using the resources or reasonability of payments would be met, those people agreeing with some kind of “smaller” financial participation could potentially prevail;
5. Local people previously affected by floods, compared to those unaffected, attribute more importance to flood preparedness and to the uptake of mitigation measures. They associate the flood threat with specific emotions (fear), thoughts (wishful thinking), or environmental cues (rain, river); they consider the influence of floods upon local quality of life to be much more significant; they are more interested in utilising information sources and they know them better; but they are more sceptical and less willing to participate financially in a flood protection;
6. Older people, compared to those younger, seem to be more accustomed to floods, taking them as a regular (though not insignificant) part of their lives and something that can be dealt with one way or another. To acquire and share information, they prefer personal contacts and do not utilise the Internet. Rather than relying on any specific mitigation strategies, they consider it a better idea not to live in flood-prone areas, or, in case of life in such areas, simply to get along with such a life somehow. They are also more sceptical regarding personal responsibility for flood mitigation, and regarding the effectivity (and transparency) of using any financial resources to tackle floods. The youngest people, compared to the other age groups, least often talk about the need to avoid life and construction in flood-prone areas; they rely on the Internet and other (electronic) media as sources of relevant information; they favour reactive strategies over prevention and preparedness; and they most often point to the personal responsibility of the people living in the flood-prone areas, and, on this grounds, are more in favour of financial participation in flood protection;
7. In perceiving, and reacting to floods, local women, compared to men, appear to be more personally involved and emotional; fear, hope, care, empathy, mercy, etc. are much more prevalent amongst them. Women also attach

much more importance to prevention and mitigation of the threat and its consequences. Men, on the other hand, tend to emphasise awareness, information, reasons, responsibility and blame; at the same time they seem to be more self-confident and elevated over worries. Men are also more cautious and sceptical about financial participation in flood protection, while women are rather willing to participate based on the principle of solidarity than on duty;

8. Amongst the local people, those with higher educational levels (and especially those with a university degree) demonstrate higher interest in being prepared for floods, and more frequent uptake of mitigation measures; they are more self-confident and optimistic about floods; they utilise a wider spectrum of information sources (and more often ask for their improvement); they have better knowledge of relevant web sites, and use them more frequently; and they prefer financial participation based on solidarity (the tax) rather than on personal responsibility. Lower educational levels (and especially the basic education) are, on the other hand, associated with more fear, worries and blaming; with preference for the Internet as a source of information and, together with other electronic media, as a basis of preparedness (yet, also, with the lowest knowledge of relevant web pages and their least frequent utilisation). The lowest educational levels expressed the highest agreement with direct financial participation and more scepticism about the flood tax, and with less significance attributed to floods as factor influencing the quality of locals' life;
9. The application of PMT points to several factors explaining why most people living in the study area do not adopt any mitigation measures or strategies. Firstly, though they are well aware of the constant threat, their overall threat appraisal is lowered by the medium to low importance attributed to the floods' influence upon local quality of life. This importance, and thus the threat appraisal as well, is higher in some groups of local residents, mainly among those previously affected by floods; yet their awareness and preparedness are often hampered by the non-protective responses (such as wishful thoughts), the widespread presence of which also indicates the low degree of coping appraisal within the local population in general. Thus, locals seem to be uncertain and self-doubting regarding their abilities to mitigate the threat effectively, stating the related costs and the responsibility of somebody else, as some of the main impediments to their (more active) engagement and participation. It is unclear, however, to what extent the significance of perceived costs is influenced by the issues of (un)affordability, and to what extent by the crowding-out effect associated with the prevalence of the state's floods-related recovery/ex-post/ad hoc expenditures in the Czech Republic.

There are several challenges and issues that need to be addressed by relevant policy or programs in the study area or elsewhere, in order to stimulate and bolster personal responsibility, flood preparedness, and the uptake of private mitigation measures. First, the effectiveness of private mitigation measures and the drawbacks of non-protective responses need to be addressed and communicated properly. Our findings show how the vagueness in what to do, the underestimation of or hesitations about one's own abilities to face and mitigate the threat and its consequences, and the reliance upon non-protective responses (e.g. wishful thinking, fatalism), weaken general preparedness. Second, to

achieve effective communication and cooperation, trust must be developed and sustained between various actors, including (local) governments and inhabitants: our study demonstrates how the perceived lack of transparency in handling the floods-relevant resources and the resulting doubts and uncertainty, undermine responsibility and solidarity. On the other hand, and importantly, trust cannot be interchanged with over-reliance upon the help of someone else (e.g. government, other members of the community), and this raises the importance of partnerships encompassing mutual interest and shared duties and accountability. Third, in line with the second recommendation, the (potential) polarisation of local community as "us" and "them" (such as "those affected" and "those unaffected"; "those who should pay and those who should not", etc.) needs to be addressed carefully: our study implies how such a polarisation, associated with disinterest or ignorance, might weaken the social bonds, mutual trust and solidarity, and the general sense of community and flood preparedness. Our observations, however, also suggest how the issue might be diminished through empathy, possibly supported by sharing the views, experience and feelings with one another (for instance, sharing the different views of floods' consequences for the local quality of life could serve here as one of the suitable departure points). A fourth element is that the characteristics of local populations, such as their socio-demographic attributes or those relating to a previous experience with floods, need to be carefully considered in the planning and decision-making processes. Our results show how these characteristics are linked with distinct views on floods-related issues and with pertinent behaviours. Finally, governmental assistance seems to be in need in the case of individual limited options to realise particular measures on their own, or in cases of specifically vulnerable parts of population. In our study, for instance, we show how certain people may experience difficulties with taking out insurance or the costs of flood mitigation measures and activities. The system of such an assistance, however, needs to be developed constantly, taking into account the interlinked issues of (un)affordability, social (in)equality and (in)justice, and personal responsibility (including the implications of the crowding-out effect).

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# A retrospective and prospective view of current and future population ageing in the European Union 28 countries

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## Abstract

*Population ageing in the EU28 is an important twenty-first century phenomenon, affecting virtually every aspect of life in these countries. The results of the latest EUROPOP2018 population forecast indicate that the rate of ageing is accelerating. The aim of this paper is to analyse the current level of population ageing in the EU28, identify spatial differences, and point to likely trends by the middle of this century. For these purposes, we have used a combination of conventional chronological indicators of population ageing and a set of new indicators based on prospective age that allows for a more comprehensive and realistic view of population ageing. We use multivariate statistical methods (factor and cluster analysis) to identify groups of countries with similar population ageing characteristics, using both a retrospective and prospective approach. We decompose changes in selected ageing indicators into the separate effects of changes in the population composition (children under 15, working-age population, elderly). We then identify the effect of major demographic factors (migration, mortality, cohort turnover) for the set of EU28 countries*

**Key words:** population ageing, prospective age, spatial differences, demographic factors of ageing, population projection, European Union 28 countries

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## 1. Introduction

The latest United Nations report on world population (UN, 2017) clearly shows dynamic growth in population ageing in the twenty-first century, with the number and proportion of elderly people increasing in all countries. The ageing phenomenon is unprecedented (UN, 2001). These reports, and changes in the ageing European countries, are generally viewed with negativity, with particular concerns being expressed around the sustainability of public finances, economic growth, and the security of pension systems and social systems (e.g. Cuaresma et al., 2014; Bloom et al., 2010; Börsch-Supan, 2003).

Population ageing is an issue that extends beyond the scientific disciplines that have traditionally investigated it (demography, sociology and economics) and its almost universal presence has led to it being a key social, economic, health care and cultural issue with a wide spectrum of impacts (Lutz et al., 2008a). Several scholars (e.g. Gavrilov and Heuveline, 2003; Lutz et al., 2008a) see population ageing

as one of the greatest challenges of the twentieth century. In addition, many (e.g. Lutz et al., 2008ab) claim that the rise in the number of elderly people and as a proportion of the population in the most advanced countries is an irreversible trend that will accelerate.

In recent years, several studies have focused on the level, trends and spatial differences in population ageing (e.g. Atkins and Tons, 2016; Cook and Halsall, 2012; Kashnitsky et al., 2017). A wide range of approaches to population ageing have been adopted, from simple studies using conventional indicators (e.g. Długosz and Kurek, 2006; Káčerová et al., 2012; Káčerová and Ondačková, 2015) to more complex analyses involving various space-time modelling techniques (e.g. Reynaud et al., 2018), cluster analyses (e.g. Bivand et al., 2017) and autocorrelation techniques (e.g. Shiode et al., 2014). Some studies have sought to identify the principal factors determining temporal and spatial changes. Those by Kashnitsky et al. (2017) and Kashnitsky et al. (2019) are perhaps the most complex.

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Other scholars (e.g. Sanderson and Scherbov, 2015b; Spijker, 2015; Basten et al., 2015) have drawn attention to the complex nature of ageing, which is still largely analysed using chronological age-based tools. It is important to note that retrospective approaches, when used to analyse phenomena that are changing significantly, such as mortality, often produce a skewed view of population ageing and, in the absence of a more complex multidimensional approach, may even lead to distorted conclusions that then feed into decision-making processes (see for example, Sanderson and Scherbov, 2007; 2013). Increasingly, analyses of the phenomenon of ageing have tended to focus on the remaining years of life rather than years lived. Some important ageing characteristics, such as retirement, consumption, accumulation of human and tangible capital, health status, morbidity, cognitive abilities, consumer preferences, savings and levels of expenditure on social and health systems, are associated with remaining life expectancy (see e.g. Miller, 2001; Stearns and Norton, 2004; Bloom et al., 2003; Sanderson and Scherbov, 2005). With elderly people living longer, these aspects are becoming important at an increasingly older age, and therefore using a chronological definition to set the old-age threshold may not sufficiently capture reality (Sanderson and Scherbov, 2008, p. 2013; Spijker, 2015; Spijker and MacInnes, 2013). This and empirical evidence of the changing characteristics of the elderly population associated with longer life-spans, have led to efforts to apply alternative approaches to conceptualising age and population ageing. These are based on prospective age and look at age in terms of the number of remaining years of life.

It is also important to note that in demography, chronological age and prospective age (and in some studies thanatological age: Riffe et al., 2016; 2017) are only two of six possible ways of viewing time (the others are period, cohort, death cohort and life-span). As Riffe et al. (2016; 2017) point out, the use of various combinations of these temporal indicators greatly expands the possibilities for investigating the temporal dynamics of classical demographic processes and temporal interactions between these events. Studies that adopt a prospective approach to population ageing, such as Basten et al. (2015) and Sanderson and Scherbov (2015a, 2015b), frequently identify quite different levels, dynamics and, in some cases trends, from those using conventional chronological indicators. We therefore assume that accounting for differences in mortality rates could paint a significantly different picture of the level of population ageing in Europe. Generally, we expect to find shifts from younger populations to populations that are chronologically old and older, but with a high mean life expectancy (e.g. Southern European countries). We expect the opposite to happen in countries that appear younger but have relatively high mortality rates (compared to the EU28), which would then feature among the old and very old country categories in Europe.

As life expectancy is expected to increase and there is some degree of convergence in mortality rates (EUROSTAT, 2019), we expect population ageing to become increasingly similar across old and new member states under both the chronological and prospective approaches.

But population ageing is not just affected by mortality rates. Other demographic processes (fertility and migration) play an important role too, especially in relation to changes in age structure and to greater differences in the size of age cohorts. Based on some partial findings at the subnational level (Kashnitsky et al., 2017), we expect age cohort size to be a key factor in ageing.

Following from these hypotheses, the main aim of this paper is to geographically classify EU countries according to their level of population ageing using both a chronological and a prospective approach. This is the first time both approaches, which use established indicators to monitor demographic ageing, have been used for this purpose. In addition to focusing on the current picture (2018), we use the most recent EUROSTAT projection (EUROPOP, 2018) to show how it is likely to change by the mid-twenty-first century. We then identify the main demographic factors in each of the EU member states influencing the expected changes, using selected population ageing indicators.

## 2. Theoretical framework and the inclusion of a prospective research approach

The phenomenon of population ageing began at some stage in the development of modern and post-modern societies and is now generally thought to be primarily the result of a simultaneous decline in fertility, to persistently very low or even lowest-low levels (Lesthaeghe and Willems, 1999; Kohler et al., 2002), longer life expectancies and numerous post-war generations moving to the top of the age pyramid (Kashnitsky et al., 2017).

The main theories relevant to demographic ageing are as follows.

Theories of demographic transition (Coale, 1973; Coale and Watkins, 1986), and especially the second demographic transition which is now of particular relevance (van de Kaa, 1994; 1997; Lesthaeghe, 2010), attempt to explain changes in reproductive and family behaviours, specifically the decline in fertility rates to low and very low levels associated with delayed parenthood, which are accompanied by a marked fall in the number of childbirths and ageing at the bottom part of the pyramid.

In contrast, the theory of epidemiological transition was originally developed by Omran (1971), and subsequently extended to include fourth and fifth phases, mainly by Olshansky and Ault (1986) and Olshansky et al. (1997). The original theory of epidemiological transition points to a shift in mortality level, associated particularly with causes of death (Robine, 2003). Changes in age-specific mortality and the associated increased chances of survival changed the age structure of the population and led to population ageing in the various phases (Omran identified three phases). From around the latter half of the 1960s, Western European countries entered the phase of an onset of delayed degenerative diseases (Robine, 2003). The cardiovascular revolution (Meslé and Vallin, 2000; Yusuf et al., 2001) was an important factor in increasing the probability of living longer, and this contributed to a further relatively rapid fall in old age mortality such that the maximum risk of mortality shifted to an even older age. This led Eggleston and Fuchs (2012) to associate this phase with a longevity transition, and this is closely linked to the rectangularisation of the survival curve and the theory of compression of morbidity (Fries, 1980; Fries et al., 2011). Some scholars, however, have pointed out that the developmental trends in old-age morbidity are not clear-cut, and they have tended to favour a theory of dynamic equilibrium instead (Manton, 1982) or even the expansion of morbidity (Gruenberg, 1977; Kramer, 1980).

As Lutz and Skirbekk (2005) have stated, the current age structure is the result of previous population trends and is a predetermined internal factor of ageing. We should note

above all the effect of marked differences in the size of a population cohort. Over a long stretch of time, the large post-war generations of the 'golden age of the family' have been entering retirement age at an increasingly older age. Some European populations also had 'boomer' generations in the 1970s. This cohort turnover, then, continues to be another important aspect of dynamic ageing processes in Europe (Kashnitsky et al., 2017).

The last issue deserving attention is the role played by international migration. Given the specific age profile of migrants, migration can impact on the number and proportion of working-age individuals, both in a positive and negative sense. Ultimately, though, migration has both a direct and an indirect effect on population age structure and has become an important reproductive factor in many European countries (e.g. Sobotka, 2008).

As Ryder (1975) pointed out earlier, followed by Sanderson and Scherbov (2005, 2007) and Lutz et al. (2008b), a chronological approach based on number of years since birth is not a suitable tool for defining the elderly population. In adulthood, most of the characteristics associated with ageing are affected rather by the remaining years of life. Over the long term, old age is associated more with the remaining years of life than with number of years lived (Sanderson and Scherbov, 2010, 2015b). By focusing on chronological age, the assumption is made that the characteristics of the elderly population remain unchanged over time and space. That would mean that there are no between-country differences in the characteristics of the elderly population, and that they have not changed and nor will they change over time. But lower mortality alters the distribution of the age structure of the population and shifts the distribution of potential years of life (Spijker, 2015). In addition, empirical findings reveal that, compared to their predecessors, elderly people in recent days are more educated, more mobile, have better cognitive abilities, declining morbidity, and so on (Sanderson and Scherbov, 2013). In Europe, there are relatively large differences in life expectancy, primarily between the old and new EU28 member states. To a large extent, the differences mirror the well-known East–West mortality gradient (Meslé and Vallin, 2002), which began emerging gradually in the mid-1960s (Vallin and Meslé, 2001). Equally, we should not overlook the significant differences in mean life expectancy between the sexes due to excess male mortality.

The growing need to view ageing in terms of prospective age has led to a series of studies (e.g. Spijker, 2015; Sanderson and Scherbov, 2013, 2016) that seek to define new thresholds for old age and for the elderly population. But it is not the age limit that is the main difference between the conventional chronological approach to ageing and the prospective one, but that the prospective approach also accounts for changes in the characteristics associated with ageing. The prospective age approach takes account of remaining life expectancy and so is consistent because everyone with the same prospective age, regardless of calendar year, population, region and so on, has the same life expectancy and therefore the same number of years of life ahead of them (Sanderson and Scherbov, 2007). Unlike the conventional approach, prospective age reflects changes in mortality and thereby related personal characteristics. Regardless of the population studied, in its space or its time, constant prospective age will always be defined in the same way.

We should not reject conventional approaches but grasp the opportunities offered by prospective ones to extend the research on population ageing. That is the goal here – to take

into account both approaches to population ageing in an analysis of current and potential future changes in the level and spatial differentiation of population ageing in the EU.

The results of studies using prospective age to investigate ageing in Europe show that the use of conventional chronological age may significantly distort the level, dynamics and spatial patterns of population ageing (e.g. Klapková et al., 2016; Šprocha et al., 2018; Šídlo et al., 2019). The prospective ageing indicators point to a significantly lower level of ageing in several EU member states, but when conventional instruments are used these states appear to be the oldest ones (e.g. Šprocha et al., 2018; Šídlo et al., 2019). This can be seen at both national and regional levels (Šprocha et al., 2018; Šprocha and Ďurček, 2018).

Our approach to identifying population ageing indicators follows that of Davies and James (2011), who view spatial inequalities in the level of population ageing as the result of a wider set of demographic, social, economic and political and environmental factors, with differing levels of intensity in different locations. We focus on demographic factors and so base our paper on the latest findings of Kashnitsky et al. (2017, 2019). By identifying the demographic factors behind regional changes in population ageing, we find that the expected convergence in ageing will depend mainly on changes in the age structure of the Eastern European regions. Cohort turnovers play a major role in convergence (Kashnitsky et al., 2017), but changes in the mortality rates of the working-age population are just as important and have the most consistent impact on convergence in ageing (Kashnitsky et al., 2017).

Vallin and Meslé (2004) contend that mortality will significantly contribute to convergence in ageing in the coming decades, as mortality rates have been improving relatively slowly (and continuously) in recent decades. Kashnitsky et al. (2017) have noted that identifying convergence in future population ageing is dependent on the accuracy of the population projection (in their case, Eurostat EUROPOP, 2013). While assumptions about age structure and associated cohort turnover and mortality are generally reliable, there is uncertainty over the validity of assumptions about future migration (Kashnitsky et al., 2017, p. 14). Although the results of their analysis show that working-age migration has almost no effect on convergence in the long run, this can be explained by setting up a convergence scenario for future migration developments in Eurostat's projections, but cannot be considered the most realistic assumption (Kashnitsky et al., 2017). The significance of changes in the working-age component also relates to economic convergence in EU regions (Kashnitsky et al., 2019).

### 3. Data and methods

For the purposes of this paper, we use a constant chronological age of 65 years for defining old age for the retrospective approach, and for the prospective approach, we use the age at which individuals have a remaining life expectancy of 15 years to establish an old-age threshold that fully captures the main dimensions of population ageing, following Sanderson and Scherbov (2008b). This threshold is empirically derived from the level of mortality rates of countries with the longest life expectancy in the world (Sanderson and Scherbov, 2015a). As there are significant life-span differences between the EU28 member states and the sexes, we incorporate this aspect directly into our calculations (see Tab. 1).

Chronological indicator		Prospective indicator	
Proportion of elderly (prop.65+)	(1) $\frac{P_{x65+}^{m,c} + P_{x65+}^{f,c}}{P_{0-\omega}^{m,c} + P_{0-\omega}^{f,c}}$	Prospective proportion of elderly (prop.RLE15-)	(5) $\frac{P_{x(RLE15-)}^{m,c} + P_{x(RLE15-)}^{f,c}}{P_{0-\omega}^{m,c} + P_{0-\omega}^{f,c}}$
Ageing index (AI)	(2) $\frac{P_{x65+}^{m,c} + P_{x65+}^{f,c}}{P_{0-14}^{m,c} + P_{0-14}^{f,c}}$	Prospective ageing index (PAI)	(6) $\frac{P_{x(RLE15-)}^{m,c} + P_{x(RLE15-)}^{f,c}}{P_{0-14}^{m,c} + P_{0-14}^{f,c}}$
Old-age dependency ratio (OADR)	(3) $\frac{P_{x65+}^{m,c} + P_{x65+}^{f,c}}{P_{20-64}^{m,c} + P_{20-64}^{f,c}}$	Prospective old-age dependency ratio (POADR)	(7) $\frac{P_{x(RLE15-)}^{m,c} + P_{x(RLE15-)}^{f,c}}{P_{20-x(RLE>15)}^{m,c} + P_{20-x(RLE>15)}^{f,c}}$
Average age (AA)	(4) $\frac{\sum_{x=0}^{\omega} x \cdot (P_x^c + 0.5)}{\sum_{x=0}^{\omega} P_x^c}$	Population average remaining years of life (PARYL)	(8) $\frac{1}{2} \cdot \sum_{x=0}^{\omega} P_x^c \cdot (e_x^c + e_{x+1}^c)$

Tab. 1: Used chronological and prospective indicators

Notes:  $P_{x65+}^{m/f,c}$  is the number of men/women in the country (c) aged 65 and above;  $P_{0-\omega}^{m/f,c}$  is the total number of men/women in the country (c);  $P_{0-14}^{m/f,c}$  is the number of men/women in the country (c) aged 0–14 years;  $P_{20-64}^{m/f,c}$  is the number of men/women in the country (c) aged 20–64 years;  $P_{x(RLE15-)}^{m/f,c}$  is the number of men/women in the country (c) at ages with a remaining life expectancy (RLE) of 15 years or less;  $P_{20-x(RLE>15)}^{m/f,c}$  is the number of men/women in the country (c) aged from 20 to the age when remaining life expectancy is still greater than 15 years;  $P_x^c$  is the number of persons in the country (c) aged (x);  $e_x^c$  is life expectancy at age (x).

We use basic indicators of ageing, such as the proportion of elderly people and the ageing index, in addition to some more complex indicators. Concerns around population ageing mostly relate to the degree to which the elderly population places a burden on the working-age population. The old-age dependency ratio is used as a rough approximation of this burden. We shifted the lower working-age threshold to 20 years to reflect the growth in amount of time spent in education and training. All three indicators are constructed as prospective indicators: prospective proportion of elderly people; prospective ageing index; and prospective old-age dependency ratio. The last indicator of age structure used in our analysis is average age and the prospective alternative PARYL (population average remaining years of life)<sup>1</sup>.

PARYL is essentially the weighted average of remaining years of life. Hersch (1944) assumed that the average person at a certain age (x) has a potential number of years of life identical to the average life expectancy ( $e_x$ ) at that age. PARYL gives us the average remaining years of life of one “average” member of the observed population. Unlike the preceding indicators of age and population ageing, PARYL values capture the acceleration of ageing. This is a logical property: the greater the number of remaining years of life a person has, indicated by a higher PARYL value, the younger the observed population is on average (Lutz, 2009). Table 1 gives an overview of the indicators used and the methods of calculation.

These indicators were designed for the EU28 member states. The data source is the freely available Eurostat database containing the results of past population forecasts<sup>2</sup>.

They were designed for the period from 2018 to 2100. We consider projections beyond 2050 to have accuracy issues, so we use the data for 2018 and for 2050. We consider the baseline scenario only, as it seems the most likely scenario.

Population ageing is a multidimensional phenomenon which, as shown above, can be quantified using various chronological and prospective indicators. As our aim is to create a typology of EU countries based on present and future levels of ageing, we use several multidimensional statistical methods. The input data matrix contained information for the 28 EU member states X their eight selected indicators (Tab. 1) and for two years (2018 and 2050). First of all, we tested the input indicators for mutual linear dependence. Pearson correlation coefficients showed (see Appendix 1) very close linear relations between the pairs of selected indicators for population ageing (in the majority of pairs, the values varied above  $\pm 0.8$ ; for 2018, the range of partial correlations ranged from 0.36 to 0.99, with 43% of the correlations exceeding 0.80; for 2050 the interval was 0.74–0.99, and 86% of the partial correlations were greater than 0.8; almost all partial correlations occur with a 99% significantly high interdependence, which indicates that one of the methods for reducing the covariance of the input variables should be used to create a cluster analysis. The Kaiser-Meyer-Olkin index (KMO) subsequently confirmed the high mutual interdependence of the variables. The values (2018 = 0.72; 2050 = 0.69) indicated that a Principal Components Analysis or Factor Analysis of the input data could be performed; the results of the Bartlett’s Test of Sphericity and Measures

<sup>1</sup> Median age and median prospective age are not comparable indicators, and they are not used in this paper

<sup>2</sup> Published since 07/2019 and available at <https://ec.europa.eu/eurostat/data/database> under Population and Social Conditions – Population Projections – EUROPOP2018 – Population Projections at the National Level; Population data on 1 January by age, sex, and type of projection, Assumptions for life expectancy by age, sex, and type of projection, Assumptions for mortality rates by age, sex, and type of projection, and Assumptions for net migration by age, sex, and type of projection.

of Sampling Adequacy were significant (greater than 0.6 for all variables in the anti-image correlation matrix: for more information, see Mareš et al., 2015). The factors were extracted based on Principal Component Analysis (PCA). The number of factors was determined by evaluation of the solution matrix eigenvalues (Kaiser's rule for an eigenvalue greater than 1). As several factor loadings had high values for both factors (year 2018), the factors had to be rotated to achieve best "fit" with one of the extracted factors. We used orthogonal rotation so the factors remained independent of each other after rotation (Mareš et al., 2015). For this purpose, we used the most commonly applied method, Varimax with Kaiser Normalization.

The values of the extracted joint factors (i.e. the factor scores estimated for each country) meet the mutual independence condition and are therefore suitable inputs for a cluster analysis. The aim is to categorise the EU member states into groups of countries with the most similar population ageing pattern (measured both retrospectively and prospectively), while ensuring as large as possible differences between the groups. To achieve this we maximised intracluster homogeneity using Ward's hierarchical clustering method – the most commonly used method – and Euclidean distances to express the similarity or dissimilarity in population ageing between countries (for more information: see Stankovičová and Vojtková, 2007; Mareš et al., 2015).

Our second aim is to identify the main demographic factors determining the level of population ageing in each EU member country, and changes in that level up to the mid-twenty-first century. We first decomposed the differences between the present and future-level of population ageing, according to the effect of these changes in the elderly population (changes in numerator) on the relevant population in the denominator. This depends on the indicator, for the denominator it is the child population (under 15), working age population (20–64 years), and total population of the country. Each of the ageing indicators represents the rate, so for this purpose we used the two-rate decomposition formula developed by Kitagawa (1955) and then further developed by Das Gupta (1991), among others. If we have two factors  $\alpha$  and  $\beta$ , the rate  $F(\alpha, \beta)$  is a function of these factors. If these factors acquire the value  $a, b$  in the population in 2050 and  $A, B$  in 2018, the differences between these rates can be expressed as:

$$F(a, b) - F(A, B) = \frac{a}{b} - \frac{A}{B} \tag{9}$$

This relation can then be expressed as:

$$F(a, b) - F(A, B) = \frac{1}{2} \left[ \left( \frac{a}{b} - \frac{A}{b} \right) + \left( \frac{a}{B} - \frac{A}{B} \right) \right] + \frac{1}{2} \left[ \left( \frac{a}{b} - \frac{a}{B} \right) - \left( \frac{A}{b} - \frac{A}{B} \right) \right] \tag{10}$$

If variables  $a, A$  indicate the number of persons aged 65+ (elderly people) in 2050 or 2018, and variables  $b, B$  are the relevant age cohorts entered into the calculation of the individual ageing indicators (e.g. children under 15, persons aged 20–64 years, total population) in 2050 or 2018, the first part of the expression on the right side of the equation represents the  $\alpha$ -effect, i.e. changes in the elderly population, and the second part the  $\beta$ -effect, i.e. the size of the effect of the change on the relevant age cohort in the denominator of the relevant rate.

If we change the first expression on the right-hand side of the equation (10), we obtain the following:

$$\frac{1}{2} \left[ \left( \frac{a}{b} - \frac{A}{b} \right) + \left( \frac{a}{B} - \frac{A}{B} \right) \right] = \frac{1}{2} \left( \frac{1}{b} \right) (a - A) + \frac{1}{2} \left( \frac{1}{B} \right) (a - A) = \frac{1}{2} (a - A) \left( \frac{1}{b} + \frac{1}{B} \right) \tag{11}$$

According to Kashnitsky et al. (2017), the size of the exposed population  $P_{x,x+m}^{t+n}$  in the age cohort  $(x, x + m)$ , in the year  $(t + n)$  can be expressed thus:

$$P_{x,x+m}^{t+n} = P_{x,x+m}^t + M_{x,x+m}^{t \rightarrow n} + CT_{(x-1) \rightarrow (x+m-1)}^{t \rightarrow n} - D_{x,x+m}^{t \rightarrow n} \tag{12}$$

where  $M_{x,x+m}^{t \rightarrow n}$  represents net migration in the age cohort  $(x, x + m)$  in the years  $(t)$  to  $(n)$ ,  $D_{x,x+m}^{t \rightarrow n}$  is the number of deceased in the age cohort  $(x, x + m)$  in the years  $(t)$  to  $(n)$  and  $CT_{(x-1) \rightarrow (x+m-1)}^{t \rightarrow n}$  represents the cohort turnover in the years  $(t)$  to  $(n)$ .

We can define it as the difference between the number joining the control group (e.g. children, working-age, elderly) and the number leaving the cohort. For example, in the OADR decomposition for working-age individuals, it is the difference between the number of people aged 19 to 64. The cohort turnover for the elderly population represents those aged 64 entering the cohort because as there is no cohort above this death or migration are the only routes out of it. The cohort turnover for the child component is the difference between the number of live births, representing entry into the cohort and the number of children aged 14.

Following Kashnitsky et al. (2017), by replacing the  $(a-A)$  relation in equation (12) we obtain an expression which enables us to empirically derive migration levels and effect of mortality in the relevant age cohort  $(x, x + m)$  and cohort-turnover effect for years  $(t)$  and  $(n)$  on the change in size of the elderly population:

$$\frac{1}{2} (a - A) \left( \frac{1}{b} + \frac{1}{B} \right) = \frac{1}{2} CT_{(x-1) \rightarrow (x+m-1)}^{t \rightarrow n} \left( \frac{1}{b} + \frac{1}{B} \right) + \frac{1}{2} M_{x,x+m}^{t \rightarrow n} \left( \frac{1}{b} + \frac{1}{B} \right) - \frac{1}{2} D_{x,x+m}^{t \rightarrow n} \left( \frac{1}{b} + \frac{1}{B} \right) \tag{13}$$

By making a similar adjustment to the second part of the right-hand side of the expression (10) measuring the  $\beta$ -effect, we obtain a relation that enables us to identify the effect of the separate demographic factors on changes to the size of the rate denominator, i.e. in our case, the child component, working-age people or total population:

$$\frac{1}{2} \left[ \left( \frac{a}{b} - \frac{a}{B} \right) - \left( \frac{A}{b} - \frac{A}{B} \right) \right] = \frac{1}{2} \left( \frac{1}{b} - \frac{1}{B} \right) (a + A) = -\frac{1}{2} (b - B) \left( \frac{a+A}{bB} \right) = -\frac{1}{2} CT_{(x-1) \rightarrow (x+m-1)}^{t \rightarrow n} \left( \frac{a+A}{bB} \right) - \frac{1}{2} M_{x,x+m}^{t \rightarrow n} \left( \frac{a+A}{bB} \right) + \frac{1}{2} D_{x,x+m}^{t \rightarrow n} \left( \frac{a+A}{bB} \right) \tag{14}$$

### 4. Results

The factor extraction using PCA and the calculation of eigenvalues (and a scree plot) shows that for the first year (2018), two principal factors were obtained. The first component (factor) accounted for almost 78% of the variance and the second almost 17%. Together the two factors explain more than 94% of the variance in the original input data. The correlations between the factor and factor loadings shows

there are two significant groups. The first factor can be labelled a prospective factor and the second a chronological factor, as the latter is saturated with chronological indicators of ageing only. It is clear from the results that more than two thirds of the variation in population ageing in the EU28 can be explained by differences in prospective indicators. They also indirectly show that using mortality rates when designing ageing indicators enables us to obtain a more precise understanding of the spatial differences in population ageing in the EU28 countries than relying exclusively on conventional chronological age-based indicators does.

For 2050, using Kaiser's Rule (an eigenvalue of more than 1), only one factor was identified from the input data. It explained more than 90% of variation and was saturated by all the chronological and prospective indicators (all factor loadings were higher than 0.9). The results of the forecasts and data obtained from Eurostat's EUROPOP2018 show the high level of convergence between the prospective and chronological indicators and accounts for the spatial variation in level of population ageing in the EU28 countries. To some extent, this may be partly because of the expected convergence in mortality rates between the old and new member states. Interestingly, the values of the coefficient of variation (Appendix 2) indicate that between 2018 and 2050, the variation identified by the chronological ageing indicators will intensify (increase in heterogeneity), while the opposite is the case with the prospective indicators. The values of the input indicators can be found in Appendix 2.

Based on squared Euclidean distances and the clustering trajectory for 2018, we can identify three basic groups of EU countries according to their level of population ageing (see Fig. 1). The average values of the monitored/control indicators for these clusters are presented in Table 2.

The first cluster contains the five states with the lowest values for both the chronological and prospective indicators of ageing. This relatively inhomogeneous group consists of Ireland, Luxembourg, Poland, Slovakia and Cyprus. The elderly proportion is smaller in these countries, but not as small as the child component of the population. The final values of the indicators based on this youngest component of the population (ageing index or average age) are not as low. Therefore, comparatively speaking, these states are younger than the others.

At the other end of the spectrum is the second cluster containing six former socialist states – two Baltic states (Latvia and Lithuania), Hungary, Croatia, Romania, and

Bulgaria. In 2018, these countries were the oldest, especially under the prospective approach. But when we look at the chronological indicators, we see they are very close to the third group, for which the selected indicators sometimes have lower values. When using the prospective approach, we obtain a more distinct cluster that stands out more from the third group, which could be called the average group because it includes most EU countries (17 countries): all the Western European countries (except Ireland and Luxembourg), all the Northern and Southern European countries (except Cyprus), and some countries in Central Europe, and Estonia, which is the only Baltic state.

The EUROPOP2018 population projection shows ageing will continue and intensify, but also that it will exhibit marked spatial changes. It indicates that by mid-twenty-first century there will be three main groups of countries. The first cluster of member states is the youngest. Most of the countries are in Northern and Western Europe (see Fig. 2). Using the conventional approach, many are older countries. The second cluster is the opposite. The EUROSTAT forecast shows that in 2050 the member states in this cluster will be the oldest states in Europe, using both the chronological and prospective approaches. It contains the oldest populations – Italy, Greece, and Portugal, along with Bulgaria, Croatia, and Lithuania.

The third cluster contains countries with an average level of population ageing under both the prospective and chronological approaches. This cluster is spatially heterogeneous with no distinct geographical pattern. Table 2 presents the average values of the ageing indicators for the clusters identified.

Specifically, the chronological indicators for 2018 show that Ireland, Slovakia, and Cyprus are young countries, while Italy and Greece are old countries. In 2050, the expectation is that Sweden and the United Kingdom will be young, while Greece and Portugal will be old. The prospective indicators for 2018, show that Bulgaria, Latvia, and Lithuania are old countries, while Ireland and Cyprus are young. For 2050, only Sweden stands out under the prospective approach, and Lithuania and Greece have old populations.

As noted in the methodological section, the overall changes in the selected indicators of population ageing can be decomposed into two main effects: change in the elderly population (aged 65+) and change in the population in the denominator (working-age, children, total population).

Indicators	Cluster 2018			Cluster 2050		
	I	II	III	I	II	III
Prop. 65+	15.3	19.7	19.9	24.2	32.9	29.0
OADR	24.6	32.5	33.6	43.7	65.6	55.7
AI	92.9	131.9	129.2	161.3	264.3	204.8
AA	39.8	42.9	42.6	44.7	49.3	46.9
Prop. RLE-15	9.6	16.1	12.2	12.9	20.0	16.9
POADR	14.2	25.1	18.3	19.4	31.7	26.3
PAI	58.7	107.9	79.5	85.7	160.3	119.0
PARYL	43.0	36.9	41.6	43.8	38.1	40.4
<b>Number of countries</b>	<b>5</b>	<b>6</b>	<b>17</b>	<b>9</b>	<b>6</b>	<b>13</b>

Tab. 2: Average values of indicators for the clusters  
Sources: EUROSTAT, 2019; authors' calculations

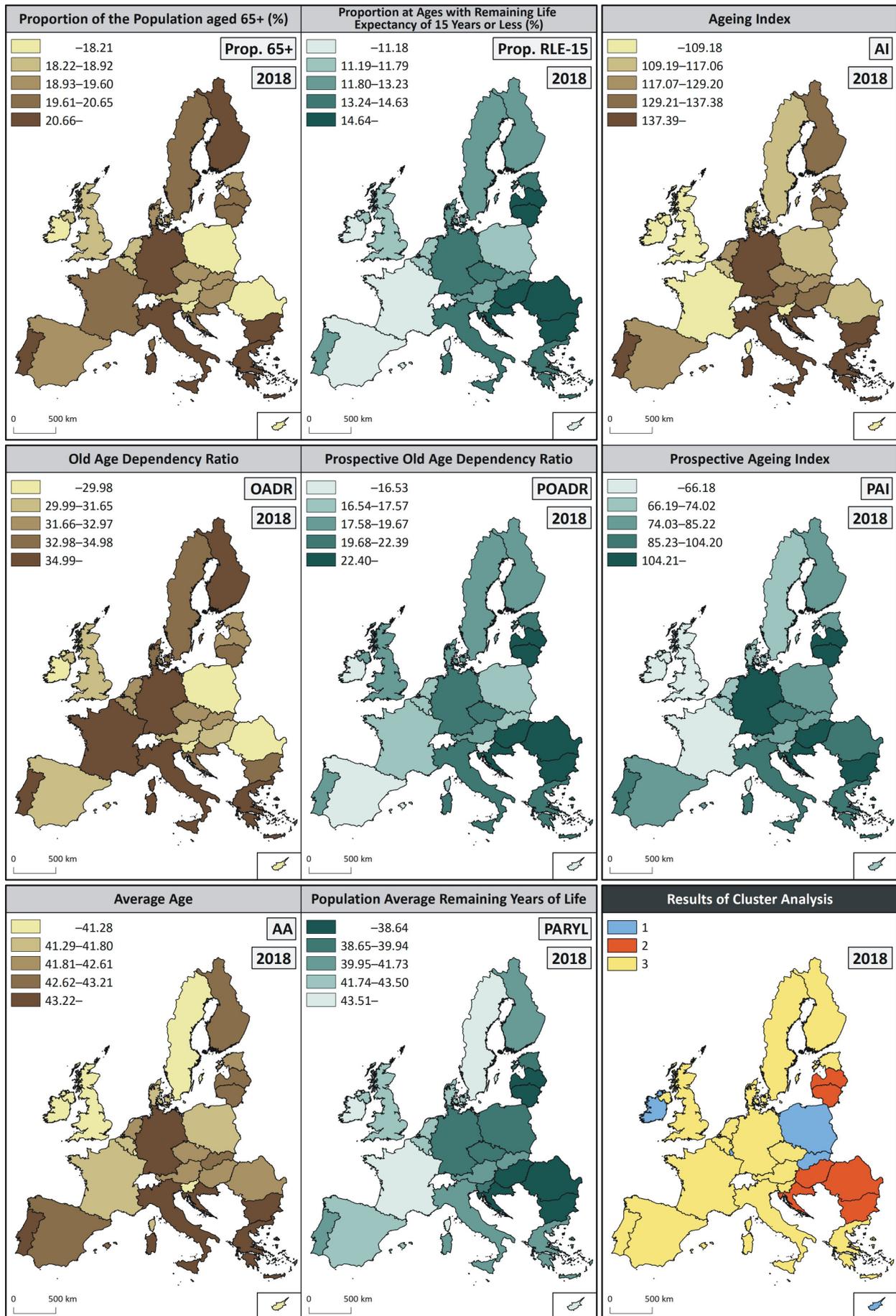


Fig. 1: Clusters of European countries by level of selected chronological and prospective indicators of ageing, 2018  
Sources: EUROSTAT, 2019; authors' calculations

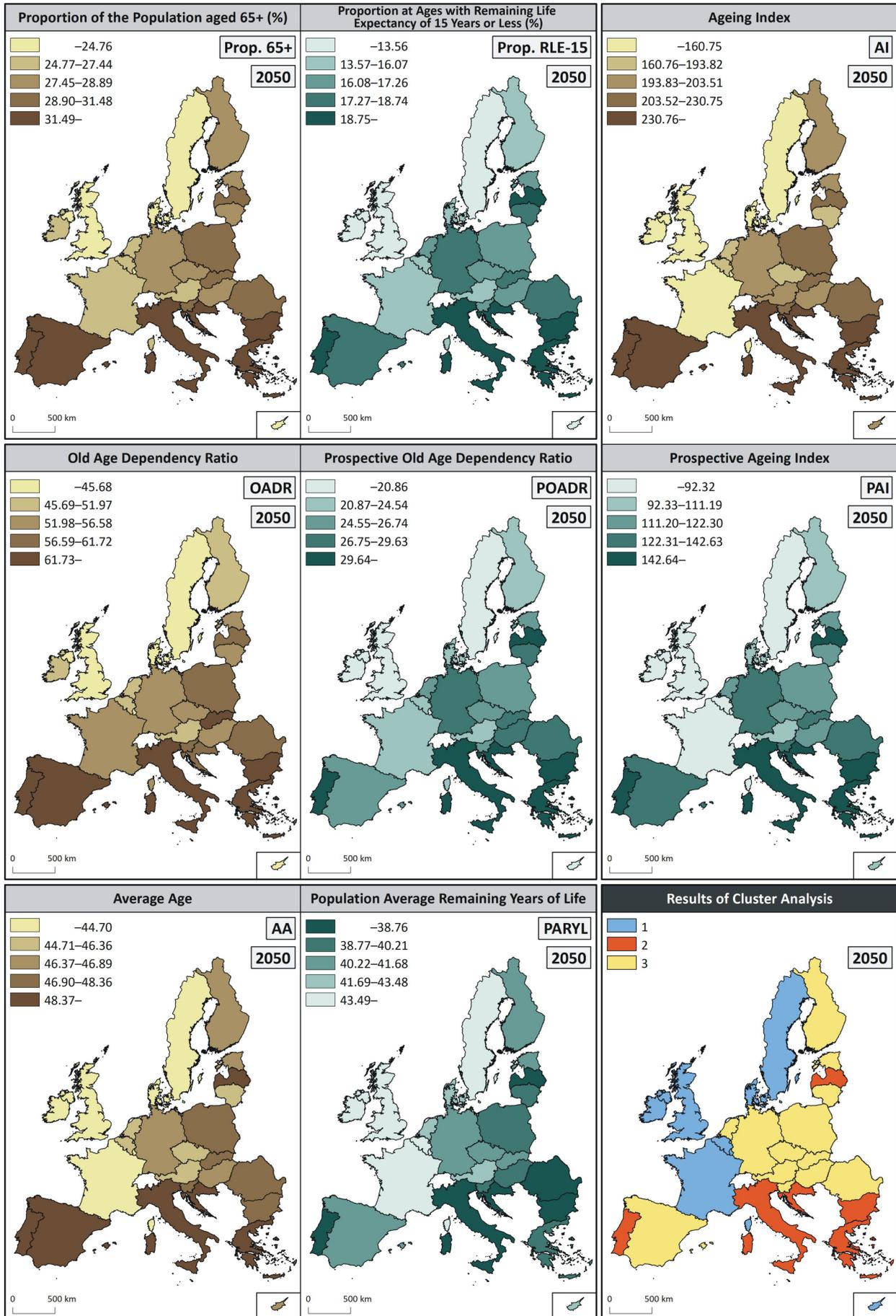


Fig. 2: Clusters of European countries by level of selected chronological and prospective indicators of ageing, 2050  
 Sources: EUROSTAT, 2019; authors' calculations

Figures 3–5 show that, according to the EUROPOP2018 population forecast, by the mid-twenty-first century, the share of the elderly population will have grown, and the elderly component will outweigh the child component, and that in all EU countries the elderly population will place an increasing burden on the working-age population. These changes will occur most rapidly in Southern Europe (except Malta and Cyprus), and in several former Eastern Bloc countries (Slovakia, Poland and Slovenia, in particular). The opposite will be true in Northern Europe and in some Western European countries.

As the number of elderly people in the population is expected to increase in all member states, the effect of change in the elderly component will be to raise the values of the ageing control indicators. The strength of the effect will differ geographically. It will be stronger in the countries currently identified as the youngest (Slovakia, Poland, Ireland, Luxemburg, Cyprus), and in some states that our analysis identifies as the oldest (Spain, Portugal). The effect of the change in the elderly section of the population will be weakest in the Balkans and Baltic states and the north of Europe, and in Germany and Hungary.

As the results of the internal decomposition of the elderly component in each EU member state shows, cohort turnover is the principal factor along with improved mortality, and thus mortality effect. The migration effect will be minimal for this age group (see Appendix 3).

Only eight EU member states can expect the number of working-age individuals to rise by 2050. Most are located in the north west, but Malta and Cyprus in the south are included as well (see Fig. 3). This will mitigate the effect of a growing elderly component; it is also why these countries have the lowest forecasted rise in OADR (except Ireland). The opposite will occur in the EU member states in the Balkans, the Baltic states and certain Southern European and Eastern European countries. The decomposition of demographic factors shows that cohort turnover (the strongest effect will be in southern and south eastern EU countries) accounts for these changes and, in the Balkan and Baltic states, this trend is exacerbated by (e-)migration. All EU member states are expected to see a continued improvement in mortality and convergence, and changes in mortality will compensate for the reduction in the working-age component. Its effect will be strongest in the former socialist member states, where mortality tends to be worse than in other EU countries (Fig. 3 and Appendix 3).

Although EUROPOP2018 forecasts a slight rise in fertility (except in France), most member states have low fertility over the long-term<sup>3</sup>, and when combined with the fall in the reproductive population<sup>4</sup>, this will contribute to an overall decrease in the number of children in the EU. EUROPOP2018 forecasts that by mid-twenty-first century, the opposite phenomenon could occur in eight member states. As a result, the effect of change in the child component could mitigate the growth in the ageing index in these countries (see Fig. 4

and Appendix 4). The opposite situation will probably occur due to the ongoing low fertility and the cohort shift in the reproductive population (see footnote 4), particularly in members states in Southern Europe and the Balkans and Lithuania.

Changes in the child component and expectations of positive net migration in member states will counteract the rise in ageing index values (Appendix 4). This also applies to the improved mortality among children. The cohort-turnover effect will be the main factor in the majority of members states (except in the afore-mentioned eight countries) contributing to the increase in ageing index values.

In addition to the anticipated rise in the number of elderly people in all EU28 member states, as analysed above, the trend in total population will be reflected in the changing proportion of elderly people (see Fig. 5 and Appendix 5). Except for the Czech Republic, the population is expected to decrease in all former socialist EU members states between 2018 and 2050. The old member states in Southern Europe (except Malta and Cyprus) and Germany and Finland are expected to see a negative population trend. Thus, the overall population trend will balance out the growing proportion of the elderly component in the population. The opposite will occur in the remaining member states, where the effect of the expected growth of the population will mitigate growth in the share of elderly people in the population.

## 5. Discussion and conclusions

Having identified differences in the mean longevity of the elderly population in the EU28 member states and the continuously lengthening life-span, we can agree with Sanderson and Scherbov (2008) that using chronological age to set the value of the old-age threshold no longer accurately captures the main characteristics of population ageing. Over time and space, the old age threshold cannot simply be seen in fixed terms as the number of years lived. The number of years of remaining life is a much more important indicator in regard to ageing. The results of our analysis confirm this contention. When prospective indicators are used, the spatial distribution and level of population ageing differ. The Principal Components Analysis showed that prospective indicators better explain current variation in ageing across the EU28. No less important are questions relating to other practical issues affecting or associated with population ageing. For example, it is especially important to account for longer life-spans and the threshold of old age when setting pension age. As the OECD (2017) analysis shows, OECD countries tend to raise the pension age by a certain number of years to a new fixed threshold (fixed to 60–67 years, most commonly at 64 or 65 years). A more progressive approach to pension age reform, however, has been adopted in Denmark, Finland, Italy, the Netherlands, and Portugal (and until recently Slovakia), where the increase in pension age has been pegged to mean life expectancy (OECD, 2017).

<sup>3</sup> In all member states, total fertility is less than 2 children per woman and, according to EUROPOP2018, will remain so. In 11 countries it is less than 1.5 children per woman, and forecasted absolute fertility growth will be around 0.02 to 0.27 in 2050 (except in France, where it will drop slightly).

<sup>4</sup> According to EUROPOP2018, across the EU28 the number of women of reproductive age ranges from over 112 million to slightly over 100 million. Growth in the reproductive base is expected in only eight countries (ranked according to relative growth between 2018 and 2050: Luxemburg, Sweden, Malta, United Kingdom, Ireland, Belgium, Denmark and Cyprus). By contrast, in the southern member states, the Balkan and Baltic member states and in some former socialist countries in Central Europe, the 1970s boomer generations will be entering post-reproductive age and will be replaced by the smaller generations from the 1990s and the first two decades of the new millennium, which will contribute to a marked decrease (of 25–35%) in the reproductive base.

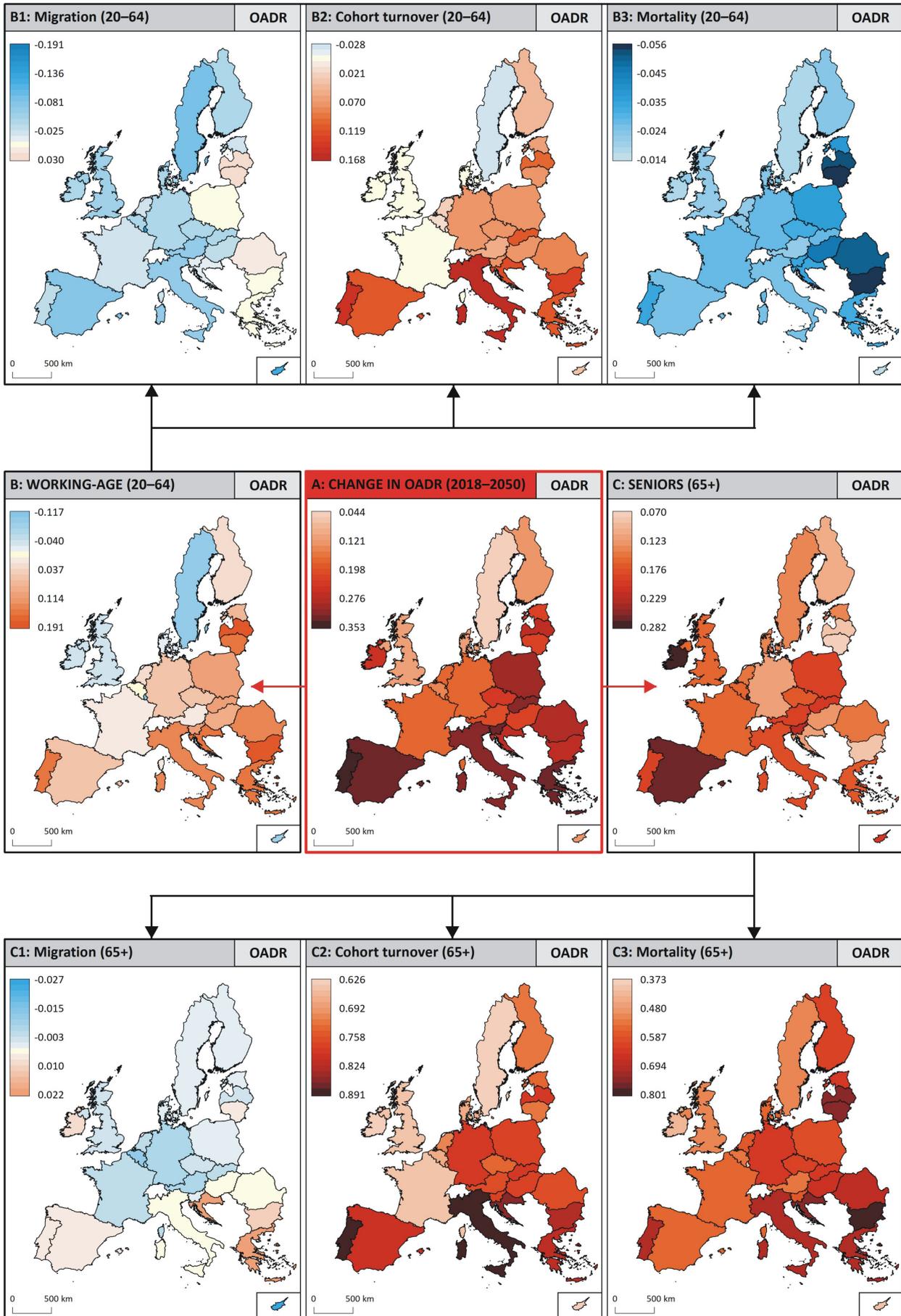


Fig. 3: Decomposition of the Old-Age Dependency Ratio (OADR) between 2018 and 2050  
Sources: EUROSTAT, 2019; authors' calculations

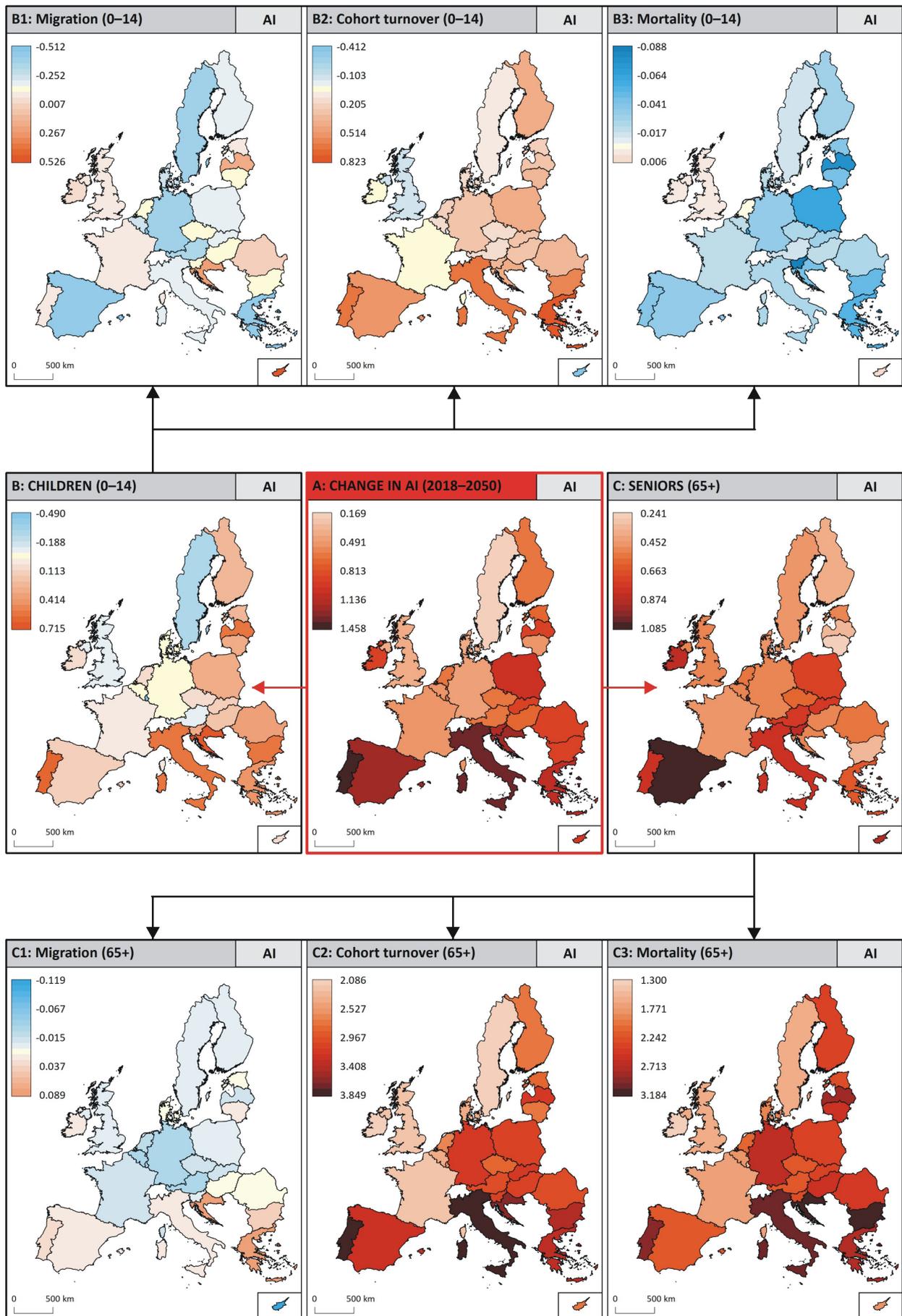


Fig. 4: Decomposition of the Ageing Index (AI) between 2018 and 2050  
 Sources: EUROSTAT, 2019; authors' calculations

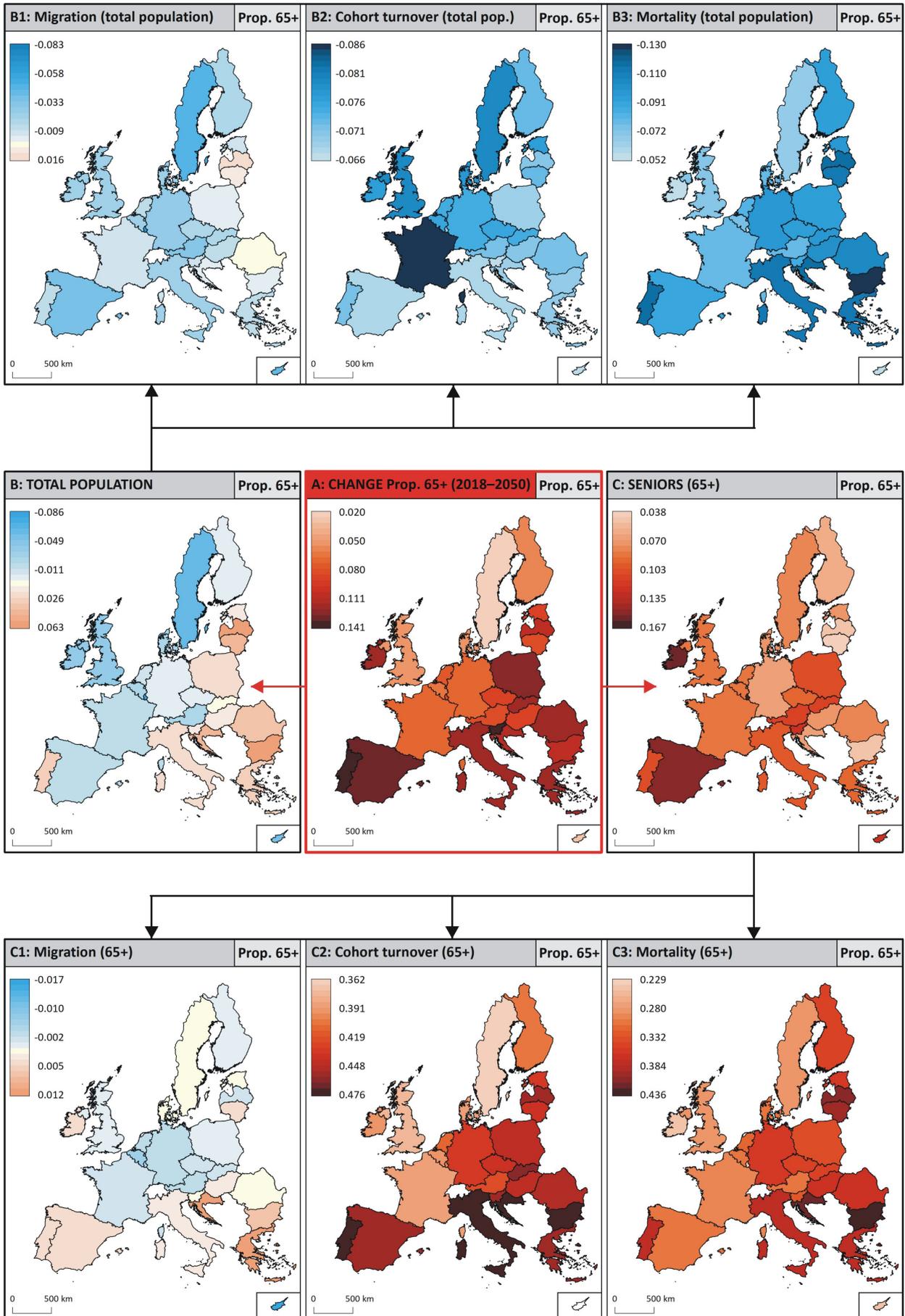


Fig. 5: Decomposition of the proportion of elderly (65+) between 2018 and 2050  
Sources: EUROSTAT, 2019; authors' calculations

Our study confirms, as have other European and non-European studies (e.g. Basten et al., 2015; Lutz et al., 2008b; Sanderson and Scherbov, 2013; 2015a; 2016; Scherbov et al., 2016; Šprocha et al., 2018), that when the level of population ageing is measured using conventional chronological-age indicators, the resulting picture can differ from when a prospective approach is used. In fact, the more detailed analyses of the development trends in these studies indicate a more rapid rate of change and obtain contrasting values for the individual indicators. As a result, the more rapid the change in life expectancy, the slower the rate of change in the characteristics of population ageing. This could even lead to a situation where the rapid increase in mean life expectancy of the elderly population contributes to a slowing of population ageing or even its reversal, and thus to the youthing of the population (see for example: Sanderson and Scherbov, 2005, 2013, 2015). Our results confirm the results of several other studies (e.g. Sanderson and Scherbov, 2013; Spijker, 2015; Basten et al., 2015) that demonstrated that using the traditional retrospective approach based on chronological age, considerably limits the information obtained, and provides an incomplete and in many ways distorted picture of population ageing. By combining prospective age and chronological age, we obtain a richer analytical framework that provides more comprehensive insights into population ageing in both dimensions.

When both approaches are used, there are relatively large differences in population ageing levels among the EU member states (see Šprocha et al., 2018; Šídlo et al., 2019). Combining the conventional retrospective and the newer prospective indicators of ageing enables us to identify several groups of countries according to current and future levels of population ageing. When incorporating the prospective approach, the current picture of population ageing in EU member states differs in some ways from that presented in some studies (e.g. Długosz and Kurek, 2006; Káčerová et al., 2012; Káčerová and Ondačková, 2016). It indicates that ageing is taking place in some former socialist countries as well as in the southern and some northern Europe countries. This confirms existing knowledge (e.g. Šprocha et al., 2018; Šídlo et al., 2019) that these countries and regions have the highest mortality rates within the EU. Conversely, particularly in the north and south of Europe, the prospective indicators of ageing show a significantly lower level of population ageing.

With the projected continued lengthening of life-spans and an increasing convergence in mortality rates, not just between the old and new member states but also between the sexes, we may well see population ageing stabilising or converging. Similarly, Kashnitsky et al. (2017) have shown mortality has a stabilising effect on the convergence of population ageing. According to their research, mortality rates are slowly improving and there are relatively large differences in initiation levels in the former Eastern and Western bloc countries. This is related to a paradox that Kashnitsky et al. (2017) have pointed out. If we focus on implementing policy measures to improve mortality (especially in relation to the higher mortality rates in the former Eastern Bloc), which is presumably socially desirable, this will accelerate ageing, but that will not necessarily lead to convergence in population ageing. To some extent, this can also be seen by examining the coefficient of variation. The prospective indicators (which are far more dependent on changes in mortality in old age) show that by 2050 heterogeneity will have fallen, while the chronological

indicators show that the coefficient of variation rises in all cases. Despite this inconclusive finding, we can state that some major spatial differences are likely to remain.

A spatial analysis of the differences in population ageing based on a combination of chronological and prospective indicators shows that, for 2018 and 2050, three main groups of EU member states can be identified. The youngest of these contains countries such as Poland, Slovakia, Ireland, Luxembourg, and Cyprus. In the first two countries, this is mainly because of the significantly below average values of the chronological indicators of ageing, while the prospective values are also lower for the other three. The oldest countries are joined by the Balkan EU member states, Hungary and two Baltic states (Latvia and Lithuania) mainly on the basis of the prospective indicators. We should also point out, however, that the populations of these countries do not look any more favourable in terms of chronological age.

The forecasted trend in population ageing could mean that by the mid-twenty-first century a number of Northern and Western European countries may be some of the youngest in the EU28, while Southern European countries (Italy, Portugal, Greece) along with Croatia, Bulgaria and Lithuania, will be the oldest according to both the chronological and prospective views.

The internal decomposition of the population component changes on population ageing shows that the elderly population is growing in all EU member states. This is likely to increase, especially in populations now seen as the youngest in the EU. The most important factors in all EU member states will be improved mortality rates and cohort turnover. According to the results of the EUROPOP2018 forecast, most member states will see a decline in the working-age population. This will mainly be driven by the cohort-turnover effect (for similar results: see Kashnitsky et al., 2019) and, to a lesser extent, by the emigration effect (particularly in the Balkan EU member states and the Baltic states). Similarly, in most EU member states, cohort turnover will be a major factor in the projected decline of the child component.

The populations of the EU28 member states have aged considerably, especially in recent decades, and undoubtedly rank among the oldest in the world. All projections show this trend will continue in the coming decades, and in many cases it will become more dynamic. Despite the complexity and national overlaps, the analytical perception of age and ageing remains largely unchanged. At a time when the characteristics of the elderly population, however, are changing so dramatically, the prevailing conventional approach based on chronological age cannot satisfactorily answer all our questions.

In conclusion, developing new approaches which focus not only on the number of years lived but also on the number of years of remaining life, will deepen our knowledge of population ageing. It is becoming a major factor in fully understanding and creating relevant, sustainable and meaningful public policy measures in response to the challenges this twenty-first century demographic phenomenon presents for the EU28.

Nonetheless, it is essential that we draw attention to the limitations of prospective indicators. As a number of studies (e.g. Sanderson and Scherbov, 2005, 2013, 2015; Basten et al., 2015; Spijker, 2015) have noted, the most important problem is that the old-age threshold is arbitrarily set using the threshold of remaining years of life. This is

considered too broad, and those captured by the threshold still show relatively large differences in some ageing-related characteristics. This applies to both international comparisons and to comparisons of two periods many years apart. In international comparisons, in particular, the use of constant prospective age with a remaining years of life threshold, may not take sufficient account of the differences in population ageing between countries that have markedly different working-age and post-working-age mortality levels. As Balachadran et al. (2017) have shown, in populations with high child and working-age mortality, it is much harder to reach an average life expectancy of 15 years than in countries with more favourable mortality rates. It is therefore important to include a prospective old-age threshold in wide-ranging international comparisons. For example Balachadran et al. (2017) suggest the original prospective old-age threshold should be adapted by taking into consideration the differentials of reaching an RLE of 15 years, due to variations in adult survival between countries and over time (Balachadran et al., 2017). Moreover, the general nature some of these simpler prospective indicators has been criticised on the grounds that some population components (e.g. working-age population) do not reflect current real conditions. By combining demographic, economic, health, social and other data we can obtain multidimensional indicators of ageing that reflect reality as closely as possible (see Spijker, 2015). The disadvantage is the large amount of input data required, not just to assess the current situation but future trends as well, and that factor can make them relatively impossible to use, as was our case. Nonetheless, using a prospective approach to analyse ageing can broaden our understanding of current and future trends in population ageing, which are an important phenomenon in most countries.

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		Prop. 65+	OADR	AI	AA	Prop. RLE-15	POADR	PAI	PARYL
Prop. 65+	Pearson CC	1.000	.977**	.896**	.902**	.651**	.612**	.692**	-.475*
	<i>Sig. (2-tailed)</i>		0.000	0.000	0.000	0.000	0.001	0.000	0.011
OADR	Pearson CC	.992**	1.000	.791**	.803**	.580**	.558**	.578**	-0.362
	<i>Sig. (2-tailed)</i>	0.000		0.000	0.000	0.001	0.002	0.001	0.058
AI	Pearson CC	.918**	.869**	1.000	.968**	.646**	.577**	.799**	-.567**
	<i>Sig. (2-tailed)</i>	0.000	0.000		0.000	0.000	0.001	0.000	0.002
AA	Pearson CC	.921**	.867**	.984**	1.000	.699**	.633**	.818**	-.630**
	<i>Sig. (2-tailed)</i>	0.000	0.000	0.000		0.000	0.000	0.000	0.000
Prop. RLE-15	Pearson CC	.926**	.926**	.797**	.825**	1.000	.994**	.954**	-.927**
	<i>Sig. (2-tailed)</i>	0.000	0.000	0.000	0.000		0.000	0.000	0.000
POADR	Pearson CC	.895**	.907**	.735**	.766**	.995**	1.000	.921**	-.908**
	<i>Sig. (2-tailed)</i>	0.000	0.000	0.000	0.000	0.000		0.000	0.000
PAI	Pearson CC	.937**	.901**	.957**	.960**	.923**	.882**	1.000	-.911**
	<i>Sig. (2-tailed)</i>	0.000	0.000	0.000	0.000	0.000	0.000		0.000
PARYL	Pearson CC	-.825**	-.780**	-.807**	-.862**	-.863**	-.831**	-.880**	1.000
	<i>Sig. (2-tailed)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

Appendix 1: Correlation matrix of input variables, EU-28, 2018 and 2050 (shaded grey)

Notes: \*\* Correlation is significant at 0.01 (2-tailed); \* Correlation is significant at 0.05 (2-tailed)

Sources: EUROSTAT, 2019; authors' calculations

Country	Prop.65+	OADR	AI	AA	Prop. RLE-15	POADR	PAI	PARYL
<b>2018</b>								
Belgium	18.7	31.8	110.2	41.6	11.4	17.2	67.0	42.8
Bulgaria	21.0	34.9	147.5	43.7	18.6	29.6	130.5	35.4
Czech Republic	19.2	31.7	122.1	42.2	13.8	20.9	87.7	39.6
Denmark	19.3	33.2	116.2	41.5	11.9	18.1	71.4	42.0
Germany	21.4	35.5	158.5	44.4	14.4	21.4	106.6	39.7
Estonia	19.6	32.9	120.1	42.2	13.5	20.5	82.5	39.9
Ireland	13.8	23.5	66.4	37.7	8.2	12.8	39.5	46.4
Greece	21.8	37.1	151.3	44.1	13.9	20.8	96.4	40.3
Spain	19.2	31.5	128.4	43.2	11.1	16.1	74.5	42.4
France	19.7	35.1	108.5	41.5	10.8	16.6	59.5	43.8
Croatia	20.1	33.4	138.9	43.2	15.5	23.8	106.8	38.1
Italy	22.6	38.0	168.9	45.2	13.9	20.4	103.9	40.6
Cyprus	15.9	25.5	97.8	39.5	8.8	12.7	54.3	45.1
Latvia	20.1	33.7	127.4	42.9	16.5	26.1	104.4	36.5
Lithuania	19.6	32.6	130.9	42.9	15.8	24.6	105.0	37.2
Luxembourg	14.3	22.4	88.8	39.9	8.6	12.3	53.2	44.3
Hungary	18.9	30.8	130.2	42.5	15.4	23.7	106.0	37.1
Malta	18.8	30.1	135.2	41.8	9.1	12.7	65.7	43.7
Netherlands	18.9	32.0	117.2	41.8	11.3	17.0	70.5	42.4
Austria	18.7	30.2	129.4	42.6	12.2	17.9	84.6	41.7
Poland	17.1	27.3	112.3	41.4	11.4	16.6	74.7	39.5
Portugal	21.5	36.3	155.4	44.2	13.2	19.5	95.2	40.0
Romania	18.2	29.9	116.3	41.9	14.8	23.0	94.6	37.3
Slovenia	19.4	31.8	129.2	43.2	12.0	17.5	79.6	40.6
Slovakia	15.5	24.3	99.4	40.6	11.2	16.5	72.0	39.9
Finland	21.4	37.5	132.4	42.7	12.2	18.3	75.3	41.6
Sweden	19.8	34.7	111.8	41.2	12.0	18.5	67.5	43.7
UK	18.2	31.3	101.9	40.7	11.5	17.6	63.9	43.2
<b>Coefficient of variation</b>	<b>11.2</b>	<b>12.9</b>	<b>18.0</b>	<b>3.8</b>	<b>19.8</b>	<b>22.1</b>	<b>25.4</b>	<b>6.8</b>
<b>2050</b>								
Belgium	25.2	46.9	161.7	44.7	14.2	21.9	90.9	43.5
Bulgaria	31.6	62.4	236.7	48.2	20.1	32.3	150.5	37.0
Czech Republic	28.5	55.0	189.0	46.0	16.8	26.4	111.3	40.7
Denmark	24.4	44.9	157.5	44.5	14.9	23.3	96.1	43.4
Germany	28.3	53.5	202.3	46.8	17.6	27.7	126.0	41.2
Estonia	28.5	54.8	194.2	46.7	16.7	26.1	113.6	40.4
Ireland	25.6	48.2	157.5	44.4	12.8	19.4	78.8	44.1
Greece	33.8	69.3	261.8	49.0	19.7	31.3	152.5	39.7
Spain	32.4	64.4	253.3	48.6	17.5	26.7	136.2	40.8
France	26.6	52.2	160.1	44.7	14.6	23.1	87.5	44.5
Croatia	31.6	60.7	261.9	49.0	19.1	29.6	158.6	37.4
Italy	34.8	69.9	303.2	50.6	20.7	32.3	180.1	38.6
Cyprus	23.1	37.8	197.2	46.4	11.5	15.9	98.5	41.7
Latvia	28.7	56.6	182.7	46.2	18.1	29.6	115.5	39.4

Appendix 2: Ageing indicators for 2018 and 2050  
Sources: EUROSTAT, 2019; authors' calculations

*Appendix 2: continuation*

Country	Prop.65+	OADR	AI	AA	Prop. RLE-15	POADR	PAI	PARYL
...								
<b>2050</b>								
Lithuania	30.7	59.9	221.0	48.4	20.4	33.1	146.9	37.6
Luxembourg	22.5	39.2	152.4	44.2	11.2	16.2	75.6	44.4
Hungary	28.2	53.4	199.7	46.5	17.2	27.0	122.0	39.2
Malta	24.4	41.8	192.3	46.6	12.0	17.0	94.5	42.3
Netherlands	26.6	49.6	182.5	45.8	16.2	25.4	111.6	42.4
Austria	27.2	50.4	195.1	46.4	15.5	23.5	110.8	41.9
Poland	29.7	57.3	215.4	47.4	16.2	24.8	117.5	39.5
Portugal	35.1	71.6	301.2	50.5	20.2	31.6	173.4	38.2
Romania	29.9	58.7	208.3	47.2	17.9	28.4	124.4	38.6
Slovenia	31.3	62.6	221.8	47.8	17.5	27.3	123.7	40.3
Slovakia	29.7	56.7	218.7	47.4	16.8	25.7	123.7	38.9
Finland	27.5	51.1	199.0	46.8	15.2	23.0	110.2	41.7
Sweden	21.8	39.1	128.7	42.7	11.8	18.0	69.7	45.6
UK	23.7	43.4	144.3	43.7	13.1	20.2	80.1	44.3
<b>Coefficient of variation</b>	<b>12.9</b>	<b>17.3</b>	<b>21.5</b>	<b>4.2</b>	<b>17.5</b>	<b>19.9</b>	<b>24.7</b>	<b>5.9</b>

Country	Change in OADR	Change in OADR due to		Change in working-age population due to			Change in elderly due to		
		Working-age	Elderly	Migration 20–64	Cohort turnover	Mortality 20–64	Migration 65+	Cohort turnover	Mortality 65+
Austria	0.202	0.011	0.191	–0.065	0.054	–0.022	–0.007	0.733	0.535
Belgium	0.151	–0.004	0.155	–0.043	0.015	–0.023	–0.010	0.701	0.535
Bulgaria	0.275	0.191	0.085	0.006	0.130	–0.056	0.011	0.874	0.801
Croatia	0.273	0.152	0.121	–0.005	0.122	–0.035	0.021	0.849	0.749
Cyprus	0.123	–0.077	0.199	–0.124	0.033	–0.014	–0.027	0.626	0.400
Czech Rep.	0.233	0.068	0.166	–0.038	0.075	–0.031	–0.002	0.782	0.614
Denmark	0.117	–0.019	0.135	–0.042	0.000	–0.023	0.002	0.685	0.552
Estonia	0.219	0.081	0.138	–0.020	0.064	–0.037	0.002	0.777	0.641
Finland	0.136	0.030	0.106	–0.038	0.043	–0.024	0.000	0.734	0.628
France	0.171	0.011	0.160	–0.015	0.000	–0.027	–0.003	0.725	0.562
Germany	0.180	0.058	0.122	–0.043	0.074	–0.027	–0.007	0.770	0.642
Greece	0.322	0.153	0.169	0.007	0.115	–0.031	0.022	0.859	0.712
Hungary	0.226	0.095	0.131	–0.026	0.074	–0.046	0.003	0.784	0.657
Ireland	0.247	–0.035	0.282	–0.046	–0.007	–0.018	0.008	0.702	0.428
Italy	0.318	0.134	0.184	–0.059	0.168	–0.025	0.004	0.878	0.698
Latvia	0.228	0.159	0.070	0.030	0.074	–0.054	0.007	0.805	0.742
Lithuania	0.273	0.186	0.086	0.026	0.108	–0.052	–0.002	0.836	0.748
Luxembourg	0.168	–0.105	0.273	–0.141	0.018	–0.018	–0.006	0.652	0.373
Malta	0.117	–0.117	0.234	–0.191	0.058	–0.017	0.016	0.678	0.460
Netherlands	0.176	0.025	0.151	–0.020	0.025	–0.021	–0.004	0.726	0.571
Poland	0.300	0.112	0.188	–0.002	0.078	–0.036	0.000	0.790	0.602
Portugal	0.353	0.157	0.196	–0.029	0.153	–0.033	0.006	0.891	0.701
Romania	0.288	0.142	0.146	0.011	0.081	–0.050	0.003	0.822	0.678
Slovakia	0.324	0.104	0.220	–0.005	0.075	–0.034	0.001	0.792	0.574
Slovenia	0.308	0.101	0.208	–0.039	0.112	–0.028	–0.003	0.844	0.634
Spain	0.329	0.058	0.271	–0.079	0.112	–0.025	0.007	0.824	0.559
Sweden	0.044	–0.096	0.140	–0.086	–0.028	–0.018	0.001	0.642	0.503
UK	0.121	–0.038	0.158	–0.057	–0.003	–0.022	0.000	0.667	0.508

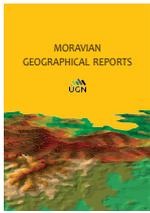
*Appendix 3: Summary statistics for the decomposition of the Old-Age Dependency Ratio (OADR) between 2018 and 2050*  
*Sources: EUROSTAT, 2019; authors' calculations*

Country	Change in AI	Change in AI due to		Change in children due to			Change in elderly due to		
		Children	Elderly	Migration 0–14	Cohort turnover	Mortality 0–14	Migration 65+	Cohort turnover	Mortality 65+
Austria	0.657	-0.122	0.780	-0.340	0.201	-0.017	-0.027	2.986	2.180
Belgium	0.515	-0.020	0.536	-0.214	0.176	-0.018	-0.036	2.423	1.852
Bulgaria	0.892	0.556	0.335	-0.111	0.620	-0.047	0.045	3.469	3.179
Croatia	1.230	0.715	0.515	0.246	0.426	-0.043	0.089	3.611	3.184
Cyprus	0.994	0.108	0.886	0.526	-0.412	0.006	-0.119	2.782	1.777
Czech Rep.	0.669	0.068	0.601	-0.144	0.189	-0.023	-0.008	2.836	2.227
Denmark	0.413	-0.061	0.475	-0.250	0.170	-0.018	0.006	2.401	1.933
Estonia	0.742	0.245	0.497	-0.052	0.257	-0.040	0.007	2.791	2.302
Finland	0.666	0.270	0.396	-0.192	0.433	-0.029	0.001	2.731	2.337
France	0.516	0.023	0.493	-0.072	0.075	-0.020	-0.009	2.233	1.732
Germany	0.438	-0.061	0.499	-0.368	0.275	-0.032	-0.028	3.157	2.631
Greece	1.105	0.444	0.661	-0.432	0.823	-0.053	0.085	3.357	2.781
Hungary	0.694	0.177	0.518	-0.114	0.269	-0.022	0.013	3.103	2.599
Ireland	0.911	0.056	0.855	-0.025	0.080	-0.001	0.024	2.131	1.300
Italy	1.344	0.535	0.808	-0.165	0.677	-0.023	0.017	3.849	3.057
Latvia	0.553	0.313	0.241	-0.110	0.381	-0.041	0.023	2.780	2.563
Lithuania	0.901	0.571	0.330	0.177	0.316	-0.077	-0.008	3.195	2.857
Luxembourg	0.637	-0.438	1.075	-0.512	0.011	-0.063	-0.026	2.568	1.467
Malta	0.571	-0.490	1.061	-0.474	-0.046	-0.030	0.072	3.075	2.086
Netherlands	0.653	0.096	0.556	-0.143	0.235	-0.005	-0.016	2.668	2.096
Poland	1.031	0.294	0.736	-0.173	0.405	-0.063	0.000	3.092	2.356
Portugal	1.458	0.628	0.830	-0.051	0.639	-0.040	0.027	3.776	2.973
Romania	0.920	0.380	0.540	0.019	0.334	-0.026	0.011	3.033	2.504
Slovakia	1.192	0.321	0.872	-0.136	0.369	-0.088	0.005	3.139	2.272
Slovenia	0.927	0.144	0.783	-0.160	0.275	-0.029	-0.010	3.183	2.390
Spain	1.249	0.164	1.085	-0.437	0.569	-0.032	0.026	3.297	2.239
Sweden	0.169	-0.286	0.455	-0.394	0.095	-0.013	0.002	2.086	1.634
UK	0.424	-0.097	0.521	-0.050	-0.046	0.001	-0.001	2.192	1.670

*Appendix 4: Summary statistics for the decomposition of the Ageing Index (AI) between 2018 and 2050*  
*Sources: EUROSTAT, 2019; authors' calculations*

Country	Change in Prop. 65+	Change in Prop. 65+ due to		Change in Total population due to			Change in elderly due to		
		Total population	Elderly	Migration	Cohort turnover	Mortality	Migration 65+	Cohort turnover	Mortality 65+
Austria	0.085	-0.025	0.111	-0.033	-0.072	-0.079	-0.004	0.424	0.309
Belgium	0.066	-0.022	0.087	-0.021	-0.075	-0.075	-0.006	0.395	0.302
Bulgaria	0.105	0.059	0.046	-0.001	-0.070	-0.130	0.006	0.476	0.436
Croatia	0.115	0.048	0.067	0.000	-0.069	-0.117	0.012	0.471	0.416
Cyprus	0.072	-0.051	0.123	-0.039	-0.066	-0.054	-0.017	0.386	0.247
Czech Rep.	0.093	0.000	0.093	-0.016	-0.076	-0.092	-0.001	0.437	0.343
Denmark	0.051	-0.025	0.076	-0.023	-0.078	-0.076	0.001	0.386	0.311
Estonia	0.089	0.013	0.077	-0.008	-0.076	-0.097	0.001	0.431	0.355
Finland	0.061	0.002	0.059	-0.018	-0.073	-0.093	0.000	0.407	0.348
France	0.070	-0.016	0.086	-0.008	-0.086	-0.078	-0.002	0.388	0.301
Germany	0.069	0.000	0.068	-0.024	-0.074	-0.099	-0.004	0.433	0.361
Greece	0.120	0.030	0.090	-0.013	-0.070	-0.113	0.012	0.456	0.377
Hungary	0.092	0.018	0.074	-0.013	-0.071	-0.102	0.002	0.444	0.372
Ireland	0.117	-0.041	0.158	-0.019	-0.076	-0.054	0.004	0.394	0.240
Italy	0.122	0.023	0.099	-0.023	-0.068	-0.114	0.002	0.473	0.376
Latvia	0.086	0.048	0.038	0.007	-0.073	-0.114	0.004	0.438	0.403
Lithuania	0.111	0.063	0.047	0.016	-0.071	-0.118	-0.001	0.459	0.410
Luxembourg	0.082	-0.085	0.167	-0.068	-0.070	-0.052	-0.004	0.400	0.229
Malta	0.056	-0.086	0.142	-0.083	-0.071	-0.068	0.010	0.412	0.280
Netherlands	0.077	-0.008	0.085	-0.013	-0.074	-0.080	-0.002	0.408	0.321
Poland	0.126	0.020	0.106	-0.003	-0.069	-0.092	0.000	0.447	0.341
Portugal	0.136	0.031	0.104	-0.012	-0.072	-0.115	0.003	0.475	0.374
Romania	0.117	0.037	0.081	0.005	-0.072	-0.104	0.002	0.452	0.373
Slovakia	0.141	0.015	0.126	-0.005	-0.067	-0.087	0.001	0.454	0.329
Slovenia	0.119	0.005	0.114	-0.017	-0.075	-0.097	-0.001	0.464	0.348
Spain	0.132	-0.018	0.150	-0.038	-0.068	-0.089	0.004	0.456	0.310
Sweden	0.020	-0.059	0.079	-0.045	-0.080	-0.066	0.000	0.362	0.284
UK	0.054	-0.035	0.089	-0.023	-0.080	-0.068	0.000	0.377	0.287

*Appendix 5: Summary statistics for the decomposition of Proportion of Elderly (65+) between 2018 and 2050*  
*Sources: EUROSTAT, 2019; authors' calculations*



## Swiss second-home owners' intentions of changing housing patterns

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### Abstract

*For several decades, second homes have gained popularity across Europe. For various socio-economic reasons, it is important to understand the factors prompting owners to migrate to the destination area or preventing them from doing so. Discussions about “home” and “migration” here consider the emerging explanatory opportunities brought about by the “new mobility paradigm”. The purpose of this work is to examine whether second-home owners are prone to switch their housing pattern, hence permanently move to their second home, or to maintain the status quo, following a more flexible lifestyle by using both homes. An empirical investigation aimed at identifying the key factors fostering second-home owners' intentions of future relocation to a holiday destination is proposed. Individual observations were collected through a survey posted to second-home owners in the Lake Maggiore region (Southern Switzerland). Results show that most of the second-home owners are happy to continue their current flexible housing patterns and enjoy the best of both homes, rather than opting for permanent relocation. This study also demonstrates the importance of the owner's socio-demographic and psychological traits, as well as objective and subjective host-community characteristics, in explaining individuals' future housing intentions.*

**Keywords:** second-home owners; mobility intentions; new mobility paradigm; push-pull factors; place attachment; Southern Switzerland

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### 1. Introduction

At present, second homes form a very important element in both the housing and tourism markets. This housing segment has a long and established tradition in some destinations, while in others it has gained a popularity only in more recent decades, such that one may talk about “endemic” and “epidemic” countries in this respect (Gallent et al., 2016). Second homes represent a form of investment, the rationale for which may be capital accumulation and/or the creation of a solid asset to be passed on as inheritance.

At the same time, they are traditionally considered as leisure accommodation, and their utilisation generally coincides with spare-time, weekend, vacation and holiday purposes. As a result, in most migration studies, their owners are considered as seasonal, temporary or lifestyle migrants. That said, a very peculiar aspect characterising second housing is its link to the owner's decision concerning a future (actual or potential) permanent relocation to the second-home destination area. It is common sense to see

second-home owners as potential retirement, amenity (Novotná et al., 2013) or return migrants (if they come back to their rural roots and homeland areas). In this sense, Rodriguez (2001, p. 53) points out that “an important issue for many mobile elderly people is the choice between visiting and settling in an area, in other words, between being tourists or residents”. More generally, previous studies in the field of migration have conceptualised the relationship between tourism and later life relocation by analysing their potential complementary role (Truly, 2002). This reciprocal relationship seems to be even more obvious when second-home ownership is involved.

Despite discussions about “home” and “migrations” framed in a long-standing theory of “sedentism” or the “place-fixed paradigm of the modern age” (Rolshoven, 2007), studies on migration inevitably need to take into account the fact that recent decades have witnessed a tremendous change in the pace, scale and patterns of spatial mobilities across the globe (McIntyre, 2006). As stated by Halfacree (2011,

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p. 146): “... humanity has entered an ‘age of mobility’ or ‘era of mobilities’”. These changes have been conceptualised in various disciplines (Turner, 2007). Although extensively debated and tested (Randell, 2018), one which has recently gained much attention in this respect is the “New Mobility Paradigm” (NMP), conceived and proposed by Sheller and Urry (2006).

Even though there are societies or communities that remain relatively immobile (Hall, 2005), the NMP has gained much popularity among academic researchers in explaining contemporary spatial mobility, also with respect to travel and tourism (Hannam et al., 2014), including second-home tourism (Halfacree, 2011). Thus, continuous mobility (without privileging stability and fixed locations (Adey, 2010)), has become central for structuring people’s lives and spatial movements in a global society. As some researchers note, however, “it does not mean that place and location no longer matter, as ‘stillness’ and ‘stuckness’ remain important experiences” (Cresswell, 2012: based on Coulter et al., 2016, p. 358), which are of importance for certain administrative practices concerning payment of local taxes, voting in local elections and supplying public statistics authorities with data. As a result, mobility is to be recognised in regard to various forms of place, stopping, stillness and relative immobility, all of which are enabled by or enable mobilities (Cresswell, 2010).

In summary, traditional approaches in migration studies continue to recognise primary and secondary residences, along with the one-off and definitive relocations of population as meaningful categories. On the contrary, the NMP acknowledges the phenomenological dimensions of being at home and being on the move, as well as the spatial consequences of such emotional anchoring, claiming that the distinction between the previous categories has become increasingly obsolete and thus, of limited capacity to explain the current nature of second-home mobilities. It is, however, even more complex, seeing that the owner’s desire for a permanent relocation or the need to keep following an “intertwining” housing pattern, are also shaped by individual’s feelings and emotions. Among them, the owners’ affections for their dwelling and location, usually intended as a mixture of the physical dimensions of places and social relationships (Stedman, 2006), framed by the social construct of place attachment, are of importance.

In light of the above, the purpose of this work is to examine whether the second-home owners – in their declarations – are prone to follow their housing patterns, recognising the fixed and dichotomous categories of “permanent” and “second” homes, or are more likely to keep the status quo, which means to follow a more flexible and mobile lifestyle by using both homes and having “the best of both places”. Consequently, the research also needs to identify factors that, on one hand, prompt second-home owners to declare a definitive relocation or, on the other hand, to continue the more flexible housing pattern whose core is to have a stake in each home and to make the most of these two lives. Thus, we aim to contribute to the discussion regarding the relationship between home(s) and mobility strategies, focusing on the owners’ psychological traits and their influence on intentions to settle down for good in the holiday

dwelling (Oigenblick and Kirschenbaum, 2002), or to follow a more flexible housing pattern. In a general sense, the goal is to investigate the explanatory power and capacity of the traditional migratory approach and the NMP, with respect to the second-home owner’s mobility (stated) actions.

## 2. Literature review

### 2.1 Home and away

Recent perspectives on spatial mobility demonstrate a more complex image of present-day relationship constellations of accepted concepts: ‘home’ and ‘away’; ‘migration’ and ‘tourism’; as well as of ‘primary’ and ‘secondary’ residence (Cohen et al., 2015), in which the continuity, fluidity and blurring of the notions and meanings prevail over their permanence, distinctiveness and discreteness (Halfacree, 2011). Shifting the emphasis from statics and constancy (representative for most of the migration studies) towards the mobilities quintessential for NMP, has raised questions and encouraged debate on how to reconsider the basic notions of place, home, living and attachment (Harrison, 2017). Consequently, it has also contributed to a discussion on how to define new mobility phenomena, such as ‘multi-local’ living, in technical terms (by using minimum length of stay, for instance: Duchêne-Lacroix et al., 2013). In addition to the increasingly problematic clear-cut dichotomy between ‘home’ and ‘away’ (Stedman, 2006), largely destabilised by voluntary mobile lifestyles (Cohen et al., 2015) and the complexity of the owners’ life-course (McHugh, 2000), the idea that ‘primary’ and ‘secondary’ residences represent distinct worlds is also no longer valid and thus, untenable (Paris, 2009). Besides the NMP assumptions and features, research so far has also successfully challenged and thus undermined the conventional dwelling hierarchy of the ‘primary’ and the ‘second’ home (McHugh, 2000). According to Stedman: “second homes hardly appear to be ‘second’” (2006, p. 142). This has been demonstrated by empirical data on how the second-home owners create identity, what ‘home’ means to them and, finally, how they conduct themselves while at the cottage and at the ‘first’ home (Lewicka, 2011).

Generally, most second-home owners are urban dwellers (Müller, 2013). Hence, second-home ownership has traditionally been considered as a response to disadvantages of urban living or as an escape from stress, compulsive work, routine and alienated employment (Perkins and Thorns, 2006) to a site where “life is lived differently” or as an “escape from modern life ... to seek refuge in nature” (Williams and Kaltenborn, 1999, p. 222)<sup>1</sup>. Although the escape itself is often the negation of the primary home experience, the desire to escape constitutes a common theoretical construct when interpreting the second-home ownership (Williams and Kaltenborn, 1999). Since the countryside is usually a natural amenity-rich area, it furnishes the visitors with contrasting environmental characteristics compared to urban attributes (Nagatomo, 2014). Among the attributes, one can mention the landscape and its constitutive category of the “mountain”, which is always relevant for the Alpine context and, at the same time, has been shown to be an important explanatory factor for residential mobility patterns and daily, leisure

<sup>1</sup> In light of the latest events related to the COVID-19 pandemic, one may observe new functions of second- and holiday-homes. The dwellings are not considered as an escape from work anymore, rather they become an alternate workplace or, on the other hand, an opportunity to take refuge away from the owners’ urban neighbours and the difficulties of urban living amid COVID-19 pandemic restrictions (Gallent, 2020).

practices of the Swiss people (Petite, 2014). Consequently, the countryside with the less 'thin' landscape, simplicity and authenticity (Perkins and Thorns, 2006) provides owners with solid comparative advantages and suitable conditions for new lifestyles, routines and an acceptable pace of life. In other words, the escape is to finally feel at home, and thus, according to Crouch: "escape becomes an escape for home, not just from home" (1994, p. 96).

The notion of 'escape', however, may be represented as a continuum of experiences from 'home' to 'away', rather than polar opposites or simply representing the notion of escape as an endpoint (McIntyre et al., 2006). 'Primary' and the 'second' homes function in a dialectical relationship and their meanings are not just closely intertwined by but also co-created by each other (Perkins and Thorns, 2006). The daily practices in both settings are much the same, so that they may petrify the roles and actions undertaken on a daily basis at the 'primary' home. As these authors have stressed – even in terms of equipment, facilities and architectural style – almost everything associated with the primary home today can be found in the second home.

Other studies, however, have shown a rather clear division and differentiation between the activities conducted in the 'primary' and the 'second' home, with the former dominated by maintenance, leisure and building projects, while the latter comprised of leisure, volunteer work and personal development projects (McIntyre et al., 2006). Hence, the 'second' home supplies the owners with the "aspects or dimensions of lifestyle that are not offered in [the] primary home or 'ordinary' life" (Bjerke et al., 2006, p. 88). In other words, the view has become widespread that second-home owners leave their primary residences in order to lead a different life during the holidays, and after satisfying their needs in this respect they "flee" back from second homes to a more demanding and stimulating life for the rest of the time (Halfacree, 2011). Hence, primary and secondary homes are essentially complementary and mutually reinforcing (McIntyre et al., 2006), so that second-home ownership is "an act of connecting rather than an act of distancing" (Rolshoven, 2007, p. 17).

This explains why the previously common view of the home as rooted in one place has been increasingly outdated. On the contrary, under the NMP, the 'geographically elastic' nature of home is recognised (McHugh and Mings, 1996, p. 530), with the suggestion to academics on relaxing assumptions about the importance of a single, fixed residence (McHugh et al., 1995). It has also been echoed in other studies, including those carried out in Switzerland, that home is not necessarily where one physically or legally resides and that for individuals whose mobilities have moored them in multiple places, one place might not take primacy over another as 'home' (Duchêne-Lacroix et al., 2013). 'Home' might be somewhere in-between on the 'primary' → 'second' → 'third' → n-th home continuum, or in each of those (as people can feel "at home" in more than one place': Quinn, 2004) or even grasped by taking those places all together, demonstrating multilocality as a way of life (Rolshoven, 2007) or the so-called 'home-on-the-move' (Germann Molz, 2008).

## 2.2 Towards permanent re-location or hetero-localism?

The decision-making process is always influenced by personal attributes, as well as environmental and cultural traits that may hinder permanent relocation. These factors were conceptualised and incorporated as the 'intervening

obstacles' to the push-pull model of migration by Lee (1966). As expected, personal attributes act as a mediator to the pros and cons of the individual's intention and ability to relocate and, consequently, the actual move. What needs to be stressed in the context of the geographical setting of this study, however, are policies and regulations and their decisive role as institutional 'intervening obstacles' in limiting the number and the concentration of newly-built holiday homes in rural Switzerland (Schuler and Dessemontet, 2013). Even though some researchers have pointed out the divergences between policy makers and tourism officials in this respect (Clivaz, 2013), a new law, resulting from the so-called Weber initiative, has been implemented into existence. It has imposed real cuts to the spatial expansion of residential tourism and therefore, keeping the growth of newly-built holiday homes in a policy-cap proportion (not exceeding 20% of holiday homes in the municipality's total number of housing resources). As a result, it has streamlined the actions of local and regional tourism marketers from "construction tourism" to "operating tourism" (Clivaz, 2013).

In many countries, second-home owners are usually retired people or those preparing for retirement (Novotná et al., 2013; Norris and Winston, 2009). Thus, their intention to move permanently to the second home can be seen as an exemplification of retirement migration. While being of pre-retirement or early retirement age, individuals have usually accumulated wealth, a combination of various income sources, spare time and "empty nests" – which constitute a solid base for choosing their future place to live independently. Also, given the growing rentier economy under recent low interest rate regimes and property booms in some major cities (Dellepiane et al., 2013), there is a strong incentive for some retirees to capitalise their urban housing assets, up-grade a second home and have a guaranteed pension/income to spend on high-quality life in peaceful and appealing surroundings. Such a combination may result in a "retirement transition" (Bures, 1997), and be reflected in the intention to change the housing strategy.

As stressed for elderly owners, the end of a professional career and weakening work bonds can trigger a definitive move-in to the previously seasonal location (Novotná et al., 2013). With age, declining health and/or other events (e.g. death of a spouse), however, becoming more commonplace, they may act as obstacles for potential housing adjustments (Marjavaara and Lundholm, 2016). As such, these changes might require living rather in urban locations or looking for leisure places with accessible high-quality public services. For younger people, economic factors (e.g. weaknesses of the local labour market) may definitely act as a considerable intervening factor. Thus, the "environmental supportiveness" (Sugiyama and Ward Thompson, 2007) reflecting the local context attributes and constituting "the extent to which environmental constraints and possibilities guide individual and collective decisions to migrate" (Bell et al., 2010, p. 7), largely interfere with the individual's intention to move.

There is a perception that individuals with numerous mobility events in their biographies are more likely to move into second homes on a permanent basis in the future. Previous studies have demonstrated their flexibility and adaptive capacity while also confirming less potential to develop a strong attachment to just one place (Longino Jr. et al., 2002). This logic has also been stressed when pointing out the occurrence of "functional linkages between tourist flows and permanent migration" (Bell and Ward, 2000),

as well as the interdependency between various forms of mobility, especially between temporary mobility and the following permanent migration (Hall and Williams, 2002). This relationship is reflected in a technical adjustment of the secondary into permanent residence, which can be planned far in advance or even seen as a long-term housing strategy, including property acquisition and its consecutive conversion as a part of it after the owner's retirement (Stergiou et al., 2016). Other studies contradict this idea, however, suggesting that "it does not imply that second-home ownership is necessarily a developmental stage between a visitor and permanent resident" (Stedman, 2006, p. 132).

The most recent contribution to this discussion has shown that second-home ownership may significantly influence the location of the new home, since the decision for relocation targets the second-home property rather than changing a permanent dwelling (Marjavaara and Lundholm, 2016, p. 238). At the same time, this relationship is considerably moderated by the second-home location, considered both in terms of distance to the previous home and the characteristics of the place with respect to natural and social amenities (Overvåg, 2011). Other authors have argued that, given the younger generation is more mobile and tends to travel more to different leisure locations than the older generation, the predictions on future moves to the second home may be rather pessimistic (Pitkänen et al., 2014).

It is likely, however, that this discussion might not be fully appropriate in explaining the mobility patterns of the increasingly common group of owners who are 'on the move'. Intriguingly, for most owners the idea of possessing two homes and sharing time between them is more valuable and constitutes the very heart of ownership to the extent that only a minority convert their holiday homes into primary homes (Perkins and Thorns, 2006). The authors have explained this ownership pattern by arguing that the second-home owners "wish only to have a temporary escape, knowing, as do those who have only a primary home, that the wider world of work and engagement with family, friends, economy and society is a fundamentally important and necessary part of life" (Perkins and Thorns, 2006, p. 80). To confirm this trend, it has been discovered that despite the intention to move permanently to the holiday home, this goal very often does not lead to an actual move (Hogan and Steinnes, 1993). Altogether, one might expect that a majority of second-home owners do not want and in fact do not need to decide on a permanent move. Thus, they demonstrate a lifestyle whose core is to have a stake in each home and to enjoy most of the two lives in certain times and certain places. This housing strategy echoes throughout the varied accounts of place attachment, as discussed below.

### 2.3 Place attachment

Attachment to a place is, in general, defined as a strong, long-lasting affective and identity bond that people develop in relation to a specific place (Bernardo and Palma-Oliveira, 2013), which occurs regardless of the objective qualities of the place (Debenedetti and Oppewal, 2009). It is highly dependent upon individual experiences and emotions (Scannell and Gifford, 2010), thus, being a multidimensional concept rather than a simple cause-effect relationship (Lewicka, 2011).

Although the place attachment has been examined in second-home research (Stedman, 2006), less attention has been paid to the issue with regard to the changing character of individual spatial mobility. This also stems

from the common view on relatively weak affective bonds with place among mobile individuals (Cuba and Hummon, 1993), confronted with the general reluctance towards further re-location among those expressing strong place attachment (Tuulentie and Heimtun, 2014). Since "modernity has changed society to a state of great mobility where people have social networks beyond their local area" (Aronsson, 2004, p. 75), however, the notion of a second home presupposes sharing place attachment in two or more (multiple) distinct locations: permanent and holiday home(s) (Wildish et al., 2016).

According to Stedman (2006), despite the notion that 'escape' is at the core of the holiday-home owners' practices and meanings, these are hardly ever of a radically consumerist nature. Hence, in this respect, the second-home owners share many characteristics with permanent residents, e.g. a degree of place attachment which only slightly differs from that of the locals (Müller, 2011). Then, as stressed by McHugh et al., the "recurrent mobility between multiple residences is often an expression of established place ties" (1995, p. 254). Furthermore, some authors argue that place attachment among the second-home owners may exhibit even higher levels than that of permanent residents (Pitkänen et al., 2011), while some other findings support the idea that even repeat visitors cannot establish a strong sense of place unless they choose to make the location their permanent home (Stedman, 2006).

Again, referring to the above-discussed 'home' and 'away' dichotomy, and especially to the individual's yearning for a 'real' home, earlier studies have shown that owners establish strong attachments with their holiday homes, as well as with the places in which they are situated (Perkins and Thorns, 2006). It is acknowledged that place attachment is largely associated with the owners' search for stability in a fluid world, thus, considered as a substantive opportunity to create a 'real home' and form a sense of (local) community (Perkins and Thorns, 2006). Consequently, mobility within the NMP is an inclusive construct that takes into account other places or homes in the context of place attachment. It has been also argued that mobility itself "may increase the potential for abstraction and reflexivity thus, allowing appreciation of particular places and providing more options" (Stedman, 2006, p. 132), and as a result it may foster greater attachment because people can choose places that best suit them (Stedman, 2006).

There are, however, certain owners' characteristics, as well as their conduct and practices at the second home that have been shown to be important determinants of place attachment, e.g. the length of stay. Owners who stay for a relatively long time at the holiday home over the year, have shown an equal perception of the second-home setting as local residents (Stedman, 2006). Furthermore, in the pre-retirement period, the owners have numerous opportunities to establish emotional linkages with the place, being more familiar with it and understanding the rhythms and routines of life on site (Longino Jr. et al., 2002). It has been demonstrated that the highest dynamics of place attachment are in the first years of residence (Lewicka, 2011), suggesting the consolidation role of time in forming the affective bond in later stages of ownership. The important role of the time factor (e.g. length of stay and number of visits) in shaping residents' and visitor's place attachment was also stressed by others (Stober et al., 2018). Then, this sense of place is also due to the owners' sense of happiness on site, seeing that the meaning-making process of place attachment

unfolds through active use, involvement with a place (Kaltenborn, 1997, p. 196), and the accumulation of everyday experiences and practices (Tuan, 1977).

On the other hand, Norwegian owners' gender and age played a role as place attachment determinants, with young and elder female owners who developed stronger ties with the local community (Kaltenborn, 1997), when compared to their male counterparts. In the same study, the family status, number of home-users and the type of built environment in the 'permanent' place of living, had no significant effect on place attachment. But the owners who had their holiday homes inside the municipality where they lived permanently, expressed a slightly greater attachment to the place than those who lived outside the area (Kaltenborn, 1997). Hence, it seems that there are some other factors negotiating the role of the distance from the 'primary' to the 'second' home in this respect.

In addition, past events in an individual's life-course such as rural roots, previous links to the destination area and second-home ownership itself, have proved to be influential not just in the relocation decision but also in considering the future destination (Müller and Marjavaara, 2012). In this context, strong place attachment induces a more spatially-focused pattern of relocations among returning and/or retired migrants. The returning travellers tend to flow to the immediate environs of a community, where they still have strong affective and cognitive attachments (Li and McKercher, 2016). Interestingly, however, strong attachment to the place and the local social network can be enhanced by more tangible factors, such as the household income (Han and Kim, 2017).

### 3. Theoretical framework and empirical strategy

#### 3.1 Behavioural assumptions

The second-home owner's intentions to move or to continue combining the best of both worlds, can be represented by a complex interaction between several components. In this work, according to the push-pull concept, it is hypothesised that individuals' intended behaviour is determined by a mix of three sets of factors: contextual factors; individual observable characteristics; and intervening factors. The context is designed as the second-home- and destination-related characteristics (e.g. location and dwelling typology) representing the objective situation the owner refers to when considering the opportunity to relocate. An individual's observable characteristics are the socio-demographic variables (e.g. gender and age), the role of which is to capture observable heterogeneity in behaviour. In this work, the intervening factors are conceptualised as individual psychological characteristics (such as personality, feelings, perceptions, attitudes, emotions and values), that are supposed to be contributing to determining individual choices (Morikawa et al., 2002). The inclusion of the latter factors enriches the analysis in considering individual determinants other than socio-demographic characteristics. In fact, it must be recognised that behaviour and choices are also driven by psychological, emotional and attitudinal mechanisms that are proper to the individual (Walker and Li, 2007). Such components related to the individual's latent sphere cannot be directly observed and have to be properly identified and imputed adopting psychometric data.

Three different latent constructs and their interconnections (the formal definition of which are presented in the next section) are considered in this work:

- a 'pull factor' construct, capturing the subjective perception of the destination's environmental elements to which the home-owner is attracted;
- a 'push factor' construct, collecting the motivations that foster the owners' desire to spend time at their second home; and
- a 'destination attachment' construct, conceptualised as an aggregation of individual feelings concerning ownership satisfaction, membership in the local community and destination enjoyment.

The specificity of our approach lies in the way in which these components relate to an individual's intention to undertake a definitive move: at the first instance in our theoretical model, we hypothesise that push and pull factors are direct determinants of destination attachment. The theoretical assumption here is that push and pull factors are the primary elements characterising the relationship between the individual and the destination, because they represent unfulfilled needs that the individual seeks to satisfy by spending holidays at the second home (Nagatomo, 2014). Meeting those needs generates positive feelings (psychological benefit) that the individual develops towards the destination and enhances the attachment to it (Lewicka, 2011; Scannel and Gifford, 2010). At a lower level, the model considers destination attachment as a direct and positive influence on the decision to relocate on a permanent basis, meaning that individuals showing positive attitudes, emotions and affection (Longino Jr. et al., 2002) towards the leisure destination and the second home itself, are more likely to consider permanent relocation.

The second-home owners' socio-demographic characteristics, as well as the contextual factors, enter the model both as explanatory variables of the intention to relocate and as determinants of the latent constructs. In this sense, the psychological traits are identified with observable variables. The exploration of the specific covariates entering into the model is data-driven and based on econometric estimation, as described in the next section.

#### 3.2 Data and empirical model

##### 3.2.1 Data collection and sample description

The present work builds on a study by the Tourism Observatory (O-Tur) of Ticino Canton in Switzerland (Sarman et al., 2014). The data were collected to explore the second-home phenomenon in the Lake Maggiore region in southern Switzerland (Fig. 1).

In this area, the hotel sector is particularly important for the tourism market, but it is also characterised by a thriving residential tourism segment (the total number of second homes in the region was estimated to be at around 15,000 in 2020). The collected data come from a structured survey conducted in February 2013, with almost 12,000 individuals who owned a second home in the Lake Maggiore region. The survey was sent by post by the local Destination Management Organization (DMO) along with the annual taxation form. Respondents had the opportunity to fill in a paper version of the survey (59.4%), returning it by post or to answer its online version (40.6%). By the end of May 2013, 1,291 questionnaires had been returned, 828 of which have been retained for the purpose of this study. The high amount of discarded observations has two causes: given the low numbers representing non-Swiss residents (15% of respondents), we decided exclusively to consider the Swiss home-owners' data; secondly, many questionnaires were returned with a high share of missing data.



Fig. 1: Map of Canton Ticino and the Lake Maggiore Region (grey area), with its three main municipalities  
Source: Swiss Federal Statistical Office and authors' elaborations

The original questionnaire covered different aspects of the second-home phenomenon in the region, ranging from owners' habits to feelings towards the dwelling and the region itself. The survey was designed considering the specific interests of the local DMO and following guidelines and examples reported in the literature dedicated to owners' experiences in holiday-home destinations. For the purposes of the present work, we considered only part of the survey questions.

Table 1 presents the descriptive statistics regarding the sample of second-home owners involved in the survey and the summary statistics regarding their respective second homes. A second home is mostly seen as a vacation property: leisure motivations and the appeal of the destination were the main reasons that led the individuals to buy the dwelling (71.0%). This rationale is reflected by the importance that individuals assign to leisure activities at the destination: second-home owners in the Lake Maggiore region tend to spend time relaxing by themselves at home and by the lake, wandering around towns and villages and hiking in the mountains, as well as enjoying the local food. In fact, hiking trails as well as food-away-from-home are among the most demanded services by this category of users. Also, biking and water sports are regularly pursued by a good share of the population (Sarman et al., 2014). It must be noted that possible ownership reasons in the original survey included the intention to spend retirement at the destination; we removed such observations from our estimation sample to avoid endogeneity issues in the estimation process (circa 6%

of the total number of collected observations). The majority of dwellings are flats (49.6%), followed by detached houses (39.1%) and country cottages (11.2% – the latter are commonly called *rustici* and represent typical dwellings in the region, generally stone-built and located in the valleys). The surveyed municipalities are Locarno, Ascona, Gambarogno, Brissago and Minusio, which are the leading tourism areas in the region.

### 3.2.2 Empirical model specification

In this article, we adopt a causal model to test our research hypotheses. We apply an Integrated Choice and Latent Variable (ICLV) model in order to assess the role of psychological variables in shaping individual decisions. This approach has been applied in several recent works in various disciplines, such as transport, environmental economics and tourism (Kamargianni et al., 2014; Sarman et al., 2019). In our case, the rationale behind the inclusion of psychological factors is driven by the assumption that the second-home owner's mobility patterns are not only affected by environmental aspects or the owner's socio-demographics, but also by the individual's feelings regarding the seasonal dwelling and the destination itself.

The empirical model is the formal representation of the theoretical framework, thus, the intentions to change (move) or to follow the existing mobility pattern are directly related to a set of variables. The model is based on two components: the main element is a regression model in the form of an ordered logit model adapted to explain the

<b>Gender</b>			<b>Ownership motivation</b>		
male	506	63.50%	inheritance	131	15.80%
female	322	36.50%	investment	27	3.20%
<b>Age</b>			family tradition	45	5.40%
average	60.8		place appeal	589	71.10%
std. dev.	10.4		friends/relatives	30	3.60%
<b>Region of residence</b>			business	6	0.70%
Zurich	282	34.50%	<b>House type</b>		
Central CH	119	13.50%	single house	324	39.10%
North-west CH	174	21.00%	apartment	411	49.60%
Mittelland	98	11.50%	country cottage	93	11.20%
East CH	135	17.00%	<b>House location</b>		
Lake of Geneva	21	2.40%	Locarno	91	11.00%
<b>Marital status</b>			Ascona	107	12.90%
unmarried	51	6.20%	Gambarogno	102	12.30%
married	654	79.00%	Brissago	85	10.20%
divorced	57	6.90%	Minusio	71	8.50%
widowed	59	7.10%	other municipalities	372	44.90%
n.a.	7	0.80%	<b>No. of days spent at destination per year</b>		
<b>Education</b>			average	73.9	
primary school	50	6.00%	Std. dev.	32.7	
middle school	119	14.40%			
secondary school	166	20.00%			
degree	469	56.50%			
n.a.	24	3.00%			
<b>Monthly household income (CHF)</b>					
6,000 or lower	130	15.70%			
6,001–12,000	336	40.60%			
12,001–18,000	150	18.10%			
18,001 or higher	88	10.60%			
n.a.	124	15.00%			

Tab. 1: Individual and second-home descriptive statistics

self-assessed probability of changing the existing housing pattern (dependent variable); the second component is a latent variable model, used to take into account the psychological covariates.

#### Main component of the model: intention to change the existing housing pattern/arrangement

The explicit indicator representing the dependent variable “change the existing/current housing pattern/arrangement” is the following survey question:

- How likely is it that you will permanently shift your residence to your house in Ticino in the future? (1 = very unlikely, ....., 7 = very likely).

This variable is then related to variables concerning the dwelling and the individual’s socio-demographics and attitudinal constructs. The dependent variable is expressed by ordered levels of likelihood, hence we adopt an ordered logit model to test the relationship between dependent and independent variables. Regarding the latter, after a stepwise

process of non-significant variable elimination, we obtained the best model specification in terms of fit measure. This is formalised as follows:

$$y^* = \beta_1 * TYPE + \beta_2 * \log(DAYS) + \beta_3 * LOCATION + \beta_4 * MOTIVATION + \beta_5 * GENDER + \beta_6 * AGE + \beta_7 * WORK + \beta_8 * ATTACHMENT + \varepsilon$$

in which the  $\beta$ s represent the estimation parameters, while  $\varepsilon$  is a Gumbel-distributed error term<sup>2</sup>. The explanatory variables are the following (refer to Tab. 1 and Tab. 2 for description):

- TYPE: the type of second home (dwelling type);
- DAYS (taken as natural logarithm): the number of days per year spent by an owner at the second home;
- LOCATION: the municipality the dwelling belongs to;
- MOTIVATION: the motivation for purchasing the property;

<sup>2</sup> For a general and broad treatment of ordered variables modelling see: Greene and Hensher, 2010.

- GENDER and AGE: the respondent’s gender and age respectively;
- WORK: the respondent’s occupation; and
- ATTACHMENT: the ‘destination attachment’ latent variable.

**Second component of the model: latent constructs**

The latent variable component of the model is made up of two sets of equations, formally defined as structural and measurement equations. The former relates the latent construct to its determinants, in the same way in which “intention to change the current housing pattern” is related to its covariates. We specify three latent constructs, called “destination attachment”, “push factor” and “pull factor”. Adopting the principle of non-significant variable elimination, the latent constructs are made explicit as follows:

$$ATTACHMENT = \lambda_{ATT1} * LOCATION + \lambda_{ATT2} * REGION + \lambda_{ATT3} * PUSH + \lambda_{ATT4} * PULL + \omega_{ATT}$$

$$PUSH = \lambda_{PUSH1} * AGE + \lambda_{PUSH2} * REGION + \lambda_{PUSH3} * STATUS + \omega_{PUSH}$$

$$PULL = \lambda_{PULL1} * AGE + \lambda_{PULL3} * STATUS + \omega_{PULL}$$

in which:

- REGION: the owner’s Swiss region of permanent residence;
- STATUS: respondent’s marital status;
- PUSH and PULL: “push factor” and “pull factor” latent variables. As explained in the theoretical section, both are hypothesised to be determinants of “destination attachment” and hence, considered as an indirect determinant of intention to move.

The  $\lambda$ s are the parameters to be estimated and the  $\omega$ s are Gaussian distributed error terms<sup>3</sup>.

The measurement equations are used to relate the latent variables to a set of indicators represented by survey questions. This formal passage is necessary because, the latent variables cannot be directly observed by the researcher and the only way to include them as independent variables in the model is to infer them adopting a set of indicators (psychographic variables). In particular, the equation

$$I_{k,r} = \theta_{k,r} X_k^* + v_{k,r}$$

expresses the observed indicators  $I_{k,r}$  as a function of the  $k$ -th latent variable of  $X_k^*$  ( $k$  marks the specific latent variable, “Push”, “Pull” and “Attachment”),  $\theta_{k,r}$  is the latent variable- and indicator-specific parameter to be estimated ( $r$  marks

	mean	s.d.
Permanent shift likelihood <sup>1</sup>	3.2	2.1
“Destination attachment” indicators		
ATT1: How much do you feel attached to the region of LMV? <sup>2</sup>	6.0	1.0
ATT2: How much do you like the region of LMV as a destination? <sup>2</sup>	6.4	0.5
ATT3: How much do you like spending your holidays in the region of LMV? <sup>2</sup>	6.0	0.7
ATT4: When you visit LMV region do you feel like a tourist? <sup>3</sup>	3.2	1.6
ATT5: How satisfied are you to have a home in the region of LMV? <sup>2</sup>	6.3	1.4
ATT6: How is your relationship with your neighbours? <sup>4</sup>	5.2	0.8
“Pull factors” indicators <sup>2</sup>		
PULL1: How much does the opportunity to enjoy a favourable climate influence your decision to go to your home in the region of LMV?	6.2	1.0
PULL2: How much does the opportunity to enjoy landscapes and natural environments influence your decision to go to your home in the region of LMV?	6.4	0.5
PULL3: How much does the opportunity to stay close to nature influence your decision to go to your home in the region of LMV?	6.0	1.2
“Push factors” indicators <sup>2</sup>		
PUSH1: How much does the desire to get away from your everyday life influence your decision to go to your home in the region of LMV?	5.8	1.6
PUSH2: How much does the desire to rest influence your decision to go to your home in the region of LMV?	5.4	1.6
PUSH3: How much does the desire to spend more time with your family influence your decision to go to your home in the region of LMV?	4.4	2.0

LMV: Lago Maggiore e Valli

1: 7-point Likert scale: 1 = very unlikely / 7 = very likely

2: 7-point Likert scale: 1 = not at all / 7 = very much

3: 7-point Likert scale: 1 = definitely no / 7 = definitely yes

4: 7-point Likert scale: 1 = very bad / 7 = very good

Tab. 2: Attitudinal indicators descriptive statistics

<sup>3</sup> A latent variable is an unobserved object and hence, one cannot know how it is distributed from a probabilistic point of view. Thus, it is common practice in the literature to make the hypothesis that the LV is a continuous variable. From this hypothesis comes the adoption of a normal distribution for the error term. For a general and broad treatment of latent variables modelling see: Walker (2001).

the specific indicator) and  $v_{k,r}$  is a Gumbel-distributed error term. In our case, the indicators for the latent constructs are represented by 7-point-Likert-scale items in the survey; given their ordered, non-normal distributed nature, an ordered logit regression is applied to  $I_{k,r}$ . Table 2 reports the descriptive statistics of the psychographic variables adopted. All the elements of the model converge in the likelihood function, which determines, for a given individual, the joint probability of observing the intention to move and the indicators through which the latent constructs are manifested. The objective function was estimated adopting the maximum simulated likelihood estimation process (Train, 2003).

## 4. Results and discussion

Table 3 presents the results of the three models: the first is a base model in which no attitudinal constructs are included; in the second we expand the base model including the first layer of latent variables, i.e. the destination attachment construct; and in the third we expand the second specification to include the upper layer in the latent variable dimension, i.e. push and pull factors<sup>4</sup>. Most of the parameters reported in the table relate to categorical variables that must be read with reference to the base category of the variable itself.

### 4.1 Intention to change the current housing pattern

Owning a single house or a flat in the surveyed region has a positive impact (0.5028) on the intention to move permanently to the second home in the future, compared to owning a country cottage. A possible explanation may be the individual's implicit reluctance to live permanently in the outskirts and the valleys (rustici are commonly located in the countryside and near woods, outside urban centres), or by their preference for urban life and access to public services, which, in the case of the Lake Maggiore region, could be seen as a preference for a location close to the lake, given the proximity of most urban centres to it. Furthermore, it must be considered that the living conditions (in terms of facilities and equipment) in country cottages may not be good enough for year-round stays, and hence, this can be seen as a substantive obstacle. In this regard, the inclusion of the second-home-type variable in the equation of the "destination attachment" construct (see later discussion) was not significant. It means that the influence of the dwelling type operates directly within the intention to change the existing flexible housing pattern, without being mediated by the attitudinal constructs.

The length of stay at the second home (over the year) enhances the intention for a definitive, permanent move (0.4873). This could be interpreted as a sign of affection for the dwelling and the region. It must be considered that southern Switzerland is a very popular destination for Swiss-German residents, given the favourable weather and large number of activities and local events. Our results resemble evidence reported in the literature that the greater the experience at the destination the greater the propensity for a definitive move (Marjavaara and Lundholm, 2016; McHugh, 1990).

As far as the ownership motivation is concerned, we estimated a single parameter, which turned out to be positive and significant (0.3739). People who purchased the

home for the sake of spending free time, for family tradition or because of friends and/or relatives living (permanently or seasonally) in the area, show a greater intention to abandon the current housing pattern and to begin to live permanently in the destination area in the future, if compared to those who inherited or acquired the house for business or investment purposes. This is coherent with some previous studies showing "leisure" and "experience" aspects as particularly important factors in delineating the retirement migration, more than the "family and friends" aspect (Rodriguez et al. 1998). Conversely, McHugh (1990, p. 243) analyses how the "depreciation" of bonds to permanent home (e.g. empty nests and friends moving away) is a push factor towards outmigration, "particularly if [home owners] have family members or close friends living in the seasonal residence".

Concerning the location of the dwelling, the model determined two significant parameters related to specific areas. The first one concerns Locarno, the main municipality in the region: people owning a second home in Locarno are significantly more likely to move in to their residence than those owning a holiday property in any other municipality. The second parameter concerns another municipality, Gambarogno, for which the parameter is negative, meaning that second-home owners express a lower likelihood to move there than to any of the other municipalities in the region. This particular aspect will be elaborated later.

Respondent's gender, age and occupation were found to be significant determinants for the intention to resettle. Female owners stated a lower propensity to change the current mobility pattern (– 0.3514) than men. As far as owner's age, we aggregated the sample of respondents in three different classes, i.e. economic age groups. The parameters related to respondents aged 18–45 and 46–60 must be referenced to the 61+ category: the positive sign and magnitude of parameters (0.8471 and 0.5304) suggest that younger individuals demonstrate higher propensity to move to their second home in the future, and this intention tends to decrease with age. For example, people preparing for retirement or those who have recently retired have already decided on their later life residence. Then, the older they are, the weaker their intention to move elsewhere (Marjavaara and Lundholm, 2016), while, conversely, young individuals have a larger pool of occasions over their lifetime to change their viewpoint. To conclude, no significant results were obtained when considering second-home owners' income.

### 4.2 Destination attachment latent variable

This construct represents a positive determinant of intention to change the current housing pattern, demonstrating the hypothesis on people's feelings and their role in mobility behaviour. Several interactions between this construct and other model covariates were tested but no significant results were obtained. Determinants of destination attachment are the second-home location and the owner's region of permanent residence. In both models the parameters associated with the Gambarogno area are negative and statistically significant (at 5% in the first and 10% in the second case), implying a negative effect on the latent variable. This result is interesting considering that in the model of intention to move, the parameter is no longer statistically significant at the 10% level, meaning

<sup>4</sup> Ordered logit regression includes the estimation of peculiar parameters called "thresholds"; these are not reported for the sake of compactness.

	Base		Single LV		Double LV	
Log likelihood 0	– 1,611.214		– 1,611.214		– 1,611.214	
Overall Log likelihood	– 1,482.515		– 8,179.452		– 1,6073.84	
"Intention to move" Log likelihood	– 1,482.515		– 1,482.682		– 1,482.948	
No. of observations	828		828		828	
Parameter	coeff.	t– ratio	coeff.	t– ratio	coeff.	t– ratio
<b>Intention to move</b>						
S-h type: house or apartment	0.5028	2.49	0.4924	2.44	0.4999	2.47
S-h type: country cottage	reference category					
Yearly permanence (logarithm)	0.4873	3.74	0.4273	3.23	0.4218	3.19
S-h location: Locarnese	0.3619	2.59	0.3652	2.61	0.3685	2.63
S-h location: Gambarogno	– 0.3786	– 1.87	– 0.2997	– 1.43	– 0.2912	– 1.39
S-h location: rest of municipalities	reference category					
S-h ownership motivation: place appeal	0.3739	2.33	0.3693	2.28	0.3707	2.28
S-h ownership motivation: inheritance / investment / business	reference category					
Gender: female	– 0.3514	– 2.70	– 0.3962	– 3.01	– 0.4048	– 3.06
Gender: male	reference category					
Age: 18–45 y.o.	0.8471	4.64	0.8250	4.50	0.802	4.36
Age: 46–60 y.o.	0.5304	3.48	0.5084	3.31	0.4926	3.19
Age: 61+ y.o.	reference category					
Working position: independent	0.3515	2.58	0.3559	2.58	0.3567	2.58
Working position: dependent / student	reference category					
Destination attachment	–		0.2551	2.86	0.2376	3.12
<b>Destination attachment: structural parameters</b>						
S-h location: Gambarogno	–		– 0.3723	– 2.65	– 0.2753	– 1.69
S-h location: rest of municipalities	–					
Owner's region of residence: Eastern CH	–		0.1304	1.72	–	
Owner's region of residence: rest of Switzerland	–		reference category			
Pull factor	–		–		0.6244	4.72
Push factor	–		–		0.2412	3.79
<b>Pull factor: structural parameters</b>						
Age: 46–60 y.o.	–		–		0.2386	2.26
Age: 18–45 y.o. / 61+ y.o.	–		reference category			
Marital status: married	–		–		– 0.1898	– 2.85
Marital status: unmarried / divorced / widowed	–		reference category			
<b>Push factor: structural parameters</b>						
Age: 18–45 y.o.	–		–		0.7523	2.75
Age: 46–60 y.o.	–		–		0.5771	5.26
Age: 61+ y.o.	–		reference category			
Owner's region of residence: Zurich	–		–		– 0.1863	– 1.84
Owner's region of residence: rest of Switzerland	–		reference category			
Marital status: married	–		–		– 0.1909	– 2.64
Marital status: unmarried / divorced / widowed	–		reference category			
<b>Destination attachment: measurement parameters</b>						
Place attachment	–		0.6728	9.14	0.5703	11.02
Place attachment (st.dev.)	–		0.8266	22.91	0.8243	24.21
Place appeal	–		0.6449	10.86	0.5214	10.49
Place appeal (st.dev.)	–		0.4896	9.25	0.5173	9.39

..... continuing on the next page .....

Tab. 3: Model results

	Base	Single LV		Double LV	
<i>.....continuing from previous page.....</i>					
<b>Destination attachment: measurement parameters</b>					
S-h appeal	–	0.5782	7.96	0.4834	8.32
S-h appeal (st.dev.)	–	0.4622	9.57	0.4673	10.64
Feeling tourist	–	– 0.3269	– 4.56	– 0.2745	– 4.45
Feeling tourist (st.dev.)	–	1.5239	44.67	1.5241	44.71
S-h ownership satisfaction	–	0.5287	6.33	0.4483	6.96
S-h ownership satisfaction (st.dev.)	–	1.294	17.06	1.2933	17.04
Neighbours relationship	–	0.2424	3.90	0.202	4.11
Neighbours relationship (st.dev.)	–	1.1998	30.24	1.2003	30.67
<b>Pull factor: measurement parameters</b>					
Favorable climate	–	–	–	0.6884	6.77
Favorable climate (st.dev.)	–	–	–	0.9151	20.86
Scenary and natural landscape	–	–	–	0.9653	9.54
Scenary and natural landscape (st.dev.)	–	–	–	0.5423	16.78
Stay close to nature	–	–	–	1.1977	10.54
Stay close to nature (st.dev.)	–	–	–	0.7844	13.71
<b>Push factor: measurement parameters</b>					
Desire to get away from everyday life	–	–	–	0.965	14.59
Desire to get away from everyday life (st.dev.)	–	–	–	1.2564	23.55
Desire to rest	–	–	–	1.109	15.72
Desire to rest (st.dev.)	–	–	–	1.1009	19.62
Desire to spend time with family	–	–	–	0.8637	9.34
Desire to spend time with family (st.dev.)	–	–	–	1.8392	37.62

Tab. 3: Model results – continuing

that second-home owners in Gambarogno show significantly lower attachment to the destination than their counterparts in the rest of the region and, indirectly, a higher intention to keep combining the best of both homes.

Concerning the region of residence of second-home owners, we separated the observations regarding respondents from Eastern Switzerland, but we obtained mixed results. If we consider the single latent variable model (destination attachment only), we obtain a positive and significant parameter (0.1304), which implies that owners residing in this region show a higher level of destination attachment compared to owners living permanently in the rest of Switzerland. The geographical divide we propose is basically driven by the model fit, and it is difficult to explain the reasons for such a spatial distinction. The geographical separation probably hides some unobserved peculiarities that lead people from the eastern part of Switzerland to be more prone for future relocation than those coming from elsewhere. That said, in the final model (including push-pull factors) the spatial parameter is no longer significant.

#### 4.3 Push-pull latent variables

Model specification accounts for push and pull factors as determinants of destination attachment. Parameter estimates confirm that both constructs have a positive and significant effect on it (0.2412 and 0.6244, respectively). In the pull latent variable specification, age and marital status were found as determinants. Home-owners aged 46–60 show higher levels of this psychological aspect compared

to their younger or older counterparts (0.2386). As far as marital status is concerned, married people report lower levels for the pull latent variable compared to unmarried owners (– 0.1898). In the push latent construct, the homeowner's age, residence and marital status are significant determinants. The push-factor level tends to decrease with age, as the youngest subsample of individuals have the highest associated parameter estimate (0.7523), followed by the middle-aged respondents (0.5771). Married individuals are less affected by push elements compared to the remaining homeowners (– 0.1909) and the same holds for Zurich residents (– 0.1863).

#### 4.4 Latent variable measurement indicators

The final set of estimates refers to the indicators we adopted to identify the latent variables. All the signs of the coefficients are coherent with the behavioural framework, and the parameter estimates are statistically significant, showing that the indicators we considered enter our model in a meaningful way. Concerning the destination attachment construct, the latent factor positively reflects on second-home owners' perceived appeal of place (0.5214), the second home itself (0.4834), ownership satisfaction (0.4483) and relationship with neighbours (0.202).

On the other hand, the closer one is to the destination the less one feels like a tourist when spending time there (– 0.2745). A “pull” feeling toward the destination is manifested in favourable climate (0.6884), the possibility to enjoy natural landscapes (0.9653) and proximity to nature

(1.1977), while “push” feelings are reflected in desire to get away from everyday life (0.965), to rest and relax (1.109) and to spend time with family (0.8637).

## 5. Discussion and conclusions

The present study relates to the stream of literature linking seasonal and permanent migration and follows the path trodden by several other authors whose works contextualise individuals’ consideration of a future permanent move in a tourist context (see Li and McKercher, 2016). Our work aims at increasing the body of research investigating the role of feelings and emotions in creating a link between the owner, the dwelling and the destination.

First and foremost, this study has shown that the second-home owners surveyed are more prone not to switch their present permanent place of residence for the new one in the host community. In other words, it proves that the owners are more inclined to continue their current flexible and mobile housing pattern (taking advantage of the best of both worlds) rather than making a definitive relocation to the leisure-destination area. In a more general sense, this finding also confirms that the NMP, rather than the traditional migratory approach, is more relevant and effective in explaining and understanding contemporary mobility and the housing strategies followed and implemented by individuals.

This research has shown that some of the owners’ socio-demographics matter with respect to the planned change in a housing strategy. Female owners stated a lower propensity to give up a current housing pattern than male owners, contradicting general logic, as the former group is more prone to migrate than the latter (Ghosh, 2009). Younger owners expressed a greater propensity for a definitive relocation on a permanent basis than their older counterparts. What is more, the same correlation with owners’ age has been found for the push-force construct. These findings are in line with those by Marjavaara and Lundholm (2016), suggesting the older owners’ intention to move elsewhere is weaker than for younger individuals who have a considerably wider range of opportunities to change their residence or change their viewpoint over the lifespan in this respect. From this angle, two aspects are worth mentioning: first, it must be noted that the categories we adopted in our analysis can only somewhat represent the transition between different phases of one’s life-course; and second, it was not possible to clearly disentangle whether important life events such as widowhood, divorce and/or death of a relative influenced the intention to move. The contrasting characteristics between young and old homeowners show that lifestyle – rather than retirement migration – would be the main form of mobility for the second-home owners surveyed. This stated propensity to change the current flexible housing pattern to a more stable one anchored in the host-community, gives some clarity against the pessimistic view of the future move-in predictions for the younger generation, evidenced by other researchers and explained by their considerably higher mobility and frequent travels to different leisure locations (Pitkänen et al., 2014). Hence, in terms of the supplementary role of urban-rural migrations for human and intellectual capital shortages in the host-community, the in-flows of younger owners may be desirable, beneficial and prospective for future local development. Then again, contrary to other studies (McHugh, 1990), further socio-demographic attributes such as household income have not been demonstrated as significant factors with regard to the declared relocation.

Furthermore, several objective and subjective destination-home area characteristics (pull forces) turned out to be significant explanatory factors for housing patterns. Among them was the spatial accessibility to some social amenities (Overvåg, 2011), namely local public services. Its cogent explanatory value was demonstrated in the higher relocation propensity for individuals owning holiday homes in larger urban centres or densely built-up areas of the region surveyed (e.g. the Locarno and Lake Maggiore sub-region) and, simultaneously, in the lower propensity for less-developed and somewhat inaccessible areas with a scattered settlement pattern (e.g. Gambarogno). Bearing in mind that most of the second-home owners are retired people or those who are preparing for retirement (Norris and Winston, 2009), some of the locally accessible public services (health, caregivers, pharmacies, grocery and food deliveries) are undoubtedly a priority. At the same time, this finding has proven the importance of “environmental supportiveness” (Bell et al., 2010; Sugiyama and Ward Thompson, 2007) in making decisions for future housing option choices.

This social aspect of second-home ownership is extended here, by adding relationships with the local community (e.g. ties to neighbours or friends/relatives as holiday-home owners in the area (McHugh, 1990)), as well as the respondent’s previous experiences in the destination area (Marjavaara and Lundholm, 2016). Both facets have revealed their significance for the owner’s housing pattern considerations and, at the same time, proved what was found by Nagatomo (2014) and Overvåg (2011) for the former and, respectively by Marjavaara and Lundholm (2016), Müller and Marjavaara (2012) and McHugh (1990), for the latter. The significance of previous experiences in the destination area has also been enriched by the time factor as the second-home owners surveyed were more prone to give up the current flexible pattern if the cottage usage intensity was relatively high –the longer the stay, the higher the propensity for permanent relocation. This result contributes to previous studies (Marjavaara and Lundholm, 2016; McHugh, 1990) on the role of the time factor, considered as a pull force, and as a component of the destination attachment construct comprising accumulated everyday experiences and practices at the holiday-home area (Stober et al., 2018; Tuan, 1977).

Besides the host-community characteristics, the intention to change the current housing pattern and make a definitive move is determined by the living conditions at a holiday home. It has been revealed through the higher propensity to relocate for the owners of second homes of a solid construction (villas, converted second homes) – rather than for those owning basic country cottages, as the latter would need investments and technical interventions to make the house winterised and adjusted to the whole-year round stays (meaning a permanent home). This finding is to some extent in line with Stergiou et al. (2016), arguing for the possible technical adjustments of the secondary into permanent residence as a part of a long-term housing strategy aiming at eventual permanent relocation. It has been reinforced by Marjavaara and Lundholm’s (2016) findings of the decision for relocation that targets the second-home property rather than changing a permanent dwelling.

In addition to the social characteristics of a destination area, this research has confirmed previous findings (Nagatomo, 2014; Overvåg, 2011; Petite, 2014) stating the importance of the local natural amenities in explaining

individual housing and mobility decision-making. This factor influenced the owner's stated preferences in differentiating his/her housing pattern directly but also indirectly, seeing the perceived appeal of the place, favourable climate, enjoyment of natural landscape and proximity to nature, as main constituents of the pull factor and destination attachment constructs.

There are several practical and conceptual shortcomings affecting this study which will hopefully be taken as starting points for future research in the field. First and foremost, we cannot claim that our sample or our particular respondents is representative of the entire second-home population in the surveyed area. In fact, very little is known about the socio-demographic characteristics of Swiss and foreign second-home owners in the region. Secondly, the proposed theoretical model only considers constructs hypothesised in order to foster the intention to relocate but does not refer to negative determinants. In this sense, the mapping of variables lacks the economic, social and affective bonds that an individual has to her/his primary home, and these should be part of a more comprehensive behavioural model. Another point relates to the consideration of push and pull factors, as these highlighted the aspects that home-owners long for when deciding to spend time at the destination and, ultimately, to migrate. From this point of view, the theoretical model only considers antecedent factors, while there is no assessment of the expectations concerning the future life at the destination. In addition, the decision to relocate originates from a confrontation between the place of a primary residence and the second-home destination, and relevant trade-offs between the attributes characterising both locations are considered by the owner and should, therefore, be investigated.

In this study, the intention to move is considered to be an approximation of the actual decision, and this implies that the empirical framework is based on a hypothetical setting. While it is important to anticipate actual behaviour through the consideration of intention or willingness to perform a choice, the theoretical model should be tested in a different light by comparing individuals who ultimately decided to relocate and individuals who decided differently. Lastly, data limitations mean that investment and real-estate dimensions, as well as the availability of capital, are not considered in this study, though all of these factors are central to the life course of the use of a property, and crucial elements in the decision-making process about an individual's housing strategy.

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# Local food policies – their constraints and drivers: Insights from Portuguese Urban Agriculture initiatives

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## Abstract

*Two interconnected questions are addressed in this paper: (i) why urban agriculture (UA) and food-related initiatives take usually years to materialise in Portugal; and (ii) why resilient initiatives do not scale up and shift from practices to local food policies. We argue that existing initiatives are viewed as single events and therefore garner quite limited long-term political commitment and support. Based on interviews with food champions and a literature review, four Portuguese UA initiatives are analysed and these highlight the constraints that hinder their scaling-up. We conclude that drivers to lead to scaling-up are a combination of factors, with an enabling environment the most relevant one. On the other hand, constraints are related to limited democratic governance and poor policies, insufficient funding and weak participatory processes. Such findings are quite in line with existing literature. The limited integration of Portugal within the international UA and food debates might partially explain why UA is still struggling to find its proper place in Portuguese cities and their peripheries. Raising awareness among decision makers is critical to scaling-up UA initiatives and turning them an integral component of local food systems. A national observatory able to gather relevant data and produce knowledge, assess and monitor on-going initiatives may be the key step to gather different stakeholders together, that can then better advocate and then lead to higher political support, not only in Portugal but in any country where UA and food issues are emerging.*

**Key words:** urban agriculture; drivers; constraints; local food policies; Portugal

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## 1. Introduction: Objectives and background

Complex issues, such as Urban Agriculture (UA) and other food-related activities in cities, require new ways of thinking about urban development and a new paradigm of governance (Charlotte Prové et al., 2016; Lohrberg et al., 2016; Nathan McClintock et al., n.d.; Sonnino, 2015). UA cannot be reduced to hobbyists growing vegetables in their backyard for their self-consumption (Lohrberg et al., 2016). Instead, “UA is an activity located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-) using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area” (Mougeot, 2005).

According to RUAF<sup>1</sup> (2006), UA is part of the urban food system, competing for land with other urban functions, being influenced by urban policies and plans, etc.

A central assumption of this paper is that UA needs to be supported by local policies (Faus et al., 2013), and not left to market dynamics. This is extremely important in countries such as Portugal, where the third sector is weak (Franco et al., 2005; Quintão and de, 2011) and ideological differences between stakeholders (namely city authorities) are not acknowledged and managed (Rego, 2018).

We claim that the public sector should play a relevant leadership role, notably in defining local food policies through collaborative processes and multi-level governance. In addition, the public sector is required to integrate food into the urban food system, in order to: 1) propose alternatives

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<sup>1</sup> RUAF (Resource Centres on Urban Agriculture & Food Security) is a global partnership promoting sustainable urban agriculture and food systems. See: <http://www.ruaf.org/>

to existing land use plans and productive re-use for vacant plots; 2) legitimise existing occupations through integration into the local food system; 3) provide municipalities with sustainable and long-term local development solutions, based on community economic and social empowerment; and 4) generate jobs and increase income. Finally, UA is an outstanding channel to strengthen multi-level governance and deepen citizen participation mechanisms through participatory processes (Delgado, 2017). Cities such as Paris<sup>2</sup>, Ghent<sup>3</sup> and Toronto<sup>4</sup> have developed successful local food policies which can be taken as inspirational examples for other cities aiming to do the same. Such cities have connected UA and food programs through urban planning ordinances, or through environmental and climate change adaptation strategies. In Portugal, however, UA and food issues are not incorporated into the all-urban system complexity, which can be partially explained by the public administration and local power's inability to work with inter-departmental (Rego, 2018) and holistic issues such as UA.

Since the beginning of 2016, we have been working with Portuguese municipalities to assist them in developing UA agendas, through a Multi-stakeholder Policy Formulation and Action Planning approach (Dubbeling and Zeeuw, 2008). So far, limited success has been achieved. This situation leads us to formulate the following research questions that are addressed in the present paper:

- Why do urban agriculture and food-related initiatives take usually years to materialise in Portugal?; and,
- Why do resilient initiatives not scale-up and shift from localised practices to local food policies?

We argue essentially that existing initiatives are viewed as single events and therefore garner quite limited long-term political commitment and support.

In order to better understand the constraints and the drivers related to implementing UA and food-related initiatives, four Portuguese projects are explored and discussed: two of them are led by local governments and the other two by Non-Governmental Organisations. The time taken to materialise each initiative ranged from one year to 13 years. A closer look at each of the four processes reveals a huge time gap from the “emergence of the original idea” and the actual starting day of the process. After an identification of the reasons behind these different time horizons, some insights are provided in order to facilitate the implementation of future processes, on the one hand, and on the other, to their scaling-up and integration into more holistic perspectives and local food policies.

This paper is an exploratory attempt to identify the drivers and constraints in making local food policies happen in Portugal, with UA as an entry point. This is carried out through the analysis of the opinions of key-informants, involved into four UA and food initiatives since their very beginning. Section one provides a brief international account of drivers that enable the emergence of local food policies. Then, in section two, the reasons why the four cases were selected are given, followed by the research methods, tools and

indicators. Section three summarises the findings obtained through the interviews, and subsequently the fourth section discusses these findings based on the drivers and constraints identified in the literature. Concluding remarks and the implications of the findings close the present paper.

## 2. Drivers that enable the emergence of local food policies

The concept of integrating food into urban planning is relatively new in the professional literature (APA, 2007; Cabannes et al., 2017; Zeeuw et al., 2000; London Assembly, Planning and Housing Committee (LA PHC, 2010); Pothukuchi and Kaufman, 1999). Today, however, the issues are on local government agendas (Brand, 2017; McClintock, 2010; Moragues-Faus and Marceau, 2019; Moragues-Faus and Morgan, 2015; Sonnino, 2009), and in policy making, with a landmark being the Milan Urban Food Pact Policy (MUFPP, 2015) enacted in 2015, and signed since then by more than 200 cities and local governments worldwide. Only two of them are in Portugal.

Some of the reasons why local food policy fails were already pointed out by Rod MacRae (1999) in the late 1990s. For the Canadian food system, MacRae underlined the limits and contradictions inherent in an emerging issue such as UA – the difficulties of inter-departmental collaboration, as well as government unwillingness to support it. Scaling up UA into urban local food policies requires a complex combination of factors ranging from governance, coordination, and financial support infrastructures, among other factors (Faus et al., 2013; Nasr et al., 2010; Magarini and Calori, 2015; Moragues-Faus and Morgan, 2015; Morgan and Sonnino, 2010; Sonnino, 2015, 2016; Steel, 2013).

More recently, discussion on the drivers and constraints to make local food policy happen was reopened by three world-wide organisation with strong connections to practice. The International Panel of Experts on Sustainable Food Systems (IPES-FOOD) published “What makes urban Food Policies happen?” (IPES-FOOD, 2017), which provides insights from four cities and one city-region: Nairobi (Kenya), Belo Horizonte (Brazil), Detroit (USA), Amsterdam (Netherlands) and the Toronto city-region (Canada) with its Golden Horseshoe area. A second report, “Linking Cities on UA and Urban Food Systems” (2013), resulted from the joint venture efforts from two foundations, RUA and ICLEI<sup>5</sup>: it analyses successful programs in Belo Horizonte (Brazil), Linköping (Sweden), Dumangas (The Philippines), Amman (Jordan), Kesbawa Urban Council and Western Providence (Sri Lanka), and finally, Kathmandu (Nepal). The last report comes from Eurocities<sup>6</sup> (Cunto et al., 2017), an European food working group, and is an outcome of two years worth of analysis of five European funded projects in Rotterdam (Netherlands), Lisbon (Portugal), Ljubljana (Slovenia), Gothenburg (Sweden) and Milan (Italy). This report presents clues to understand project constraints and/or keys for success. These three publications are complementary as they do not report the same city projects (with the exception

<sup>2</sup> See <http://www.parisculteurs.paris/>

<sup>3</sup> See <https://stad.gent/ghent-international/city-policy/food-strategy-ghent/food-strategy-ghent-gent-en-garde>

<sup>4</sup> See <https://www.toronto.ca/legdocs/mmis/2018/hl/bgrd/backgroundfile-118079.pdf>

<sup>5</sup> ICLEI is a leading global network of cities, towns and regions committed to building a sustainable future. See: <http://www.iclei.org/>

<sup>6</sup> Eurocities is a working food group that aims to become a “creative hub” for sharing information, ideas, best practices and experimenting with innovative solutions related to urban food. See [http://www.eurocities.eu/eurocities/working\\_groups/Food&tpl=home](http://www.eurocities.eu/eurocities/working_groups/Food&tpl=home)

<b>Dimensions</b>	<b>IPES FOOD – Drivers</b>	<b>RUAF/ICLEI – Drivers</b>	<b>Eurocities – Drivers</b>
Data, Monitoring and learning	Background and base line research have been carried out to inform policy Impacts are monitored and new data are collected throughout implementation	Monitoring of clearly defined indicators of the desired changes in the functioning of the urban food system Joint food system assessment, visioning, and design of a comprehensive food strategy or action plan	Collaborate with universities and research centres to collect data and monitor the impact of the food activities
Governance and policy	Policy is continually reviewed and renewed The necessary policy powers and responsibilities exist at the local city/ government level Policy at the national level is supportive	Creating a facilitating legal system Linking local, regional, and national food security, social welfare, economic or climate change programs, including those from different stakeholders Involving various government departments and disciplines on food issues (e.g. health, agriculture, economic development, marketing, climate change, transport, land use planning, social welfare, and education) with a strong coordinating departmental or champion. Outline how food can help meet different and multiple policy objectives	Secure parallel sectoral or multi-level governmental support (e.g. from sub-national, regional or national governments) Establish mechanisms for the engagement of different city departments, different levels of government and different local actors, such as food councils with the full and meaningful inclusion of civil society and cross-department working groups. Use longer planning cycles to transcend political or election cycles.
Participatory Process	The institutional home of the policy lends it strategic importance and/or provides channels of influence A governance body has been established to oversee the policy, that promotes accountability and efficiency Multiple city government departments are engaged with and committed to the policy High-level political commitment from city government is secure and leveraged Political commitment transcends electoral cycles	Strong political leadership and long-term continuation of the process Creating space for broad multi-stakeholder involvement (local government, private sector, civil society, universities) in planning and implementation of food strategies and related projects.	Build demand-driven and mutually beneficial learning and exchange networks with local authorities at national or international level.
Funding	Conflicts and ideological differences between actors are acknowledged and managed Part – funding is provided by city government Overall funds obtained are sufficient for implementation There are no restrictive conditions attached to funding	Leveraging of financial resources from framework and larger scale programs at city level Building on existing local initiatives: supporting community-based and innovative private sector food projects, replicating and up-scaling successful initiatives Designing a variety of (short-term) projects that have strong possibilities of success to help build credibility, next to promoting institutional and policy uptake of food strategies Media attention and public dialogue on food issues and the multiple roles of agricultures	Not applicable – Cities received European funds Identify and select entry points for food-related activities that will be both successful and demonstrate impact, in order to build a coalition of support across government and other stakeholders and actors
Environment			

*Tab. 1: Drivers for the development and implementation of Local Food Policies: IPES FOOD (2017); RUAF/ICLEI (2013); Eurocities (2017)*  
Source: author's elaboration based on IPES – FOOD (2017), RUAF/ICLEI (2013), Eurocities (2017)

of Belo Horizonte), and analyse practices located on different continents. All together, these three reports are grounded in 15 cities and one city-region.

A closer look at each city's initial entry point, for Local Food Policy development, reveals that cities have quite different entry points, such as hunger (e.g. Belo Horizonte), regulation of existing city farming (e.g. Nairobi), social and economic challenges (e.g. Detroit and Kathmandu), youth obesity (e.g. Amsterdam), supporting spatial development (e.g. Rotterdam), or Environmental Challenges (e.g. Lisbon, Milan, Amman, Dumanga). As stated by Cabannes and Marocchino (2018), a recurrent question in urban food systems planning, and we would add, local food policies, is whether or not there is a better entry point to generate a sustainable process? According to these authors, entry point and early drivers are usually quite specific and depend a lot on local political, historical and social conditions. Nevertheless, local food policies do not depend so much on the entry point but on the capacity of actors, from local governments to grassroots organisations, interested in and with the capacity to connect the different UA dots in a coherent, comprehensive and systematic way (Cabannes and Marocchino, 2018). Whatever the entry point might be, local food policies do have a starting point, through UA in all cases referred to by IPES – FOOD (2017), RUAF-ICLEI (2013), and Eurocities (2017). This setting is in line with the Portuguese context, as we will illustrate in Section 2, and gives us the perfect framework to better understand the Portuguese drivers and constraints to make local food policies happen, having Urban Agriculture as a 'kick off' point.

As evidenced in the three reports mentioned above, Table 1 summarises the drivers and constraints that make food policies happen: IPES-FOOD proposes a set of 15 drivers; RUAF-ICLEI proposes 12 drivers; and Eurocities proposes 6 drivers. Similarities between the three different reports demonstrate that there are common reasons that explain why local food policies are successful worldwide. For sake of clarity, the different drivers and constraints are organised into five dimensions: 1) Data, monitoring and learning;

2) Governance and Policy; 3) Participatory processes; 4) Funding; and 5) Environment. Table 2 matches those listed by IPES-FOOD (2017) and Eurocities (2017), as RUAF – ICLEI (2013) does not include them in their list. These constraints fit into three of the five proposed dimensions: i) Governance and policy; ii) Funding; and iii) Participatory processes. Again, a few common factors can be identified.

### 3. Methodology and data collection

Although not representative of all the initiatives underway in Portugal, the four selected cases fairly typify the variety of UA initiatives currently taking place in the country. The common UA characteristics, according to Delgado (Delgado, 2015, 2017) can be summarised as follows:

- a. They are either run by the public sector and local municipal governments (cases 1 and 2), or civil society organisations and non-profit organisations (cases 3 and 4);
- b. UA as a sector is relatively young, as none are more than 15 years old and all flourished during or as a result of the world-wide economic crisis that struck the country in 2008 (all cases);
- c. Access to land for farming remains at the core for making UA possible, with municipalities playing a pro-active role (cases 1 and 2);
- d. UA is much more about production, i.e. growing plants for self-consumption than for their distribution (cases 1, 2 and 3);
- e. UA is largely found in large metropolitan areas with some outreach to key secondary cities (all cases);
- f. UA initiatives are expanding through the replication of a production approach with only a limited expansion through the whole food chain, or even less through a holistic food system approach (cases 1, 2 and 3); and
- g. UA practices with food waste and hunger mitigation as an entry point do exist, even if rarely recognised as part of a food system approach (case 4).

Dimensions	IPES – FOOD – Constraints	Eurocities – Constraints
Governance and Policy	<ul style="list-style-type: none"> <li>• Unsupportive national level policy</li> <li>• Absence of necessary powers and responsibilities at the local city level</li> </ul>	<ul style="list-style-type: none"> <li>• Challenging or adverse political situations: i.e. food activities are not seen as a political priority</li> <li>• Absence of policy coherence among different level of governments, i.e. presence of national policies that restrict, limit or contradict municipal authority priorities</li> <li>• Lack of jurisdiction in food-related activities, i.e. food production is often a competence of the regional level</li> </ul>
Funding	<ul style="list-style-type: none"> <li>• Insufficient funding and/or restrictive conditions on how funding can be used</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of participation – and therefore engagement and support – of main actors in the food system within and outside local government</li> </ul>
Participatory Processes	<ul style="list-style-type: none"> <li>• Lack of acknowledgement or management of conflicts and ideological differences</li> </ul>	<ul style="list-style-type: none"> <li>• Absence of effective multi-sector, multi-actor and multi-level engagement mechanisms, among different city departments, different levels of government and different types of actors (CSOs, private sector, research organisations)</li> <li>• Missing links between research, practice and policy</li> </ul>

Tab. 2: Comparison of constraints for the development and implementation of Urban Local Food Policies, according to IPES FOOD (2017) and Eurocities (2017)

Source: author's elaboration based on IPES – FOOD (2017) and Eurocities (2017)

The four Portuguese cases analysed (see Tab. 3) in this paper were chosen for the following reasons:

- The first related to access to information and to the project's key-informant willingness to share information with us. This means that the champions<sup>7</sup> were keen to share their opinions and to reveal what were the drivers and constraints to the initiatives/processes that they had been part of. This is quite rare in Portugal, as there is quite a limited tradition of self-assessment, meaning that lessons learned from unsuccessful initiatives are generally lost;
- The second factor was related to the initiative's life span, stretching from mature to starting ones. Two of the cases have been active for less than 15 years and pioneered UA formal initiatives in the country. The other two started right at the peak of the 2008 crisis (Delgado, 2015, 2017);
- Third, the cases mirror diverse types of leaderships from top-down initiatives spearheaded by municipalities to bottom-up ones originated by civil society and non-profit organisations;
- Fourth, the cases reflect geographical diversity with emphasis on the Lisbon Metropolitan Region, the most active locale for UA and food initiatives; and
- Finally, they represent diverse activity patterns from production to self-consumption<sup>8</sup>.

The investigation included empirical observation, primary data collection, a grey literature review, and inclusion of results from previous research. In addition, in-depth face-to-face interviews were carried out for each case key-informant, following a set of open questions.

All four key-informants were designated by the institutions as the spokesperson for the cases and had been involved in their respective projects from their very beginning. None

of the city representatives (Case 1 and Case 2) had political decision powers. The two key-informants from Case 3 and Case 4 were the initiatives leaders. A deep knowledge of the initiative and permanent relations with food champions, in order to allow for complementary information when necessary, were utterly important given the limited tradition of self-assessment and self-disclosure practices in Portugal. At this stage, we decided not to interview other stakeholders, as our main aim was to explore Portugal's urban agriculture drivers and constraints, based on these in-depth case analyses, and to put them into perspective with international literature. For confidentiality reasons, the names of the key-informants have not been made public.

On the subject of the key-informants interviews, our target was to draw the initiative roadmap, taking into particular consideration the most relevant milestones, key drivers and constraints, as well as the actors and partners that were involved in each moment. Some key milestones were suggested by the interviews such as:

1. Entry point that kicked off the process;
2. Institutional steps for process implementation;
3. Relevant events after initiative implementation;
4. Delays and interruptions, if any; and
5. Next steps and challenges for the future (prospective view).

In addition, we asked the interviewees to list the three most relevant drivers and constraints over time, based on examples and facts drawn from the initiative roadmap. Lastly, we asked for suggestions and recommendations that would help other food actors who might be willing to develop similar initiatives. Each face-to-face interview and the initiative visit, ran from half a day to a full day. Finally, each in-depth interview was transcribed and analysed

Name	Start	Organisations	Location	Activity pattern (main)
1 Seixal Municipality	2001	Local Government	Lisbon Metropolitan Region	Food production for self-consumption
2 Funchal Municipality	2001	Local Government	Madeira Island	Food production for self-consumption
3 AVAAL	2008	Local NGO	Lisbon	Food production for self-consumption
4 National Food Bank	2009	National NGO	National	Food production contribution to the Food Bank

Tab. 3: UA case studies: Detailed information  
Source: author's elaboration (2019)

through content analysis techniques, labelling the constraint and drivers mentioned at each milestone. The results were cross-tabulated with the range of drivers and constraints mentioned in the previous questions (the three most relevant drivers and constraints) to ensure key-informant discourse coherence. The narratives below summarise and highlight the most important milestones for each case study.

### 3.1 Case 1<sup>9</sup>: Seixal Municipality: 13 years since opening the first allotment garden

Seixal Municipality is located 20 km south of Lisbon and has a population of 184,269 inhabitants (INE, 2011: see footnote 12). In the second half of the 20th century,

the national steel industry in Seixal attracted a significant amount of rural labour. Since 1961, steel workers have been formally allowed to cultivate land around the factory. In 2001, with the closure of the steel plant, the municipality inherited a liability of 22 hectares of contaminated land, of which a significant part has been cultivated since then.

At that time, either the municipality or the new urban farmers, most of them of rural origin, were aware of the health problems related to the contaminated soil. To assess how much land in Seixal was dedicated to farming, including the contaminated steel factory site, a team of municipal technicians, led by a landscape architect, began a land mapping process that identified 200 hectares of informally<sup>10</sup> cultivated

<sup>7</sup> According to the Oxford Dictionary, a champion is "a person who fights for, or speaks in support of, a group of people or a belief". Throughout this paper we refer to "food champion" as the person who supports and advocates for the initiative.

<sup>8</sup> The most common found patterns in Portugal, as food waste and hunger mitigation are still cutting-edge issues.

<sup>9</sup> <http://www.cm-seixal.pt/agricultura-urbana/hortas-urbanas> (Accessed September 2019)

<sup>10</sup> By "informally" we mean without the landowner's permission. This happens quite often in large companies where control of land occupation is not carried out regularly.

land. The mapping alerted the municipal authorities to the importance of urban farming. In 2005 and 2008, two additional land use mappings were completed.

In 2011, Seixal municipality launched the first international conference on UA in Portugal. This event helped to raise awareness among political leaders, but other benefits on the ground were limited and did not speed up the process to support informal urban agriculture practices. Still, without any funding or strong political commitment, the municipality started to formulate an allotment gardens ordinance, through a participatory process that lasted three years. In 2013, after elections, and thanks to the support of a newly-elected pro-environment councillor, a first allotment garden opened in 2014, and a new land mapping was completed. In 2017, three new allotment gardens opened, totalling 10,000 square metres of cultivated land (see Fig. 1).

### 3.2 Case 2<sup>11</sup>: Funchal Municipality: 3 years for a fully blooming process

Funchal is the capital of Madeira Island, one of the two Portuguese autonomous regions, with a population of 111,892 inhabitants (INE<sup>12</sup>, 2011). Seventy-five percent of the island's population live on 35% of its territory, primarily in Funchal, which explains why its density of 1,496 houses/km<sup>2</sup> is higher than in the Lisbon metropolitan area (940 houses/km<sup>2</sup>). In 2002, the municipality decided to transform six cultivated plots into “kitchen gardens” and to integrate them into a public park. The process of finding six interested farmers was difficult, and therefore the municipality decided

to make an open call. When the news of this call began to spread, a large number of potential farmers enlisted. This huge demand and the commitment of a city councillor, an agronomist by profession, explains largely why in 2005 the municipality started an important allotments garden program: this program integrated more than 900 gardeners, located in 23 different sites, either on public land or on private land rented by the municipality, that summed to the significant amount of 60,000 square metres of cultivated land by 2013. In the middle of this process, the City Council tried to innovate by allowing the raising of small animals such as chickens. The proposal was not well received by the communities and the ordinance was not voted in. In 2013, due to City Council political changes, the project lost its strength and the dedicated staff shrank. As a result, no new allotment gardens were opened and their maintenance was interrupted. In 2017, however, political changes at the municipal level, brought new life to the process, new staff were added and the city signed the Milan Pact as an expression of its renewed interest (see Fig. 2).

### 3.3 Case 3<sup>13</sup>: AVAAL: 8 years of continuous resilience

AVAAL – the Alta de Lisboa Environmental Enhancement Association<sup>14</sup> – is located in a massive housing development aiming at relocating low-income families and offering housing solutions for the middle classes. In 2008, one new resident, a landscape architect by training, spread the idea of launching an allotment garden initiative, based on the farming tradition of the neighbourhood. He invited the Kcidade<sup>15</sup>, a local association, to join the project and together they presented the initiative to the Lisbon Municipality



Fig. 1: Allotment gardens in Seixal, Lisbon Metropolitan Region  
Source: author (2017)

<sup>11</sup> See link: <http://services.cm-funchal.pt/hortasurbanas/> (Accessed September 2019)

<sup>12</sup> INE – National Institute of Statistics, in Portugal.

<sup>13</sup> <https://avaal.wordpress.com/> (Accessed, September, 2019)

<sup>14</sup> In Portuguese: Associação para a Valorização Ambiental da Alta de Lisboa

<sup>15</sup> Kcidade is a local NGO funded by the Aga Khan Foundation. Its main aim is to help communities to deal with social and territorial changes.

in 2009. The idea was to invite new dwellers to be tenants of an “Urban green structure”, and to turn an idle piece of land to productive uses. This was possible within the local urban plan as the land was branded as green space. Still, securing the official authorisations from both planning and green public spaces departments took eight months. Meanwhile, the promoters launched social media, television and newspaper campaigns. This allowed the newly-born collective to lobby the municipality and to obtain additional support. Despite these efforts, the approval by the City Council of an allotment garden took almost two years. Once

this approval was obtained, moreover, the project partners entered a national competition launched by the National Energy Company (EDP Foundation). The proposal for solidarity gardens received the needed resources to open a garden for disabled people that gave a great visibility to the overall project. Despite this first success, the City Council continued to raise difficulties regarding local access to the site. This issue took another five years to be unlocked. Finally, in 2016 a beautifully-landscaped 20,000 square metres allotment garden opened, cultivated by 105 farmers (see Fig. 3).



*Fig. 2: Allotment gardens in Funchal, Madeira Island*  
Source: author (2017)



*Fig. 3: Allotment gardens in Lisbon – AVAAL*  
Source: author (2018)

### 3.4 Case 4<sup>16</sup>: National Food Bank – 1 year to harvest fresh vegetables inside a jail

The first Portuguese Food Bank was created in 1999<sup>17</sup>. Its main aim was hunger mitigation and the reduction of food waste. The organisation receives donations from supermarket chains and other food-related organisations, as well as private contributions. In 2008, a voluntary group of a local bank, which at the same time included a staff member of a Lisbon jail, proposed that the Food Bank's national administration use part of the land within the premises of the jail complex for cultivation. The idea was well received by the authorities and promptly discussed with the Ministry in charge, as well as with the central government. This was possible due to personal connections between all three of the involved agencies. In less than six months, a joint agreement between the Land Bank Federation and the Central Government was signed to engage prisoners for gardening. Less than one year later, the project expanded to four additional prison complexes, insuring two harvests yearly of fresh vegetables that are donated to local food banks. To ensure available seeds, equipment and pay for the prisoners, the National Food Bank Federation signed a partnership with a multinational industry that produces fertilizers and seeds. This supported the existing program, but limited funding prevented the project from further expansion during the next six years. In 2016, however, the program won a national award that provided funding to expand the project, as well as paying a consulting company to manage the project on a professional basis. In 2017, the project expanded to five more prisons. Today, nine prisons are involved in the project and prisoners cultivate roughly 150,000 square metres, and the harvested greens (tomatoes, salads, carrots, onions, cabbages) continue to be donated to local food banks (see Fig. 4).



Fig. 4: Gardening in jails estates – Portugal  
Source: Portuguese Food Bank Federation

## 4. Results: Lack of governance and political willingness vs. an enabling environment

### 4.1 What were the main drivers that explain the development of your initiative?

Case 1: According to the Seixal municipality: “Giving visibility to the project” was a key driver, that helped to generate awareness among the population and decision makers. The next factor was community support, which pushed decision makers to act. The Seixal key-informant underlined as well the importance of timing, specifically the importance of achieving tangible results before the end of the campaign for elections, when politicians want to reap votes for their accomplishments. Finally there is funding, as a vital factor in making limited initiatives grow.

Case 2: The Funchal municipality's interviewee mentioned that having a deeply committed and engaged municipal staff was the most important driver. In second place, the support of the community was underlined, followed by access to land as a resource.

Case 3: The AVAAL contact highlighted that having a ‘champion’ who leads the process as the main success factor, followed by funding, and lastly by “project visibility” by means of an effective communication campaign through newspapers, television, etc.

Case 4: The NFB key-informant stressed the need to have a “good relationship with political power”, and to have supportive sponsors to ensure funding in order to increase project awareness. The third factor mentioned related to the identification of existing resources, in this case the availability of potentially cultivable land within jail premises.

<sup>16</sup> <https://www.dn.pt/sociedade/interior/presos-cultivam-hortas-para-dar-de-comer-a-familias-carenciadas-8697687.html> (accessed, September, 2019)

<sup>17</sup> Today, there are 21 National Food Banks in Portugal

#### 4.2 Which were the most important constraints to the development of your project?

Case 1: According to the Seixal interviewee, the first serious difficulty was the “lack of awareness and of long-term commitment by the city government”, followed by the “stop and go” nature of politics, which disrupts the natural flow of the processes. “Lack of proper funding” was mentioned as well.

Case 2: In the case of Funchal, the program impediments were the “lack of commitment and awareness of city government”, followed by the limited engagement and support from the communities. The lack of funding made progress slow and difficult.

Case 3: The AVAAL key-informant highlighted the lack of awareness from city government, along with the lack of community support.

Case 4: In the case of the National Food Bank, limited cooperation between partners and sponsors, was identified as the main constraint. The “lack of proper funding” was

highlighted as well as a constraint, followed by the lack of support from the community (understood as volunteer work contribution).

#### 5. Discussion: Portugal drivers, international examples, constraints

Tables 4 and 5 summarise the drivers and the constraints identified in the Portuguese cases. They are organised along the same dimensions as used in Tables 1 and 2 (for the international situation).

As shown in Table 4, the main drivers highlighted by all key-informants are:

- An “enabling environment”, which can be unpacked as “a team or a food champion engaged and committed”, a “demand by the community, “access to land” and “the attention of the communications media”. The importance of having a committed team (Funchal) or a committed food champion (AVAAL) seems to explain initiatives that have been sustainable and expanding

Dimensions	Drivers	Findings			
		City government		NGO	
		Seixal	Funchal	AVAAL	NFB
Governance and policy (2)	Politicians need to show accomplishments by the end of their mandate (new evidence)	yes			
	Existing good connection with national government (new evidence)				yes
Environment (10–12)	City team is engaged and committed and/or there exists a food champion (new evidence)	yes	yes	yes	SH
	Communities put pressure on city government requesting city engagement (new evidence)	yes	yes	yes	
	Access to land (new evidence)	SH	yes		yes
	Media attention	yes		yes	SH
Funding (3)	Financial resources are sufficient for implementation	yes		yes	yes

Tab. 4: Drivers mentioned by the four key-informants (Legend: yes = pointed out by key-informant; SH = Somehow implicit in key-informant discourse and/or author’s observations)

Source: author’s elaboration (2019)

Dimensions	Drivers	Findings			
		City government		NGO	
		Seixal	Funchal	AVAAL	NFB
Governance and policy (4)	Challenging or adverse political conditions: i.e. food activities are not perceived as a political priority at city level	yes	yes	yes	
	Political commitments do not transcend political cycles at city level	yes			
Funding (3–4)	Insufficient funding	yes	yes	SH	yes
Environment (3)	Insufficient support from communities (new evidence)		yes	yes	yes
Participatory Process (1)	Lack of effective multi-sector, multi-actor and multi-level engagement mechanisms, among different city departments, different levels of government and different types of actors (CSOs, private sector, research organisations).			yes	

Tab. 5: Constraints mentioned by the four key-informants (Legend: yes = pointed out by key-informant; SH = somehow implicit in key-informant discourse and/or author’s observation)

Source: author’s elaboration (2019)

through time. Although, not underlined by Seixal and NFB as one of their most important key drivers, the relevance of the elements previously mentioned was emphasised by them for any experiences. For instance, the Seixal key-informant was, at the beginning of the current decade, a very committed UA food champion who coordinated the first international conference on UA in Portugal (Lança, 2011). In the case of the NFB, the food champion is a public national personality. In spite of not being mentioned by the NFB key-informant, it is important to underline the strong national media campaign concurrent with this project since its very beginning. On the other hand, using social media seems to be a key to grasping attention within communities and with decision makers. This is extremely important since such efforts enhance community engagement and their willingness to lobby to get more.

- “Funding” was identified as an extremely important driver in three of the four cases. Moreover, Funchal is an exception due to the initial political support by a city councillor who was a key person in getting the needed funding.
- Lastly, “governance and policy” was identified as an important driver. The evidence gathered, however, does not highlight so much political commitment but refers to time-related support, primarily during the campaign for the elections, or to the personal connections of the local promoter with national government officials.

A probable explanation for such a remarkable convergence on the “enabling environment” dimension can come from the adverse “governance and policy” framework as summarised in Table 4. Moreover, the two opinions listed under the “governance and policy” drivers, are circumstantial issues, i.e. not depending on the level of food-related political willingness. A possible justification for this could relate to UA being relatively new in Portugal (Delgado, 2018), at least in the way it is perceived today. Besides, these findings are in tune with Rod MacRae’s (1999) conclusions when referring to the Canadian urban agriculture scenario: in the 1990s, when UA there was an emerging issue, as it is today in Portugal, one of the main constraints was indeed to challenge and face government’s lack of commitment and support.

In summary, the lessons from the four cases strongly suggest that UA initiatives rely much more on an enabling environment than on supportive governance either at city (Seixal, Funchal and AVAAL) or at national levels (NFB). The combination of these elements fairly explains why UA and food initiatives usually take years to materialise in Portugal. Indeed, a common entry point for the success of Portuguese urban initiatives seems to be the nature and the extent of the enabling environment.

As shown in Table 5, the main constraints fall under the “governance and policy” dimension. Even though both NFB and Seixal stressed to some extent city political governance as a driver, in general the lack of food and agriculture political willingness was an impediment. In the case of Funchal, while support by the agronomist councillor was critical at the project’s inception, it ended when he left office, resulting in a dormant program for some years. In the case of the National Food Bank, the personal connections of the local promoter with the national government opened doors, and this probably explains why the lack of political commitment was not highlighted as a constraint. On the other hand, the lack of governance engagement of different city departments,

different levels of government and different local actors on UA and food-related issues, was mentioned exclusively by the local non-for-profit organisation: according to AVAAL, turning food into a political priority at city level was quite a challenge. This is seen in the nearly five years that were spent in negotiation with different city departments to access land (Cancela, 2014). Above all, this constraint only mentioned by the local NGO, shows how far cities are from any established mechanisms of engagement by different city departments and other relevant stakeholders in Portugal.

“Lack of funding” emerges as a permanent constraint, since not having a reliable budget inhibits project continuity, even when land, as a resource, can be accessed for free. Even AVAAL, which did not highlight a lack of funding, is struggling every month to garner enough income to pay for renting the land that belongs to the city. The lack of regular and permanent funding, as mentioned by Seixal, might explain why the programs could not shift from single projects into a broader food policy. In fact, Portuguese UA flourished largely as mitigation efforts undertaken during times of economic crisis, but they also seem quite trapped in that singularity. It is a conundrum.

The “crucial role of communities”, which is perceived both as a driver and as a constraint according to the case studies, is a common thread among interviewees. For example, Funchal mentioned an “inconsistent local communities support,” and AVAAL a “lack of awareness and community consistent support”. NFB mentioned the “lack of volunteer work” as a restriction to the continuity of the project. Again, results suggest that initiatives are quite reliant for their up-scaling on the nature of the enabling environment dimension.

In relation to leadership as a driver, they are similar for both city government and the NGOs. The environment dimension, however, seems to be the most important driver primarily for the initiatives that took longer to materialise: Seixal, Funchal and AVAAL. On the other hand, constraints do change from public leadership (city government) to non-public leadership (NGOs). First, governance and political constraints are apparently stronger at the city government level, i.e. between decision makers and the internal departments dealing with UA initiatives – than, for instance, at national and well-established national NGO levels, with some communication channels with national government decision makers.

Finally, and quite relevant in this situation, the “lack of participatory processes”, by means of “effective multi-sector, multi-actor and multi-level engagement mechanisms, among different city departments, different levels of government and different types of actors”, is almost absent from our key-informants discourse, notably for the city-led initiatives. Why is this so important? In order to shift from single initiatives to local food policies in countries where the third sector is weak (Franco et al., 2005; Quintão, 2011), a committed authority to the process is mandatory – as they are the ones able to implement mechanisms of city department engagement, at different levels of government, and with local actors (Cunto et al., 2017) which, remarkably, is not yet recognised as needed by our cities key-informants.

Recalling our initial argument, which underlined the fact that some urban agriculture initiatives are perceived by city government officials and staff as single and limited initiatives, and therefore garnered quite limited long-term political commitment and funding: What can be argued or debated from observations in the field? Findings so far

are insufficient to fully confirm the argument of limited longer-term initiatives. Nevertheless, we believe that lack of scaling-up relates to the virtual absence of UA strategy and vision at city level, which confirms our inability to develop UA and food agendas with Portuguese municipalities, as outlined earlier.

To summarise: One key finding of the current research project is that the lack of an enabling environment and an insufficient policy and multi-actor governance framework, added to extremely limited funding, explains the very slow implementation rhythm of UA and food-related initiatives in Portugal. A second important finding relates to the absence of broad multi-stakeholder involvement, which can explain why UA and food-related initiatives do not scale-up into local public food policies.

## 6. Concluding remarks

Although this paper is an exploratory attempt to understand why UA and food-related initiatives take usually years to materialise in Portugal, and why resilient ones do not scale-up and shift from practices to local food policies, some significant findings were identified. From the drivers and constraints analysed, we now understand that the Portuguese situation is quite in line with that identified in the broader literature (Cunto et al., 2017; IPES-FOOD, 2017; RUAF-ICLEI, 2013) – namely: (1) lack of “political commitment and governance”; (2) “lack of funding”; and (3) insufficient “participatory process”. A closer look at the drivers confirms, as well, the convergence between our study cases and findings from the literature review, i.e. auspicious “governance and policy” and “funding” scenarios.

An important divergence needs to be highlighted, however, and it comes from the fact that all four initiatives apparently rely to an extreme extent on a friendly ‘environmental context’, notably on a civil servant food champion or a community leader who facilitates the process. The role(s) of a champion are highlighted here.

Another important conclusion from this research on the drivers and constraints to make local UA and food policies happens, is the key-informants’ few references to additional constraints besides the ones mentioned before. In particular, we want to highlight the lack of references in key-informants’ discourse, to a relevant driver listed in the literature, i.e. the element of “initiatives monitoring and assessment”. This monitoring and assessment process comprises background research and the collection of baseline data, which enables the development of policies and can provide evidence of efficacy to help secure on-going or renewed political commitment. In addition, this “evidence of efficacy” is a way to ensure funding. Once again, this lack of reference to this issue, shows that the culture of assessment is not in the key-informants mindset. Without data to demonstrate the social, environmental and economic benefits of UA and food initiatives, it is much harder to convince decision makers to provide political support to initiatives.

Reporting the accomplishments of UA initiatives, mostly reliant on food champions, even with a shortage of “political commitment and governance”, “funding” and an insufficient “participatory process”, shows how far UA national initiatives could be from a friendly public policy context. We contend that this strong environmental context reliance, without a significant political commitment that would

facilitate funding provision and openness to a stakeholder participation, may explain why urban agriculture and food-related initiatives take usually years to materialise in Portugal, and also why resilient ones do not scale-up and shift from practices to local food policies.

What can be done, at this point, to make local public UA and food policies happen in countries where UA and food are still an emerging issue?

We believe that a strong political willingness to change current scenarios at national and city levels emerges as the driver needed to strengthen the existing UA and food initiatives and to foster its up-scaling, as a solid motivation framework already exists from the food champions side. The IPES – FOOD (2017) report summarises the ways to do it at both national and local levels. At the national level it could be done by:

1. recruiting politician(s) to champion the policy through formal procedures;
2. framing the policy in terms of political priorities or problems;
3. identifying opportunities to embed the policy in other city policies, plans and strategies;
4. institutionalising the policy by providing an institutional home, funding, and embedding it in city plans and strategies;
5. ensuring information and values are retained by a cadre of civil servants;
6. attracting and enabling publicity so policy is closely associated with the city’s reputation;
7. establishing co-governance with non-public sector organisations; and
8. monitoring and evaluating outcomes to support the case for continued support.

At a local level it could be done by:

1. positioning the policy as a city-level test-case with scaling-up potential;
2. lobbying regional and national level policymakers for change, and participating in consultations;
3. identifying people who have influence at multiple levels (politicians or civil society) and engaging them to make the case for more supportive policies; and
4. joining countrywide and international networks for a louder, collective voice in policymaking at multiple levels.

These are not compulsive, step-by step approaches, although they can be applied in Portugal and other counties where AU and food policies are still emerging.

In a nutshell, it seems that political commitment at national and city levels will increase if, and when, multiple actors are providing strong evidence of urban agriculture with multiple contributions to long-term local development, be them at local or national levels. In order to do so, two approaches could be followed immediately:

1. strengthening UA and food-related bottom-up initiatives so that communities become aware of the benefits and are willing to lobby for longer-term political commitments; and
2. generating, at the national scale, data on UA and food-related issues to provide evidence of UA impact, not only for social purposes but at environmental and economic levels as well.

In conclusion, a strong national awareness campaign, fed on a regular basis by a national observatory able to gather relevant data and produce knowledge, assess and monitor on-going initiatives, might be a decisive step to engender the involvement of different stakeholders and to attain a higher level of political commitment in Portugal, as well as in all countries where UA and food-related issues are not yet in the political mainstream.

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*Fig. 5: The northernmost point of the Bohemian-Moravian historical land boundary on the Králický Sněžník (Photo: P. Marek)*



*Fig. 6: Boundary stone in Jihlava and its detail (Photo: P. Marek)*