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Redefining marginality on Italian Apennines: An approach to reconsider the notion of basic needs in low density territories

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Abstract. The concept of basic needs and essential services evolves according to sociocultural parameters. Therefore, defining marginality based on the distance from a predefined set of services, institutionally considered essential for life, may lead to an unfocused representation of marginal and more fragile areas.

This work focuses on a territory located on the Apennine of the Province of Piacenza, northern Italy. These mountainous areas are characterized by significant shrinking processes, ageing population, low income and educational rate, unemployment, and by work/study-related mobility practices over long distances and at high speed, revealing low levels of attractivity and significant dependence on more dynamic areas of the region. Moreover, according to the National Italian Strategy for Inner Areas, they have been identified as inner areas because of the high distance from main services.

Starting from a previous research work aimed at mapping and assessing the availability, location, and accessibility to a set of services considered essential, the present work aims to reconsider and integrate this quantitative approach with an on-site qualitative survey, thanks to interviews with inhabitants and persons with special knowledge of the territory as well as participant observation.

The hypothesis is that, particularly in low density and peripheral areas, a mixed-methods research methodology that includes the accounts of populations and local stakeholders may help to extend the knowledge of their actual needs and their willingness to travel, thus reconsidering their accessibility to what they perceive as essential services and, consequently, redefining the notion of marginal and fragile territories.

Key words: marginality, accessibility, basic needs, qualitative data, mixed methods

1 Introduction

The concepts of basic need and essential service have been already addressed in mobility and accessibility studies and informed operational approaches and policy frameworks (Carrosio, Faccini 2018, Lucas 2012, Martens 2017), such as the Italian National Strategy for Inner Areas (SNAI). SNAI classifies the Italian territory according to the distances from three main services: education, health, and mobility[1]. According to this classification,

[1]SNAI classifies the Italian municipalities based on the level of accessibility to three citizenship rights: mobility, education, and health. According to the Strategy, the level of accessibility to these rights

the level of marginality of the Italian territory is inversely related to its physical level of accessibility.

Based on the definition of accessibility as "the capacity to reach a place, event, opportunity or social contact in a way that fulfils what people need" (Ferreira, Papa 2020), the paper discusses the limits of marginality assessments based on aggregate measures of accessibility to a predefined set of services and activities often arbitrarily considered essential. Notions of basic needs and essential services have been widely discussed in the literature (Froud et al. 2018). Concerning the selection of target services, some authors argue that the identification of basic needs is still "an unresolved challenge in the academic literature" (Pereira et al. 2017, p. 20) and that it is not possible to define a univocal and comprehensive list of essential needs (Nussbaum 2011).

In this work, we discuss the hypothesis that a mixed-methods research based on the listening of target populations and local stakeholders may help to both reconsider essential services, redefine the notions of marginal and fragile territories, and produce a basic knowledge for the design of more context-sensitive land use and mobility policies. As matter of fact, while quantitative data highlight general trends at larger scale, qualitative survey data help to show diversities in behaviors and to describe specific processes affecting the individual sphere. A combination of both quantitative and qualitative data may thus lead to unexplored directions of research.

However, existing literature suggests that qualitative methodologies may have some limits as it "still involve a form of aggregation and tend to lose the richness of individuals' lived experiences" (Preston, Rajé 2007), focusing on specific population groups (Titheridge et al. 2009, Shergold, Parkhurst 2012, Ryan et al. 2015) or target activities (Fransen et al. 2015, Mao, Nekirchuk 2013, Higgs et al. 2015, Materiali Uval 2014). For this reason, more sophisticated approaches based on individual accessibility are needed. Methodologies based on tools such as personal travel diaries (Kenyon 2006, Neutens et al. 2007, Chudyk et al. 2015), the collection of microstories (Vecchio 2020), or the use of disaggregated GPS, social networks, and telephone traffic digital data (Järv et al. 2014) respond to this challenge. Those methods may provide additional elements for the design of more effective policy actions as they detect features of the mobility experience that, despite their relevance for personal preferences and behaviors, are still difficult to be included in policy design using quantitative aggregated data.

The present work aims to reconsider and integrate a quantitative approach that analyzes the availability, location, and accessibility to a set of essential services with an on-site qualitative survey. Through interviews with groups of inhabitants and persons with special knowledge of the territory and participant observation, the work discusses how listening to the voices and stories of a territory can, despite some limitations, contribute to critically reconsidering the set of essential activities and services that should be available and accessible for improving the quality of life in these areas, reducing marginality. It also analyses how place-based policies and strategies may contribute to a fairer distribution and access to services and opportunities.

The approach is tested through empirical observation in a territory located on the Apennine of the Province of Piacenza in the Emilia Romagna region, northern Italy. These mountainous areas are characterized by significant shrinking processes, ageing population, low income and educational rate, unemployment, and work/study-related mobility practices over long distances and at high speed, revealing low levels of attractivity and significant dependence on more dynamic areas of the region (Vendemmia et al. 2021). Moreover, they have been defined as peripheral according to the Italian National Strategy for Inner Areas, thus representing an interesting case study to analyze the link between accessibility to basic needs and marginality.

After this introduction, in Section 2 we introduce an overview of basic needs and essential activities as well as of services for accessibility assessment. In Section 3, we outline the research design introducing the case study and the method. We then discuss the more

is proxied by the driving distance from three main services: "silver" railway station (small/medium size mainly served by local trains), secondary schools, and hospitals with an emergency room. The resulting classification further identifies three types of peripheral territories: intermediate, peripheral, and ultra-peripheral areas (Materiali Uval 2014).

relevant results (Section 4), arguing about the advantages of the applied methodology and its main limits (Section 5). Section 6 will outline the main conclusions.

2 Basic needs and essential services in accessibility: an assessment

The operational approaches informed by the concepts of basic need and essential services aims at measuring whereby people are able or not to access and participate in the fundamental activities of the economic, political, and social life of the community of belonging. Several conditions are relevant to this process: the spatial and temporal availability, the quantity/ quality of services and the activities required, and the capabilities related to the organization of one's movements on which individuals can rely on to reach spatial opportunities (Geurs, van Wee 2004, Moseley 1979) as for the concept of "motility" (Kaufmann et al. 2004). Reduced accessibility to opportunities, services, and social networks, due wholly or in part to insufficient mobility (Kenyon et al. 2002, Preston, Rajé 2007, Pucci, Vecchio 2019) may limit individual participation to essential activities and cause inequalities and potential social exclusion (Preston, Rajé 2007, Ryan et al. 2015).

Referring to the concept of basic needs means orienting mobility research towards the definition of a sufficient level of basic accessibility in order to allow participation to those essential activities also defined as activity participation (Martens 2017, Allen, Farber 2020). Accessibility thus takes on a normative value: a lower level of accessibility experienced by people will demonstrate society's duty to increase it (Farrington 2007) and to enable individuals' activities participation as a condition of basic agency, inclusion, and justice (Farrington, Farrington 2005, Lucas et al. 2016). Therefore, accessibility evaluation requires a detailed understanding of the basic needs of different social groups within a population, in the awareness that different people (if not individuals) express different needs that may vary in terms of space-time geographies and are influenced by their life chances (Martens et al. 2019, Cotella, Vitale Bovarone 2020).

Consequently, the assessment of needs is a complex task that involves a judgment about people's "wants and taste" (Handy, Niemeier 1997, p. 1175) and must be relative to the society in question (Farrington, Farrington 2005). Furthermore, it must be recognized as an embedded conflict due to the fact that essential needs are generally imposed by prevailing cultures. This is why many accessibility analyses consider a relatively limited array of activities of universal value such as healthcare, education, and transport as basic needs, refraining from an intrusive value-judgment and considering them instead as basic and instrumental conditions for the agency (Alkire 2005, Farrington, Farrington 2005).

As previously seen, a similar choice was made also in the case of SNAI, where accessibility has been measured at the national level to detect inequalities between different areas of the country to three basic rights: healthcare, education, and mobility. However, SNAI does not consider the population groups that may or may not need to reach those facilities and where they live, nor do they evaluate accessibility level according to different means of transport.

Clearly, there are more varied and representative sets of "opportunity types" (Van der Veen et al. 2020, p. 1362). In 2018, the Foundational Economy Collective, for example, defined goods and services necessary for everyday life, which are the ones whose limited access prevents living and limits its possibilities (Froud et al. 2018). Foundational economies are "material", that is consisting of "pipes and cables, networks and branches" (Froud et al. 2018, p. 20); "providential", that is inclusive of public-sector welfare activities providing universal services, such as health, instruction, public order, and public administration; and, finally, the "overlooked economy" that is inclusive of goods and services culturally defined as essential.

According to Preston, Rajé (2007), aggregate access mapping may be weak in describing accessibility levels considering varied needs and opportunity types as people living in the same spatial context with different demographic and social characteristics may have different levels and forms of motility (Kaufmann et al. 2004). Consequently, since they are specifically aimed at showing general trends and tendencies at an aggregate or national scale, those approaches risk overlooking the complexity and granularity of individual needs (Handy, Niemeier 1997) expressed by different populations in different socio-cultural

contexts, providing only a partial view of what can make a place marginal.

To assess the level of activity participation in a given place, many scholars started focusing on specific population groups, activities, territorial scales and transport means. One example is the interest in accessibility for elder people induced by ageing demographic trends. Kim et al. (2018), analyzing accessibility to private and public healthcare facilities in Seoul, recognize a negative relation between accessibility and income level and, consequently, identify low income among the main factor that influence accessibility level. Nevertheless, this work "arbitrarily defines the bottom 25% of accessibility to be the threshold for problematic" (Kim et al. 2018, p. 13), thus proposing policies guidelines that may be misleading in reducing inequalities. Fransen et al. (2015) analyze accessibility to daycare centers, also considering trip-chain, and reveal important spatial differences in accessibility compared to commuter-based versions. Mao, Nekirchuk (2013) also reached similar results by incorporating transportation modes into the accessibility estimation, even if their research still presents some limits, such as overestimating the demand for daycare. Stjenborg et al. (2014) analyze how becoming alone in the household may reduce the level of accessibility for older people, particularly focusing on the factors that influence active mobility. Shergold, Parkhurst (2012) focus on older people's accessibility in rural contexts concluding that the car-dependent nature of travel in these contexts increase the risk of mobility related social exclusion particularly amongst the old.

One of the most important limits of these works is the use of aggregated data collected for other purposes, exploring known hypotheses such as considering health care facilities as the most important destination for the elderly. Another critical point is the age of the elder. As a matter of fact, in some countries, elders are defined as people aged more than 65 y.o. while in other cases they are aged more than 60 y.o. (Titheridge et al. 2009). The age threshold mainly corresponds to the retirement age, which is different between different countries, and still defines a wide category that includes people with very different needs and abilities.

Accessibility of youth has not been deeply analyzed in the literature, except for some works considering the access to recreational spaces and sport facilities (Ogilvie et al. 2011, Higgs et al. 2015, Karusisi et al. 2013), as it has been taken for granted that high accessibility level of the caregiver is reflected on young people they take care of (Mattioli, Vendemmia 2021, Waygood et al. 2017). The main limits of these works are the neglect of age, ethnic grouping, socioeconomic circumstances, sporting preferences or gender of the local population and their interaction with the type of sporting facility being used.

Confirming that assuming some activities as essential can be misleading, research based on the use of travel diaries (Hägerstrand 1967) to analyze individual space-time behaviors (Neutens et al. 2007, Kenyon 2006) revealed unexpected results. Chudyk et al. (2015), demonstrated through an analysis based on travel diaries that the most relevant destination for older adults with low income were grocery stores, malls and restaurants or café. Other research based on National Travel Survey and focus group (Titheridge et al. 2009), aiming at establishing micro-level criteria to evaluate accessibility to various destinations, confirm that elder do more food shopping trips than average and twice the number of medical trips, affirming that "elderly people value just being able to get out and about" (Titheridge et al. 2009, p. 45).

Although travel diaries may not be completely reliable due to the level of accuracy required from the participant in recording different activities (Kenyon 2006), they allow exploring more innovative concepts that try to investigate accessibility as the ability to conduct activities and to reach opportunities.

Already in 2003, Schönfelder, Axhausen worked on the concept of activity space to identify persons at risk of social exclusion. According to the authors, "activity space is that part of the environment, which a traveler is using for his/her daily activities" (Schönfelder, Axhausen 2003, p. 274) and can be considered as cognitive or mental maps of the traveler. On the same direction, Perceived Activity Set' (PAS) is a concept used to analyze the set of out-of-home activities a person considers relevant (Le Vine et al. 2013). The PAS is not based on an a priori judgment of which activity locations a person considers important, rather it makes use of empirical observations, such as travel diaries and statistical methods to draw such inferences. In the same direction, Allen, Farber

(2020) analyze participation deserts, which are areas "where residents have lower than expected rates of daily activity participation" (Allen, Farber 2020, p. 13), making use of travel diaries. Other authors focused on the opportunities offered by digital data for the spatiotemporal mapping of individual activity spaces. Techniques such as digital positioning data analysis or mobile phone data tracking can produce information that can be used as digital travel diaries through which the set of out-of-home activities participated by individuals can be inferred and lists of individual as well as context-sensitive needs can be defined in order to feed accessibility evaluation models (Järv et al. 2014).

Finally, micro stories (Vecchio 2020) and in-depth interviews (Vendemmia 2020, Bahrami, Rigal 2021) are also useful to integrate more established approaches to accessibility measures and understand factors of choice related to the mobility experience that may be difficult to read with aggregate evaluations.

Definitely, in order to analyze the availability, location, and accessibility to essential services in rural and marginal territories, the recourse to research methodologies aimed at proposing a context and population-sensitive basic needs assessment, such as the involvement of local people through interviews, micro stories, focus groups and other forms of participation, can be an interesting way to enrich or rethink the list of basic needs to be considered and according to what kind of social and territorial profiles (Levinson 1998). Participation of the local community has been already recognized in the health sector as a key strategy for effectively reducing health disparities in underserved communities (Ahari et al. 2012). Also, considering accessibility planning, Preston, Rajé (2007) suggest supplementing top-down solutions with bottom-up community participation, while Martens (2017) suggests a participatory process that involves citizens and specially informed people through focus groups and interviews to define minimum accessibility thresholds. Moreover, they can reflect the features that facilitate or impede individual mobility and show how each person shapes his own activity space, offering a more varied and granular picture of many different forms of territorial marginality.

3 Research design

The present work integrates the result of a previous quantitative research that analyzes the availability, location, and accessibility to a set of essential services conducted to develop the Piacenza Provincial Plan (PTAV) [2] with an on-site qualitative survey. The authors believe that this method may also give important results for urban planning and territorial policies, helping to better identify the different factors that have a negative impact on accessibility level, and reduce territorial inequalities in remote and marginal territories.

The selected method forecasts direct observation through site visits of specific areas and interviews with inhabitants and key informants.

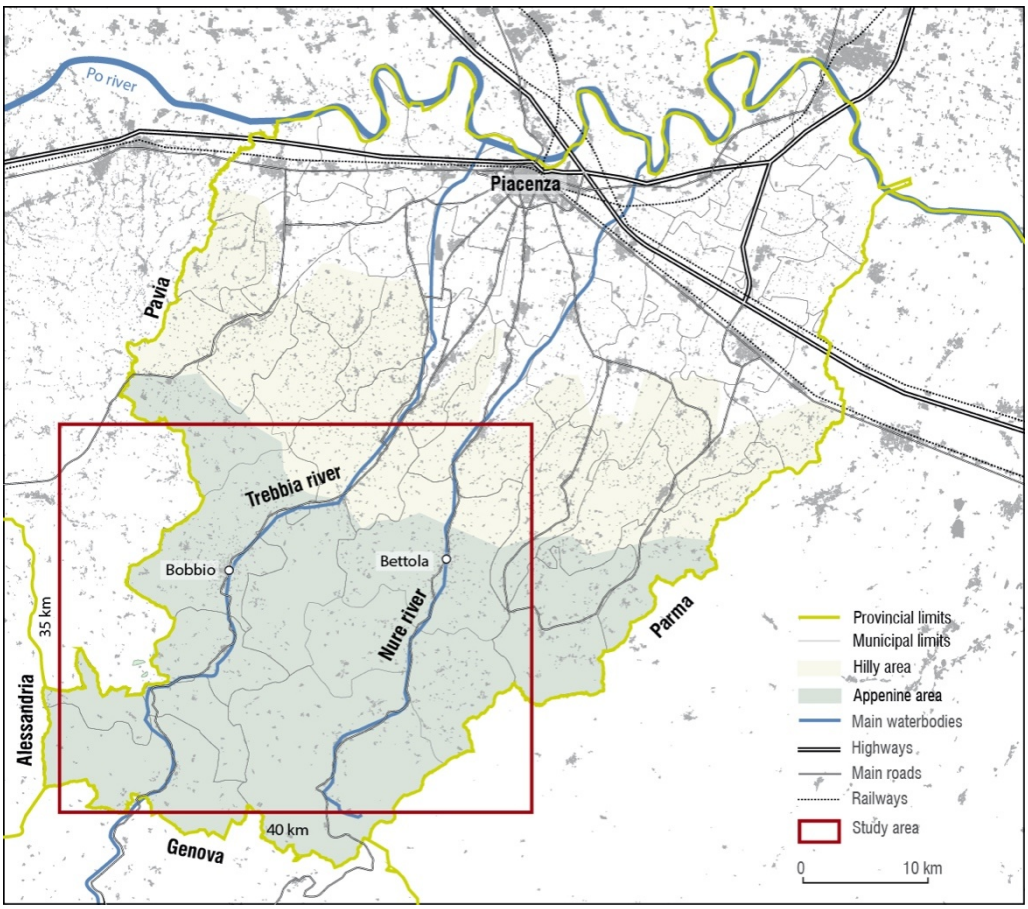
3.1 Introduction to the case study

The case study proposed in this work concerns the Apennine belt of the province of Piacenza, on the west border of Emilia-Romagna Region. The area of about 2,200 km^2 extends from the main city and the plains along the Po River towards the southwest, up to the borders with Liguria, Piemonte, and Lombardia. The area is also called the "Four Provinces" for its peculiar administrative position and historical and cultural heritage at the intersection among four different Regions and Provinces (Tarpino 2016) (see Figure 1).

Going away from Piacenza following the course of Trebbia and Nure rivers along the homonymous valleys, one crosses at first a gently hilly territory which, little by little, becomes more and more rough and wooded.

The roads at the valley floor run along the rivers while crossing little populated centers. Some of these centers, such as Bobbio and Bettola, were particularly important

[2]The accessibility analysis has been conducted by a research group lead by P. Pucci in 2020 for the General plan of the Province of Piacenza (PTAV) cfr. (PTAV 2020) Dotazione di Servizi, accessibilità e rango dei centri in Piano Territoriale di Area Vasta Piacenza – Quadro conoscitivo. pp. 157 -164. Source: https://ptavpiacenza.it/wp-content/uploads/2021/05/2021-05-PTAV-Quadro-ConoscitivoWEB.pdf



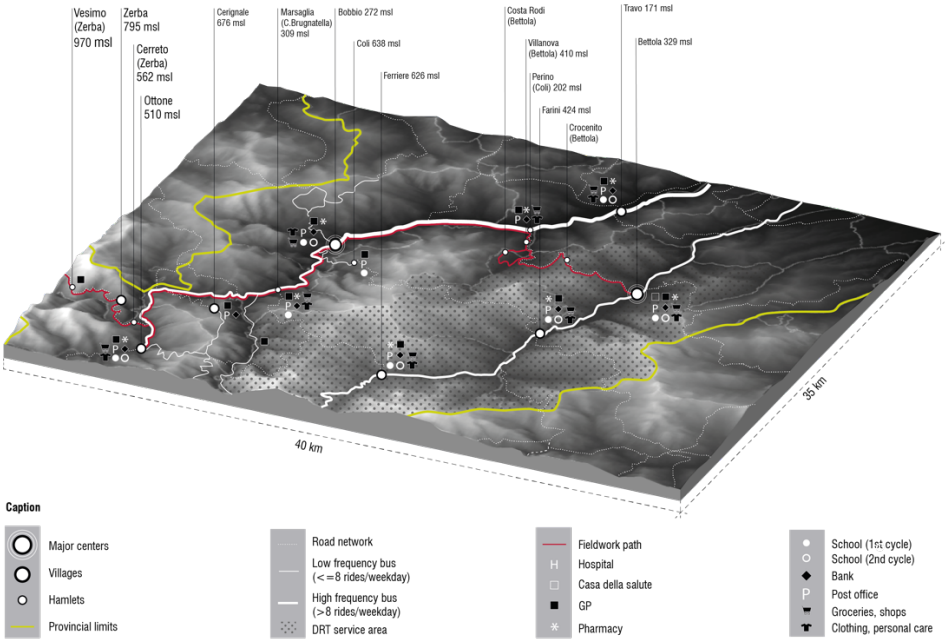
Source: our elaboration.

Figure 1: The province of Piacenza and the study area

from a historical point of view because they were the seat of small local power centers, monasteries, and abbeys. Today, they still fulfill their role as reference centers for the Trebbia and Nure valleys, respectively, and host numerous services at local and territorial scales such as the Hospital of Bobbio and the "casa della salute" (health house) in Bettola. They are almost the only villages that, since the post-war period, have developed a productive industry made of small manufacturing and related services alongside the more traditional agricultural activities.

For these reasons, Bobbio and Bettola still maintain a central role in the social and economic dynamics of the valley and represent nuclei that offer an almost complete range of commercial activities and proximity services, as shown in the analysis of accessibility of PTAV (PTAV 2020). Moreover, the analysis showed a significant inequality in terms of access to services by public transport (PT) between the mountain area and the hills and plains of the province, as the structure of the PT network, mainly facilitates the bus rides from the valley floor toward the city of Piacenza. On the contrary, bus rides are often low frequency or absent on the hilltop, and in some areas they are activated according to a Demand Responsive Transport (DRT) system[3]. Here, considerable travel times are required both to reach essential and rare services (e.g., hospitals) and to access proximity services, making the hamlets poorly accessible and isolated. Figure 2 illustrates the system of the two valleys with villages and hamlets and the public transport.

[3]In some municipalities of the Nure Valley (Farini, Ferriere and Bettola) since 2019 an experiment has been carried out trying to foresee the conversion of traditional bus lines in on-demand services. The user needs to book the trip by telephone, requesting the transit of the bus and the return to the closest stop according to a timetable defined by the operator. In this way, the routes can be modulated according to users' requests.



Source: our elaboration

Figure 2: The System of Val Trebbia and Val Nure with the main centers, the villages, the mountain hamlets, and the system of PT

The history of the Trebbia and Nure valleys is common to many Apennine areas in Italy that have undergone a progressive depopulation process starting from the post-war period up to the present day, as a consequence of the low presence of services and the migration flows toward territories with higher standards of welfare (Colucci 2018).

In the mountain villages, the process of internal migration has only been partially contrasted by the arrival of young inhabitants, the return of the elderly after retirement, and the strenuous resistance of those who have always remained here. Statistical data shows increasing depopulation that can reach a decline of 15% in the municipalities on the hilltop (see Figure 3), an employment rate under 20%, especially for youth with a percentage of NEET up to 20% in the municipalities of Cerignale and very low average income (under €17,500 per year). People aged more than 65 y.o. represent the 25% of the total population in the province of Piacenza, although this percentage is much higher in the mountainous municipalities.

This demographic homogeneity reflects a long-lasting trend, already pointed out by Moseley in 1979, highlighting the aging process as the main trend among rural populations. The sparse distribution and poor availability of proximity services and local welfare, which is also the reason why those areas have been defined as peripheral and ultra-peripheral by the SNAI (Materiali Uval 2014), is mainly due to the absence of sufficiently significant demand, and this is also one of the main reasons for internal migration. For those living in the most remote and isolated areas, this means having to travel significant distances to reach any services the person may need in their daily lives. In many cases, these complex journeys can only be made using a private vehicle.

3.2 Research method: site visit, selection of the sample, and interviews

The empirical analysis focuses on two areas in the province of Piacenza: the Val Nure and the Val Trebbia. For the Val Trebbia, the focus was on the municipalities on the high valley as those were identified as the most remote and poorly accessible according to the desk-based analysis. For the Val Nure, the municipality of Bettola and its many dispersed hamlets were investigated.

Figure 3: Abandoned rural constructions in the municipality of Zerba

Different tools have been used for the investigation: direct observation, face-to-face semi-structured interviews with key informants, surveys to various members of the community, and mapping.

The fieldwork was conducted in September 2020 by two investigators; the period has been chosen according to the interviewees' availability and to the occurrence of a local event that allows meeting as many people as possible. In addition, the visit coincided with a time when the low incidence of the Covid-19 pandemic allowed the possibility to move and interact with the respondents. The journeys were made by car due to the low presence of PT and the significant distances to be traveled.

Key informants have been contacted previously and interviewed with semi-structured interviews. In the beginning, two interviews were planned with the majors of Bettola and Cerignale. However, we had the chance to interview also other key informants while visiting the site. In Bettola, we interviewed a city councilor working as a nurse at the local health house, and we had a telephonic interview with the local health authority manager, sharing his knowledge and data about home assistance programs.

Concerning the survey, at the first stage, the focus was set on old adults by selecting a small purposive sample of six elders aged more than 65 y.o., which is the retirement age in Italy, although, as highlighted before, this threshold may change from country to country. This choice was initially made considering the results of the desk-based analysis from which it emerged that the elderly population was particularly significant in demographic terms. In addition, elderlies are a demographic group that can ideally dispose of a more limited mobility capital, as also highlighted in the bibliographic review, producing forms of potential disadvantage and marginality. The sample was selected thanks to direct knowledge. However, while travelling around the context, we enlarged our sample by including five other younger subjects that allowed us to better understand the territory and the needs of its inhabitants. Interviewing younger people made it possible to identify how conditions of marginality in an Apennine reality do not only concern older people. Depending on the individual possibility and ability to move, other age profiles can experience limitations in activity participation and basic needs fulfillment due to low availability and accessibility to valuable opportunities. As will be seen below, this limited motility particularly concerns people who do not own a private vehicle or a driving license in a context of low population density and high car dependency.

Table 1: The interviewees: age, place of residence and work, type of work and household composition

Name	Year of birth	Place of residence	Place of work	Job	Household composition
Tiziana	1928	Cerignale	Cerignale	Hotel Owner	Widow
Emanuela	1936	Cerignale	-	retired	Widow
Antonio	1936	Bettola	-	retired	Widow
Giovanni	1927	Cerignale	-	retired	Unmarried
Palmira	1951	Cerignale	-	retired	Married, 3 sons
Pamela	1931	Cerignale	-	retired	Married, 3 sons
Raffaele	1939	Piacenza	GroppaVisdomo	beekeeper	Married, 1 son
Cesare	1960	Zerba	Zerba	Hotel Owner	Married, 2 sons
Sara	1977	Zerba	Zerba	Public employee	Married, 2 son
Loredana	1965	Piacenza	Piacenza	nurse	Married, 2 sons
Claudio	1980	Bettola	Bettola	Farmer, restaurant owner	Single
Francesco	1978	Bettola	Bettola	Farmer, restaurant owner	In couple, 3 sons

The sample is listed in Table 1. Names are pseudonymized to protect the privacy of the interviewees.

After collecting data on their social and economic condition, the interview focused on understanding their basic needs, preferred means of transport, how often they need to travel to reach these opportunities and how far they need to go.

The interview was composed of different sections: 1) general information on the subject; 2) family conditions; 3) economic conditions and the context of living; 4) activities and mobility: work, grocery, health care, other activities such as visiting friends and relatives, sport, personal care, leisure; 5) use of the internet. The interviews were conducted face-to-face because on the one hand, most of the interviewees, in particular the elderly, were not even reachable over the phone or via e-mail as they had no accessibility to a landline, mobile phone, or ADSL connection; on the other hand, because of their general fragility and Covid-19 disease, we were introduced to them via younger family members or close friends.

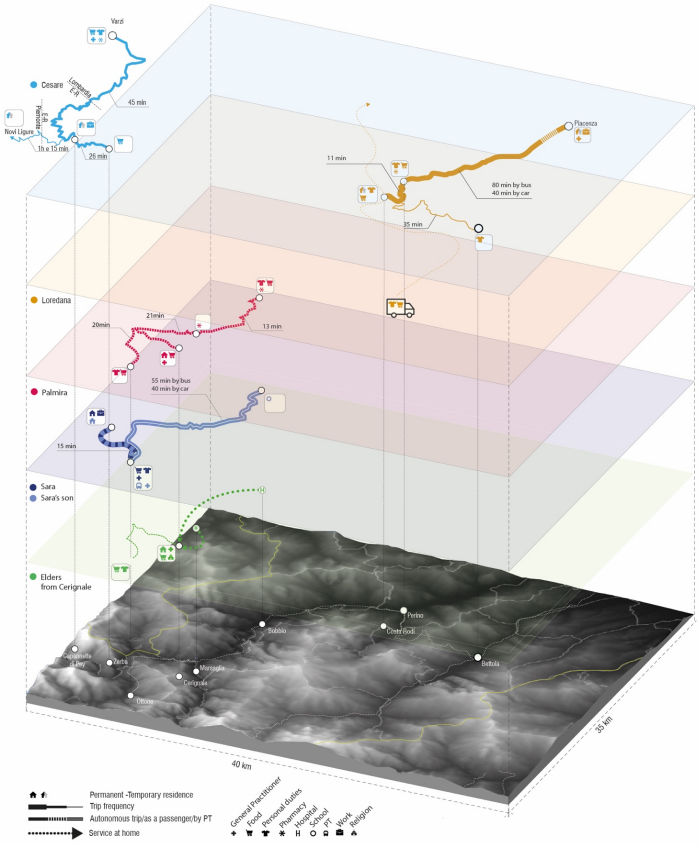
The results have been mapped using a Digital Elevation Model of the Area (DEM) to show the complexity of everyday path for those living in small hamlets located up to the mountain (Figure 4). In these cases, the distances as the crow flies between residences and activities are only a far-distant proxy of the effective distance because of the slope and the winding pathways.

4 Results

The site visit and interviews highlight some important territorial dynamics. Concerning the use of territory and services (Subsection 4.1), the interviews reveal a much-differentiated use of the territory that is also dependent on individual characteristics and capabilities (4.2). Moreover, important findings are also related to the implementation and relevance of local policies and bottom-up practices based on mutual help (4.3).

4.1 Use of territory and services. How far do I need to travel to reach my essential needs? Reinterpreting municipal borders according to basic needs

The interviews confirm low accessibility to shopping, education, and health services, often reachable only by car. Nonetheless, interviewees revealed that the most important services to be reached are not only education and health, but also food and personal services, above all considering that there are no food stores in many villages and hamlets. This condition characterizes the case of Zerba, where the grocery store is only open during summer. Sara, a resident working for the municipality as employee, reported that the closest shop is in Ottone, a village at 15 minutes driving distance and 330 meters of difference in altitude, or within 2 hours walking distance. Furthermore, when the streets are covered by snow during winter, even the car may not be an easy option, and driving



Notes: Each layer corresponds to an interviewee or to a small group of interviewees: the elder people living in Cerignale (over 80 y.o.); Sara and his sons; Palmira; Loredana; Cesare. In some cases, we group them on the same map to show the chain of linked displacements or because of the similarity of their paths. In other cases, the overlapping between the different paths allow to highlight the heterogeneity of needs, capacities, and thresholds.

Figure 4: Map of activity space

time may extend. To the inhabitants of Zerba, reaching Ottone means also finding the closest primary and middle schools, pharmacy, and public transport.

At the moment of the survey, Sara's son had just started high school in Bobbio, which is the closest to Zerba but still at about 40 minutes by car or 80 minutes by bus. Every morning, Sara brings her son to the bus stop in Ottone before returning to work in Zerba. Her son will then take the bus on the valley floor to reach Bobbio (see Figure 4). When asked about the difficulties of living in a remote village, Sara explained to us that the moment of life when children go to high school might correspond, for some families, to residential migration toward more served and accessible places, especially if parents have no strong local ties.

Similar conditions have also been found in Costa Rodi, a hamlet which is part of the municipal territory of Bettola, although located 40 minutes driving far from the center. Loredana was born in Costa Rodi, where she grew up, and from where she moved to Piacenza to attend the secondary school, confirming a migration path due to educational reasons from the mountain to the valley. She is a nurse and works for the hospital in Piacenza. Now that her husband retired, she spends six months/year in Piacenza and the other six in the family house in Costa Rodi, commuting 45 minutes by car daily to reach her job place. Costa Rodi is connected to Bettola and the Nure valley with Demand Responsive Transit (DRT), but it would take much longer for Liliana to reach Piacenza via Bettola through PT, so she travels by car via Perino and the Trebbia Valley. Furthermore, according to Loredana, DRT is not working properly, as the bus stops are

far from the hamlets, along the main roads. In the case of Costa Rodi, the closest stop is located at 4 km, 260m below. Loredana told us that Costa Rodi and Villanova inhabitants prefer to go to Perino, in the municipality of Coli, Trebbia Valley, for shopping, food, pharmacy, bank, hairdresser, and beautician, as it is just 10 minutes by car from the village. Furthermore, a shuttle bus managed by the municipality of Coli is available for bringing people from Costa Rodi to the market of Coli on Monday morning.

The interviews show that it is not unusual that inhabitants' activity spaces create geographies that often disregard administrative boundaries, suggesting the existence of an administrative mismatch. In Zerba, for example, the use of extended activity spaces is even more accentuated as some people find it more convenient to travel to other regions, such as Lombardy or Piedmont, for the doctor, the school, or the bank, also because the streets are more comfortable and the trip is shorter, as reported by Cesare (see Figure 4).

4.2 Accessible for whom? Reconsidering categories and basic needs

The interviews reveal a great complexity of the individual conditions, confirming that despite a statistical demographic homogeneity, the population of rural areas is pretty heterogeneous (Moseley 1979, p. 9).

First of all, each interviewee has different access conditions to services and amenities. Not only has the availability of a car but also the ability to drive it impacted on accessibility level. Palmira, for example, has a car but she is not driving because she doesn't have a driving license; this is also the case for Sara's son who is not in legal age and, more generally for younger residents.

Furthermore, the interviews clarify that people aged more than 65 y.o. are not a homogeneous category and basic needs may vary according to capacities and expectations. People aged more than 80 y.o., such as Tiziana, Emanuela, Giovanni, and Pamela, described a very restricted activity space often limited in everyday life to the home and the food store and extended to the church and the doctor's office, once or twice a week (see Figure 4); occasionally they need to reach the centers on the valley floor for specific needs such as medical exams or the hairdresser. According to the interviews, their PAS (Le Vine et al. 2013) coincides with the space of the village, mainly thanks to the provincial home care system (see Subsection 4.3), but also thanks to caregivers from other countries[4], as in the case of Giovanni, or family members that decided to move back at the family village also to assist their parents, as in the case of Emanuela and Pamela. Different is the case of Raffaele, a resident of Piacenza that, despite his age, took advantage of retirement to run a beekeeping activity reusing an old family house in the Apennines and who travels along all the province to sell his products. Nevertheless, Antonio and Raffaele who are over 80 y.o. still drive the car to move around, showing that each individual has his own ability to move – motility – independently from age category.

Additionally, over 65 y.o. is a very large category and may include very different conditions. Palmira was born in Cerignale, where she moved back after retiring. Due to her age, she may be among the elders even if it is possible to appreciate important differences between the activities needed by the over 80s and hers (see Figure 4). Indeed, the set of activities Palmira is looking for, although retired, is more extended than the eldest, as well as the places she reaches to fulfill these activities, which are not always chosen according to the distance and to personal preferences: for example, she prefers to go to Bobbio for buying medicines because she finds that the nearest pharmacy, located in Perino, doesn't meet her needs as well.

On the other side, younger residents, which are almost absent in statistic data, emerge as the category with lower accessibility to their basic needs, as the schools, sport, social, and leisure activities are located in the villages of the valley floor, and so they are inaccessible without a car, as shown in the case of Sara's son. Also, Francesco, owner of a farmhouse and a restaurant in Crocenito, a small hamlet in the municipality of Bettola, 10km from the center of the village with a 320 m drop, has three children and organizes his mobility according to a complex mobility chain that pivots around school schedule.

[4]In some cases, elder were assisted by caregivers coming from Eastern Europe countries or Latin America.

The brothers Claudio and Francesco decided to live in Crocenito because of available land and natural resources. Here they settled their business, opening a farmhouse and self-producing all their products. They are representative of a growing group of inhabitants in these territories that can be defined as amenity migrants (Moss 1994) or mountaineers by choice (Dematteis 2011). During the study trip, we met Federico and his girlfriend, who recently moved to live in Crocenito respectively from Piacenza and Genova and are involved in homeschooling projects. Also, the community Tempo di Vivere[5] attracts new residents in the area. In this case, all basic needs seem to be satisfied at the local scale, and geographical marginality is considered an important value, as affirmed by Claudio, who says that if he were living in a city, he would probably miss almost all his needs.

4.3 Bottom-up practices, local centralities, and strategies. From people to services to services to people

The interviews also allow to recognize bottom-up strategies developed to cope with low accessibility to services and activities, such as individual practices adopted by citizens or local entrepreneurs and informal caring practices as well as more institutional local policies currently implemented at different levels of territorial governance. With reference to individual practices implemented by local entrepreneurs, the site visit has highlighted that, in some cases, food shops or farmhouses work as local centralities. The farmhouse in Crocenito in the municipality of Bettola attracts tourists from all over Italy and works at the same time as a local centrality for residents. The farmhouse also sells homemade products, such as bread, pasta, cheese, and meat, and represented an important reference point during the Covid-19 lockdown between March and May 2020. In the case of Costa Rodi, the lack of local shops is balanced by the presence of travelling salespeople that bring different goods: foods fresh and frozen, houseware and, occasionally, clothing. These mobile bazars are difficult to map, as they are spontaneous and not institutionalized. Nevertheless, they are important elements to improve accessibility to basic needs in remote territories, reducing their marginality.

In Cerignale, *la Bottega della Bruna*, a food shop recently reopened thanks to the support of the municipality, provides a place for social aggregation. Bruna lives in the Trebbia valley floor with her husband and two children. She arrived in Cerignale as a waitress for the local restaurant (the *hotel del Pino*) and then started her own business. Due to the age and im-mobility of some clients, *La Bottega* also delivers goods directly at client's home. Those practices may also be connected to informal caring based on mutual assistance, that were particularly visible in Cerignale. For example, while travelling from home to work, Bruna brings other goods from the bottom of the valley up to Cerignale, such as medical supplies from the pharmacy in Marsaglia.

During the Covid-19 lockdown in March and April 2020, the younger inhabitants of Zerba were going for shopping food and essential goods in Ottone and they delivered them to the elders' homes, since they couldn't go out from their homes.

The site visit also highlighted the existence of many actions at different levels of governance, from more institutionalized initiatives at the provincial scale to more spontaneous bottom-up ones at the municipalities scale in an effort to close the gap between people and services by bringing the latter to the former. In Cerignale, at the municipal level the major Massimo Castelli implemented several bottom-up actions to protect the community and reinforce the sense of belonging, such as the delivery of the daily newspaper for elders and a self-organized delivery service for medical products organized by the pharmacists and the younger villagers in agreement with family doctors. The municipality also offers a service of "Social taxi". The social taxi is a public car driven by a voluntary from Auser[6] providing a demand-based transport service that helps the inhabitants of more remote territories to reach special and far services such as the hospital or the doctor, and the weekly market. Palmira says that she often goes to Bobbio or Marsaglia, on the valley floor, for the pharmacy, the weekly market, or the hairdresser. On these occasions, she takes advantage of the social taxi if someone is already going

[5] https://www.tempodivivere.it/

[6] Auser is a national volunteer association to promote active ageing and to enhance the role of elder in society. https://www.auser.it/

out. She would like to use regular public transport, but the schedule is based only on the school timetable, and it is not very comfortable for short commissions in the valley. In her case, the use of bottom-up services at the municipal scale somehow balances the lack of services and efficient public transport.

At the provincial level, the interviews revealed the existence of an institutional system of integrated home care. Home care is addressed mainly to elders who have low accessibility levels to health services due to the remoteness of their home and the difficulty of driving and moving autonomously. Home care includes both social and health support. Social workers, doctors, and nurses take care of patients in their own homes traveling among the different villages and valleys, establishing different programs and frequencies of visits according to the conditions of patients. Data collected during an interview with the local Health Authority shows that 8,6 % of the population over 65 y.o. officially subscribed to a home care contract, the percentage rises to 14,4% if we consider the population over 75 y.o. Yet, it is worth noting that in mountainous municipalities percentage of subscription double, rising to 17% for the population over 65 y.o. and 27% for the population over 75 y.o. highlighting that these policies are quite efficient, particularly in remote and low accessibility territories.

5 The contribution of qualitative research methods in the definition of marginal territories

From the methodological point of view, direct observation and interviews offer interesting perspectives to understand the reasons behind marginality, as they integrate and critically question existing approaches based on statistical data.

Firstly, concerning population categories based on age, gender, income, nationality, this approach allows a focus on the individual sphere (Preston, Rajé 2007), questioning the same criteria that brought to the configuration of those categories. In particular, it has been already highlighted that retirement age may differ from country to country according to national law, although the interviews outlined the non-effectiveness of a category that considers all the people aged more than 65 y.o in the same way. Indeed, this is a wide category including people with very different motilities, and this may lead to adaptive preference in the selection of basic needs and essential services for people aged more than 80 y.o., as demonstrated by the interviews and the maps which show a considerably reduced activity space compared to younger people in the same category. Consequently, also Perceived Activity Sets (Le Vine et al. 2013) may differ significantly. In this case, identifying a univocal set of activities and target spaces may be misleading and may drive to ineffective policies. While it is not possible to design policies based on individual experience, a deeper knowledge of these dynamics may help to better understand the reasons of marginality and design more inclusive territories, as also reported by Vecchio (2020).

Secondly, direct observation and interviews also enable the overcoming of traditional boundaries between disciplines, taking into account welfare and health policies that even though not directly related to transport and mobility may still significantly affect accessibility level. At the same time, this method highlights bottom-up practices and self-serving networks, the impacts of which are difficult to measure through more aggregated data and to simulate in accessibility measurement. Nonetheless, these policies and practices shorten the distances between people and services and generate new forms of accessibility contrasting marginality. By making these "hidden" dynamics visible, this method enriches the representation of low dense, scattered, marginal territories provided by more traditional accessibility analysis. Nevertheless, we recognize that though these approaches can be individually useful and relatively inexpensive for the planner, they can hardly be a turning point for an entire territory as they completely depend upon individual resources and motility. That is why more efforts need to be done to systematize these actions and create a framework that allows a general increase of accessibility level.

Thirdly, the use of qualitative data directly questions some characteristics of the operative tools implemented for accessibility assessment. In mountainous and low dense territories, the interviews and the maps allow a better understanding of the distances

and paths covered to reach destinations, which cannot be weighted only by the distances between municipality centroids or the distance between the center of the municipality and the main target destination. This is even more important in an area where around 55% of the total population (8.300 out of 15.000 inhabitants) is not living in the central villages, as registered by the Italian National Institute of Statistics (ISTAT), and the orographic conditions oblige to long travels. For example, in the case of Bettola, people living in the hamlets of Crocenito, Villanova and Costa Rodi are at a distance of 30 minutes driving from the center of the village.

Moreover, even if accessibility thresholds are generally established and measured with reference to municipal and provincial borders, the interviews reveal that those boundaries are not always observed when looking for essential services: for example, at municipality scale, Villanova and Costa Rodi, both under the municipality of Bettola, refer to Perino in the municipality of Coli for everyday duties; instead, Zerba and the municipalities on the regional border may refer even to centralities located in other regions such as Varzi in Lombardy region. These dynamics suggest the existence of an administrative mismatch in measuring accessibility, as already observed, for example, in the case of management of natural resources (Herrfahrdt-Pähle 2014). Considering this mismatch in the design of public transport and mobility would help to design a mobility system more respondent to people needs, thus improving accessibility levels.

At a more geographical level, qualitative data also pinpoint that some minor centralities should still be considered as relevant destinations in an accessibility measurement, even if they only provide some more mundane services than most important centers such as Bobbio and Bettola. This is the case for example of Ottone, Coli, or Corte Brugnatella that represent important reference points in everyday life for many of the interviewees living in small villages on the mountain, as they are intermediate centralities for shopping and everyday duties and are major points to shift from individual private transport to the public transport lines on the valley floor. The information collected thanks to site surveys and interview may definitely help to guide spatial planning and territorial design, suggesting reinforcing the role of those middle size centralities at provincial scale as service providers and mobility transfer points.

In conclusion, a mixed-methods approach that includes interviews and direct observation reveals important resources that may be used to ameliorate operative tools for accessibility assessment, such as the actual distance and travel time between people and services. In terms of governance, it could also inform and redirect multi-sectorial policy design toward a more context-sensitive approach reconsidering valued destinations, time thresholds, and modal choice going beyond a predefined set of services and places considered as main target, as claimed by the PAS approach (Le Vine et al. 2013).

It should also be noticed that this approach has some limits. First, it is time and money consuming for the researcher. Then, due to the specificity of each territory and the research technique, results may not be generalized. Furthermore, the low density of the area and the average population age also influenced the number of respondents, and the information collected is a very deep representation of the needs and capacities of the population and the places they refer to. Improvement may be done on the criteria of selection of the interviewees, that may conduct to some biases on the lecture of territorial dynamics as well as adaptive preference (Vecchio 2020), that may be the consequence of lack of services and infrastructure.

6 Conclusion

In this paper, we analyzed a marginal territory located in the province of Piacenza in the Emilia Romagna Region, northern Italy. The area has been classified as marginal according to SNAI. A quantitative analysis elaborated for the Territorial plan of the province of Piacenza reports this area among the less accessible and served of the provincial territory because of the lack of services and low density and frequency of public transport.

To better understand the factors that define the marginality of this area, we performed a qualitative analysis based on direct observation, interviews with key informants, a survey of inhabitants and mapping.

Despite some limits, the emerging qualitative data seems to be very helpful to better understand different factors of marginality, allowing to complement and reconsider aggregated accessibility evaluations, adding elements based on the individual perspective towards the design of more inclusive systems of accessibility. The use of interviews and qualitative data in low dense and mountainous areas, marginal by definition, appears particularly helpful in highlighting the diversity of basic needs and the presence of territorial centralities at different scales, while 3D mapping of activity space seems to unveil the complexity of the path due to orographic configuration. Moreover, interviews allow a reconsideration of the very definition of marginal territory through the direct accounts of local daily experiences from the local population that, in many cases, also cooperates in a more or less spontaneous way to overcome the difficulties they encounter daily.

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