







## Between staying and leaving: Understanding depopulation in Sicily's inner areas

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### ABSTRACT

The depopulation of Italian mountain areas, particularly in the so-called “inner areas”, represents a significant socio-demographic challenge. This study investigates the dynamics of depopulation in four Sicilian municipalities - Novara di Sicilia, Castoreale, San Fratello, and Ucria - characterized by economic marginalization and demographic decline. Using a qualitative approach based on focus groups, we analyze the perceptions, challenges, and strategies of local communities. The study also applies Correspondence Analysis to examine patterns of association between qualitative variables. Findings highlight a paradox: while these regions are crucial for national ecological balance and cultural heritage, they face severe infrastructural limitations and service deficiencies that exacerbate migration trends. Policy implications focus on sustainable revitalization strategies, digital connectivity, and targeted interventions to foster territorial resilience.

### 1. Introduction

Depopulation in mountainous and rural areas represents one of the most urgent demographic and socio-territorial challenges facing contemporary Europe. While urban centers grow in population and economic power, marginal territories experience a gradual weakening of their social fabric, the disappearance of services, and an overall erosion of community life. In Italy, this phenomenon is particularly acute in the so-called “inner areas”, defined by their geographical remoteness and limited access to essential services (education, healthcare, mobility).

In recent decades these areas have been affected by a progressive process of demographic decline, posing critical issues for territorial sustainability, social cohesion, and environmental balance (Benassi et al., 2024; Reynaud et al., 2020; Reynaud & Miccoli, 2018). Despite these disadvantages, inner areas play a fundamental role as ecological reserves and custodians of cultural heritage and biodiversity (Rizzo, 2022; Gómez-Ullate et al., 2020). Within this framework the present study investigates the dynamics of depopulation in four Sicilian mountain municipalities - Novara di Sicilia, Castoreale, San Fratello, and Ucria - located in the Nebrodi Mountains and officially classified as “pure rural inner areas” (Istat, 2023a), and the resilience strategies developed by local communities. The Sicilian case is emblematic of the

north-south territorial dualism that characterizes Italian demographic geography, aggravated by the economic and infrastructural fragility of southern regions (Buonomo et al., 2024; Reynaud et al., 2020). The study adopts a qualitative methodology based on focus groups conducted with local residents, supported by Correspondence Analysis (CA) to explore the relationships between the qualitative variables that emerged. This integrated approach enables a nuanced understanding that captures both the subjective depth of community narratives and a structured interpretation of the factors influencing demographic trajectories. The article has two objectives: i) to explore residents' perceptions and narratives regarding demographic decline; ii) to identify potential levers for sustainable development and strengthening territorial resilience, with a particular focus on place-based policy tools and cultural and economic revitalization strategies. The article is structured as follows: the next section offers a critical review of the literature; Section 3 outlines the methodological approach adopted and presents the territorial context of the study; Section 4 presents the results of both the qualitative and quantitative analyses; Section 5 is dedicated to the discussion of the main findings; finally, Section 6 offers conclusions and some policy reflections.

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## 2. Literature review

The phenomenon of depopulation is increasingly recognized as a global trend affecting vast rural, remote, and ecologically sensitive areas. According to United Nations projections, while urban populations are expected to grow by over 60 % globally by 2050, rural populations will continue to decline, particularly in Sub-Saharan Africa, South Asia, and parts of Latin America (UN DESA, 2019). Driven by processes of urbanization, economic restructuring, and climate change, rural depopulation leads to land abandonment, socio-economic decline, and rising spatial inequalities (Johnson & Litcher, 2019; Bardsley & Hugo, 2010). While urban areas concentrate population and resources, peripheral territories face demographic contraction, raising concerns about territorial cohesion and sustainability (Huang, 2021). Bruno et al. (2021) have shown how depopulation impacts ecosystem services in Mediterranean rural areas, including biodiversity loss and increased land degradation risks. At the European level, depopulation is especially pronounced in rural, mountainous, and inner areas, where low population density, aging, and persistent outmigration generate long-term demographic imbalances. Countries such as Spain, Portugal, Italy, and Poland have seen entire regions - particularly those distant from urban hubs - undergo sustained population decline (Gómez-Ullate et al., 2020; Lasanta et al., 2017; Szymanowski & Latocha, 2021). European cohesion policies have attempted to mitigate these effects, yet demographic erosion has often outpaced institutional responses, revealing the structural nature of rural marginalization (Newsham & Rowe, 2022). Recent comparative studies have also examined the internal heterogeneity of demographic trends across Southern Europe, showing how spatial differentials in population change are influenced by national and local policy frameworks, as well as by historical demographic structures (Marbán Martínez et al., 2025). The result is a growing divide between dynamic urban centers and shrinking peripheries, with implications for spatial justice, welfare provision, and long-term viability (ESPON, 2020). In Spain, the region of Galicia faces persistent depopulation, especially in its inland areas, due to aging populations, low fertility rates, and the outmigration of youth to urban centers. While some rural parishes have implemented community-based resilience strategies, the structural weaknesses of these territories remain significant (Gómez-Ullate et al., 2020). In Portugal, the Alentejo region - characterized by low population density and vast agricultural land - has experienced a long-term demographic downturn. As noted by Guimarães et al. (2015), despite efforts to promote cultural tourism and sustainable farming, the lack of services and employment opportunities continues to drive outmigration and reinforce spatial inequalities. A similar pattern can be found in Poland's Sudetes mountains, where former industrial and agricultural settlements have undergone sharp demographic contractions since the post-socialist transition. According to Szymanowski and Latocha (2021), depopulation in the Sudetes is linked to the collapse of state-supported economic structures, and local initiatives often lack sufficient support to reverse this trend. These comparative cases underscore the structural and transnational nature of peripheral decline, as well as the need for tailored, place-based strategies within EU cohesion policy frameworks.

In Italy, depopulation has become a defining feature of many inner and mountainous areas, particularly in the South and along the Apennines. This pattern reflects a persistent territorial dualism between Northern and Southern Italy, where the former has historically benefited from stronger economic structures and infrastructural investment, while the latter faces chronic underdevelopment (Reynaud & Miccoli, 2021). The progressive demographic decline is driven by the outmigration of younger cohorts, low fertility, and the deterioration of public services in marginal territories. Spatial analyses show that demographic shrinkage follows differentiated geographic patterns, where socio-economic disadvantage, institutional neglect, and physical isolation reinforce each other (Benassi et al., 2022). This process, while long-standing, has intensified since the post-war period, expanding beyond mountain zones

to include hilly and inland areas. Early demographic studies in the 1970s had already noted the abandonment of agricultural territories and the erosion of local settlement systems (Birindelli et al., 1978; Sonnino, 1975). These dynamics have altered the socio-demographic structure of local communities and threaten their long-term sustainability and development prospects. The fragility of these areas manifests through spatial marginalization, which is both a cause and a consequence of depopulation. Several Italian studies have examined the long-term socio-political and economic implications of this marginalization. Putnam et al. (1993) highlighted how historical patterns of civic engagement and institutional performance have contributed to enduring regional disparities, particularly between Northern and Southern Italy. Di Paolo (2017) explored the demographic impact of migration flows and labour market structures in inner and rural areas, emphasizing the cumulative effects of depopulation and educational mismatch. Ciuffetti and Piñeiro (2019) analysed the evolution of policy discourses and development strategies in marginal territories, stressing the importance of governance structures, multilevel coordination, and community agency. These studies collectively underscore the structural nature of peripheral decline in Italy and the complex interplay between demography, policy, and civic capacity.

A crucial aspect is the progressive withdrawal of public services - schools, healthcare, transport - which feeds a vicious cycle of abandonment. Italy was among the first European countries to address these trends with specific public policies. In 2013, the National Strategy for Inner Areas (SNAI) was launched to tackle demographic decline and promote local development in marginal areas (DPS, 2013). This strategy acknowledged that the problem was not merely urban attraction, but the excessive distance from essential services. Despite growing awareness, interventions have often remained fragmented or under-resourced, struggling to meet the real needs of communities. In light of these challenges, this study adopts a bottom-up perspective to explore how residents experience and interpret demographic decline, with the aim of informing more context-sensitive and sustainable territorial policies. In parallel, there has been a growing body of research examining how individuals and communities demonstrate resilience and adapt to these transformations. Concepts such as community-based resilience, cultural regeneration, and place-based development have gained increasing prominence, particularly in contexts where local initiatives seek to counteract decline through the valorisation of cultural heritage, ecotourism, and digital connectivity (Gómez-Ullate et al., 2020; Vendemmia & Lanza, 2022). In this work, we understand digitalisation as the integration of digital technologies into public services and infrastructures, aiming to enhance accessibility and socio-economic inclusion across marginal territories (European Commission, 2022). Nonetheless, as several scholars have observed, the concept of "resilience" remains theoretically ambiguous unless explicitly defined in socio-economic, cultural, or institutional terms (Newsham & Rowe, 2022). This study adopts a multidimensional perspective on resilience, understood primarily as the capacity of local communities to preserve social cohesion, adapt economic practices, and respond creatively to demographic and infrastructural decline. The analytical approach is aligned with recent contributions on socio-territorial resilience, which emphasize place-based responses to long-standing forms of structural marginalization (Baggio et al., 2015; Wilson, 2010). Although the literature on these issues is extensive, in-depth, community-focused studies remain limited. Few analyses have concentrated on local perceptions of depopulation and the everyday strategies employed by residents to cope with territorial decline. This study seeks to address this gap by offering a situated, qualitative investigation of four Sicilian municipalities, combining subjective narratives with analytical rigour.

### 3. Methodology

#### 3.1. Setting: Sicily

Depopulation in Southern Italy is an issue of growing concern, as highlighted by various studies and statistical reports. According to *Istat* (2022c), between 2012 and 2021, the South lost 525,000 residents, underscoring a persistent negative demographic trend in the region. Future projections suggest an even more critical scenario: a study by *Svimez* (2024) estimates that by 2080, the population of southern regions could decrease by 8 million inhabitants, reducing to nearly half of its current size. This demographic decline is primarily attributed to low birth rates and migration to other regions or abroad. Furthermore, *Istat* (2022b) reports that the internal areas of Southern Italy have an older population on average compared to urban centers. As of December 31, 2020, the average age in internal areas was 45.9 years, compared to 45.3 years in urban centers. In ultra-peripheral municipalities, the average age rose to 46.9 years, indicating a significant aging trend in these territories. The study of depopulation in these specific Sicilian inner areas is crucial due to their distinct socio-economic and cultural characteristics. As an island region, Sicily faces structural challenges, including limited economic diversification, lower industrial development, and historically high unemployment rates. The inner areas of Sicily, in particular, exhibit a fragile demographic balance, exacerbated by an aging population and continuous youth outmigration in search of better economic opportunities. Moreover, these territories serve as custodians of a rich historical and cultural heritage, encompassing traditional crafts, rural landscapes, and architectural treasures, which risk being lost due to demographic decline. Understanding the specific challenges of these municipalities is essential for developing targeted policy solutions that align with their territorial peculiarities and socio-economic realities. This study examines depopulation in four municipalities in the Metropolitan City of Messina, Sicily, located in the Nebrodi mountain ranges in northeastern Sicily, classified as “pure rural inner areas” (*Istat*, 2023a). The selected municipalities - Novara di Sicilia, Castoreale, San Fratello, and Ucria - exhibit persistent demographic decline, primarily driven by youth outmigration and population aging, exemplify the demographic and socio-economic challenges prevalent in Italy's inner regions, characterized by population decline, aging demographics, and economic marginalization. Historically, these areas relied on agriculture and small-scale artisanal industries, both of which have been negatively affected by broader economic transformations and globalization. Additionally, their geographic remoteness and limited infrastructure exacerbate difficulties in accessing essential services, further contributing to ongoing outmigration. Similar trends have been observed in other Mediterranean regions experiencing rural depopulation, such as the Comunitat Valenciana in Spain, where spatial interdependencies between municipalities significantly influence demographic trends (*Alamá-Sabater et al.*, 2021). In the Nebrodi region, factors such as economic constraints, infrastructural deficits, and the outmigration of younger generations further drive demographic decline, highlighting the need for a territorial approach to policy planning. *Table 1* presents key socio-economic indicators for each municipality, highlighting trends such as negative population growth, high aging indices, and limited economic diversification.

These indicators reveal a consistent pattern of demographic decline and economic vulnerability across the municipalities. The high aging indices and negative population growth rates indicate a shrinking and aging population, while the limited economic activities underscore the need for diversification and development strategies. *Fig. 1* illustrates the geographical location of the four municipalities within Sicily, providing context for their relative positions and accessibility.

#### 3.2. Participants

The investigation involved four Sicilian municipalities that exhibit

**Table 1**

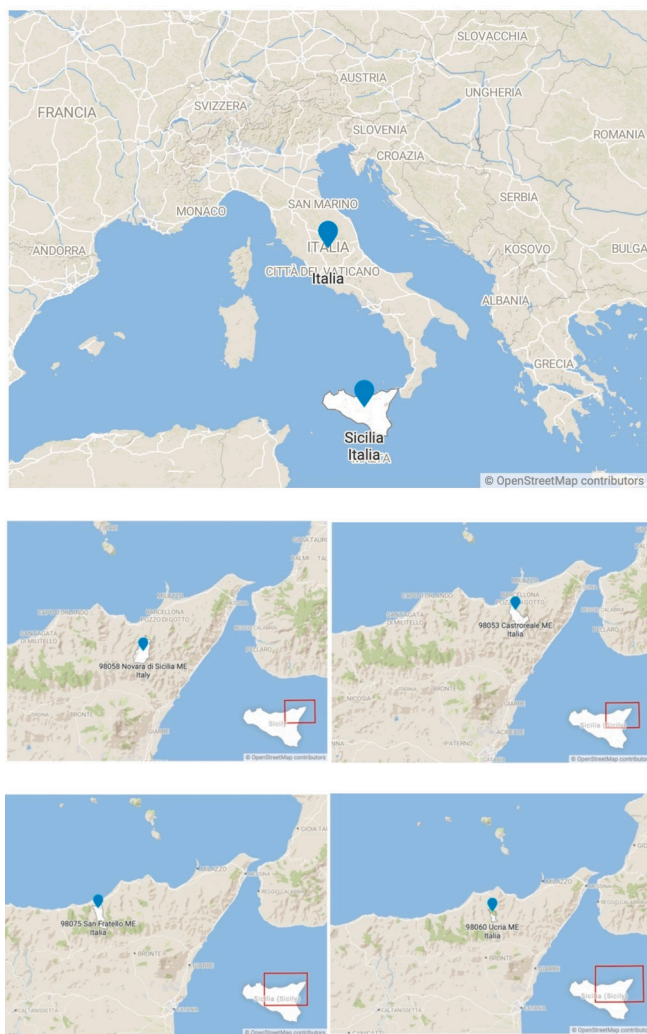
Socio-economic indicators of the four municipalities.

Indicator	Novara di Sicilia	Castoreale	Ucria	San Fratello
Population	1147	2246	908	3259
Average age (years)	50.2	49.5	49.8	48.7
Aging index (% over 65)	34.1	32.5	31.8	33.7
Annual population change (%)	-3.3	-2.8	-3.0	-2.5
Net migration rate (%)	-0.34	-0.30	-0.32	-0.25
Population density (inh/km <sup>2</sup> )	21.8	35.0	25.0	40.0
Unemployment rate (%)	18.0	16.5	17.8	17.2
Average annual income (€)	13,500	14,000	13,600	13,800
Femininity ratio (F/M)	1.00	1.05	1.03	1.02
Main economic activities	Agriculture, tourism	Agriculture, handicrafts	Livestock, agriculture	Agriculture, forestry

Sources: *Istat* (2022a, 2022c), *Openpolis* (2019).

clear signs of demographic decline: Castoreale, Novara di Sicilia, Ucria, and San Fratello. The selection of these municipalities was based on statistical criteria relevant to the phenomenon of depopulation and the level of demographic impact observed in recent years (*Istat*, 2022a; *Svimez*, 2023). In particular, the chosen municipalities were characterized by a significant decrease in resident population, representative of the abandonment and depopulation dynamics affecting rural Sicilian areas (*Di Blasi et al.*, 2023). In addition to demographic data, the persistence of youth outmigration and the progressive aging of the population have been considered, as both are key factors in understanding the territorial vulnerability of these areas. In particular, the lack of generational turnover in local productive sectors represents a critical issue, further exacerbating challenges related to economic development and the sustainability of essential services. In addition to these factors, a further determinant was the cooperation of local communities to collaborate with the project, fostering an environment of openness and participation. Local institutions, along with associations operating in the territory, demonstrated strong interest in the study, recognizing the importance of understanding the needs and well-being of those inhabitants who remain. This facilitated access to participants and the execution of field research activities. The initial phase of the research involved a series of in-depth interviews with key informants from each of the municipalities, such as presidents of local cultural associations (*Pro Loco*) and local representatives, to obtain a preliminary understanding of the main issues and ongoing social dynamics. After gathering information through the interviews, the organization of focus groups followed. These meetings were coordinated by the local *Pro Loco* and institutional representatives, who played a crucial role in selecting the participants. *Table 2* provides an illustration of the most important data.

The inclusion of a diverse range of stakeholders has fostered a structured discussion, revealing divergent perspectives between those who still see opportunities for development and those who consider the decline process irreversible. This polarization reflects the complexity of local dynamics and underscores the need for targeted policies to promote both residential stability and the attractiveness of these territories. To ensure the representativeness and diversity of the discussions, the selection criteria were based on socio-demographic variables such as age, gender, and socio-professional status. In this way, it was guaranteed that the diversity of experiences and perspectives would fully emerge during the discussions (*Cardano & Gariglio*, 2022; *Corrao*, 2000).



**Fig. 1.** Maps showing the geographical location of Novara di Sicilia, Castrolibero, San Fratello, and Ucria.

Note: The top map illustrates the position of Sicily within the Italian national context. The four maps below provide a detailed view of each case-study municipality within the Sicilian region.

All maps were created using Datawrapper (accessed in 2025).

**Table 2**  
Composition of the focus groups.

	FG1 Novara di Sicilia	FG2 Castrolibero	FG3 Ucria	FG4 San Fratello
Number of participants	12	9	10	8
Age	21–75	19–74	25–82	28–80
Duration of meeting (hh:mm)	1:25	1:33	1:01	40:00

### 3.3. Study design

This study aims to analyze local perceptions of migration trends, quality of life, and territorial resilience, offering a deeper understanding of spatial marginalization in Italy. By examining the complex dynamics of depopulation, it identifies associations between multiple qualitative variables, uncovering underlying relationships, sociocultural influences, and spatial patterns that shape demographic trends in inner areas. Utilizing a qualitative research framework based on focus groups, the study integrates CA to systematically interpret textual data, providing

valuable insights into local perspectives, migration drivers, and potential strategies for enhancing territorial resilience. Focus group is a qualitative research technique that involves a discussion among a group of people, moderated by a facilitator, on a specific topic. Compared to other qualitative research techniques, such as individual interviews or participant observation, the focus group allows for the capture of collective dynamics and emerging discursive constructions, providing a broader understanding of shared social representations. In the context of research, the use of focus groups provided a platform for participants to express collective experiences and perceptions regarding depopulation. This method allowed for the emergence of shared narratives and community-driven solutions (Cardano & Gariglio, 2022). However, it also presented limitations, such as potential groupthink and the dominance of certain voices over others, which may have influenced the breadth of perspectives captured. After collecting the information through the focus groups, the results were organized into a matrix of correspondences between selected terms, considered representative, and the socio-professional categories (for example, student, worker, retiree) that expressed them. This data organization allows not only for the mapping of key narratives on depopulation but also for the identification of discursive polarizations and semantic fractures among different social groups, highlighting how the phenomenon is perceived and experienced in diverse ways. Subsequently, CA (Benzécri, 1973; Greenacre, 1993), a multivariate exploratory statistical technique, was applied to detect patterns of association between qualitative variables, including any latent traits. This methodology, initially developed by Hirschfeld (1935), can be considered a counterpart to Principal Component Analysis or Factor Analysis, but specifically applicable to qualitative data.

### 3.4. Procedure

A total of four focus groups were organized, one for each municipality, held between March and November 2024. During the meetings, crucial topics such as the perception of local identity, the relationship with institutions, and employment opportunities in the area were addressed. The discussion revealed not only the objective difficulties faced by residents but also the strong emotional bond that many of them maintain with their hometown, despite the daily challenges. The meetings were moderated by Antonia Cava, who introduced key themes to guide the discussion and stimulate debate among the participants. The eight questions posed, identical for all four focus groups, were structured around the thematic areas identified within the framework of the study conducted (Table 3).

### 3.5. Analytic approach

A thematic content analysis was conducted to identify key themes and discursive patterns emerging from the focus group discussions. This process allowed for the classification of responses into meaningful thematic categories reflecting participants' perceptions of depopulation, territorial identity, and socio-economic challenges. Subsequently, CA was applied to the thematic categories identified in the previous phase. This statistical technique enabled the detection of relationships between qualitative variables, highlighting associations between key discursive elements and the socio-demographic profiles of participants. The use of CA facilitated a deeper understanding of how different social groups perceive and experience depopulation, revealing discursive polarizations and semantic fractures. The results of this analysis are presented through biplot graphs illustrating, in a low-dimensional space, the thematic associations across the focus groups conducted in Novara di Sicilia, Castrolibero, Ucria, and San Fratello. Biplot is a graphical technique used in CA that simultaneously represents both the rows and columns of a contingency table (or other categorical data) in a low-dimensional space (a 2D graph) (Gower & Hand, 1996; Greenacre & Hastie, 1987). It allows one to interpret associations between categories

**Table 3**  
Thematic areas and focus group questions.

Thematic areas	Questions
Perception of the territory	1. What are the greatest quality and the biggest flaw of the area where you reside?
Challenges and opportunities for young people	2. What are the main deficiencies in terms of services (healthcare infrastructure, transportation, recreational activities, education)?
	3. How would you describe the life of young people in the area where you live?
Quality of life and decisions regarding staying or migrating	4. How do you assess the quality of life in the area where you live? Are you satisfied?
	5. Why do you decide to stay or leave?
Family emigration and its emotional and practical repercussions, such as the redefinition of roles and the impact on relationships between those who leave and those who stay (left-behind)	6. Has any member of your family decided to emigrate? Why? What effects has this had on family dynamics?
	7. With regard to digitalization, are public services efficient? Has digitalization influenced public services? Has it improved the ability to maintain contact with distant family members?
Impact of digitalization	8. Have we overlooked anything important?
Additional perspectives and emerging issues	

through their relative positions in the graph, based on chi-square distances (Greenacre, 2017). The biplot analyses reveal distinct associations between socio-professional categories and thematic concerns. For instance, younger participants frequently associated with themes of migration and employment challenges, while older residents emphasized community cohesion and cultural heritage. These patterns underscore the varied experiences and priorities within the communities studied.

## 4. Results

The analysis of the focus groups reveals a complex picture, intertwining both positive elements and challenges common to the four inner areas examined. Three main themes emerged from the data: attachment to the territory, perception of structural difficulties, and strategies for resisting marginalization.

### 4.1. Attachment to the territory

Participants expressed a strong attachment to the territory, perceived as a safe and culturally rich environment. The visual charm of the surroundings and the region's architectural legacy play a crucial role in defining local identity. This deep connection with the local context reflects what Magnaghi (2010) defines as "place consciousness", an affective and symbolic dimension that makes the territory a central element of both individual and collective identity. This sense of place is expressed not only through an emotional attachment to one's land but also in the commitment to preserving local traditions and practices. The strong territorial identification that emerged from the focus groups suggests that, despite the challenges, many residents perceive their communities as an irreplaceable cultural and social heritage. Throughout the discussions, participants emphasized the aesthetic value of their environment and, the richness of the historical traditions embedded in local customs and monuments. For instance, a worker from Novara di Sicilia described the landscape as "a living painting that is always there, with sunsets and views that few have", highlighting the aesthetic and emotional value of the place. During the focus group conducted in San Fratello, residents expressed a strong appreciation for the beauty of their territory, recognizing it as a distinctive element and a

source of collective pride. This perception reflects a deep familiarity with the local landscape, which, although sometimes regarded with a sense of ordinariness by the inhabitants themselves, gains full recognition and value when seen through the eyes of external visitors. A particularly emblematic example of this dynamic was reported by a participant, who recalled how a Ministry of Tourism official, during a visit to San Fratello, described the landscape as a "paradise", expressing astonishment and enthusiasm for its exceptional aesthetic quality. This episode highlights the fundamental role that natural and visual heritage plays in local identity and in the perception of the territory, both from the perspective of residents and external observers. Moreover, residents emphasized how scenic views and sunsets represent a unique and defining heritage, contributing to the distinctiveness of the town. However, the extraordinary beauty of the landscape, being an integral part of daily life, sometimes risks being perceived as "normal" by the inhabitants themselves, creating an interesting tension between habitual familiarity and awareness of the landscape's uniqueness. As can be seen from the graphs in the 3.4 session, there is a generally positive perception of the places. Specifically, labels associated with tranquillity, beauty, and family were frequently linked to the categories of retirees and workers. Nevertheless, this awareness does not always translate into concrete strategies for enhancing the territory, particularly due to the lack of investment and targeted tourism promotion policies. Several participants expressed the perception that the natural and cultural potential of these towns remains underutilized, fostering a sense of frustration among residents.

### 4.2. Perception of structural difficulties

Alongside this attachment to the territory, participants also highlighted significant challenges. One of the main drawbacks of life in these areas is the sense of spatial isolation, exacerbated by the lack of transport services. Isolation is not merely a geographical condition but also encompasses social and economic dimensions, affecting access to employment opportunities and active participation in cultural and social life. This condition reinforces a sense of marginalization, which, as highlighted in the focus groups, is often perceived as an insurmountable barrier to the future prospects of younger generations. The graphs (Figs. 2–5) illustrate how this theme was most frequently mentioned in connection with young people and workers, particularly highlighting issues related to accessing public transport. The reduction in transport routes and the low frequency of services make commuting difficult for those who need to travel to work in larger centers, as well as for young people attending schools and universities outside the village. Many participants emphasized how the inefficiency of the transport system particularly penalises those without private vehicles, forcing them to rely on family members or friends for their daily movements. The lack of adequate transport infrastructure worsens the conditions of marginality, making access to essential services and the maintenance of socio-economic balance in local communities difficult (Barca, 2009, 2015; Pugliese, 2006). The situation is further complicated during periods of road closures, as reported by the interviewees, when landslides and interruptions temporarily isolate the towns. The fragility of infrastructure extends beyond road networks to include digital connectivity. Although progress has been made in recent years with the expansion of fiber-optic networks, many residents believe that the lack of coworking spaces and smart working initiatives limits the potential to attract new residents or retain young professionals. Such isolation hinders access to essential services, exacerbating the hardships faced by the population and compromising the continuity of healthcare provision and access to infrastructure. A worker from Novara remarked, "We don't even have an open road", exemplifying the frustration caused by frequent closures. Similarly, a worker from Ucria lamented, "In terms of connections, it's zero", underscoring the structural isolation.

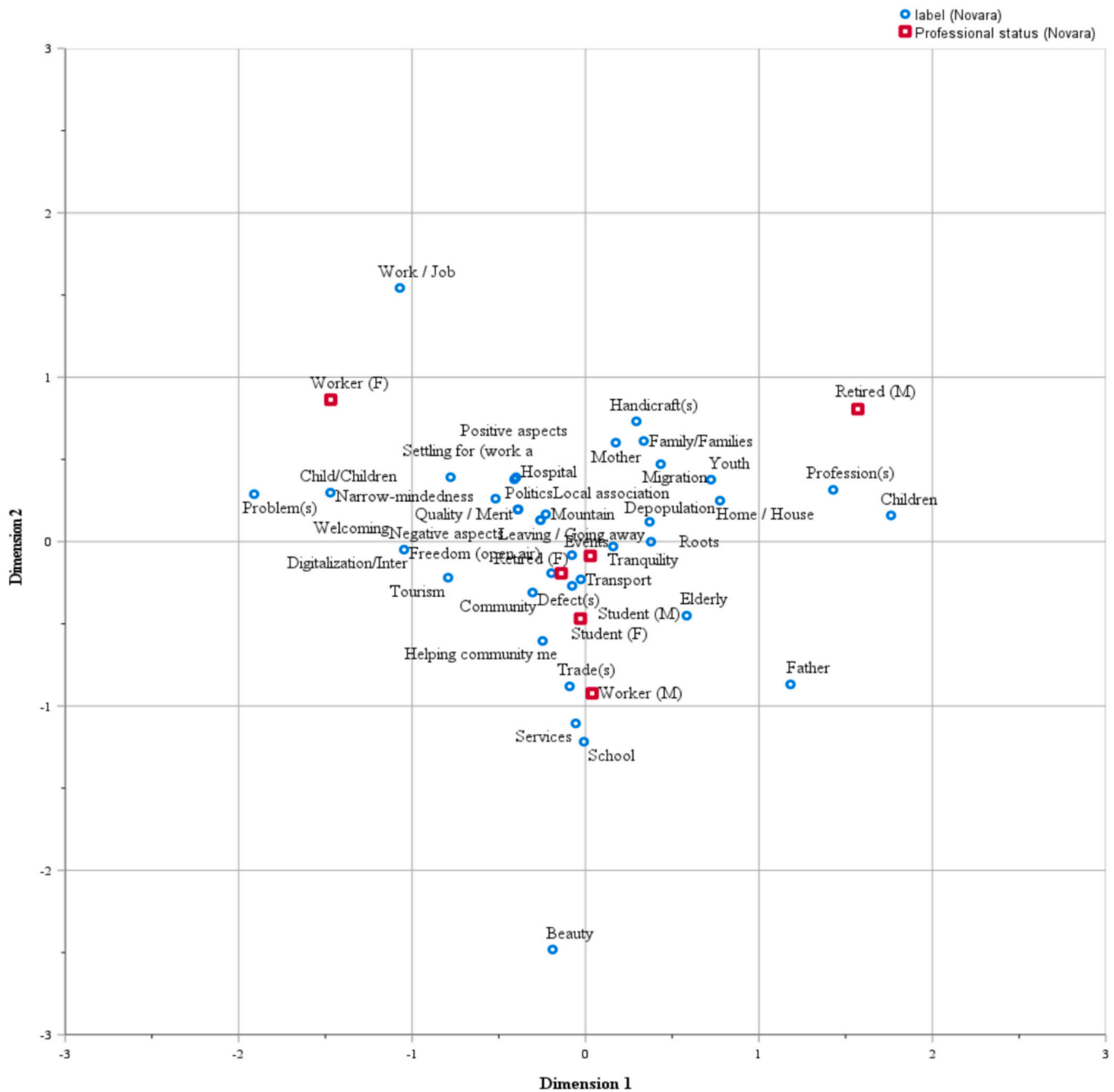


Fig. 2. Biplot “Associations between Socio-professional Categories” and “Themes” (Novara di Sicilia Focus group). 82.6 % of the variance is explained by the first two dimensions.

4.3. Strategies for resisting marginalization

Despite these challenges, some participants highlighted local initiatives aimed at counteracting depopulation, such as the creation of agricultural cooperatives and cultural events to attract visitors and new residents. San Fratello serves as an interesting case: despite experiencing a devastating landslide in 2010, the community has demonstrated strong resilience by maintaining active local solidarity networks. However, the boulders resulting from that event continue to obstruct the town's main road, creating ongoing challenges for mobility and local businesses in the area while also complicating connections with surrounding regions. During the focus group, participants attributed the lack of resolution of this issue to the actions of civil protection authorities, remarking that “there is always something else to be done”. It was emphasized that

emergency response priorities often focus on other crises, such as droughts, floods, and wildfires, which frequently affect rural areas. One participant explained that “the municipality does not have the tools to fix the situation”, highlighting how civil protection efforts operate on a hierarchy of priorities that does not always include chronic issues like the landslide of San Fratello. This situation reflects a widespread perception of neglect, characteristic of many rural communities, where local institutions often lack the resources and operational capacity to address long-standing issues. Despite their frustration, residents have exhibited a pragmatic attitude and an adaptive capacity, acknowledging the necessity of living with these difficulties. Another issue that emerged is the need to reverse the closure of local schools. The lack of educational facilities often forces families to migrate to more urbanised areas to ensure quality education for their children (Openpolis, 2019). Youth

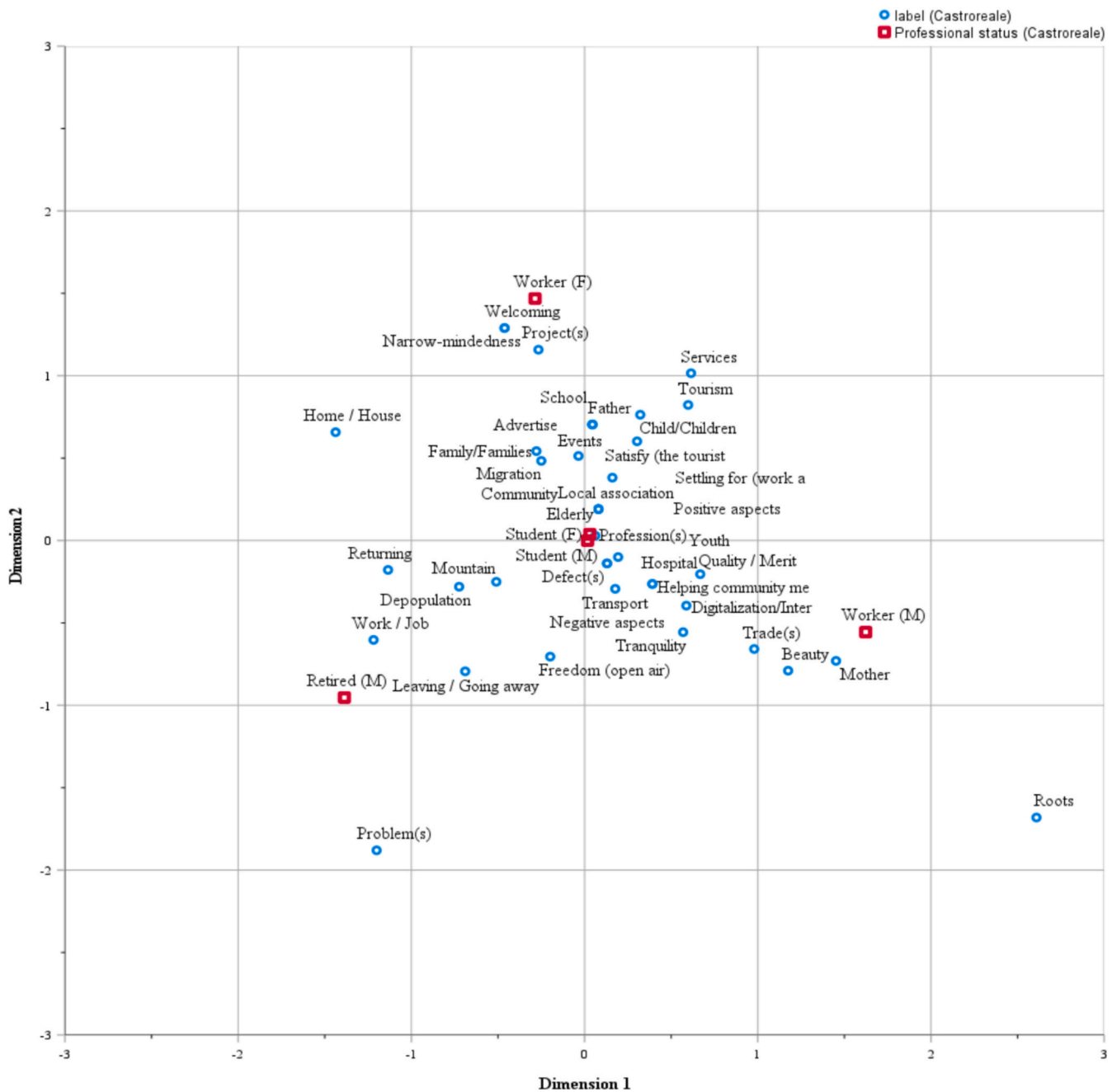


Fig. 3. Biplot “Associations between Socio-professional Categories” and “Themes” (Castroreale Focus group). 98.7 % of the variance is explained by the first two dimensions.

migration represents a further problem for all the communities. At various points in the discussion, the difficulty of creating local educational and training opportunities that can compete with those available in urban areas emerged as a significant concern. The absence of secondary schools in some municipalities, combined with the lack of vocational training programmes tailored to local productive sectors, significantly limits the prospects for establishing a stable livelihood in rural areas. In Castroreale, a worker highlighted the difficulty of engaging young people in local activities, such as the town's musical band: “There are no young people joining our association”. This phenomenon was also observed in Ucria, where a student stated, “This place offers me nothing, neither socially nor culturally”, underlining the lack of opportunities that pushes young people to migrate, further impoverishing the social and cultural fabric of these towns (Giancola, 2017). San Fratello, however, stands out from other municipalities due to the

presence of schools up to the lower secondary level, allowing students to complete compulsory education without having to leave the town. Residents highlighted that transport connections to neighboring towns, where upper secondary schools are located (such as Acquedolci and Sant'Agata), as well as to university cities (Palermo and Messina), are efficient, facilitating student mobility. One resident stated: “Consider that buses start running as early as 5 a.m. and continue until noon, with nearly one every hour. Then there is a break from noon to 3 p.m., after which they resume, again at an hourly frequency, until 7 p.m.”. This system also facilitates travel for those who need to reach Messina for study purposes, as another participant noted: “To get to Messina, there are no transfers; it's a direct connection”. Although Catania is farther away and there are no direct routes from San Fratello, residents pointed out that it is still possible to reach the city via Messina. This transport system, in addition to supporting university students, is essential for

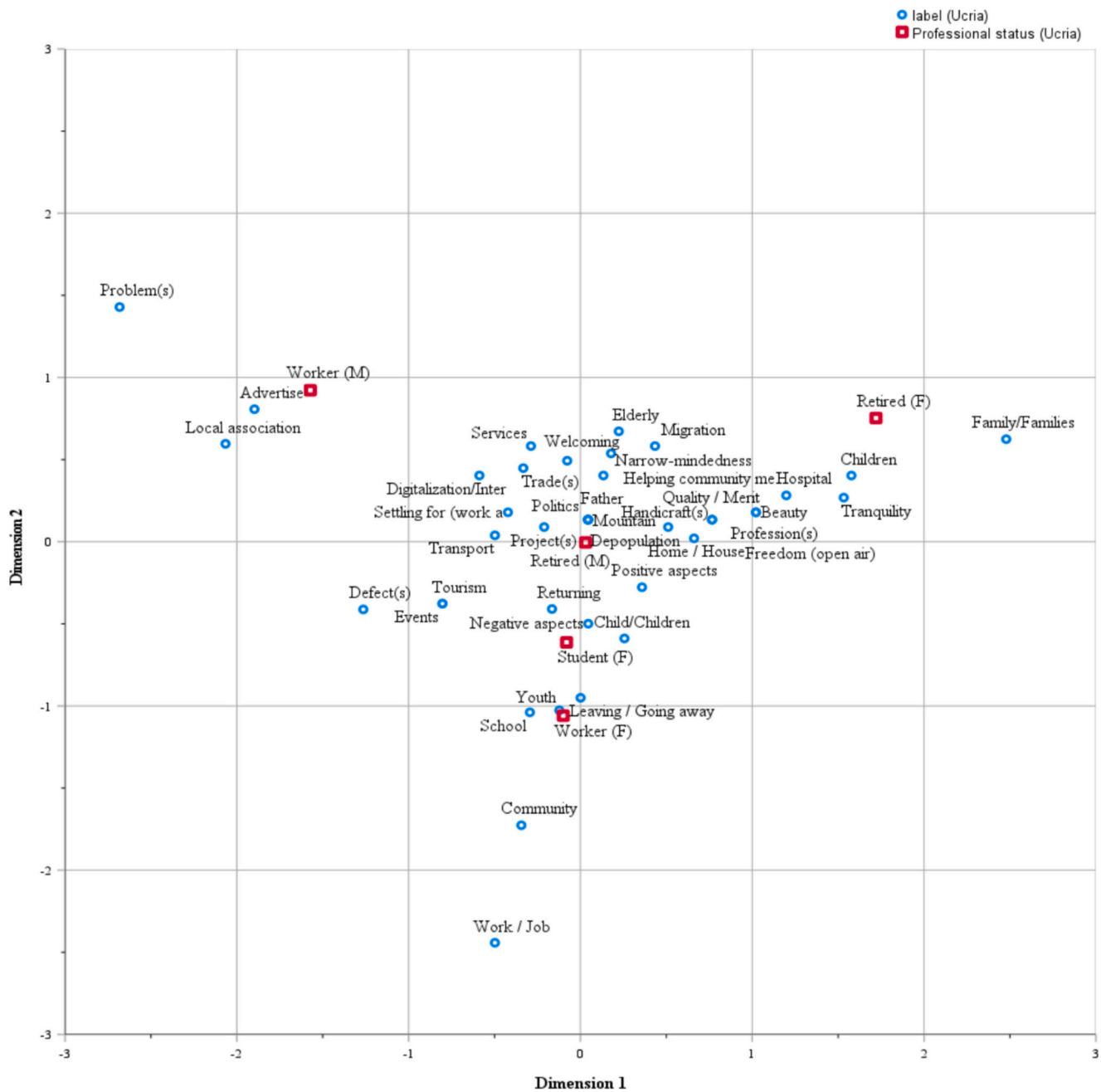


Fig. 4. Biplot “Associations between Socio-professional Categories” and “Themes” (Ucra Focus group). 90.5 % of the variance is explained by the first two dimensions.

those without private vehicles who need to travel for work or personal reasons. As one resident explained: “Even without a car, you can organize yourself quite easily”. This aspect significantly reduces the negative impact of geographical isolation and helps maintain a stable connection with the community, even for those who must travel frequently. The efficiency of public transport is perceived by residents as an advantage compared to other nearby municipalities, where connections are less frequent or poorly organized. This example demonstrates how differences in mobility services can directly influence territorial perception and quality of life.

4.4. Correspondence analysis

The tension between place attachment and youth migration is well represented in the biplots generated by the CA applied to the focus

groups in the Metropolitan City municipalities. The theme of work, employment and youth departure is evident from the spatial distance between the youth categories and the concepts of migration and work, with a strong association between the terms *leaving/going away* and the young participants (see the graphs at this session). A recurring theme in the discussions was the desire for greater involvement of regional and national institutions in the development of policies that go beyond mere economic support. Instead, participants emphasized the need to establish territorial networks capable of revitalizing these areas through innovative and sustainable projects. The CA graphs illustrating the localities consistently reflect the dynamics discussed in the focus groups. On one hand, there is a strong appreciation for the quality of life associated with the beauty and tranquility of the territory; on the other, the challenges such as geographical isolation, lack of transport services, and restricted employment opportunities influencing the younger

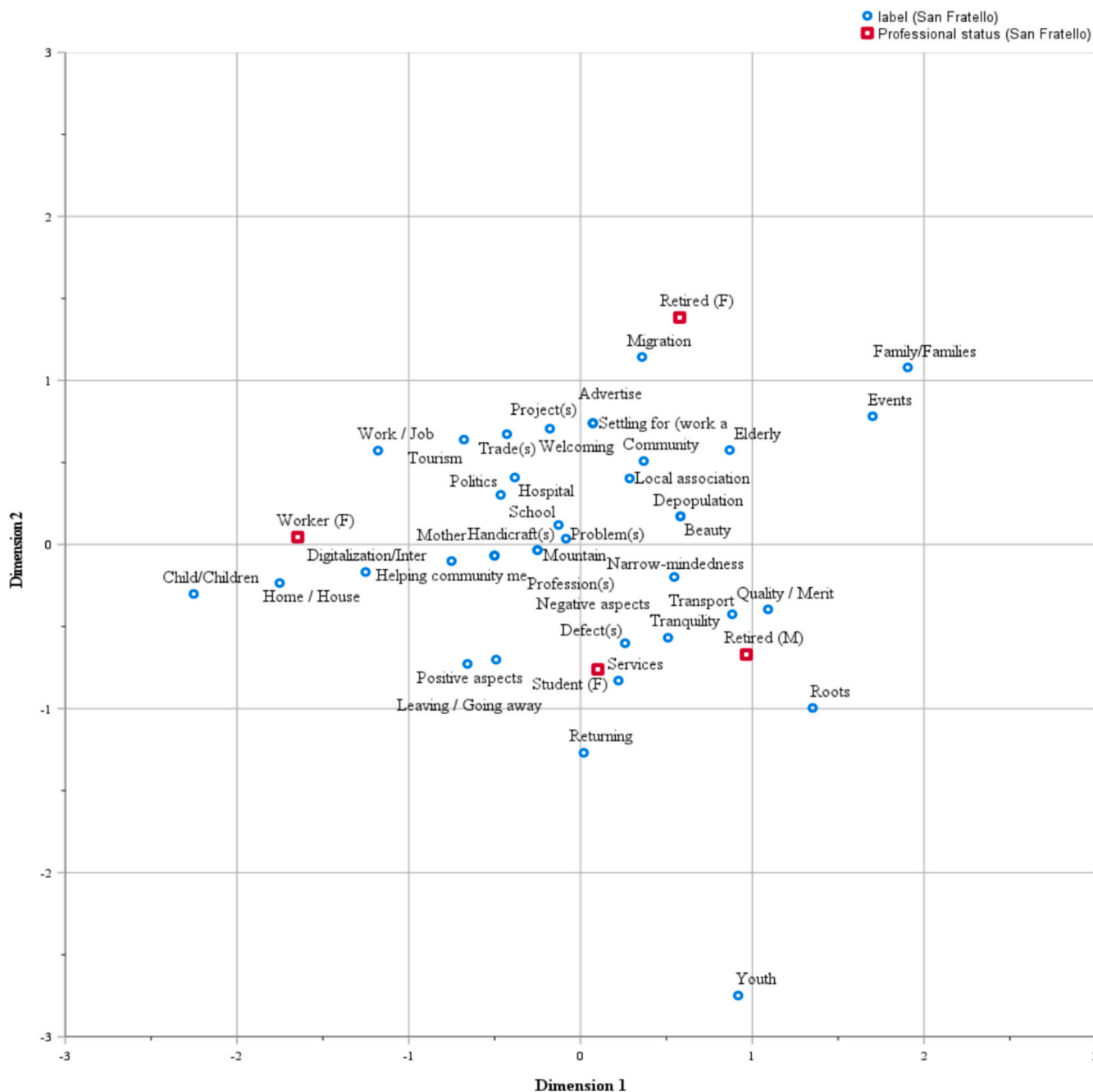


Fig. 5. Biplot “Associations between Socio-professional Categories” and “Themes” (San Fratello Focus group). 78.1 % of the variance is explained by the first two dimensions.

population's decision to migrate. The following are the four biplot graphs resulting from the CA applied to the focus groups conducted in the municipalities of Novara di Sicilia (Fig. 2), Castoreale (Fig. 3), Ucria (Fig. 4), and San Fratello (Fig. 5).

### 5. Discussion

The findings of this study reveal a pronounced sense of isolation, primarily attributable to the lack of public transportation services and the distance from centers providing essential services. However, this spatial isolation does not translate into a perception of social marginalization. In contrast, the communities in question exhibit high level of social cohesion and a profound attachment to their territories and cultural traditions. The findings align with Putnam et al.'s (1993) concept of

social capital, emphasizing the role of community networks in fostering resilience. Similarly, Magnaghi's (2010) notion of “place consciousness” underscores the importance of local identity in sustaining rural communities. Studies by Di Paolo (2017), Ciuffetti and Piñeiro (2019), and Benassi et al. (2022) further corroborate the challenges faced by inner areas in Italy, highlighting the need for integrated policy approaches. These findings are consistent with the demographic analyses conducted by Reynaud and Miccoli (2021), who underscore the persistent linkage between aging, depopulation, and territorial fragility in Italian municipalities. Similarly, Benassi et al. (2024) emphasize the potential of local regression techniques in supporting place-based policies tailored to fragile contexts such as Molise. The sense of belonging and solidarity plays a crucial role in maintaining the vitality of the community and reinforcing its social bonds. This condition suggests that, despite

structural challenges, the relational dimension serves as a key element of resilience for local communities. In this context, resilience refers to the socio-economic capacity of communities to adapt to demographic changes, maintain essential services, and foster local development despite ongoing challenges. This social capital, built on networks of mutual trust and reciprocal support, plays a crucial role in preserving social cohesion and in shaping adaptive strategies to navigate ongoing transformations. The visual harmony of the territory, the serene atmosphere, and the strength of communal ties are key motivations for residents, encouraging them to remain. Local associations and Pro Loco organisations play a fundamental part in social life, through the promotion of folkloric events and festivals that reinforce connections and safeguard cultural heritage (Di Paolo, 2017). However, the voluntary nature of such initiatives cannot compensate for infrastructural and institutional shortcomings in the long term. The ability of these entities to generate cultural capital and foster social cohesion is closely tied to the presence of sustained public support. Without it, the risk of fragmentation and the weakening of local networks becomes a concrete concern. The situation appears different for the younger population, for whom the lack of basic services, as well as social and professional opportunities, serves as a strong incentive to leave the area (Ciuffetti & Piñeiro, 2019; Istat, 2023). The deprivation of infrastructure and services, coupled with a limited range of employment prospects, drives migration towards urbanised territory, exacerbating the depopulation phenomenon. This trend highlights the urgent need to develop targeted strategies aimed at improving socio-economic conditions and creating opportunities for younger generations. The migration choices of younger generations are not solely driven by a lack of employment opportunities but also reflect the perceived decline in quality of life and the diminishing prospects for building a future within their place of origin. This process highlights an intergenerational divide, where the strong attachment to the territory among older generations contrasts with the younger population's need to seek opportunities for growth elsewhere. Isolation has a deeply negative impact on overall well-being and is a significant factor in migration dynamics, profoundly influencing mobility and residence decisions. In this context, the restoration of schools in inner areas emerges as a strategic intervention to counter demographic decline and support these communities, making education more accessible and comprehensive (Benassi et al., 2022). Beyond its educational function, the presence of schools in rural areas holds symbolic and identity value, serving as a pillar of stability and a key factor in encouraging families to remain in marginal territories. The closure of schools not only deprives residents of an essential service but also reinforces the perception of a gradual dismantling of the community's vital functions. Moreover, the adoption of remote work and smart working practices could offer an opportunity to mitigate isolation and foster greater economic integration. Digitalisation, if adequately supported by technological infrastructure, could reduce the need for daily commuting and allow residents to access work opportunities even in rural areas (PNRR, 2021). However, the mere implementation of digital infrastructure is not sufficient to ensure the effective economic and social integration of these territories. It is essential to complement such measures with a cultural shift that fosters the development of digital skills among the local population and promotes the creation of work ecosystems aligned with the socioeconomic fabric of inner areas. Policy recommendations include investing in digital infrastructure to support remote work, enhancing transportation networks to improve accessibility, and implementing educational programmes to retain young populations. In particular, numerous studies have documented how broadband connectivity and rural coworking spaces can revitalise inner areas, transforming them into dynamic and attractive environments. Initiatives such as the "Smart villages" strategy implemented in Tuscany have specifically focused on digital infrastructure, skills development, and local services to attract investment and remote professionals (Barbieri et al., 2025; Huguenot-Noël & Vaquero Piñeiro, 2022). Research by Eurofound (2025) further highlights how remote working

in peripheral contexts - supported by the creation of coworking hubs and social spaces - strengthens community bonds and sustains a local, place-based economy. Moreover, the literature emphasises that the digitalisation of public services and the promotion of digital skills - exemplified by the CORA model - constitute a fundamental pillar for enhancing quality of life and fostering the revival of small local enterprises (Ashmore et al., 2019). Finally, fostering local entrepreneurship and promoting cultural heritage tourism can serve as catalysts for economic revitalisation, expanding the opportunities offered by digital tourism and e-commerce in rural communities (Chengcai et al., 2024).

## 6. Conclusion

Addressing these challenges requires a comprehensive and forward-thinking approach that not only strengthens local social cohesion but also fosters structural interventions capable of ensuring long-term sustainability. While local initiatives and digital advancements offer potential solutions, their effectiveness will ultimately depend on the broader institutional and policy framework supporting these areas (Gómez-Ullate et al., 2020; Vendemmia & Lanza, 2022). The long-term viability of such territories will hinge on their ability to balance a strong connection to the territory and the quality of life offered by the local dimension with innovative solutions capable of countering isolation and compensating for the lack of services. The local resident, a direct witness to the visible decline of their town, seeks to combat this through the voluntary and responsible engagement of fellow inhabitants, who collaborate for the common good and the preservation of the territory. Although local solidarity may represent a valuable resource, it risks disintegration in the absence of concrete and structural public interventions, and in extreme cases, may devolve into a form of silent complicity. In this scenario, the role of institutions is crucial in preventing local resilience from turning into mere survival (Newsham & Rowe, 2022). Without adequate public policies aimed at promoting residential stability and development in inner areas, there is a risk that local communities will be forced to manage crises independently, without the necessary tools to address them effectively and sustainably.

Based on the findings of our study in Novara di Sicilia, Castoreale, San Fratello, Ucria, municipalities characterized by persistent depopulation, limited infrastructure, and fragile economic framework, several specific policy directions emerge that are both suitable to the local context and potentially impactful. These recommendations have been identified as the most suitable because they respond directly to the specific structural weaknesses, infrastructural deficits, and socio-demographic dynamics observed in the study areas.

First, access to essential public services must be re-established, particularly healthcare, education, and public transportation. In these territories, the closure of schools, under-equipped medical outposts, and scarce transport connections have directly contributed to the outmigration of young families and working-age individuals. Reopening satellite educational hubs, deploying mobile health units, and subsidizing local transport lines would not only meet basic needs but also restore a sense of viability to daily life in these communities (Reynaud et al., 2020). Second, place-based development strategies should be designed to valorize the specific assets of each community. For instance, San Fratello's unique equine heritage and Novara di Sicilia's medieval architecture offer untapped potential for heritage tourism and sustainable cultural economies. Rather than applying generic rural revitalization models, policies should support locally embedded cooperatives and networks that activate endogenous resources, strengthen community identity, and circulate value within the territory (Bruno et al., 2021; Gómez-Ullate et al., 2020). Third, to counter demographic aging and rebalance territorial dynamics, targeted measures to retain and attract youth are essential. These might include fiscal incentives for return migration, start-up funding for under-35 entrepreneurs, and local mentorship programmes that connect elder artisans with younger residents. In our focus groups, young people who had left expressed a

willingness to return if conditions of opportunity were met (Vendemmia & Lanza, 2022). Lastly, effective responses must adopt a multi-level and participatory governance model, aligning EU cohesion frameworks with local community engagement and planning (Newsham & Rowe, 2022). As highlighted by Buonomo et al. (2024), addressing demographic challenges in inner areas also requires attention to shifting dynamics in metropolitan centers, where differentials between urban cores and peripheries reflect deeper territorial disparities that affect national cohesion. Despite often being overlooked, local residents remain the most profound experts on their reality, capable of identifying the critical issues and priority areas for intervention (Rizzo, 2022). These policy directions emerge directly from the structural weaknesses and local aspirations identified in our fieldwork.

These findings align with and expand upon existing literature on territorial decline and institutional fragility in Southern Europe. For instance, Putnam et al. (1993) emphasized the role of civic engagement and institutional quality in shaping regional trajectories, a perspective confirmed in our study by the importance attributed to local collaboration and trust networks. Similarly, Di Paolo (2017) pointed to how demographic imbalance and labour market exclusion reinforce each other in peripheral contexts—dynamics that were clearly expressed in participants' accounts of unemployment, educational mismatch, and youth outmigration. Our results also echo Ciuffetti and Piñeiro's (2019) emphasis on the role of multilevel governance and place-based development strategies, showing that where bottom-up initiatives are supported by coherent institutional frameworks, the potential for community-led regeneration significantly increases. By grounding these broader insights in the lived experiences of residents in four Sicilian municipalities, this research contributes a situated understanding of how demographic decline is perceived and addressed from below, offering a micro-level perspective that complements macro-regional analyses. Their targeted implementation could trigger a virtuous cycle of territorial rebalancing, economic diversification, and demographic stabilization in Sicilian inner areas.

However, the success of these interventions depends on coherent and sustained action across multiple levels of governance. Local communities must not be left to face systemic challenges in isolation. Instead, their experiential knowledge should be actively integrated into the design and implementation of territorial development strategies. Reversing demographic decline and fostering inclusive regeneration requires more than economic investment: it calls for a holistic approach that recognises the interplay between social, cultural, and environmental dimensions. By ensuring the meaningful participation of local actors in policy-making, institutions can move beyond emergency responses and support long-term resilience. In this perspective, the future of marginal areas will be shaped not only by the resources allocated, but by the capacity to listen, involve, and co-design with those who inhabit them.

#### CRedit authorship contribution statement

**Maria Gabriella Campolo:** Writing – review & editing, Writing – original draft, Validation, Supervision, Software, Resources, Project administration, Funding acquisition, Data curation, Conceptualization. **Antonia Cava:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation, Conceptualization. **Mas-simo Mucciardi:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Debora Maria Pizzimenti:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

#### Declaration of competing interest

We confirm that this manuscript is original, has not been published previously, and is not under consideration elsewhere.

All authors have approved the submission and have no conflicts of interest to declare. We also confirm compliance with all ethical guidelines in conducting this research.

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#### Data availability

The data that has been used is confidential.

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