



Assessing Rural Resilience for Endogenous, Sustainable Development: An Emblematic Case

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Abstract: Rural communities are suffering increasing pressure due to several local and global, socio-economic, environmental and institutional changes. Despite the challenges, however, the focus on rural resilience for sustainable, endogenous development is increasing drastically. We aim to understand the factors which enable rural resilience by assessing an emblematic case of two bordering, rural areas, the capacity of which for resilience is remarkably diverse. We approached the study using a qualitative methodology, based on data collection taken from interviews and focus group with an indicator framework to assess their capacity for resilience. Factors of resilience clearly emerged from the results, and consistent qualitative evidence demonstrated the relevance of rural identity.

JEL classification: Q01; R10; P25

Keywords: Resilience; Rural Communities; Endogenous Rural Development; Social Capital; Sustainability; Rural Identity

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1 Introduction

In 2018, rural areas covered 83% of total EU area. Rural regions accounted for 28% of Europe's population, although the majority are suffering a significant depopulation trend. In 2019, 22.4% of population at risk of poverty and social exclusion was located in rural areas (Eurostat; EPSON, 2017). A number of policies address the problems of these regions and aim to conserve and exploit rural vitality and to develop sustainably and endogenously. For example, objective 8 of the Common Agriculture Policy 2023-2027 addresses jobs, growth and equality in rural areas. Nevertheless, many regions are undergoing a wide range of challenges affecting the functions and potential of rural systems. More specifically, rural communities are increasingly subjected to several challenges due to socio-economic, environmental and institutional changes (Knickel et al., 2018; Rapaport et al., 2018). The capacity of rural areas for resilience and sustainable, endogenous development is becoming increasingly important (Steiner and Atterton, 2015; Steiner and Clearly, 2014). As a result, policy-makers are focusing their attention on supporting an endogenous, self-organized, sustainable development and resilience of rural areas (OECD, 2014; Knickel et al., 2018; Schouten et al., 2012).

Sustainable, endogenous rural development is an issue of concern. The term endogenous development refers to the capacity of a rural system to carry on development processes relying mainly on internal physical and intellectual resources of the system itself. However, the main question is 'how to enable it'? We approach the issue through the lens of resilience thinking, as we assume that a capacity for resilience is crucial for endogenous, sustainable development. Rural resilience has been defined as "the capacity of a rural region to adapt to changing, external circumstances in such a way that a satisfactory standard of living is maintained" Heijman et al. (2007). We consider rural development to be not just a question of positioning one's assets or providing resources, but rather it is a complex, social process to maintain and exploit rural functions, despite the various risks and challenges involved. Since resilience and sustainable development are complementary concepts (Tendall et al. 2015), we argue that resilience thinking is currently one of the best approaches to understand the dynamics in a complex system of social and ecological components, such as rural systems. As outlined by Heijman et al. (2019), in fact, is shaped within the context of social, economic and environmental possibilities.

The paper aims to identify factors enabling or constraining the resilience of rural areas by assessing and comparing processes of endogenous sustainable development of two bordering, rural areas, which show profound differences in their development. We applied a qualitative methodology, based on interviews and focus groups to collect data and an indicator framework to support the assessment of factors of resilience. Clear evidence on resilience factors emerged when we compared the cases.

2 Methods and Data

2.1 Rural Resilience Thinking

The resilience concept began in the '70s, thanks to the contribution of Holling (1973) to evolutionary ecology. From that moment onwards, multiple definitions of the concept have been developed across different disciplines (Folke, 2006; Ge, 2016; Quinlan, 2016). The resilience concept aims to understand the interaction between humans and ecosystems. In fact, the resilience approach cannot consider social and ecological systems in the absence of one or the other (Nelson, 2007). On the contrary, this general approach to describing the cycles of change of an SES (Urruty, 2016) refers to complex, changing, socio-ecological systems (SES). The resilience approach does not include theories to explain SES dynamics and, therefore, it is incorrect to define resilience as a theory. Instead, it is better to define it as a framework for systematically thinking about the dynamics of SESs (Anderies, 2006), resulting in 'resilience thinking'. Resilience thinking is a conceptual framework, useful for understanding and describing change cycles, multi-state regimes and cross-scale interactions in SESs (elements which are not dealt with by other theories) and for providing a space, in which to integrate new ideas (Anderies, 2006; Plummer, 2007).

Rural systems are socio-ecological systems, (Ambrosio-Albala et al., 2008), in which the dynamics are the result of the reciprocal influence, interplay, synergy and co-evolution of different system components. Heijman et al. (2007) first approached the concept of rural resilience, defining it as "the capacity of a rural region to adapt to changing, external circumstances in such a way that a satisfactory standard of living is maintained". They are referring specifically to the capacity to reorganize into new structures and processes, while at the same time balancing ecosystem, economic and cultural functions. Speranza et al. (2014) state that "resilience refers to the capacity of individuals, social groups or SES to accommodate stresses and disturbances, to self-organise and to learn, in order to maintain or improve essential, basic structures and ways of functioning". We agree with these definitions.

A number of authors have defined the concepts of resilience (Berkes, 2003; Carpenter, 2001; Folke et al., 2010; Gunderson and Holling, 2002; Resilience Alliance, 2002; Walker, 2006). Nonetheless, they have found some common aspects. What is clear is that the capacity to be resilient is divided into at least three forms: a capacity to persist (enduring events), a capacity to adapt to changing events (by means of the ability to reorganize, self-organize and learn), and a capacity to transform (changes in identity). The dynamic, non-linear and cross-scale nature of a complex, adaptive system makes it obvious that resilience is not only about resisting, persisting and conserving. Anderies et al. (2004) refer to keeping certain desired system characteristics, despite fluctuations in the behaviour of its component parts or its environment as 'robustness'. On the other hand, Folke (2006) highlights that resilience provides an adaptive capacity (Smit and Wandel, 2006), which allows room for continuous development, as though it were dynamic, adaptive interplay between sustaining and

developing with change. Furthermore, Ge (2016) highlights the difference between adaptive capacity and 'transformational capacity', when thresholds are crossed and the regime shifts. This includes the difference between the 'ability to contain' and the 'ability to evolve'. In practice, the former is a change, which does not imply the loss of the system's identity. Hence, it remains in the same domain of attraction. The change in the latter is such that the system crosses a threshold and moves into another regime. Nevertheless, adaptability and transformability are core concepts of resilience thinking (Anderies, 2013), just as much as persistence.

2.2 Resilience and Endogenous Sustainable Development

A system cannot develop endogenously and sustainably without the capacity for resilience. Resilience and sustainability do not merely support each other directly. On the contrary, they are two complementary factors (or measures) of the same process. Sustainability is generally defined as the capacity to achieve today's goals without compromising future capacity to achieve them (Brown et al., 1987, Heller and Keoleian, 2003; Tendall, 2015). Hence, sustainability, or sustainable development, implies maintaining human well-being over time (Anderies, 2013). Definitions of resilience lead to the concept of maintaining system functionality, at the same time perturbations and disturbances are occurring. Resilience is required to maintain future functions. Therefore, resilience supports the sustainability of a system and its sustainable development (Rees, 2010). The Food and Agriculture Organization suggests that resilience of communities, people and ecosystems is crucial for sustainable agriculture (FAO, 2014; Vroegindewey, 2018). It has been generally argued that sustainability is the measure of system performance, whereas resilience can be seen as a means to achieve it during times of disturbance (Brand and Jax, 2007). Resilience is also related to endogenous processes of development, since one of its main aspects is the capacity for self-organization, i.e.: the internal capacity of a system to react without any external influence. In short, rural resilience is an endogenous process of sustainable development and exploitation of the rural area itself, characterized by forms of persistence, adaptation and transformation despite shocks and perturbations.

Understanding features of endogenous development processes leads, in turn, to better understand the resilience capacity of a system, because the attributes behind both processes are shared (e.g., self-organization, resource availability etc.), and the one guarantee the other. Mainly, the link between these concepts lays within the reliance on internal physical and intellectual resources of a system as characterizing endogenous development on the one hand, and being a key attribute of resilience on the other hand. Based on this, we argue that resilience thinking is a powerful lens through which studying sustainable, endogenous developments of rural areas.

2.3 Rural Attributes Enabling Resilience

A capacity for resilience depends on the availability of resources and on the ability to use them to cope with challenges, i.e.: the capacity to use

resources builds resilience. Resources and capacities may determine processes of resilience by combining with each other in different sets of possible combinations (Longstaff, 2010; Speranza, 2014; Tompkins, 2004; Nelson, 2007; Woods, 2015). Therefore, a resilient, rural community emerges, when a process of successful, social use of resources leads to maintaining rural functions in a rural area. What makes resilience possible? Our interest in this study is to clearly identify factors, which enable or restrict rural resilience. Thanks to fairly ample, theoretical and empirical, scientific literature, it is possible to narrow the field of essential attributes, which contribute significantly to a capacity for resilience.

The availability of resources is recognized as relevant for the capacity for resilience. Speranza et al. (2014) refer to 'endowments' and 'entitlements.' The former are resources owned by the players; the latter refers to the players' access to resources. We can also refer to resources as redundancy or a 'buffer capacity': this is the factor, which "enables a system to maintain its function when a component is lost and the redundant component to take over the function" (Janssen et al., 2005; Schouten, 2009). Resources are essential to perform actions, and the quantity of resources owned or accessed by players determines the responses of a system to perturbations and disturbances and, therefore, the capacity for resilience.

There are other attributes regarding the knowledge and experience accumulated in a system, as well as the affinity and interactions between the players in the system. Normally, literature refers to those attributes as 'self-organization' and 'learning capacity'. Self-organization does not imply control from outside the system. However, in the general sense it refers to the spontaneous emergence or re-creation of society through top-down (social structure) and bottom-up processes (human actions) (Di Marzo Serugendo et al., 2004). Self-organization is the main factor of 'endogeneity'. Interactions between players inside and outside the system are fundamental for building up resilience (Obrist et al., 2010; Speranza, 2014). According to Speranza (2014), the attributes of interactions in a system are 'institutions', 'cooperation and networks', 'network structure' and 'reliance on one's own resources.' "No interaction" means the loss (or non-increase) in knowledge, trust and social capital. Furthermore, a learning capacity supports the adaptability and transformability of SESs and, therefore, resilience. We can define learning as "the development of insight, knowledge and associations between past actions, the effectiveness of those actions, and future actions" (Fiol and Lyles, 1985, pp. 811). More specifically, there is a transformational (Anderies, 2006; Gunderson et al., 2006) or innovative (Longstaff, 2010) aspect of learning, which refers to the ability of a system to reinvent itself, to become a different system, to create something new as a solution. Longstaff (2010) describes innovative learning as "the ability of the group to use its information and experience to create novel adaptations to environmental changes or to avoid repeating old mistakes".

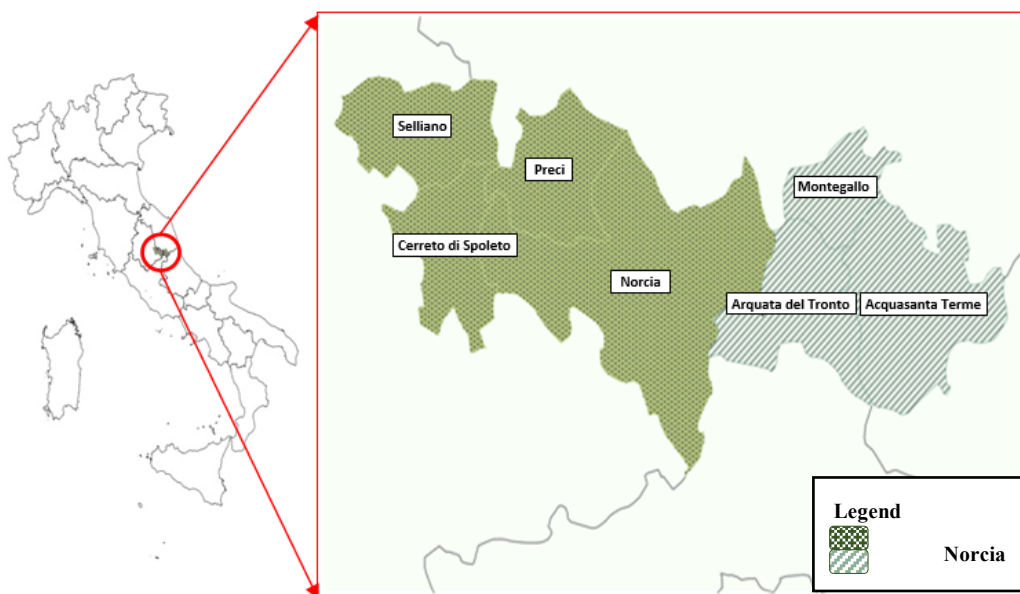
These attributes create the conditions for persisting, adapting and transforming, although they do it in varying measure. Such features enable resilience to be built up and, therefore, for endogenous sustainable

development. In order to assess a rural system's capacity for resilience, these characteristics and attributes need to be analyzed and explored by setting up a proper framework.

2.4 The Case Studies: Two Sides of the Same Mountain

We chose to study the case of Monte Vettore because of its emblematic development. The two slopes of this mountain, the rural areas of Norcia and Alto Ascolano (Figure 1), have developed in two completely different ways from the end of the Second World War onwards, despite very similar, initial, geo-environmental and economic conditions.

Figure 1. Study Area



Source: authors' own elaboration

The rural system of Norcia has achieved excellent targets of sustainable, rural development, whereas the system of Alto Ascolano appears weak, badly developed and close to collapse. The comparison between these diverse cases may show factors, which enable or restrict their resilience and, therefore, their development.

We identify the rural area of Norcia as consisting of the four municipalities of Norcia, Preci, Sellano, and Cerreto di Spoleto. This area covers approximately 517 km² with a population of approximately 7,893 inhabitants, which has slightly decreased in the last 20 years. The area of Norcia is in the Province of Perugia in the Region of Umbria. On the other slope, the rural area of Alto Ascolano comprises three municipalities: Acquasanta Terme, Arquata Del Tronto and Montegallo. In this case, the area covers 279 km², with 4,812 inhabitants (ISTAT, 2013), the number of whom is rapidly decreasing. This rural area is on the border with Norcia, but in a different region, the Marche, in the Province of Ascoli. Thus, local and regional administrations differ in their components and purpose, but

not in the way they function. These areas are in central Italy and, in both cases the geo-environmental conditions are very similar: the landscapes and nature feature hills and mountains with abundant rivers, forests and agricultural lands, even though they are not easily cultivated. An exception is Piana di Castelluccio, a flat area which makes Norcia differ from Alto Ascolano. The rural communities boast numerous, ancient, rural traditions, related mainly not only to food and farming, but also to religious symbolism. Despite their numerous similarities and common features, these areas have reached completely different levels of development.

2.5 Methodological Framework

Understanding resilience is crucial if we are to support and develop rural society. Our purpose was to explore the dynamics shaping rural resilience and their relevance. The case of Monte Vettore is emblematic: its two slopes, representing two rural areas with similar geo-environmental conditions, have developed differently over the years, showing very diverse capacities for resilience. We aim to identify the state of resilience of these rural areas and the differences between them. Furthermore, our core objective is to clarify the determining and characterizing factors involved in the success or failure of those dynamics. We argue that, by comparing such phenomena, it is possible to discover evidence of the rural attributes, which enable or restrict resilience. We need to specify that our assessment was conducted between 2014 and 2015, as an earthquake of 6.5 on the Richter scale struck the area under study in October 2016: that event led to further implications, which were not considered in this study.

We approached the analysis by means of a qualitative assessment, in order to gather as much comprehensive, detailed information, as we needed to describe the rural context and its dynamics. Resilience is a capacity, which is 'not-easily' quantifiable, thus, we cannot give an exact measure of the attributes enabling or restricting resilience. Resilience is a useful, explanatory approach to a comprehensive understanding of sustainable development processes. We designed the methodology based on the guidelines for assessing local needs provided by the Leader European Observatory (Farrell et al. 1999), which is based on "Launching and managing a local development project: the experience of LEADER I" (European LEADER Observatory/AEIDL, 1995) and on the "Methodology guide for the analysis of local innovation needs" (European LEADER Observatory/AEIDL, 1996). Moreover, we took into consideration the European Evaluation Network for Rural Development (European Commission, 2010) and the analysis carried out by Frascarelli et al., (2012). They propose qualitative methods using a set of eight indicators to obtain evidence and results, with which to evaluate the 'territorial capital' of rural areas. Although we refer to this set of indicators, we used them with a different conceptualization and, in some cases, with different specificities. While this methodology originally aimed to measure the territorial capital (Camagni and Capello, 2013) and its competitiveness, we adapted this array to obtain evidence on resource availability and the capacities required to manage them, in order to evaluate the capacity for resilience and its

determining factors. The method we applied follows a two-step data collection protocol alternated with two phases of data processing, and a final step of data analysis. The method is supported by a methodological and theoretical triangulation. Figure 2 provides a synthetic scheme of the methodology.

Figure 2. Scheme of Methodology



Source: authors' own elaboration

Data collection featured two different, subsequent steps (interviews and focus groups), which aimed to collect information and evidence to assess indicators and conclude the analysis. Data processing was divided into two phases, alternated with the data collection steps, i.e.: the data collection and processing steps were carried out via an iterative process. Thus, the approach guaranteed 1) the collection of more detailed information and 2) the internal validity and reliability of the results and the process. Table 1 defines those indicators.

To elaborate the indicator framework, we considered previous research. Speranza et al. (2014) propose a set of indicators to assess buffer capacity, self-organization and the capacity for learning within the capacity for resilience. We also took into consideration Fischer and McKee (2017), who analyze 'community capacity': a rural capacity for resilience is the capacity of a rural community to cope with challenges, so we argue that it is useful to also consider this approach. In their work, Fischer and McKee conceptualize a framework of community capacity (including skills, knowledge, social networks and sense of community), and community capital (natural, financial, political, social, cultural, human). Furthermore, Longstaff (2010) provides a framework for assessing community resilience. It is based on resource robustness on the one hand, and adaptive capacity on the other. Longstaff divides the community into five subsystems to be analyzed: ecological, economic, physical, governance and civil society.

We find that our 8 indicators can synthesize such frameworks by cutting across their conceptual organization and expressing their meanings comprehensively. By doing so, we gain in simplicity, while obtaining an overall understanding of the capacity for resilience. Those 8 indicators are not organized in a hierarchy. On the contrary, they stand on the same plane while interacting with each other in a dense network of interplay. In that dense network of synergies and complementary relationships, we find important attributes of resilience e.g.: human, social, natural, physical and financial resources, and attributes of social networking, e.g.: cooperation, institutions, dependence on external resources and connectedness and, finally, attributes of knowledge and learning capacity, e.g.: awareness, a collective vision, the capability of transferring and sharing knowledge.

Table 1. Indicators and Their Meaning

INDICATOR	DESCRIPTION
<i>Image</i>	This is the perception both internal and external players have of a specific rural system. To a certain extent, it measures the connections between the internal identity of the rural system and the external players, who acknowledge it. In practice, these connections are established and strengthened by processes of information and communication, e.g.: the promotion or marketing of typical brands. We can assume that the image supports the capacity of the system for persistence.
<i>Market Capacity</i>	It refers to the capacity of economic players to develop, i.e.: not only their adaptive and transformative capacity to cope with changes, but also their persistence when faced with challenges. It also concerns the economic and trade relations between the rural system and other systems, the amount of resources from outside the system and, above all the capacity of the system to attract resources and increase the number of its external relations.
<i>Productive Resources</i>	These are related to enterprises and their productive assets in general. It measures the development of economic and productive components in the rural system, by considering factors such as density, size and strength. We look at the economic sector as a resource, which contributes mainly to persistence. However, this resource is a useful support for adaptation processes.
<i>Public Management</i>	It considers how institutions work and their capacity to manage and address resources, i.e.: their capacity to persist or adapt to challenges. This indicator also includes the capacity of institutions to create a participative process of decision-making (self-organization and connectedness), and the availability of public resources.
<i>Know-How</i>	It comprises the knowledge, experience and competency accumulated within the social network by the system, which characterizes the capacity of the rural area to persist, adapt and transform in order to develop an endogenous process of changes and/or persistence.
<i>Rural Identity</i>	Traditions, culture, history and the awareness of their importance, together with their conservation and exploitation, all create rural identity. It is also about common interest and attitude. Rural identity works as an attractor and generator of resources and capacities, either from inside or outside the system, which creates tighter, stronger connections between the system components. It is a propeller of adaptive capacity and persistence, and it gives a measure of social connectedness, the potential for self-organization and the strength of the social network structure.
<i>Human Capital</i>	It indicates the quantity and quality of the human component of the rural area, even by looking at it in terms of both resources and capacities to cope with challenges. It gives us an idea of the quantitative importance of human capital in the system (therefore as a resource), and an indication of the effective and/or potential capacity of the human component to contribute to the capacity for resilience.
<i>Physical Assets</i>	The resources of a system, especially structural and functional infrastructure, and natural assets, such as landscape and biodiversity. These types of resources contribute both to buffer and adaptive capacity.

Source: authors' own elaboration

Most common approaches to assess rural resilience rely on indicator frameworks (Mujjuni et al., 2021), although they can differ widely depending on the way they are measured. Other approaches are applied, such as social metabolism and multi-criteria techniques (Siciliano, 2012) or, less frequently, statistical methods (Galluzzo, 2020). Specific tools have been developed to analyze specific facets of rural resilience, for instance the Rural Resilience Index (RRI) to assess resilience to disasters (Cox and Hamlen, 2014). Compared to quantitative methodologies, our approach brings a qualitative component of in-depth contextualization and

understanding based on interviews and focus groups of multiple actors. The use of interviews, in fact, allows for in-depth understanding of the issue under study (Bertolozzi-Caredio et al., 2020), whereas focus groups allow for a co-creative approach to the problem (Roloff, 2008). The combination of interviews and focus groups helps providing the study with increased internal validity and reliability of outputs, because focus groups validate and integrate findings from interviews (and the researchers' interpretation) and bring together multiple perspectives to allow for more comprehensive answers to the research questions. The diversity of the involved actors' background also contributes to the robustness of the approach. The core of the methodology, however, is the comparative analysis between two emblematic, alternative systems, whose profound differences may help reveal key factor explaining resilience. In this sense, our indicator framework works as a lens to identify and keep the focus on factors of resilience. While re-adapted, our approach stems from well-established methodologies (AEIDL, 1995; AEIDL, 1996; European Commission, 2010; Farrell et al., 1999; Frascarelli et al., 2012), and the indicators' selection is rooted in the literature (Longstaff, 2010; Speranza et al., 2014; Fischer and McKee, 2017).

2.6 Interview Data Collection and Initial Processing

The first phase was to collect data via semi-structured interviews. The interviewees were selected from among stakeholders and players of interest, who were fully aware of the situation of their regions. These players were from different backgrounds and positions. In Norcia, 17 players were interviewed, whereas in Alto Ascolano 16 were interviewed. Each interview consisted of an opening speech by the interviewee (generally lasting between approximately 30 and 120 minutes, depending on the interest of the player), who described his view of the rural dynamics and explained his opinions on the main factors involved in current and historical situations. Some questions were asked to obtain further information concerning the 8 indicators: questions were formulated to address answers to the indicators' meaning, without impeding free speech. Thus, all the evidence from open interviews was enriched with specifically addressed answers. Whereas the structured component of the interview was useful for addressing topics, its integration with a less structured interview enabled us to develop an in-depth understanding of the issues (Baines et al., 2018). Almost all the interviews were recorded and transcribed, although a few interviewees refused: in these cases, two researchers took notes and gathered all possible information.

Subsequently, our researchers processed the data collected. As a result, the researchers inductively extrapolated the indicators for each interview and then calculated the mean to show the overall value of each case study. Specifically, the researchers proceeded interview by interview to score each indicator by considering the evidence, which had emerged from the interviews. Once the indicators had been scored for all the interviews, the mean was calculated to obtain an overall average value for each indicator. The method was carried out as an iterative process by alternating

interviews and data processing. This is known as constant, comparative analysis, and it enables accurate evidence to be obtained and the generality of a fact to be established (Cho & Lee, 2014). Our researchers worked on scoring first separately, then jointly, to co-create a well-thought scoring.

2.7 Focus Groups

The interview stage was followed by the second phase. Focus groups are interactive discussion groups often used in social research to collect data. They are useful tools to understand feelings, perceptions, interpretations, opinions and knowledge of a selected population (Rosenthal, 2016; Winke, 2017). Two focus groups were organized, one per case. The same players from the interviews participated in the focus group: 11 in the Norcia focus group (not all interviewees were available) and 17 in Alto Ascolano. The research team, consisting of three researchers, was present in both. Following the recommendations of Ho (2012), Krueger & Casey (2015), and Petty (2012), we selected participants with a deep insight into the topic, who shared experiences and values within the context of the issue under study. Furthermore, we assembled a diversified group in terms of background and position to gather a variety of opinions.

The focus groups aimed to validate previous results, add new information and evidence supporting the findings and give details on aspects of interest. The groups were conducted in the form of a debate and opinion exchange, led by a moderator, whereas at the end, participants were asked to answer some predetermined questions. The moderator was chosen from the research team, so he had a clear insight into the issues and goals. He followed the suggestions of Hyden & Bulow (2003), Krueger & Casey (2015), Smithson (2000), and Rosenthal (2016), in order to favour and facilitate the discussion.

At the beginning, the methodology and goals of the research were explained to the participants, so they fully understood the study. Then, the results of the interview data processing were shown and explained from the researchers' point of view. This was followed by the debate and discussion, and implemented with some questions proposed by researchers. These questions were prepared not only to confirm or deny the previous evidence found by researchers regarding specific factors and their effects on resilience, but also to stimulate discussions and debate. Discussion was recorded and the researchers took notes of all the interesting elements introduced by participants. Again, the research team scored according to instructions given beforehand. Once the average values per indicator had been obtained, the results from the interviews and focus groups data processing were integrated and balanced in order to calculate the mean. However, while balancing, we chose to attribute a diverse weight of 65% and 100% to the results of the focus groups and interviews, respectively. The reason for this was that the interview results came from a wider, more detailed evaluation of the issues, i.e.: a more abundant collection of data and evidence, whereas the data collection in focus groups was less dense, although consistent. Moreover, we used the focus group method with the aim not only to validate and improve the initial data, but also to collect

further data. The final output was a radial graph comparing the results of both cases. Lastly, we analyzed the evidence which had emerged. We analyzed the indicators and qualitative evidence to describe the state of resilience in the different areas, and to discover the crucial, determining factors influencing the capacity for resilience. We were able to do this mainly by comparing the results from the two cases which, as we know, showed diverse performances.

3 Results

3.1 *On the Norcia Side*

The rural area of Norcia has shown a significant capacity for developing endogenously, to the extent that some refer to it as “the Norcia model”. However, it appears to be a successful system currently facing a decline in potential: many new challenges are impacting the development of this area. First, Norcia owns a potential consisting of different types of resources: tradition, a well-conserved environment and landscapes, and its historical and cultural heritage, to name but a few. In addition, due to the 1997 earthquake, a consistent amount of financial and public resources has been provided in recent years, which has contributed considerably to the development potential of the area. Overall, by combining those resources and rural capacities we were able to build up the image of Norcia that implies the “Norcia effect”. The name itself represents not only a resource, but also potential for development, hence a factor of resilience.

Nevertheless, the interviews clearly showed that the capacity of the rural community has played a crucial role. All interviewees agreed that the main factors of development are the typical, local produce, supported by Protected Geographical Identification (PGI) and the Slow Food market, road and sports infrastructures, job opportunities, foreign migration, strong promotion and tourism. What created those factors? The rural area of Norcia has revealed a capacity for resilience despite shocks and difficult events, such as earthquakes and socio-economic changes. A closer look at the interview contents revealed a significant capacity to adapt and transform and, therefore, a capacity to invest, change, enhance and innovate. The production sectors appear to be the main propeller of this capacity, whereas the public authorities appear to enable it: many interviewees underlined the importance of a good partnership between private and public sectors, which facilitates the capacity to develop and face challenges. The private sectors boast good know-how:

[I17] there are producers that have highly developed skills, which benefit all sectors;

and they have shown a good capacity to adapt, e.g.:

[I15] the traders of Norcia were forward-thinking when they decided to specialize in selling typical, local products which, together with the PGI, have guaranteed the success of this area.

Moreover, the agricultural sector has revealed certain capacities, e.g.: bovine producers are changing from milk to meat production in order to face market changes, whereas sheep farmers are persisting due to their strategy of selling typical, local products. Many farms have also invested part of their income in agro-touristic activities, thus exploiting the growth of this opportunity:

[I13] thanks to the advent of wine-food tourism Norcia could succeed.

These adaptation and transformation processes are similar to those in similar contexts in the EU (Bertolozzi-Caredio et al., 2021). Generally speaking, the sector is in a transition phase: bigger farms invest and innovate, whereas smaller farms close down their activities. This phenomenon, however, is in line with farm structural dynamics in the EU, which are leading to a concentration of the sector (Schuh et al., 2022).

The public authority has been crucial for building many essential infrastructures to develop the area. It also invests in a strong promotion of the Norcia image and allows private businesses to promote and exploit events. Nonetheless, in some specific cases, e.g.: the Monti Sibillini National Park, the authority restricts agricultural resilience, since it does not allow for persistence or adaptation. In a few cases, the public authority has not managed resources effectively:

[I6] mayors are convinced they have to do something about these 'cathedrals in the desert', even though there is no real need.

Many components of the rural system contribute to this capacity. Most of all, people are emotionally and individually connected with their territory, history and culture. As a result, individuals are strongly connected to each other in order to pursue a common goal: to support and exploit the community and its territory. This fact makes Norcia's rural system solid and capable. The idea of creating a high school specializing in local needs (mainly tourism), local traditions and the importance of community is remarkable. The social capacity embedded in this rural area also emerges in the widespread, private initiatives for development and in the good interplay between private and public sectors. Lastly, the Local Action Group of Norcia is involved in many development projects and highlights the good connections between players and the tight social network. Nevertheless, times are changing and as a result, even the conditions for development are changing. The dynamics of tourism and the agricultural market, together with social dynamics, are threatening the current performance of the Norcia system. Depopulation is limited in the city centers at the expense of marginal, smaller municipalities:

[I3] the depopulation and aging of the population has stopped only in the city centers, whereas smaller, marginal villages are being abandoned

Job opportunities are high for less skilled workers, whereas there are few for graduates and top professionals. This limits future, potential know-how from supporting adaptive, transformative capacities. It is becoming increasingly difficult to find either private or public funds, so resources are

decreasing. Agriculture is becoming less profitable, whereas the dynamics of tourism are changing:

agriculture [I2] is no longer profitable

moreover:

[I16] it is true that tourism has increased, but now tourists spend less than before.

In the light of these concerns, some propose to reduce the contrasts between certain authorities and private individuals, by addressing industrial production, e.g.: the lack of increased innovation and numbers of skilled workers employed, new product certifications and more promotion. However, many interviewees believe Norcia's success is declining and new resources and energies are required:

[I8] the boost to development, beginning with the re-construction after the earthquake, is running low. If we do not decide to invest new resources, then the system of Norcia will enter a crisis.

Nonetheless, as argued by Backman and Nilsson (2018), cultural heritage may play a role in attracting skilled individuals. Similarly, the strong rural identity showed in Norcia may represent an opportunity. Details are shown in Table 2.

Table 2. Interview Results from Norcia

No.	Position	Image	Market	Economic Activity	Public management	Know-how	Rural Identity	Human Capital	Physical Asset
1	Mayor of Norcia	4.5	3.6	3.5	4.1	4.1	4.3	4.4	4.4
2	Mayor of Preci	4.8	5	4.3	4.3	4.4	4.5	4.5	4.6
3	Ex mayor of Preci	3.7	4.3	2.6	4.2	4	3.1	3.4	3.6
4	Research Center CEDRAV	4.3	4.3	4.2	3.7	3.9	4	4.3	3.9
5	Trade Confederation	4.8	4.2	4.1	2.9	3.7	4.3	3.5	4.6
6	Local Action Group	4.3	4	4	3.1	3.3	4.1	3.8	4.8
7	Teacher	4	4	3.5	3.4	3.6	3.8	4.2	4.2
8	Employer 1	4.9	4.3	4.2	3.5	4.5	4.8	4.6	4.6
9	Employer 2	4.6	3	4	3.5	3.9	4	3.7	4.8
10	Employer 3	4.1	4	2.8	2.3	3.8	4.3	3.8	4.3
11	Farmer Association	4.6	4.2	3.6	3.2	3.9	4.2	4	4
12	Farmer 1	4.3	4.9	4.3	4	4.5	4.1	4	4.2
13	Farmer 2	5	4.3	2.9	1.7	3.4	3.9	2.8	3.4
14	Veterinary	3.9	2.3	2.5	3.5	3.1	3.8	3.3	3.7
15	Employer 4	3.4	3.5	3.3	4.2	4.1	3.8	4	3.3
16	Employer 5	4.3	2.2	1.3	2.6	3.1	4.3	2.3	3.8
17	Employer 6	4.4	3.4	4	3.8	4.1	4.1	3.5	4.1
	Mean	4.3	3.9	3.5	3.4	3.9	4.1	3.8	4.1

3.1 On the Alto Ascolano Side

The rural system of Alto Ascolano does not show any signal of development or capacity for resilience. The content of the interviews is

merciless and severe, and no positive perspective was put forward. Nonetheless, the territory does not lack major, potential resources, although those opportunities appear to have been taken.

The interviews show this rural area is rich in traditions, history and culture, landscapes, an untainted environment, typical products and their market potential. Therefore, there is potential not only for tourism and agricultural development, but also for other economic activities and consequent social benefits. Surprisingly, the capacity to use them for development has not emerged. What are the causes of such incapability? Nearly all the interviewees pointed to the same factors. The region is suffering severe depopulation due to the lack of job opportunities in the area and the presence of more industrialized areas nearby:

[I18] due to industrialization, many factories have been opened in the valley of Tronto, and many inhabitants of Alto Ascolano have moved for employment reasons.

In effect:

[I19] depopulation is caused by the lack of job opportunities, and in that scenario, even the agricultural sector is no longer profitable.

This fact is aggravated by the aging resident population. In the absence of industry and an overall productive fabric, agriculture is likely to play a major role. However, it is undergoing a crisis. Any relevant infrastructure is in the area, whereas there are limited services provided for the population. Two main reasons appear to be responsible. First of all, almost all agree that the public authority has not invested in infrastructures, promotion and innovation:

[I23] there are problems connected both to the vast territory with a limited number of inhabitants, and to a lack of public investments, so that more infrastructure is needed.

Some attribute this to the lack of public resources whereas others to the lack of political interest: both local and higher-level administrations have abandoned the area, e.g.: the little promotion made was paid by private individuals. Moreover, the level of competency of public administration appears to be low:

[I27] the lowest point was last summer, when the municipality was unable to assign the management of the public swimming pool.

This aspect seems to be in line with several studies highlighting the key role of public institutions and governance in rural development (Esparcia and Abbasi, 2020). Our findings confirm that weak governance might lead to major gaps in resilience capacity. However, many argue that the situation is too serious to be solved merely by policy-making. In fact, a second reason for this lack of the capacity for resilience can be attributed to the social component of this rural area. The territory has been abandoned “even by its inhabitants”: young people do not remain in the area, which reduces the potential for innovation. The few who remain cannot express their entrepreneurship due to their inability to find resources.

Only a few are willing to invest in the area, mainly because of the absence of supporting authorities, whereas the majority have invested in other areas:

[Focus Group] an entrepreneurial mentality is lacking, and entrepreneurs have invested in other territories.

In addition, there is a lack of know-how, competency and training, which affects every possible idea of development. Furthermore, there is a profound cultural shortage of awareness of the problems and the incapability (or hostility) to create any form of associationism and cooperation:

[Focus Group] not only cooperativism and associationism, but also market orientation and attitude have all been lacking.

If a rural community exists, it is evidently weak. If the lack of financial resources appears important, low cohesion, capacity and interest of social players appear to be the predominant cause. A strong rural community could cope with the lack of economic and financial resources. Details are shown in Table 3.

Table 3. Interview Results from Alto Ascolano

No.	Position	Image	Market	Economic Activity	Public management	Know-how	Rural Identity	Human Capital	Physical Asset
18	Mayor of Acquasanta Terme	3	2	1.7	1.5	2	2	2	2.3
19	Mayor of Arquata del Tronto	3	2.5	2.5	3.4	2.9	3	2.3	2.8
20	Social Assistant	2.7	0	1.2	2.8	3.3	3.5	2.7	3.2
21	Trade Confederation	2.4	1.8	1.3	1.6	1.8	2.6	2.3	2.3
22	Industrial Consortium	3.0	1.9	1.6	1.9	1.9	2.1	1.6	2.7
23	Local Action Group	3.3	3	2.8	2.9	2.7	3.1	2.7	3.7
24	Agronomist	1.5	1.8	2.1	2.0	1.8	1.7	1.6	1.9
25	Highschool Head	4.4	0	1	3.2	4	3.9	3.3	3.4
26	Employer 1	3	1.9	1.9	1.4	1.5	1.6	1.7	3.5
27	Employer 2	3.3	2.5	1.8	1.3	1.4	1.9	1.7	3.1
28	Farmer Association	3	2.7	2.7	2.3	2.5	2.4	2.7	3.3
29	Farmer 1	2.8	0	2.5	1.1	1.6	2.5	1.5	2.8
30	Farmer 2	2.3	1.3	1.8	1.8	2	2.4	1.7	2
31	Employer 3	1.5	2.5	1.7	1.1	1.6	2.6	1	2.8
32	Employer 4	1.4	2.3	1.9	1.5	2.1	2.4	2	2.5
33	Employer 5	2	4	3.4	1	3.3	3	2	2.3
Mean		2.7	2.3	2	1.9	2.3	2.5	2	2.8

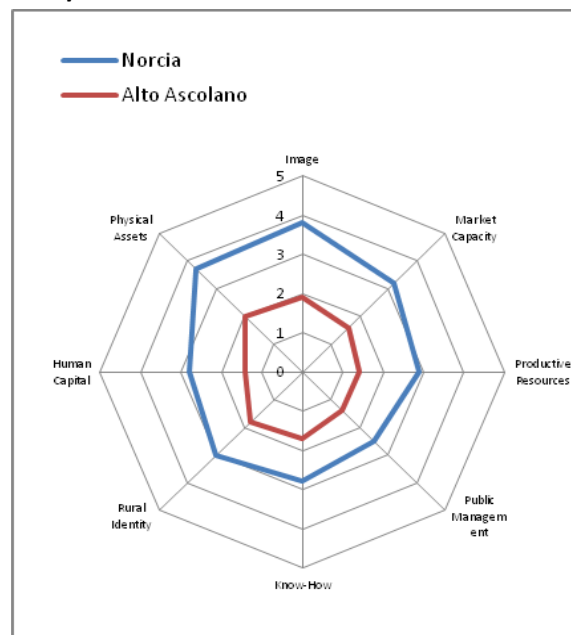
4 Discussion

We aim to understand which factors enable or restrict the capacity for resilience of a rural system to develop endogenously despite challenges. We address the target by comparing results from the two cases.

Figure 3 shows the indicator results. The differences between the cases were already clear, as the evidence from the interviews outlined the

situations. More evidence can be added from an evaluation of the indicators, in order to define the factors of resilience precisely. The rural area of Alto Ascolano appears in a worse condition from all aspects compared to Norcia. The greatest differences are between image, physical assets, market capacity and economic activities.

Figure 3. Indicators' Comparison between the Case Studies



Source: authors' own elaboration

These indicators mainly show the amount of material and immaterial territorial resources the rural community has built and created, e.g.: infrastructures, symbols, and the productive fabric. The rural area of Norcia appears stronger in its image, physical assets and market capacity, whereas it assumes lower values in human capacity, know-how and public management. We stress, however, that these lower values do not show any one specific weak point, but rather several weaker points. In fact, in the case of Norcia, all indicators overcome (or settle at) the threshold of 2.5 which, in our view, means sufficiency. On the contrary, in the case of Alto Ascolano, all indicators are weak, below the reference value of 2.5. The worst results are in public management, economic activities and human capital. In the latter case, deficiencies emerge in all aspects. Although the final results from the focus groups show a substantial difference in all the aspects highlighted by the indicator framework, the qualitative evidence, which emerged during interviews and focus groups, supports some findings more than others.

Rural identity feeds self-organization and social capacity

An initial aspect emerged from the comparison: rural identity is a core factor of the capacity for resilience, and it is the main determining factor of endogenous development. On the one hand, rural identity is the emotional

adhesive of a rural community, on the other it enables knowledge and capacities to be accumulated. It works both as a reason for and means of developing. To this regard, a couple of elements must be taken into consideration, i.e.: community awareness and its level of individuality.

In our case, rural identity appears to be a common baggage of awareness, experience, feelings and goals, characterized by a low level of individuality of the players, who reciprocally feed each others' interests, by participating emotionally and practically in on-going, shared processes of persistence, adaptation and transformation. In a word, rural identity builds social capacity and represents the key to self-organization by ensuring the connectedness and strength of the social network, a space to accumulate awareness and knowledge, and to feed learning capacity.

Institutions as enablers of the capacity for resilience

Local institutions have played a crucial role in enabling (and not determining) social capacity and a bottom-up approach, which makes endogenous development possible, whereas higher level institutions have played a less important role, merely limiting themselves to providing resources. The role of public management has been to provide a participatory framework for planning and development, and to encourage social cohesion and initiative. Policies are ineffective if the other social components and capacities are absent, or when the level of development is too low. Institutions can clearly support a capacity for persistence directly by providing resources. However, they cannot directly ensure adaptive or transformative capacities as the latter appear to be determined mainly by the social capacity of the rural community. In this scenario, institutions can work as enablers for adapting and transforming. Trust in institutions is a crucial factor for exploiting the relationship between the community and public management, and for triggering a capacity for resilience.

Awareness and knowledge build up adaptive capacity

Without any doubt, adaptive capacity is supported by resource availability, flexibility and diversity, and by smart public management. Nonetheless, a couple of social elements emerge as being more relevant for an adaptable rural system, even with a lack or scarcity of resources. Adaptive capacity is likely to be a social product of the community capacity for maintaining and exploiting rural characteristics and functions. In particular, awareness and knowledge stored in the social network, and fed by continuous learning processes, make adaptation to changes easier, faster and smoother. Awareness especially appears to be the first trigger for the adaptive process. Awareness is related to the consciousness of rural identity and features risks on the one hand, and challenges and perspectives on the other. Only within this framework can knowledge and learning be used to build up an adaptive capacity.

The role of private individuals: business as the main buffer

Whereas institutions play the role of enablers, private individuals appear to be the protagonists. Their market capacity contributes directly to the

resilience capacity of the area, whereas their productive assets determine a solid buffer capacity to persist.

The main resilient responses for coping with changes derive from the capacity of private individuals to adapt and transform their businesses. Consequently, the social network follows that propulsive trend by adapting itself to the new conformation. Productive assets represent a potential reaction to risks, challenges and changes. Specifically, productive assets provide the main buffer resource and, therefore, the main source of persistence capacity, to a greater extent than institutions. Although productive assets are a means to adapt and transform, they are not triggers for those capacities. Not only the level, but also the state and form of productive assets, depend on a capacity for resilience and, as a result, on previous persistence, adaptation and transformation processes.

4.1 Evidence for the Next Stages of Development

The region of Alto Ascolano appears to be in an irreversible condition of impoverishment and reduced capacity for resilience and endogenous development. This is a vicious circle, in which endogenous potential is affected by its own decreasing trend. The destiny of the area is likely to be the collapse of the rural community due to the disruption of social networks and economic structure. The natural component could suffer as a result, e.g.: by farmers abandoning their lands. The institutions could slowly lose their reason to exist and their purpose to support the community. Although the scenario we have drawn is definitely dark, we cannot exclude that a response or reaction will follow future challenges or shocks, which is part of the conceptualization of resilience thinking expressed by Cumming (2001) in the adaptive cycle concept. We wonder how important external interventions, such as institutional actions, may be: will a massive, large-scale investment approach from external sources make the capacity for resilience emerge? From our assessment, we deduce that without significant social capacity determined by rural identity, human resources, market capacity and know-how, external aid in terms of both resources and capacities would be ineffective.

The region of Norcia has demonstrated a remarkable capacity for resilience in recent decades, despite the events. Therefore, the rural area of Norcia has continued on a virtuous, endogenous cycle of sustainable development. Nevertheless, interesting evidence has emerged: the rural system of Norcia is likely to be at the end of the 'release' phase of the adaptive cycle. This phase is the stage of equilibrium (Fath, 2015), of release or 'creative destruction' (Schumpeter 1943). It is a period of development, growing stasis and rigidity (Fath, 2015; Folke, 2006). Resources are accumulated in the system and the interconnectivity between components becomes stronger. As a result, the system loses flexibility first, followed by resilience. This emphasizes a risk for the future, since 'collapse' may be the next stage of the cycle. However, good adaptive or transformative capacities may avoid this risk and carry the system along another process of endogenous development. The assessment quite clearly shows that the system needs greater know-how in this phase: in practice, a higher number

of professionals and highly educated components of the socio-economic network are required in order to trigger changes.

Moreover, resources (mostly institutional) are slightly decreasing, which may impact on its potential capacity for resilience. Nevertheless, the rural area of Norcia appears healthy and vigorous, so that a positive perspective prevails.

5 Conclusions

This research adds to the rich field of rural resilience (although it requires a more in-depth study). We have contributed by clarifying the factors of resilience and endogenous development in rural areas through the lens of resilience thinking. We have embedded resilience thinking as the core of endogenous, sustainable development theories, since we assume they are complementary aspects of a unique strand. We also propose a qualitative methodology, built upon former methods found in scientific and institutional literature, so that we could move from the perspective of territorial capital applied in endogenous development analyses to the resilience thinking approach. Such methodology enables the capacity for resilience to be compared in two different areas, and a detailed, comprehensive understanding of the state of resilience and its determining factors to be obtained. Clearly our comprehension and evaluation of community characteristics is fundamental for assessing and understanding rural resilience (Rapaport et al., 2018).

Our results show two diverse performances in the two regions under study. The difference appears to be mainly the result of a diverse social capacity in the rural communities. First, rural identity appears to be a fundamental unit of rural resilience. Rural identity, i.e.: an immaterial, emotional, original and purposive linkage between the players in the community is the main framework characterizing the social network, its connectedness and its capacity for accumulating awareness, knowledge and reciprocal learning processes. Not only is any capacity for resilience possible from that social structure, but also the capacity for resilience is proportional to the intensity of its rural identity. Rural identity shapes the potential for self-organizing and learning, and thus for reacting to changes, and any other factor can replace it. The comparison between the cases demonstrates that the lack of rural identity is the main, original restraining factor of the capacity for resilience in the rural area of Alto Ascolano.

However, other factors support the core factor of rural resilience. Infrastructure and services on the one hand, and environmental quality and landscapes on the other, constitute important, physical assets. More specifically, the environment and landscapes contribute to image and rural identity. As Rivera et al. (2018) argue, those assets contribute to prosperity and are connected to local identity, common memories and tradition.

Furthermore, institutions play the role of marginal enablers rather than direct providers of a capacity for resilience. This role is not limited to providing resources, but extends to facilitating the social network and encouraging social capacity. In that sense, trust between institutions and the

community is a crucial factor. In line with our findings, Williams et al. (2021) casts light on institutions in terms of bridging organizations as a complementary aspect of learning, collaborations and leadership. In effect, in an ideal resilience scenario, policy should play the role of facilitator (Wilson, 2013). Lastly, we highlight that social capacity has the most relevant role in shaping rural resilience, and those other factors concur as enablers and supporters of the capacity of the rural community. Even other studies (Wilson et al., 2018) state that the lack of a strong, socio-cultural domain has serious repercussions on the capacity for resilience. The most recent review on rural resilience emphasizes the role of bottom-up planning and social capital (Li, 2022). As argued by Dwyer (2021), rural systems should increasingly rely on the “most precious renewable resource”, i.e., human and social capital.

We recognize the potential limitations of our approach. Our methodology does not provide quantitative analyses of resilience, and its scope is constrained by a limited number of actors involved in the study, which might hinder its generalizability over the case studies and beyond. Besides, as all participatory approaches, our findings might be affected by subjective bias. The method applied, though, brings valuable and rich insight to the assessment of rural resilience, based on multiple actors’ perspectives, and a double-round data collection and analysis process enhancing the robustness of the methodology and reliability of the findings. This study does not aspire to answer the whole complexity of rural resilience in the case study areas, but to bring to light useful elements to understand it, and pursue future research. Our assessment could be profitably extended by increasing the number of stakeholders involved, integrating the indicator framework, and adding more quantitative elements into the analysis. Also, more case studies may be compared within this framework.”

Findings from this work pave the way towards future research. We believe that future research should focus on rural identity as a factor of resilience, and its role in encouraging self-organization, creating awareness, and accumulating knowledge and learning capacity. Moreover, the role of institutions as enablers of community capacity, and the ways they can ensure a framework to develop those capacities should be investigated further. In line with Dwyer (2021), much work will be needed to investigate in depth the role played by rural enterprises and innovativeness. Lastly, the assessment could address a specific resilience perspective, according to the scheme of Carpenter (2001), Herrera (2017) and Liu (2014): resilience of what, to what, for what, with what.

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