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The fittest survive: Regional resilience and exposure to financial crisis

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ABSTRACT

We investigate the nexus between a deep fundamental (individual resilience) and exposure to the financial crisis using cross-country individual evidence from the European Social Survey on more than 25,000 individuals (in 19 countries and 64 regions) from 2006 to 2012. We find that average regional resilience is associated with a significantly lower exposure to income falls for households, and financial difficulties for the organizations where the survey respondent works. We also observe that household exposure to income falls is associated with a significant fall in resilience. If these two pieces of evidence hide causality links they imply that financial shocks enhance regional differences since lower ex-ante resilience increases household and corporate exposure to financial shocks which, in turn, weaken their resilience. As a consequence, financial shocks can widen differences in exposure to financial difficulties and resilience between stronger and weaker regions.

1. Introduction

The debate and inquiry about the importance of deep fundamentals in determining economic outcomes has a long tradition in the economic literature (Porter, 2012). The definition of fundamentals remains often obscure but relates to deep factors affecting dispositions and inclinations before economic choices such as religion (Barro & McCleary, 2003; Blum & Dudley, 2001), social capital and social norms (Keefer & Knack, 2005) and civic capital (Guiso et al., 2011) among many others. Our contribution aims to introduce and test the relevance of a new fundamental, resilience, that has gained the forefront in the most recent debate after the ongoing sequence of global shocks of the new century (i.e., financial crises, COVID-19 pandemics), but whose effects on economic outcomes and, in particular, on economic performance during shocks have not been fully explored (Brada et al., 2021; Sun et al., 2022).

As commonly understood, the term "resilience" originates from the Latin word "resiliens," denoting the property of a material to revert to its original state following a disturbance. In the realm of engineering science, resilience has been precisely defined as "the ability of a material to absorb energy when subjected to elastic deformation and subsequently release it upon unloading" (Campbell, 2008, p. 206). Thus, in a broader context, resilience encapsulates either the elasticity and capability to bounce back and restore equilibrium after experiencing pressure, or the flexibility and capacity to withstand impact without fracturing (Ungar & Theron, 2020).

In social and economic terms, the term resilience has been borrowed to express the capacity of households, companies, countries or regions to resist and react to economic shocks. Resilience is therefore expected to be associated with a significantly higher capacity to

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reduce at minimum financial losses generated by exposure to such shocks (Martin, 2012). Most of the resilience literature in economics and statistics focuses as well on the evolutionary dynamics of performance variables across shocks with a descriptive approach that identifies paths and indicators that can be considered proxies of resilience. Along this line, Bailey and Turok (2016) review the recent literature on regional resilience trying to identify its drivers. Webber et al. (2018) argue that regions with greater employment shares in sectors that have fewer demand fluctuations are more resilient to economic downturns. This literature, however, provides limited insights to understand which factors account for different regional responses to the shocks with few exceptions. Lusardi et al. (2021) find that financial literacy is a fundamental driver of financial resilience during the COVID-19 period. Kim and Shawn (2022) observe that conservatism in financial reporting is associated with improved corporate performance after the global financial crisis. Bufe et al. (2021) find that access to different types of liquidity is crucial for the resilience of low-income households to financial shocks in the US.

Psychologists and social scientists emphasize that individual resilience is fundamentally the underlying mechanism driving the observed dynamics of aggregate or macroeconomic resilience. Within the realm of social sciences, a significant discourse revolves around the determinants of personal resilience, debating whether it is solely influenced by inherent idiosyncratic character traits or also shaped by the quality of social relationships and the strength of local institutions that facilitate individual recovery and mitigate the adverse effects of shocks. Delhom et al. (2020) and Cuartero and Tur (2021) contend that personal resilience results from a combination of rational and emotional responses to shocks, highlighting the critical role of emotional intelligence—the capacity to recognize and regulate emotions for cognitive development. Hostinar and Miller (2019) emphasize the importance of familial bonds in fostering resilience. Fletcher and Sarkar (2013) offer a comprehensive synthesis of these potential contributing factors, arguing that resilience is a dynamic process reflecting interactions between environmental conditions and individual characteristics. They assert that resilience is nurtured by factors such as a congenial temperament, robust self-esteem, effective planning abilities, and a supportive environment both within and outside the family unit (Fletcher & Sarkar, 2013).

Our paper aims to provide a contribution to this perspective with an original direction of research related to the effect of resilience on exposure to financial problems after financial shocks. We do not try to infer resilience from the dynamics of local performance variables since we use a direct individual self-declared measure of personal resilience that we aggregate at the regional level to obtain a local resilience indicator. We therefore examine whether this indicator affects households and organizations exposed to financial crisis. In addition to that, we evaluate the impact of personal financial shocks on changes in resilience.

Our study thus delves into the intersection of two distinct bodies of literature, examining the influence of the individual resilience variable (aggregated at the regional level) on economic and financial resilience at the micro level. In doing so, our methodology recognizes that not only rationality but also emotions play a crucial role in mediating the effects of shocks on economic outcomes. This interplay between rationality and emotions is implicit in how individual resilience is assessed within the framework of the European Social Survey. The measure of individual resilience utilized in our study is derived from a multiple-choice question that prompts respondents to indicate their level of agreement with the statement: "When things go wrong in my life it takes a long time to get back to normal." Higher levels of agreement with this statement correspond to lower self-assessed resilience capacity, indicating a slower recovery process.

In this regard, the paper indicates an important direction for future research within the economic discipline, advocating for an expanded focus beyond the sole consideration of material variables in models that assume the primacy of rationality. Instead, it encourages broader approaches that account for the interplay among material factors, rational decision-making processes, and emotional dynamics. This perspective paves the way for exploring the role of emotional intelligence in economic phenomena, thereby enriching our understanding of human behavior and decision-making in economic contexts.

Our main findings show that average regional resilience is negatively and significantly correlated with income declines and financial difficulties for households and organizations, respectively, after the global financial crisis. Instrumental variable estimates support the hypothesis of a direct causality link. We also find that resilience falls across the global crisis for households declaring that they have experienced income difficulties. These two pieces of evidence, if taken together and interpreted in terms of causality, would identify a dynamic of increasing regional divergence in the presence of financial crises.

2. Research hypothesis

As shown above, resilience is defined as the capacity to bounce back after a shock - "*an ability to recover from or adjust easily to misfortune or change*" (Merriam-Webster Dictionary) or "*the ability to withstand or recover quickly from difficulties*" (Oxford Languages).

Concerning the focus of our research we can therefore imagine two types of resilient reactions after a financial shock. The first is a fall caused by the shock, followed by a rapid reaction (ability to recover) that can be tracked by a V or U-shaped dynamics of a given performance indicator. The second is the virtue of making the impact of the same financial crisis milder (easy adjustment) and can go up to the ability to withstand and therefore not be affected by the crisis itself. The observed resilience/non-resilience embedded in statistical series around a shock is the aggregate outcome of a series of household and corporate reactions. Economists have seldom considered that choices and economic success of our strategy are not just determined by rationality but also by the interaction between rationality and emotions. The research ground of resilience is fascinating as it naturally brings us into this field. This is because resilience depends on positive and material ingredients (insurance, wealth, competencies) but also on the emotional capacity to react to a shock with undamaged self-esteem and confidence.

It is therefore reasonable to expect (especially if resilience is intended more in the sense of the last and not the first interpretation) that more resilient individuals are likely to design actions that reduce the likelihood of exposure to income falls in their households or to financial difficulties in their organizations after the global financial crisis. As a consequence, regions with higher average personal resilience are likely to be populated by households and organizations that are more likely to be less exposed to adverse financial

consequences of the crisis itself. The regional aggregation of the individual resilience we operate allows us to proxy the local tendency to prefer actions that better shield from financial difficulties. Given that the construction is based on a self-assessment evaluation that encloses the interplay between rationality and emotions, we have grounds to believe that we also capture the emotional skills of the local social environment. We hypothesize that beyond material and relational factors, the local tendency to endeavor in more resilient actions adds something above individual capacity, Therefore, the main hypothesis we test is.

H01. *higher average local personal resilience reduces exposure to financial crises of households and organizations where the respondent works*.

Another relevant issue relates to how the experience of shocks (and the severity of such experience) can modify the individual resilience trait. On this point of view we can think of two opposite effects. According to the first, exposure to a shock and a fall that is followed by a recovery makes individuals more resistant or, in any case, leads to a full recovery of self-esteem and resilience (Bonanno, 2012). Examples in the literature are Riera (2023) showing that the experience of Second World War destruction when young positively affects reported resilience when adult, and Becchetti and Castriota (2011) showing that financial recovery from microfinance organizations receiving international aid leads local fishermen and farmers to recover their self-esteem to a higher level, and more than their economic conditions after the tsunami shock in Sri Lanka. Similarly, Bellucci et al. (2020) show that individuals exposed to Second World War events during childhood, reduce investment in risky assets and are more likely to prefer to invest their savings in life insurance instead.

A second hypothesis is that the experience of financial shocks undermines the virtue of resilience, especially when the shock is permanent or has not been fully recovered. A likely channel through which this can happen is through the experience of a financial shock that has reduced financial reserves that can help individuals or organizations cope with new shocks. The awareness of these changed conditions makes them feel more vulnerable and is likely to reduce their self-declared resilience. A typical example of it is debt accumulation, that is, the response to the financial shocks increasing present and future debt service which in turn raises financial fragility and weakens the capacity to withstand a new shock. This mechanism is likely to occur both at household and organization levels, justifying the following hypothesis. Also in this case, the regional aggregation of the exposure to financial crisis allows us to measure the local degree of resilience. Our second hypothesis if therefore.

H02. *Exposure to financial crises of households and organizations where the respondents work reduces household and organization resilience.*

3. Data and descriptive findings

Our main variables of interest used to test the above-mentioned research hypotheses are resilience, organization financial difficulty and household financial difficulty. Resilience (measured in waves 3 and 6 of the European Social Survey, corresponding respectively to surveys run in 2006 and 2012) is proxied by the answers to the following question *When things go wrong in my life it takes a long time to get back to normal,* where the respondent can give five possible answers (*strongly agree, agree, neither agree nor disagree, disagree, strongly disagree*).

Organization financial difficulty is measured in wave 5 (corresponding to year 2010) as *financial difficulty in the organization for which you work in last 3 years*. Answers that can be given are *A great deal of financial difficulty, Some financial difficulty, Not much financial difficulty, No financial difficulty*. Given the considered time spell this variable evaluates whether the respondent organization had problems in the aftermath of the global financial crisis.[1] Household financial difficulty is measured in wave 5 with the following question: *to what extent had to manage on lower household income last 3 years*? Answers can vary from zero to six where 0 is *Not at all* and 6 *A great deal.* Again, the question measures whether households experienced income falls in the aftermath of the global financial crisis.[2]

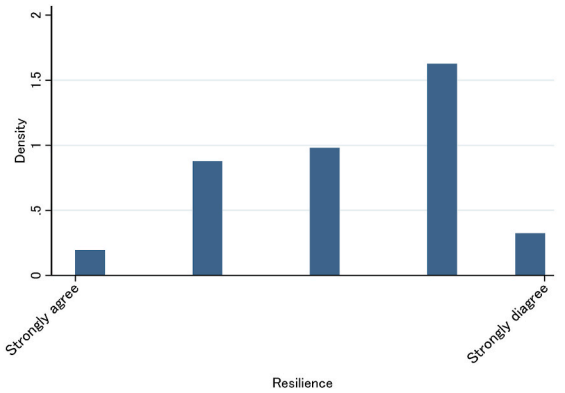
Looking at resilience in wave 3 around 31 percent of respondents reveal lack of resilience as they at least agree (or strongly agree) that it takes a long time for them to go back to normal when something wrong happens (Fig. 1, panel 1.1). On the other side, the resilient (those who disagree or strongly disagree on the difficulty of going back to normal) are around 48 percent of the sample.

The distribution of the organization financial difficulty shows that almost half of respondents for whom the demand applies say that their organization had at least some financial difficulty and around 18 percent a great deal of it (Fig. 1, panel 1.2). Inspection of the distribution of household financial difficulties shows that only 28 percent of respondents did not experience lower household income in the last three years before 2010, while 15.3 percent for a great deal (Fig. 1, panel 1.3). Respondents with scores above 3 on the 0–6 scale are around 41 percent.

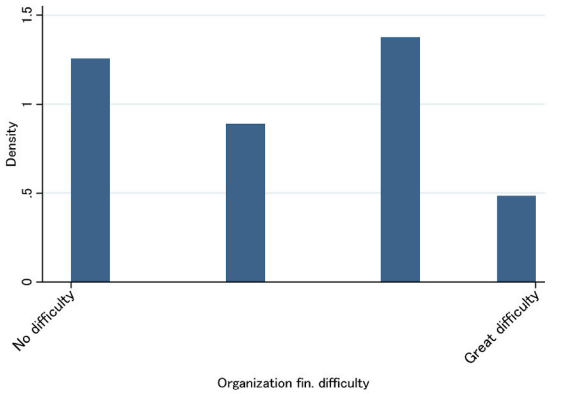
To have a second cleaner partition between resilient and non-resilient individuals we create a dichotomous (sharp) resilience variable which is a unit dummy taking value one for individuals responding they disagree or strongly disagree to the question about the difficulty to come back to normal, and zero if they agree or strongly agree. In this new variable, individuals who declare they neither

[1] The global financial crisis conventionally refers to the period of extreme stress in financial markets going from mid-2007 to beginning of 2009. In September 2007 we assisted to the bank run due to the Northern Rock bank crisis, while the global financial crisis peak event can be considered the Lehman Brother default occurred the 15th September 2008.

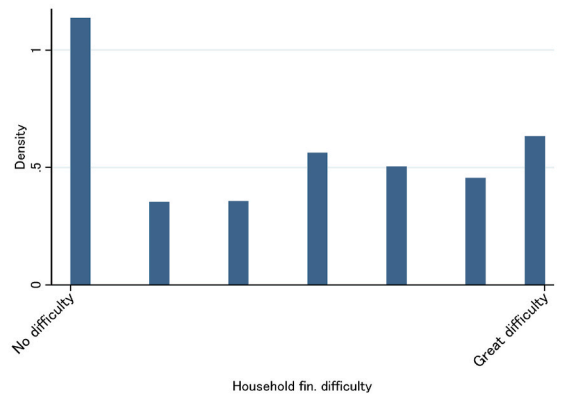
[2] *Refusal, don't know* and *no answer* respondent choices account for less than 3 percent in the household and less than 4 percent in the organization question and are dropped from the sample. Note as well that the sample of the organization question is further significantly restricted by the fact that for around half of the sample (retired, unemployed, inactive) the question does not apply.



Panel 1.1 Resilience. *When things go wrong in my life it takes a long time to get back to normal (strongly agree=1, agree=2, neither agree nor disagree=3, disagree=4, strongly disagree=5). Wave 3 (2006)*



Panel 1.2 Organization financial difficulty
Financial difficulty in the organization for which you work in the last 3 years (A great deal of financial difficulty=4, Some financial difficulty=3, Not much financial difficulty=2, No financial difficulty=1) Wave 5 (2010)



Panel 1.3 Household financial difficulty
To what extent had to manage on lower household income last 3 years? (Not at all=0, ..., A great deal=6). Wave 5 (2010)

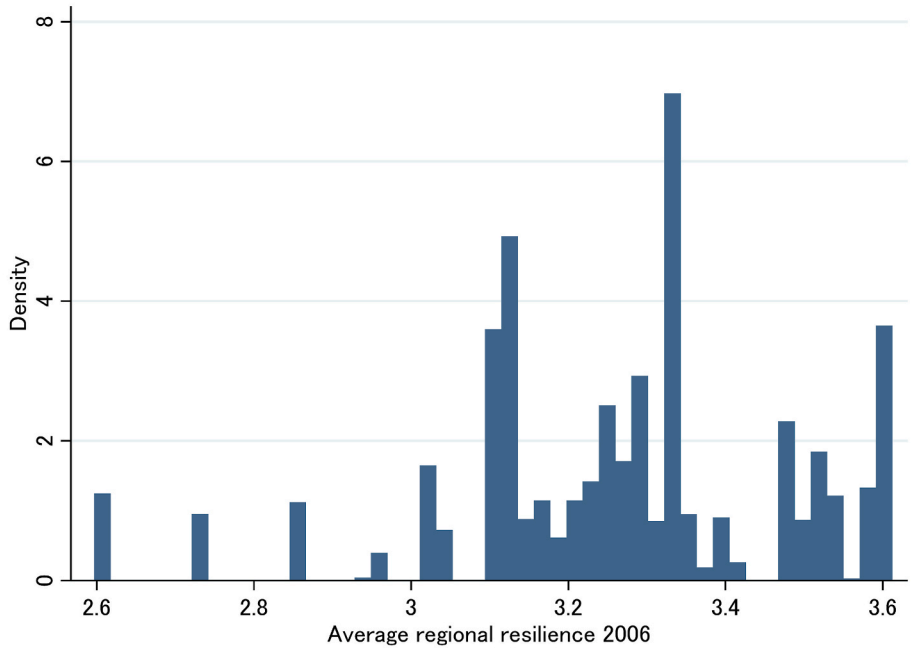
Fig. 1. Resilience and household/organization financial difficulties.

agree nor disagree are eliminated from the sample given that they do not take a position on the question. We then calculate average regional resilience using regional sample averages. The distributions of the variable for the standard resilience and the sharp resilience measure are shown in Fig. 2. When we use the second (sharp) resilience variable 68 percent of sample respondents in a given region are on average resilient in wave 3 (2006).

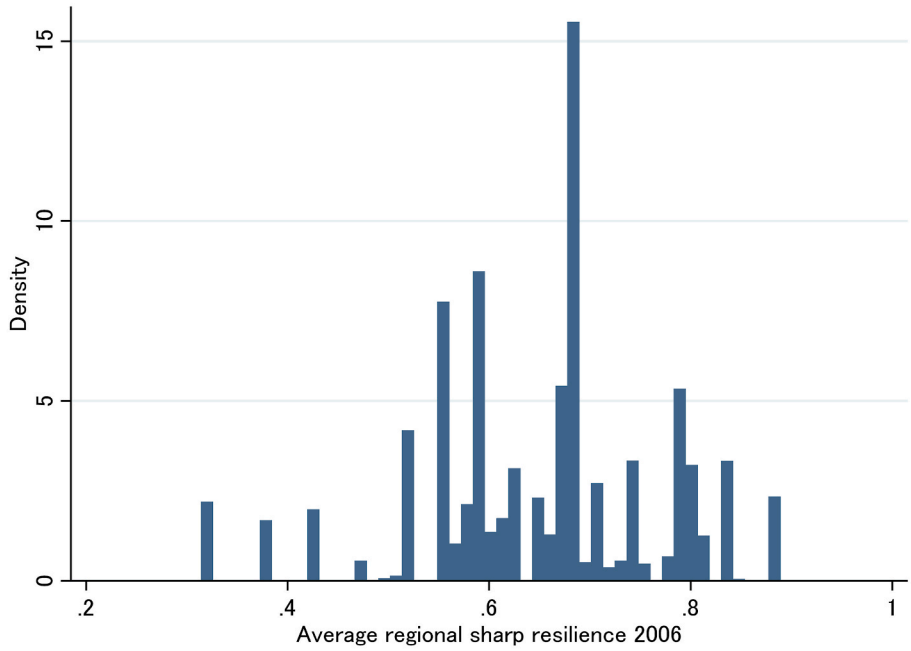
The maps presented in Fig. 3 show the geographical distribution of average regional resilience in Europe in 2006 and 2012 and the share of households with income falls and organizations with financial difficulties reported in the 2010 wave (and related to what occurred in the previous three years). Resilience is stronger in Scandinavian regions, while income falls and financial difficulties in South and Eastern European regions.

The variable legend for all other variables used in our estimates is in Table 1, while descriptive statistics for the ESS waves relevant to our analysis (waves 3 and 6) are in Table 2. The sample is close to being gender balanced (around 46 percent males) and respondents are on average around 48 years old. Around 24 percent of them are retired, while 6 percent are unemployed. Around 20 percent of respondents have a tertiary education. The correlation matrix presented in Table 3 shows that household and corporate regional resilience are positively correlated with each other (with a low correlation coefficient) and that income, regional per capita GDP, trust and relational variables are all positively correlated with household resilience.

To have preliminary descriptive evidence about the impact of ex-ante average regional resilience on the likelihood of incurring income falls (households) or financial difficulties (of the organizations where the respondent works) after the global financial crisis we



Panel 2.1 average regional standard resilience in 2006. *When things go wrong in my life it takes a long time to get back to normal* (stro*ngly agree=1, agree=2, neither agree nor disagree=3, disagree=4, strongly disagree=5*)



Panel 2.2 average regional sharp resilience in 2006. *When things go wrong in my life it takes a long time to get back to normal* (stro*ngly agree=1, agree=1, disagree=0, strongly disagree 0*)

Fig. 2. Distribution of the standard resilience and sharp resilience measures.

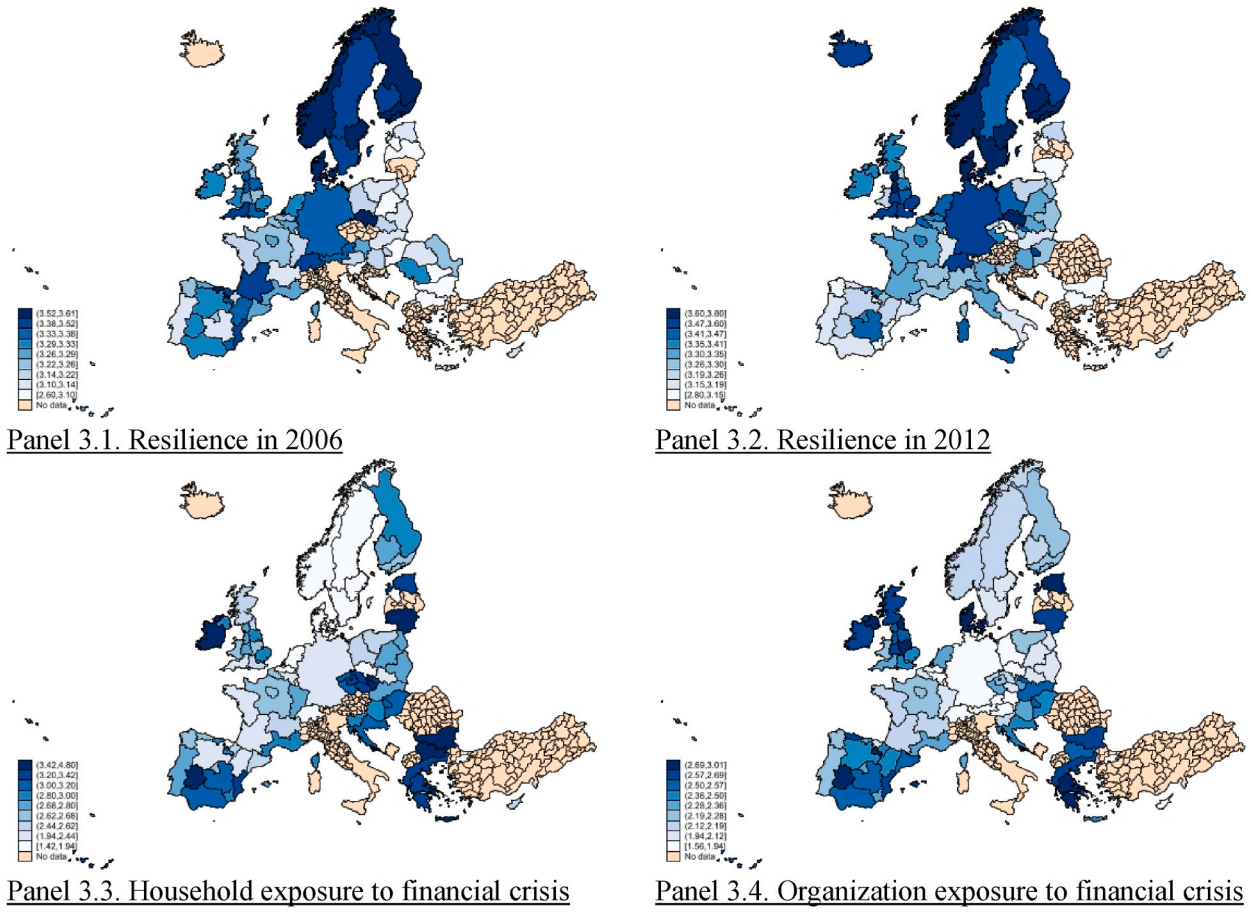


Fig. 3. Average regional resilience and average regional household income falls and organization financial difficulties
Resilience: answer to the question *When things go wrong in my life it takes a long time to get back to normal* (str*ongly agree=1, agree=2, neither agree nor disagree=3, disagree=4, strongly disagree=5*). Family crisis: answer to the question *To what extent had to manage on lower household income last 3 years? (Not at all=0, …, A great deal=6)*. Organization crisis: answer to the question *Financial difficulty in the organization for which you work in the last 3 years (A great deal of financial difficulty=4, Some financial difficulty=3, Not much financial difficulty=2, No financial difficulty=1). Household and Organization financial difficulty are measured in year 2010.*

plot the distribution of the two financial problem variables (for households and organizations respectively) at individual level for regions below the 25th centile and above the 75th centile of the distribution of average regional resilience in the sample. The difference for the family crisis exposure is sharp, with an additional area of around 30 percent of respondents in the distribution for high resilience regions on the answer of no household income fall (Fig. 4, Panels 3.1–3.2). The result is confirmed when we use the sharp resilience variable (Fig. 4, Panels 3.3–3.4). All the described comparisons of high/low resilience region distributions are significantly different with the Epps-Singleton test rejecting the null.

4. Econometric analysis

To test our research hypothesis, we estimate the following ordered probit specification:

$$FinCrisisExposure_i = \alpha_0 + \alpha_1 Reg\_Resilience + \sum_b \beta_b D\_Education_{b,i} + \alpha_2 Male_i + \alpha_3 Immigrant_i + \alpha_4 Age_i + \alpha_5 Agesq_i + \sum_f \delta_f D\_Income\_Decile_{f,i} + \alpha_6 Reg\_GDP\_Per\_Capita_i + \sum_g \eta_g D\_Employment\_Status_{g,i} + \sum_h \theta_h D\_Marital\_Status_{h,i} + \alpha_7 LowMeanRegionalRelationship_i + \alpha_8 MeanRegionalTrust_i + u_i \quad (1)$$

where our dependent variable is the discrete measure of financial crisis exposure (based on 2010 data) that, according to the two different specifications, relates to financial difficulties of the organization where the respondent works or, alternatively, the fall in income of the respondent household (see Section 3). Our main regressor of interest is the average resilience in 2006 of the region where the respondent lives. Control variables include dummies for ISCED education levels, a gender (male) dummy, an immigrant dummy,

Table 1
Variable legend.

Variable	Definition	Source
Resilience (source European Social Survey)	When things go wrong in my life it takes a long time to get back to normal (strongly agree = 1, agree = 2, neither agree nor disagree = 3, disagree = 4, strongly disagree = 5)	European Social Survey
Sharp resilience	When things go wrong in my life it takes a long time to get back to normal (strongly agree = 1, agree = 1, disagree = 0, strongly disagree 0)	European Social Survey
Household financial difficulties	To what extent had to manage on lower household income last 3 years? (Not at all = 0, …, A great deal = 6).	European Social Survey
Organization financial difficulties	Financial difficulty in the organization for which you work in the last 3 years (A great deal of financial difficulty = 4, Some financial difficulty = 3, Not much financial difficulty = 2 No financial difficulty = 1)	European Social Survey
ISCED education dummies	ES-ISCED I, less than lower secondary, ES-ISCED II, lower secondary, ES-ISCED IIIb, lower tier upper secondary, ES-ISCED IIIa, upper tier upper secondary; ES-ISCED IV, advanced vocational, ES-ISCED V1, lower tertiary education, ES-ISCED V2, higher tertiary education.	European Social Survey
Male	(0/1) dummy taking value one if the respondent is male.	European Social Survey
Immigrant	Not born in country	European Social Survey
Age	Respondent age	European Social Survey
Income class	Placement of respondent household total net income in country income deciles (1 = lowest, 10 = highest)	European Social Survey
Marital status dummies	(0/1) dummies picking up the following marital status conditions: married/civil union, separated/ divorced, widowed, never married	European Social Survey
Employment status dummies	(0/1) dummies picking up the following employment status conditions: unemployed, paid worker, retired.	European Social Survey
Low Relationship	Regional share of respondent meeting friends less than once a week	European Social Survey
Trust	Average level share of individuals response to the following question Most people can be trusted or you can't be too careful (1 = you can't be too careful, …, 10 = most people can be trusted)	European Social Survey
Medium-high corporate financial difficulties	Average share of organizations with a great deal or some financial difficulties at regional level	European Social Survey
High household financial difficulties	Average share of households declaring severity of income fall above 3	European Social Survey
Regional GDP per capita	Regional GDP per current at constant level (2010) (Nuts2)	Eurostat

age and age squared, dummies for income deciles, employment and marital status and the regional per capita GDP.

Two final variables added in the fully augmented estimate are a dummy for low average regional relational frequency and regional average interpersonal trust. The rationale used in the selection of our set of regressors is that of including standard socio-demographic controls (gender, age, education, marital and work status), together with some relevant controls at regional level. Regional controls are important to avoid that our main variable also measured at regional level captures some spurious regional level effects. When adding in the estimate regional variables such as regional GDP, average level of interpersonal trust, regional average relational frequency we choose specifically variables measuring the strength of economic and relational factors. This is because the resilience literature acknowledges that resilience is a process resulting from the interplay of personal character traits, relational ties and material factors (Gartland et al., 2019) our set of controls is also built to disentangle the contributions of the three effects and, more specifically, by evaluating the effect of the first factor (personal resilience) net of the other two (relational ties and material factors)The model is estimated with standard errors clustered at NUTS level.

Empirical findings do not reject our first research hypothesis showing that average regional resilience in the sample is negatively and significantly correlated with the exposure to income falls for households and financial difficulties for organizations (Table 4, columns 1–6). In terms of economic significance the marginal effects of the results obtained in column 3 and 6 of Table 4 reveal that a unit change (fall) from the average regional resilience value is associated with an increase of 25 percent in the probability of declaring the highest level of exposure to income falls for households and an increase of 36 percent in the probability of declaring the highest level of exposure to financial difficulties for organizations where the respondent works. Consider that the average and maximum of regional resilience in the sample are respectively 3.13 and 3.80. This implies that the jump from the average to the maximum regional resilience is slightly more than one-half of a unit change, corresponding to a 14 percent higher probability of declaring exposure to income falls for households and a 20 percent higher probability of declaring financial difficulties for organizations.

Findings related to our controls show that age has an inverse U-shaped correlation to financial crisis and that respondents in higher income deciles are as expected less exposed to it since they have better financial resources to react to the shock. Our results also show that individuals with relational failures (separated, divorced) are more likely to be exposed to household financial difficulties. The likely interpretation is that they have lost a household risk diversification mechanism that acts as a sort of insurance against financial shocks. Among other controls, immigrants are more exposed to household than organization financial difficulties, consistent with the fact that they are less likely to be part of economic organizations being exposed to financial crises (and are employed in less procyclical economic activities).

Higher education works exactly in the opposite way. Higher educated individuals are likely to earn higher income (and have similar and healthier partners and background) and, therefore, be part of the household less exposed to financial difficulties. On the contrary,

Table 2
Descriptive statistics.

Variable	Obs	Mean	St. dev.	Min	p25	p50	p75	Max
Household financial difficulties	46,466	2.711	2.218	0	0	3	5	6
Organization financial difficulties	20,986	2.271	1.033	1	1	2	3	4
Average regional resilience	84,429	3.261	0.223	2.597	3.164	3.321	3.471	3.612
Average regional sharp resilience	84,429	0.649	0.120	0.314	0.601	0.671	0.747	0.889
Age	139,783	48.125	18.670	14	33	48	63	103
Male	140,401	0.461	0.498	0	0	0	1	1
Immigrant	140,237	0.0977	0.288	0	0	0	0	1
Income class 1	104,649	0.090	0.297	0	0	0	0	1
Income class 2	104,649	0.096	0.294	0	0	0	0	1
Income class 3	104,649	0.100	0.300	0	0	0	0	1
Income class 4	104,649	0.116	0.320	0	0	0	0	1
Income class 5	104,649	0.113	0.317	0	0	0	0	1
Income class 6	104,649	0.107	0.309	0	0	0	0	1
Income class 7	104,649	0.101	0.301	0	0	0	0	1
Income class 8	104,649	0.093	0.291	0	0	0	0	1
Income class 9	104,649	0.100	0.300	0	0	0	0	1
Income class 10	104,649	0.085	0.279	0	0	0	0	1
Married/civil partner	137,017	0.517	0.412	0	0	0	0	1
Separated/divorced	137,017	0.096	0.295	0	0	0	0	1
Widowed	137,017	0.097	0.296	0	0	0	0	1
Never married	137,017	0.287	0.452	0	0	0	1	1
ES-ISCED I, less than lower secondary	124,581	0.116	0.320	0	0	0	0	1
ES-ISCED II, lower secondary	124,581	0.187	0.390	0	0	0	0	1
ES-ISCED IIIb, lower tier upper secondary	124,581	0.176	0.381	0	0	0	0	1
ES-ISCED IIIa, upper tier upper secondary	124,581	0.217	0.412	0	0	0	0	1
ES-ISCED IV, advanced vocational	124,581	0.106	0.308	0	0	0	0	1
ES-ISCED V1, lower tertiary education	124,581	0.097	0.296	0	0	0	0	1
ES-ISCED V2, higher tertiary education	124,581	0.101	0.302	0	0	0	0	1
Paid work	139,444	0.485	0.500	0	0	0	1	1
Unemployed	139,444	0.064	0.244	0	0	0	0	1
Retired	139,444	0.244	0.429	0	0	0	0	1
Regional GDP per capita	88,930	23,222.81	12,469.9	0	16744	21831	32274	145,118.6
Low Relationships	84,429	0.177	0.105	0	0.0874	0.153	0.212	0.518
Trust	84,429	5.021	0.948	3.026	4.280	4.994	5.723	7.020

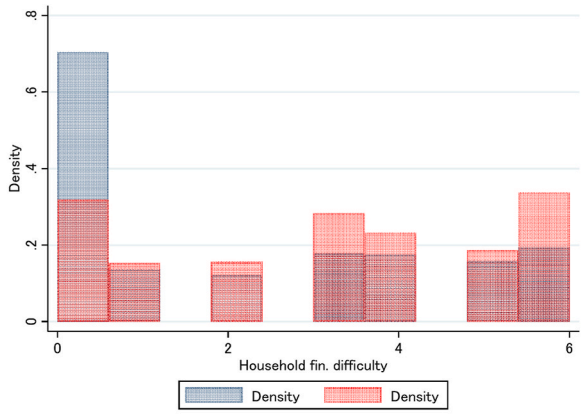
Table 3
Pairwise Pearson correlations matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Household financial difficulties	1.000						
(2) Organization financial difficulties	0.184*	1.000					
(3) Average regional resilience	−0.213*	−0.093*	1.000				
(4) Individual Income	−0.313*	−0.056*	0.298*	1.000			
(5) Regional GDP per capita	−0.108*	−0.012	0.338*	0.064*	1.000		
(6) Low regional relationships	0.159*	0.067*	−0.480*	−0.240*	−0.159*	1.000	
(7) Regional trust	−0.189*	0.027*	0.798*	0.298*	0.403*	−0.533*	1.000

Level of significance: *p < 0.01.

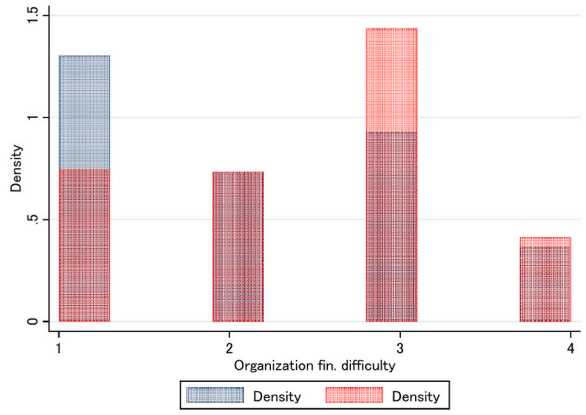
they are likely to work in more sophisticated organizations being exposed to the business cycle and therefore more vulnerable to the global financial crisis shock. As expected, a lower regional frequency of relational life proxies poor relational networks and increases exposure to household income falls. We estimate in a second step our model by using the sharp resilience measures described above (i.e. the variable takes values one for those disagreeing or strongly disagreeing that they are not resilient, zero for those agreeing and strongly agreeing, and excludes from the sample those who declare they neither agree nor disagree). Sign and significance of our findings are unchanged (Table 5). In terms of magnitude the interpretation now relates to a unit change in the share of resilient from sample average. Given that sample average is 0.65 and the maximum regional sample resilience is 0.89, the jump from average to maximum is one-fifth of what estimated in our margin (hence around 10 percent for household effect and around 15 percent for organization effect). We finally calculate the average Variance Inflation Factor of our estimates which is made slightly higher by the contemporary use of levels and squared age to capture its nonlinear effects on resilience (the VIF of the resilience variable is however lower). The average VIF is lower when we use age-class dummies without relevant changes in our main findings. Results are omitted for reasons of space and available upon request.

Our preliminary findings are not sufficient to infer causal relations as they may be stained by reverse causality and endogeneity issues. Indeed, one can be concerned, and we also argue, that financial exposure might determine the self-perception of individual resilience capacity. To control for endogeneity and test for causality of our main findings with an instrumental variable approach we



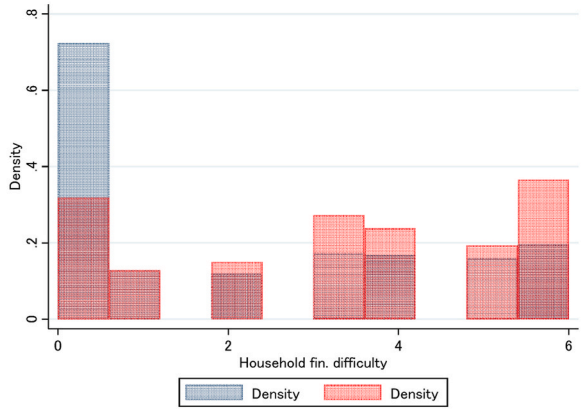
Panel 3.1. Household income falls and resilience

Red area: low resilience regions only, green area: high resilience regions only, brown area: portion of distribution common to high/low resilience regions
Epps-Singleton test (equality of distributions) 1916.295 (0.00)



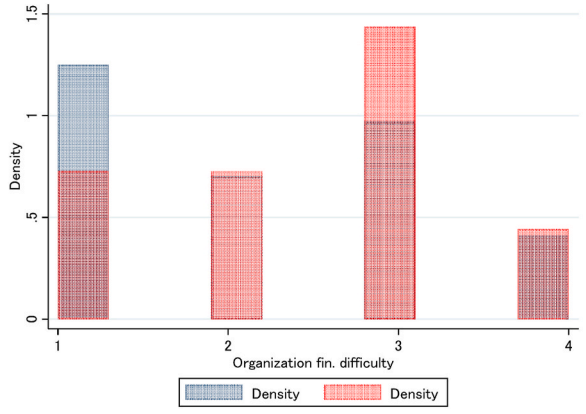
Panel 3.2. Organization financial difficulties and resilience

Red area: low resilience regions only, green area: high resilience regions only, brown area: portion of distribution common to high/low resilience regions
Epps-Singleton test (equality of distributions) 483.333 (0.00)



Panel 3.3. Household income falls and sharp resilience

Red area: low sharp resilience regions only, green area: high sharp resilience regions only, brown area: portion of distribution common to high/low sharp resilience regions
Epps-Singleton test (equality of distributions) 1671.344 (0.00)



Panel 3.4. Organization financial difficulties and sharp resilience

Red area: low sharp resilience regions only, green area: high sharp resilience regions only, brown area: portion of distribution common to high/low sharp resilience regions
Epps-Singleton test (equality of distributions) 322.479 (0.00)

Fig. 4. Household income falls and organization financial difficulties in high/low resilience regions.

employ the Shift-Share (SS) instrument in the same fashion as adopted by Ferri (2022). The core concept of the Shift-Share approach involves breaking down the endogenous explanatory variable into various components within an accounting framework. It aims to retain the elements that are largely driven by external factors while minimizing the influence of those elements driven by internal factors.

The SS instrument requires at least three dimensions: i) a time dimension, *t;* ii) a cross-sectional unit, *z (*i.e. the regions in our case*);* and iii) a categorical dimension over which the endogenous variable can be decomposed (e.g. the type of father occupation at age 14 in our case). The crucial assumption at the base of the SS construction is that the shares defined by the categorical dimension should be less sensitive to endogeneity than the endogenous variable itself. The categorical variable in our instrument is the fathers' occupation at age 14. The shares therefore, represent the fraction of individuals whose fathers had the same occupation when they were 14. For example, in a given region, 40% of respondents had self-employed fathers at age 14, 40% had employed fathers and 20% were unemployed. Our rationale is that although resilience is a partially inherited trait affected by household experiences that contribute to the

Table 4
The impact of average regional resilience on household and organization financial difficulties.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Average regional resilience	−1.126***	−1.256***	−1.255***	−0.397**	−0.449***	−1.858***
	(0.131)	(0.071)	(0.182)	(0.161)	(0.173)	(0.207)
Age	0.034***	0.034***	0.034***	0.038***	0.032***	0.036***
	(0.003)	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)
Age squared	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Male	−0.071***	−0.087***	−0.086***	−0.053**	−0.036	−0.028
	(0.016)	(0.015)	(0.015)	(0.024)	(0.024)	(0.025)
Immigrant	0.161***	0.123***	0.126***	−0.080*	−0.127***	−0.131***
	(0.042)	(0.032)	(0.031)	(0.046)	(0.045)	(0.043)
Income class 2	−0.189***	−0.231***	−0.237***	−0.095	−0.049	−0.039
	(0.039)	(0.038)	(0.038)	(0.064)	(0.081)	(0.081)
Income class 3	−0.387***	−0.410***	−0.415***	−0.101	−0.032	−0.052
	(0.038)	(0.035)	(0.036)	(0.065)	(0.075)	(0.076)
Income class 4	−0.529***	−0.562***	−0.567***	−0.188***	−0.122	−0.115
	(0.044)	(0.042)	(0.043)	(0.069)	(0.078)	(0.077)
Income class 5	−0.624***	−0.628***	−0.636***	−0.236***	−0.162**	−0.171**
	(0.048)	(0.052)	(0.053)	(0.074)	(0.077)	(0.076)
Income class 6	−0.737***	−0.736***	−0.743***	−0.295***	−0.219***	−0.248***
	(0.048)	(0.051)	(0.051)	(0.076)	(0.079)	(0.075)
Income class 7	−0.851***	−0.835***	−0.837***	−0.295***	−0.200***	−0.210***
	(0.050)	(0.054)	(0.055)	(0.077)	(0.076)	(0.075)
Income class 8	−0.953***	−0.934***	−0.935***	−0.317***	−0.234***	−0.241***
	(0.056)	(0.058)	(0.059)	(0.076)	(0.076)	(0.073)
Income class 9	−1.101***	−1.059***	−1.062***	−0.273***	−0.194**	−0.231***
	(0.056)	(0.054)	(0.054)	(0.083)	(0.084)	(0.081)
Income class 10	−1.278***	−1.205***	−1.212***	−0.307***	−0.213**	−0.272***
	(0.069)	(0.059)	(0.058)	(0.093)	(0.086)	(0.077)
Separated/divorced	0.124***	0.163***	0.161***	0.048	0.067*	0.057
	(0.037)	(0.032)	(0.032)	(0.037)	(0.036)	(0.036)
Widowed	0.118***	0.120***	0.118***	0.061	0.105	0.069
	(0.034)	(0.038)	(0.038)	(0.062)	(0.067)	(0.065)
Never married	−0.098**	−0.053*	−0.051*	0.008	0.003	−0.014
	(0.040)	(0.030)	(0.029)	(0.033)	(0.037)	(0.033)
ES-ISCED I, less than lower secondary	0.076*	0.114**	0.118***	−0.203***	−0.204**	−0.142
	(0.042)	(0.045)	(0.045)	(0.074)	(0.086)	(0.093)
ES-ISCED II, lower secondary	0.058	0.113***	0.108***	−0.173***	−0.169***	−0.192***
	(0.046)	(0.041)	(0.042)	(0.048)	(0.050)	(0.050)
ES-ISCED IIIb, lower tier upper secondary	0.040	0.094***	0.088**	−0.225***	−0.205***	−0.186***
	(0.044)	(0.036)	(0.037)	(0.049)	(0.045)	(0.045)
ES-ISCED IIIa, upper tier upper secondary	0.070**	0.079**	0.071**	−0.128***	−0.124***	−0.176***
	(0.032)	(0.031)	(0.031)	(0.040)	(0.043)	(0.041)
ES-ISCED IV, advanced vocational	0.105***	0.102***	0.094***	−0.100**	−0.118***	−0.133***
	(0.031)	(0.032)	(0.032)	(0.040)	(0.041)	(0.038)
ES-ISCED V1, lower tertiary education	0.009	−0.006	−0.013	0.035	0.061	−0.008
	(0.039)	(0.040)	(0.041)	(0.046)	(0.047)	(0.041)
Paid work	−0.111***	−0.065***	−0.069***	1.010	0.989	1.008*
	(0.029)	(0.024)	(0.024)	(0.674)	(0.665)	(0.568)
Unemployed	0.417***	0.502***	0.503***			
	(0.052)	(0.044)	(0.045)			
Retired	−0.074**	−0.023	−0.033			
	(0.037)	(0.035)	(0.035)			
Regional GDP per capita		−0.000	−0.000		0.000*	−0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Low regional relationships			0.479*			1.286***
			(0.255)			(0.326)
Trust			0.037			0.488***
			(0.045)			(0.062)
/cut1	−4.439***	−4.744***	−4.482***	−0.264	−0.421	−2.403***
	(0.392)	(0.266)	(0.434)	(0.828)	(0.844)	(0.697)
/cut2	−4.171***	−4.480***	−4.218***	0.272	0.115	−1.853***
	(0.388)	(0.267)	(0.430)	(0.829)	(0.845)	(0.698)
/cut3	−3.927***	−4.251***	−3.989***	1.327	1.176	−0.763
	(0.391)	(0.268)	(0.427)	(0.828)	(0.842)	(0.696)
/cut4	−3.542***	−3.892***	−3.629***			
	(0.397)	(0.266)	(0.423)			
/cut5	−3.168***	−3.521***	−3.258***			
	(0.399)	(0.264)	(0.421)			

(*continued on next page*)

Table 4 (*continued*)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
/cut6	−2.755***	−3.110***	−2.847***			
	(0.397)	(0.261)	(0.423)			
Pseudo R^2	0.065	0.069	0.070	0.009	0.009	0.025
Chi^2	0.000	0.000	0.000	0.000	0.000	0.000
Mean VIF	5.27	5.19	5.18	6.47	6.52	6.40
Observations	27,469	23,947	23,947	13,607	12,156	12,156

Results of ordered probit regressions specified as in equation (1), in section 4. Dependent variables: columns 1–3 household income falls. Answer to the question - *to what extent had to manage on lower household income last 3 years? (Not at all=0, …, A great deal=6)*, columns 4–6 financial difficulties of respondent organization. Answer to the question *Financial difficulty in the organization for which you work in the last 3 years (A great deal of financial difficulty=4, Some financial difficulty=3, Not much financial difficulty=2, No financial difficulty=1)*. Main variable of interest: Average regional resilience: regional average of the question *When things go wrong in my life it takes a long time to get back to normal (strongly agree=1, agree=2, neither agree nor disagree=3, disagree=4, strongly disagree=5*). Omitted benchmark: female (male included), born in country (immigrant included), higher tertiary education, income class one, married/civil partner, self-employed, high regional relationship (low regional relationship included). The VIF of the average regional resilience in the main specifications (column (3) and column (6)) are, respectively, 4.32 and 4.15. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

development of the capacity to react to shocks, the shares we define are less endogenous than the resilience itself. The shares correspond to the fraction of individuals in each fathers' occupation category at a given time and region $\left(N_{o,t,z}\right)$, over the total number of occupied fathers $\left(N_{t,z}\right)$.

Therefore, we can decompose regional resilience as follows:

$$Average\ regional\ resilience(ARR)_{t,z} = \sum_o ARR_{o,t,z} * \frac{N_{o,t,z}}{N_{t,z}} \tag{2}$$

where $ARR_{o,t,z}$ is the average regional resilience of individuals who shared the same father's occupation at age 14 and corresponds to the Shift part of our instrument.

To obtain the Shift-Share instrument, we manipulate the decomposition preserving the most exogenous part (the Shares), and removing the part most sensitive to endogeneity (the Shif). To construct our IV, therefore: i) we replace the Shift part with a *delocalized* average, $ARR_{o,t}$ the average resilience by fathers' occupation at country level, and, ii) we replace the Share part with a *lagged* share, $\frac{N_{o,t-1,z}}{N_{t-1,z}}$, where $t-1$ is the first wave of observation.

The Shift *delocalization* is the most relevant aspect of the SS in response to endogeneity issues. As discussed above, fathers' occupation categories are distributed in a way such that the shares they define are less affected by endogeneity issues than regional average resilience. The replacement we operate tackles the first source of endogeneity because country level averages $ARR_{o,t}$ cannot depend on single shocks at regional level.

The rationale behind the use of *lagged* shares is like that of using a *delocalized* Shifts. The *lag* corresponds to delocalization over time rather than over the cross-sectional dimension. The use of lagged values, therefore, should further reduce endogeneity concerns of the part most sensitive to endogeneity. However, it is a weaker kind of manipulation as regional resilience tends to remain stable over time, while the Shares defined by fathers' occupation would probably be less endogenous, even in period *t*.

The SS IV we adopt in our strategy is therefore defined as follows:

$$\widehat{ARR}_{t,z} = \sum_o ARR_{o,t} * \frac{N_{o,t-1,z}}{N_{t-1,z}} \tag{3}$$

Results of the IV estimates performed using the Shift-Share approach are presented in Tables 6a and 6b and confirm previous findings with resilience coefficient magnitudes close (within a 20–30% change) to those of the non-IV estimates for the overall sample.

5. Robustness checks

In a first robustness check we limit the IV estimate to the subsample of respondents older than 49 that are more distant in time from the time when the father's occupation has affected their education (full second stage estimate findings are in t able A2) and find similar results to those of the full sample.

In another robustness check we consider that in our sample we have 19 countries and 64 regions. Our main variable of interest, resilience, is calculated as regional sample average and we may wonder whether our findings are sensitive to single outlier areas. To this purpose we control that our results are robust to country outliers by eliminating one country at a time from the estimates. The resilience coefficient remains significant and with the same sign in all trials (Ta ble A1 in Appendix).

We further check in this direction whether our findings are robust when we collapse our sample at regional level. We present descriptive statistics of the collapsed sample in Table 7 and distributions of our main variables of interest in Fig. 5. Average regional sharp resilience is at 65 percent in 2006 and goes slightly up to 67 percent in 2010. The average share of organization financial difficulty at regional level is between *not much* and *some* declared financial difficulty. The average share at regional level of respondents

Table 5
The impact of average regional "sharp" resilience on household and organization financial difficulties.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Average regional sharp resilience	−1.960***	−2.521***	−2.631***	−0.816***	−0.957***	−4.002***
	(0.411)	(0.139)	(0.357)	(0.266)	(0.315)	(0.410)
Age	0.034***	0.034***	0.034***	0.037***	0.032***	0.035***
	(0.003)	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)
Age squared	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Male	−0.071***	−0.086***	−0.085***	−0.053**	−0.035	−0.026
	(0.016)	(0.015)	(0.015)	(0.023)	(0.024)	(0.025)
Immigrant	0.166***	0.121***	0.122***	−0.074	−0.125***	−0.132***
	(0.043)	(0.032)	(0.031)	(0.049)	(0.044)	(0.042)
Income class 2	−0.195***	−0.229***	−0.233***	−0.095	−0.046	−0.032
	(0.040)	(0.038)	(0.037)	(0.065)	(0.081)	(0.082)
Income class 3	−0.391***	−0.407***	−0.411***	−0.098	−0.028	−0.042
	(0.037)	(0.035)	(0.036)	(0.066)	(0.075)	(0.076)
Income class 4	−0.531***	−0.557***	−0.560***	−0.182***	−0.116	−0.100
	(0.042)	(0.041)	(0.042)	(0.069)	(0.078)	(0.077)
Income class 5	−0.625***	−0.623***	−0.629***	−0.230***	−0.157**	−0.157**
	(0.049)	(0.052)	(0.053)	(0.075)	(0.078)	(0.077)
Income class 6	−0.739***	−0.732***	−0.739***	−0.290***	−0.214***	−0.239***
	(0.048)	(0.050)	(0.051)	(0.076)	(0.080)	(0.075)
Income class 7	−0.855***	−0.828***	−0.830***	−0.290***	−0.194**	−0.193***
	(0.050)	(0.053)	(0.054)	(0.077)	(0.077)	(0.075)
Income class 8	−0.956***	−0.927***	−0.929***	−0.313***	−0.229***	−0.227***
	(0.057)	(0.057)	(0.058)	(0.077)	(0.076)	(0.073)
Income class 9	−1.104***	−1.052***	−1.054***	−0.269***	−0.187**	−0.213***
	(0.057)	(0.053)	(0.053)	(0.083)	(0.084)	(0.081)
Income class 10	−1.286***	−1.199***	−1.206***	−0.303***	−0.207**	−0.258***
	(0.072)	(0.058)	(0.057)	(0.093)	(0.086)	(0.077)
Separated/divorced	0.113***	0.160***	0.158***	0.046	0.067*	0.053
	(0.039)	(0.032)	(0.031)	(0.037)	(0.036)	(0.037)
Widowed	0.122***	0.119***	0.117***	0.056	0.102	0.063
	(0.033)	(0.037)	(0.038)	(0.062)	(0.066)	(0.066)
Never married	−0.111**	−0.056*	−0.056**	0.005	0.003	−0.020
	(0.043)	(0.029)	(0.028)	(0.032)	(0.036)	(0.033)
ES-ISCED I, less than lower secondary	0.070	0.119***	0.125***	−0.203***	−0.203**	−0.138
	(0.044)	(0.046)	(0.045)	(0.074)	(0.086)	(0.094)
ES-ISCED II, lower secondary	0.057	0.118***	0.114***	−0.173***	−0.166***	−0.185***
	(0.047)	(0.041)	(0.041)	(0.047)	(0.050)	(0.049)
ES-ISCED IIIb, lower tier upper secondary	0.025	0.088**	0.085**	−0.226***	−0.205***	−0.189***
	(0.045)	(0.036)	(0.037)	(0.050)	(0.046)	(0.045)
ES-ISCED IIIa, upper tier upper secondary	0.081**	0.080***	0.072**	−0.130***	−0.128***	−0.181***
	(0.034)	(0.031)	(0.031)	(0.039)	(0.042)	(0.041)
ES-ISCED IV, advanced vocational	0.095***	0.100***	0.094***	−0.099**	−0.117***	−0.134***
	(0.033)	(0.031)	(0.031)	(0.040)	(0.041)	(0.038)
ES-ISCED V1, lower tertiary education	0.011	−0.006	−0.014	0.040	0.062	−0.009
	(0.038)	(0.039)	(0.040)	(0.045)	(0.047)	(0.039)
Paid work	−0.115***	−0.070***	−0.073***	1.019	0.993	0.994*
	(0.028)	(0.024)	(0.024)	(0.669)	(0.658)	(0.548)
Unemployed	0.416***	0.498***	0.498***			
	(0.052)	(0.045)	(0.045)			
Retired	−0.078**	−0.036	−0.044			
	(0.033)	(0.034)	(0.035)			
Regional GDP per capita		0.000	−0.000		0.000**	−0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Low regional relationships			0.409*			1.151***
			(0.238)			(0.304)
Trust			0.048			0.513***
			(0.045)			(0.059)
/cut1	−2.062***	−2.252***	−2.021***	0.496	0.441	1.183**
	(0.218)	(0.137)	(0.168)	(0.681)	(0.677)	(0.564)
/cut2	−1.794***	−1.987***	−1.755***	1.032	0.977	1.734***
	(0.213)	(0.139)	(0.166)	(0.683)	(0.678)	(0.567)
/cut3	−1.551***	−1.757***	−1.526***	2.088***	2.039***	2.828***
	(0.215)	(0.140)	(0.167)	(0.685)	(0.680)	(0.572)
/cut4	−1.168***	−1.398***	−1.166***			
	(0.220)	(0.139)	(0.166)			
/cut5	−0.794***	−1.027***	−0.795***			
	(0.222)	(0.138)	(0.165)			

(*continued on next page*)

Table 5 (*continued*)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
/cut6	−0.382*	−0.616***	−0.383**			
	(0.220)	(0.136)	(0.166)			
Pseudo R^2	0.064	0.070	0.070	0.010	0.010	0.027
Chi^2	0.000	0.000	0.000	0.000	0.000	0.000
Mean VIF	5.28	5.19	5.19	6.47	6.52	6.41
Observations	27,469	23,947	23,947	13,607	12,156	12,156

Results of ordered probit regressions specified as in equation (1), in section 4. Dependent variables: columns 1–3 household income falls. Answer to the question - *to what extent had to manage on lower household income last 3 years? (Not at all=0, A great deal=6)*, columns 4–6 financial difficulties of respondent organization. Answer to the question *Financial difficulty in the organization for which you work in the last 3 years (A great deal of financial difficulty=4, Some financial difficulty=3, Not much financial difficulty=2, No financial difficulty=1). Sharp resilience variable: regional average of the question When things go wrong in my life it takes a long time to get back to normal* (strongly agree=1, agree=1, disagree=0, strongly disagree 0). Main variable of interest: average regional sharp resilience: regional share of respondents who selected 4 or 5 (disagree or strongly disagree) to the question *When things go wrong in my life it takes a long time to get back to normal,* and excluding observations who selected the third category (neither agree nor disagree). Omitted benchmark: female (male included), born in country (immigrant included), higher tertiary education, income class one, married/civil partner, self-employed. The VIF of the average regional resilience in the main specifications (column (3) and column (6)) are, respectively, 4.66 and 4.49. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

Table 6a
Instrumental variable estimates – Shift-Share approach.

VARIABLES	(1)	(2)	(3)	(4)
	Second stage	First stage	Second stage	First stage
	Dep var. Household financial difficulties	Dep var. regional sharp resilience	Dep var. organization financial difficulties	Dep var. regional sharp resilience
Resilience	−2.951***		−4.298***	
	(0.135)		(0.204)	
Shift-Share IV		0.538***		0.538***
		(0.001)		(0.001)
Socio-dem controls	YES	YES	YES	YES
Log-likelihood	8007		8907	
Chi^2	4812		733.8	
p-value	0.000		0.000	
Mean VIF	5.30		6.47	
Observations	19,478	19,478	9876	9876

Results of ordered probit regressions specified as in equation (1), in section 4 with instruments build as explained in equations (2) and (3), section 4. Column (1) second stage ordered probit regressions results corresponding to the non-IV estimate in Table 4, column 3, Column (3) second stage ordered probit regressions results corresponding to the non-IV estimate in Table 4, column 6 Column (2) and (4) first stage results. Dependent variable: average regional sharp resilience, regional share of respondents who selected 4 or 5 (disagree or strongly disagree) to the question *When things go wrong in my life it takes a long time to get back to normal,* and excluding observations who selected the third category (neither agree nor disagree). Omitted benchmark: female (male included), born in country (immigrant included), higher tertiary education, income class one, married/civil partner, self-employed. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

declaring *a great deal of* financial difficulties in their organization is 13 percent, the share of those declaring *at least some* financial difficulty in their organization is 48 percent. In terms of household financial difficulties, the average share of respondents declaring *a high level* of income falls (higher than 3 on the scale) is 41 percent. Average level of regional education in the sample is between the lower tier and upper tier of upper secondary education. Around 76 percent of regional respondents voted in the last national elections. The average share of interpersonal trust at regional level is around 5, while the share of respondents with low relational life (meeting friends less than once a week) is around 18 percent.

We test our first research hypothesis on the collapsed sample by estimating the following specification:

$$FinCrisisExposure_i = \alpha_0 + \alpha_1 Reg\_Resilience + \alpha_2 Education + \alpha_3 Age_i + \alpha_4 Reg\_GDP\_Per\_Capita_i + \alpha_5 LowMeanRegionalRelationship_i + \alpha_6 MeanRegionalTrust_i + u_i \quad (4)$$

where the dependent variable is in turn the average regional value of the indicator on household income falls or financial difficulties of the organization where the respondent works and our main variable of interest is average regional resilience. Controls are average regional values for highest education degree, age, relational frequency and trust.

Table 6b
Instrumental variable estimates – Shift-Share approach (subsample of respondents older than 49).

VARIABLES	(1)	(2)	(3)	(4)
	Second stage	First stage	Second stage	First stage
	Dep var. Household financial difficulties	Dep var. regional sharp resilience	Dep var. organization financial difficulties	Dep var. regional sharp resilience
Resilience	−3.125***		−3.954***	
	(0.191)		(0.354)	
Shift-Share IV		0.536***		0.539***
		(0.001)		(0.002)
Socio-dem controls	YES	YES	YES	YES
Log-likelihood	5027		3201	
Chi^2	2915		243.6	
p-value	0.000		0.000	
Mean VIF	14.46		20.73	
Observations	9810	9810	3188	3188

Results of ordered probit regressions specified as in equation (1), in section 4 with instruments build as explained in equations (2) and (3), section 4. Column (1) second stage ordered probit regressions results corresponding to the non-IV estimate in Table 4, column 3, Column (3) second stage ordered probit regressions results corresponding to the non-IV estimate in Table 4, column 6. Regressions run on the sample of individuals aged 49 or above. Column (2) and (4) first stage results. Dependent variable: average regional sharp resilience, regional share of respondents who selected 4 or 5 (disagree or strongly disagree) to the question *When things go wrong in my life it takes a long time to get back to normal,* and excluding observations who selected the third category (neither agree nor disagree). Omitted benchmark: female (male included), born in country (immigrant included), higher tertiary education, income class one, married/civil partner, self-employed. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

Table 7
Descriptive statistics of the collapsed sample (average NUTS12 data).

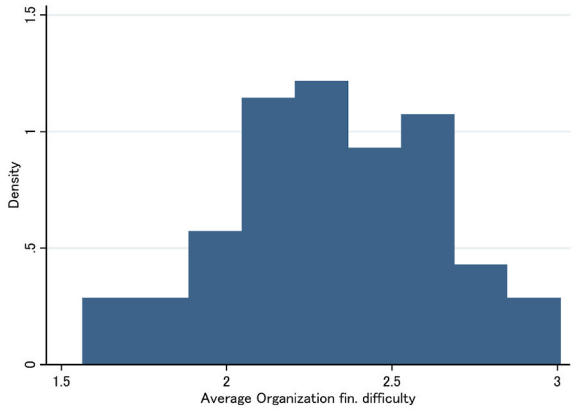
Variable	Obs	Mean	Std. dev.	Min	p25	p50	p75	Max
Corporate financial difficulties	87	2.326	0.322	1.564	2.133	2.326	2.562	3.010
Household financial difficulties	84	2.773	0.617	1.416	2.488	2.719	3.164	4.800
Education level	85	3.578	0.467	2.322	3.279	3.620	3.874	4.460
Share of voters	85	0.759	0.088	0.560	0.698	0.753	0.829	0.939
Age	85	48.351	3.811	29.500	46.25	48.36	50.95	55.387
Regional GDP per capita	98	24,050.010	11,243.210	10,043.020	17,858	22,125	30,361	70,118.550
Resilience (2006)	78	3.263	0.186	2.597	3.161	3.270	3.359	3.612
Change in average resilience	70	0.072	0.166	−0.457	−0.0266	0.107	0.176	0.457
Change in sharp average resilience	70	0.016	0.094	−0.277	−0.0161	0.0398	0.0727	0.202
Resilience (2010)	85	3.337	0.191	2.798	3.230	3.324	3.451	3.801
Sharp resilience (2006)	78	0.654	0.104	0.314	0.588	0.666	0.712	0.889
Sharp resilience (2010)	85	0.670	0.091	0.394	0.619	0.667	0.722	0.877
Low Relationship (2006)	78	0.180	0.115	0.000	0.102	0.135	0.221	0.518
Trust (2006)	78	4.983	0.806	3.026	4.293	5.055	5.437	7.020
Medium-high corporate financial difficulties	87	0.485	0.143	0.144	0.401	0.489	0.593	0.809
High household financial difficulties	84	0.415	0.107	0.192	0.368	0.413	0.480	0.800

Medium-high corporate financial difficulties: share of organizations with a great deal or some financial difficulties; High household financial difficulties: share of households declaring severity of income fall above 3.

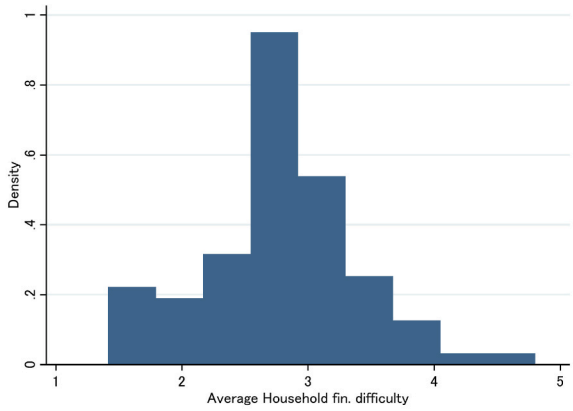
Our main finding is confirmed since regional resilience is negatively and significantly correlated with average regional organization financial difficulties (Table 8, columns 1–2) and household income falls (Table 8, columns 3–4). Sign and significance are confirmed when we use the sharp resilience variable in our estimate (Table 9).

In terms of economic significance results in the fully augmented estimate for organization financial difficulties (Table 8, column 2) imply that a unit change in resilience from its sample mean (corresponding to a move from the neither agree nor disagree region to the region where individuals agree that they are resilient) is associated to a 1.2 change in the dependent variable, that is four times its standard deviation corresponding to a move from the area of not much to some financial difficulty to the area of some to a great deal of financial difficulty. The magnitude of the impact in the household sample is such that a unit change in resilience from its sample mean is associated with a 1.6 change in the dependent variable, which is twice its standard deviation.

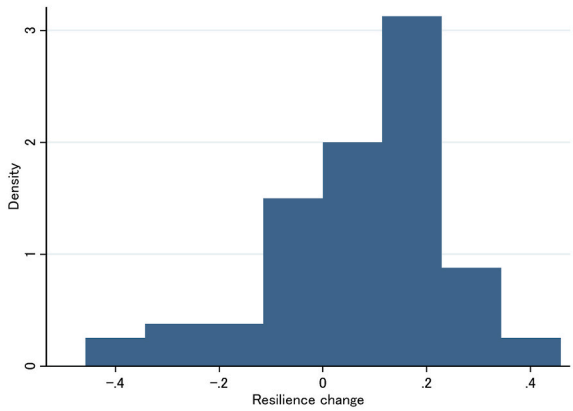
To calculate the magnitude of the effect in the sharp resilience estimates consider that descriptive statistics show that the average share of resilient individuals at regional level is around 65 percent (ie. individuals responding that they disagree or strongly disagree with the question that it takes a lot of time to go back to normal when things go wrong). Given the estimated coefficient one-tenth of a unit change (share of resilient individuals moving from 65 to 75 at regional level) corresponds to a 0.24 change of the dependent variable (two-thirds of its standard deviation) in the organization estimate and to a 0.31 change in the household estimate (one half its



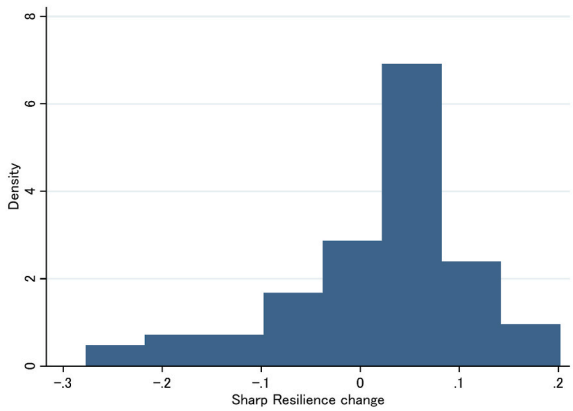
Panel 4.1 Average regional household financial difficulty
To what extent had to manage on lower household income last 3 years? (Not at all=0, …, A great deal=6)



Panel 4.2 Average regional organization financial difficulty
Financial difficulty in the organization for which you work in the last 3 years (A great deal of financial difficulty=4, Some financial difficulty=3, Not much financial difficulty=2, No financial difficulty=1)



Panel 4.3 Average regional change in resilience (2010 – 2006 value)
Resilience: when things go wrong in my life it takes a long time to get back to normal (strongly *agree=1, agree=2, neither agree nor disagree=3, disagree=4, strongly disagree=5*)



Panel 4.4 Average regional change in "sharp" resilience (2010 – 2006 value)
Sharp resilience: when things go wrong in my life it takes a long time to get back to normal (strongly *agree=1, agree=1, disagree=0, strongly disagree 0*)

Fig. 5. Average regional values of main variables of interest in the collapsed sample.

standard deviation).

We repeat the estimate on sharp resilience using as dependent variable the average regional share of respondents declaring their organization had some or a great deal of financial difficulties. The negative and significant sign of the resilience coefficient is confirmed (Table 10, columns 1–2). In terms of magnitude an increase of 10 percent of the resilient respondents in the region is associated with a 10 percent reduction of the organization with at least some financial difficulties (from 48 to 38 percent) corresponding to slightly less than one standard deviation of the variable.

We do the same exercise with the household estimate using as dependent variable the average regional share of respondents declaring their household had severe income fall (above 3 in the respondent scale). The resilience coefficient is negative and significant with a 10 percent change in resilience being associated to a 5 percent reduction of the dependent variable (from 41 to 36 percent) (Table 10, columns 3–4). In our final estimate we wonder whether exposure to financial shocks for households or organizations has weakened their resilience (our second research hypothesis).

To test our second research hypothesis, we finally estimate the following specification:

Table 8
The impact of average regional resilience on household income falls and organization financial difficulties.

VARIABLES	(1)	(2)	(3)	(4)
Resilience (2006)	−0.508***	−1.175***	−1.602***	−1.591***
	(0.181)	(0.217)	(0.417)	(0.530)
Education level	−0.195**	−0.239***	−0.223*	−0.261*
	(0.0885)	(0.0812)	(0.133)	(0.142)
Share of voters	0.262	0.209	−0.121	0.107
	(0.609)	(0.618)	(0.998)	(1.079)
Age	0.00575	0.00379	−0.00273	−0.00126
	(0.00912)	(0.00930)	(0.0178)	(0.0178)
Regionale GDP per capita	8.36e-06***	3.66e-06	−1.50e-07	−3.94e-07
	(2.64e-06)	(2.80e-06)	(5.59e-06)	(6.03e-06)
Low regional relationships		0.234		0.508
		(0.295)		(0.485)
Trust		0.251***		0.0298
		(0.0619)		(0.114)
Constant	3.989***	5.276***	8.884***	8.501***
	(0.707)	(0.659)	(1.349)	(1.482)
R-squared	0.186	0.342	0.332	0.337
Observations	68	68	68	68

Results of OLS regressions specified as in equation (4), in section 5. Dependent variables. *Corporate financial difficulties*: average regional organization exposure to financial crisis (columns 1–2). *Household financial difficulties*: average regional household exposure to financial crisis (columns 3–4). All the covariates are regional averages of the control variables listed in Table 3, column 3. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

Table 9
The impact of average regional "sharp" resilience on household income falls and organization financial difficulties.

VARIABLES	(1)	(2)	(3)	(4)
Sharp resilience (2006)	−0.797**	−2.367***	−2.965***	−3.185***
	(0.372)	(0.535)	(0.858)	(1.159)
	(0.0907)	(0.0820)	(0.135)	(0.141)
Share of voters	0.203	0.266	−0.108	0.181
	(0.627)	(0.591)	(0.973)	(1.047)
Age	0.00450	−0.000523	−0.00803	−0.00702
	(0.00942)	(0.00964)	(0.0178)	(0.0182)
Regional GDP per capita	8.42e-06***	4.43e-06	1.43e-06	6.52e-07
	(2.90e-06)	(2.95e-06)	(5.86e-06)	(6.13e-06)
Low relationships		0.335		0.646
		(0.299)		(0.497)
Trust		0.286***		0.0748
		(0.0701)		(0.131)
Constant	3.005***	3.146***	6.005***	5.610***
	(0.572)	(0.561)	(1.118)	(1.226)
R-squared	0.162	0.328	0.318	0.328
Observations	68	68	68	68

Results of OLS regressions specified as in equation (4), in section 5. Dependent variables. *Corporate financial difficulties*: average regional organization exposure to financial crisis (columns 1–2). *Household financial difficulties*: average regional household exposure to financial crisis (columns 3–4). All the covariates are regional averages of the control variables listed in Table 3, column 3. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

$$DeltaResilience_i = \alpha_0 + \alpha_1 Reg\_Resilience + \alpha_2 Education + \alpha_3 Age_i + \alpha_4 Reg\_GDP\_Per\_Capita_i + \alpha_5 LowMeanRegionalRelationship_i + \alpha_6 MeanRegionalTrust_i + u_i \quad (5)$$

where the dependent variable is the change in average regional resilience between the 2010 and the 2006 value, our main regressors of interest are the average organization and household exposure to financial difficulties at regional level and other controls are defined as in (2).

Our findings show that household exposure is negatively and significantly correlated with changes in resilience, while organization exposure is not significant (Tables 11 and 12). Hence only the first part of our second research hypothesis is supported by empirical evidence. In terms of economic magnitude, the effect of a unit change in the regressor is one-third of the standard deviation of the

Table 10
The impact of sharp resilience on "high" organization and household financial difficulties.

VARIABLES	(1)	(2)	(3)	(4)
Education level	−0.0916**	−0.130***	−0.0469*	−0.0570**
	(0.0424)	(0.0372)	(0.0266)	(0.0277)
Share of voters	0.0371	0.0496	0.0280	0.0598
	(0.285)	(0.267)	(0.170)	(0.186)
Age	0.00174	−0.000724	−0.00230	−0.00246
	(0.00438)	(0.00483)	(0.00333)	(0.00338)
Sharp resilience (2006)	−0.356**	−1.094***	−0.459***	−0.561***
	(0.172)	(0.261)	(0.152)	(0.189)
Regional GDP per capita	3.45e-06***	1.59e-06	−3.69e-08	−3.18e-07
	(1.28e-06)	(1.25e-06)	(9.25e-07)	(9.95e-07)
Low relationships		0.121		0.0812
		(0.144)		(0.0956)
Trust		0.132***		0.0221
		(0.0325)		(0.0217)
Constant	0.852***	0.943***	0.950***	0.918***
	(0.263)	(0.296)	(0.193)	(0.212)
R-squared	0.148	0.318	0.257	0.269
Observations	68	68	68	68

Results of OLS regressions specified as in equation (4), in section 5. Dependent variable. *Medium-high corporate financial difficulties*: share of organizations with a great deal or some financial difficulties in the last three years (columns 1–2), *high household financial difficulties*: share of households with severe income falls (above 3 on the 0–6 question scale). All the covariates are regional averages of the control variables listed in Table 3, column 3. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

Table 11
Effects of experienced household and organization financial difficulties on changes in resilience.

VARIABLES	(1)	(2)	(3)	(4)
Household financial difficulties	−0.0559**		−0.0547**	
	(0.0254)		(0.0259)	
Organization financial difficulties		−0.0432		−0.0481
		(0.0578)		(0.0591)
Education level	0.0999*	0.103**	0.117**	0.119**
	(0.0506)	(0.0504)	(0.0499)	(0.0497)
Share of voters	−0.228	−0.216	−0.244	−0.232
	(0.309)	(0.314)	(0.305)	(0.311)
Age	0.00967	0.00977	0.00803	0.00817
	(0.00612)	(0.00640)	(0.00609)	(0.00641)
Low relationships	0.572***	0.552***	0.531***	0.511***
	(0.159)	(0.160)	(0.159)	(0.159)
Trust	−0.00503	0.0117	−0.00815	0.00717
	(0.0237)	(0.0224)	(0.0246)	(0.0242)
Regional GDP per capita			−4.97e-07	−3.21e-07
			(1.36e-06)	(1.46e-06)
Constant	−0.500	−0.653	−0.433	−0.567
	(0.388)	(0.394)	(0.387)	(0.391)
R-squared	0.325	0.303	0.342	0.322
Observations	69	69	68	68

Results of OLS regressions specified as in equation (4), in section 5. Dependent variable: changes in average regional resilience between 2010 (sixth wave) and 2006 (third wave). All the covariates are regional averages of the control variables listed in Table 3, column 3. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

dependent variable.

6. Conclusions

The accelerated frequency of global shocks has elevated the concept of resilience to the forefront of both scientific and political discourse. Resilience, defined as the ability to effectively absorb and respond to shocks, has emerged as a crucial virtue for individuals, regions, and social and economic systems alike.

Our paper contributes originally to research in this field by using an individual resilience measure aggregated at regional level. Our empirical findings show that ex-ante average regional resilience is negatively and significantly correlated with household income falls

Table 12
Effects of household income falls on changes in "sharp" resilience.

VARIABLES	(1)	(2)	(3)	(4)
Household financial difficulties	−0.0239		−0.0228	
	(0.0155)		(0.0154)	
Organization financial difficulties		−0.00633		−0.0118
		(0.0330)		(0.0331)
Education level	0.0485	0.0524*	0.0647**	0.0673**
	(0.0311)	(0.0306)	(0.0283)	(0.0285)
Share of voters	−0.140	−0.133	−0.152	−0.146
	(0.169)	(0.168)	(0.165)	(0.164)
Age	0.00442	0.00438	0.00294	0.00294
	(0.00404)	(0.00416)	(0.00392)	(0.00408)
Low relationships	0.271**	0.258**	0.230**	0.219**
	(0.104)	(0.103)	(0.0984)	(0.0979)
Trust	−0.0106	−0.00468	−0.0158	−0.00998
	(0.0131)	(0.0130)	(0.0128)	(0.0128)
Regional GDP per capita			−1.93e-07	−1.56e-07
			(7.02e-07)	(7.45e-07)
Constant	−0.190	−0.283	−0.127	−0.202
	(0.245)	(0.250)	(0.238)	(0.240)
R-squared	0.264	0.248	0.307	0.293
Observations	69	69	68	68

R Results of OLS regressions specified as in equation (4), in section 5.esults of OLS regressions. Dependent variable: average regional sharp resilience. All the covariates are regional averages of the control variables listed in Table 3, column 3. Standard errors clustered at NUTS2 level in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

and organization financial difficulties. Instrumental variable estimates do not reject the hypothesis of causality behind this correlation. We also show that household income falls are negatively and significantly correlated with changes in average regional resilience.

The implications of our findings (under the assumption that correlation hides causality) are that policies aimed at increasing resilience can significantly affect financial performance, reducing exposure to financial shocks for households and organizations, preventing vicious circles where shocks increase exposure that in turn weakens resilience and increases vulnerability to future shocks. If we rely on the literature arguing that individual resilience is an inherited character trait there would be no room for policy intervention. However, as most of the resilience literature emphasizes, the learned emotional capacity to react to shocks, the quality of relationships and the strength of institutions play a crucial role in reinforcing individual resilience. As a consequence, policies reinforcing relational ties and institutional support for those in need can greatly contribute to breaking the vicious circle. A main implication of the paper is also that policies addressing the issue of resilience to shocks (an issue of growing importance if we look at the timeline of recent global events) should work to reinforce not only material factors (economic resources, insurance mechanisms) but also relational networks and emotional intelligence intended as the psychological capacity to react to shocks. This logic can be applied to several domains. An example is financial education where the issue is not just providing information about risks and saving opportunities but also strengthening relational ties and addressing the psychological factors behind financial fragility.

A limit embedded in the ESS database (which remains at the moment unique to our knowledge in providing ample information on all our variables of interest) is represented by the absence of repeated data for the same individual. In the presence of repeated information on individual resilience across waves we could explore more in-depth dynamic effects of our main empirical findings. At the same time, more could be done in the future to disentangle with precision the role of emotional and material factors by identifying additional transmission channels, if new databases provide us with more detailed empirical information on individual psychological traits together with that on relational ties and economic resources. A further interesting direction for future research is shedding light on the drivers of the observed heterogeneity of regional resilience observed in our research and being at the roots of the different performances in addressing financial shocks, to understand how much policies, institutions, fundamentals and history matter.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

Appendix

Table A1
Robustness check omitting one country at a time from the sample

	Average regional resilience		Average regional sharp resilience	
	Household	Organizations	Household	Organizations
Belgium	−1.375***	−2.022***	−2.696***	−4.080***
Bulgaria	−1.039***	−1.932***	−2.237***	−4.248***
Switzerland	−1.240***	−1.747***	−2.599***	−3.757***
Cyprus	−1.194***	−1.808***	−2.463***	−3.865***
Germany	−1.221***	−1.806***	−2.567***	−3.926***
Denmark	−1.260***	−1.828***	−2.688***	−3.771***
Estonia	−0.949***	−1.475***	−2.013***	−3.301***
Spain	−1.296***	−1.934***	−2.840***	−4.318***
France	−1.259***	−2.032***	−2.635***	−4.140***
Great Britain	−1.295***	−1.919***	−2.766***	−4.304***
Hungary	−1.237***	−1.802***	−2.607***	−3.922***
Ireland	−1.255***	−1.858***	−2.631***	−4.002***
Israel	−1.255***	−1.858***	−2.631***	−4.002***
Netherlands	−1.453***	−1.865***	−2.882***	−3.985***
Norway	−1.245***	−1.838***	−2.615***	−3.960***
Poland	−1.227***	−1.850***	−2.559***	−3.972***
Sweden	−1.282***	−1.844***	−2.733***	−3.968***
Slovenia	−1.260***	−1.866***	−2.652***	−4.039***
Slovakia	−1.264***	−1.860***	−2.698***	−4.109***

We estimate the fully augmented specification (1) omitting observations from the country in row and report magnitude and significance of the resilience coefficient. Column 1 corresponds to the estimate of Table 3 column 3, column 2 to the estimate of Table 3 column 6, column 3 to the estimate of Table 4 column 3, column 4 to the estimate of Table 4 column 6.

Table A2
Full IV Shift-Share estimate findings

VARIABLES	(1)	(2)	(3)	(4)
Average regional sharp resilience	−4.298***	−3.954***	−2.951***	−3.125***
	(0.204)	(0.354)	(0.135)	(0.191)
Age	0.033***	−0.032	0.030***	−0.048***
	(0.007)	(0.061)	(0.003)	(0.015)
Age squared	−0.000***	0.000	−0.000***	0.000
	(0.000)	(0.001)	(0.000)	(0.000)
Male	−0.013	−0.032	−0.086***	−0.056**
	(0.022)	(0.040)	(0.016)	(0.024)
Immigrant	−0.090**	−0.083	0.087***	0.107**
	(0.039)	(0.073)	(0.028)	(0.043)
Income class 2	−0.063	−0.196	−0.248***	−0.201***
	(0.084)	(0.140)	(0.034)	(0.043)
Income class 3	−0.068	−0.092	−0.414***	−0.371***
	(0.080)	(0.133)	(0.034)	(0.044)
Income class 4	−0.106	−0.002	−0.563***	−0.538***
	(0.078)	(0.129)	(0.035)	(0.047)
Income class 5	−0.174**	−0.184	−0.648***	−0.642***
	(0.077)	(0.128)	(0.035)	(0.048)
Income class 6	−0.248***	−0.203	−0.747***	−0.737***
	(0.077)	(0.127)	(0.037)	(0.051)
Income class 7	−0.188**	−0.249*	−0.850***	−0.793***
	(0.076)	(0.128)	(0.038)	(0.054)
Income class 8	−0.240***	−0.276**	−0.930***	−0.893***
	(0.076)	(0.127)	(0.038)	(0.056)
Income class 9	−0.198**	−0.199	−1.054***	−1.042***
	(0.077)	(0.131)	(0.040)	(0.063)
Income class 10	−0.305***	−0.400***	−1.236***	−1.214***
	(0.077)	(0.129)	(0.041)	(0.064)
Separated/divorced	0.085**	0.078	0.163***	0.148***
	(0.036)	(0.055)	(0.027)	(0.037)
Widowed	−0.006	−0.016	0.112***	0.070**
	(0.079)	(0.091)	(0.032)	(0.034)
Never married	0.001	−0.041	−0.053**	−0.015
	(0.030)	(0.070)	(0.024)	(0.046)

(*continued on next page*)

Table A2 (*continued*)

VARIABLES	(1)	(2)	(3)	(4)
ES-ISCED I, less than lower secondary	−0.133*	−0.236**	0.155***	0.183***
	(0.071)	(0.104)	(0.038)	(0.051)
ES-ISCED II, lower secondary	−0.174***	−0.178**	0.122***	0.176***
	(0.045)	(0.077)	(0.032)	(0.046)
ES-ISCED IIIb, lower tier upper secondary	−0.186***	−0.193***	0.095***	0.153***
	(0.039)	(0.069)	(0.031)	(0.047)
ES-ISCED IIIa, upper tier upper secondary	−0.176***	−0.133**	0.083***	0.085*
	(0.037)	(0.067)	(0.030)	(0.046)
ES-ISCED IV, advanced vocational	−0.085**	0.031	0.112***	0.170***
	(0.040)	(0.070)	(0.034)	(0.051)
ES-ISCED V1, lower tertiary education	0.007	−0.074	−0.017	−0.026
	(0.041)	(0.077)	(0.035)	(0.058)
Paid work	0.988	4.766	−0.069***	−0.202***
	(0.740)	(52.659)	(0.024)	(0.042)
Unemployed	–	–	0.504***	0.444***
			(0.039)	(0.072)
Retired	–	–	−0.061*	−0.141***
			(0.033)	(0.041)
regional_gdp_per_capita	0.000	0.000	−0.000	−0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Low Relationships	1.100***	0.910***	0.243**	0.207
	(0.149)	(0.275)	(0.101)	(0.144)
Trust	0.491***	0.409***	0.083***	0.022
	(0.027)	(0.049)	(0.019)	(0.028)
Constant	−1.110***	−1.115***	−1.106***	−1.105***
	(0.004)	(0.006)	(0.003)	(0.004)
Log-likelihood	8907	3201	8007	5027
Chi^2	733.8	243.6	4812	2915
p-value	0.000	0.000	0.000	0.000
Observations	9876	3188	19,478	9810

Full second stage estimate findings of results presented in Tables 6a and 6b. Column (1) organization financial difficulties full sample, Column (2) organization financial difficulties sample of respondents aged above 49, Column (3) household financial difficulties full sample, Column (4) household financial difficulties sample of respondents aged above 49. Clustered at NUTS2 level standard errors in parentheses; ***p < 0.01, **p < 0.05, *p < 0.1.

References

Bailey, D., & Turok, I. (2016). Resilience revisited. *Regional Studies, 50*(4), 557–560.

Barro, R. J., & McCleary, R. M. (2003). Religion and economic growth across countries. *American Sociological Review, 68*(5), 760–781.

Becchetti, L., & Castriota, S. (2011). Does microfinance work as a recovery tool after disasters? Evidence from the 2004 tsunami. *World Development, 39*(6), 898–912.

Bellucci, D., Fuochi, G., & Conzo, P. (2020). Childhood exposure to the Second World War and financial risk taking in adult life. *Journal of Economic Psychology, 79*, Article 102196.

Blum, U., & Dudley, L. (2001). Religion and economic growth: Was weber right? *Journal of Evolutionary Economics, 11*, 207–230.

Bonanno, G. A. (2012). Uses and abuses of the resilience construct: Loss, trauma, and health-related adversities. *Social Science & Medicine, 74*(5), 753.

Brada, J. C., Gajewski, P., & Kutan, A. M. (2021). Economic resiliency and recovery, lessons from the financial crisis for the COVID-19 pandemic: A regional perspective from central and eastern Europe. *International Review of Financial Analysis, 74*, Article 101658.

Bufe, S., Roll, S., Kondratjeva, O., Skees, S., & Grinstein-Weiss, M. (2021). Financial shocks and financial well-being: What builds resiliency in lower-income households? *Social Indicators Research*, 1–29.

Campbell, F. C. (Ed.). (2008). *Elements of metallurgy and engineering alloys*. ASM international.

Cuartero, N., & Tur, A. M. (2021). Emotional intelligence, resilience and personality traits neuroticism and extraversion: Predictive capacity in perceived academic efficacy. *Nurse Education Today, 102*, Article 104933.

Delhom, I., Satorres, E., & Meléndez, J. C. (2020). Can we improve emotional skills in older adults? Emotional intelligence, life satisfaction, and resilience. *Psychosocial Intervention, 29*(3), 133–139.

Ferri, B. (2022). *Novel shift-share instruments and their applications* (Vol. 11). Boston College.

Fletcher, D., & Sarkar, M. (2013). Psychological resilience. *European Psychologist*.

Gartland, D., Riggs, E., Muyeen, S., Giallo, R., Afifi, T. O., MacMillan, H., … Brown, S. J. (2019). What factors are associated with resilient outcomes in children exposed to social adversity? A systematic review. *BMJ Open, 9*(4), Article e024870.

Guiso, L., Sapienza, P., & Zingales, L. (2011). Civic capital as the missing link. *Handbook of social economics, 1*, 417–480.

Hostinar, C. E., & Miller, G. E. (2019). Protective factors for youth confronting economic hardship: Current challenges and future avenues in resilience research. *American Psychologist, 74*(6), 641.

Keefer, P., & Knack, S. (2005). Social capital, social norms and the new institutional economics. In *Handbook of new institutional economics* (pp. 701–725). Berlin, Heidelberg: Springer Berlin Heidelberg.

Kim, T., & Shawn, H. (2022). Conservative financial reporting and resilience to the financial crisis. *Sustainability, 14*(14), 8535.

Lusardi, A., Hasler, A., & Yakoboski, P. J. (2021). Building up financial literacy and financial resilience. *Mind & Society, 20*, 181–187.

Martin, R. (2012). Regional economic resilience, hysteresis and recessionary shocks. *Journal of Economic Geography, 12*(1), 1–32.

Porter, M. E. (2012). The economic performance of regions. In *Regional competitiveness* (pp. 131–160). Routledge.

Riera, G. (2023). *War destruction and resilience in the long-term*.

Sun, L., Small, G., Huang, Y. H., & Ger, T. B. (2022). Financial shocks, financial stress and financial resilience of Australian households during COVID-19. *Sustainability, 14*(7), 3736.
Ungar, M., & Theron, L. (2020). Resilience and mental health: How multisystemic processes contribute to positive outcomes. *The Lancet Psychiatry, 7*(5), 441–448.
Webber, D. J., Healy, A., & Bristow, G. (2018). Regional growth paths and resilience: A European analysis. *Economic Geography, 94*(4), 355–375.