Vulnerability to Poverty in Italy

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Abstract

The article empirically analyses the phenomenon of vulnerability to poverty – meant as an individual's likelihood of becoming poor in the future. On the basis of studies conducted by the Italian Institute of Statistics on the consumption of Italian households in the years 1985-2001 and whose data have been rearranged in a pseudo-panel form, the article estimates the incidence of vulnerability to poverty at national and regional level. We find that potential poverty concerns an unexpectedly high percentage of the population – even as much as 50% in some years. Regional differences are broad, persistent and on the rise: moving from north to south, the risk of becoming poor in the future triples. Vulnerability analysis turns out to be a useful tool which should complement the traditional analysis of poverty.

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1. Introduction

Today, poverty analysis is a research field which mainly concerns development economics and is largely applied to economies that have not yet reached the mature or "balanced" phase of economic development. This is not to say that poverty is unknown in advanced capitalist societies (Atkinson, 1998), but merely that, in these societies, and especially in absolute terms, poverty has often been interpreted as a marginal phenomenon or at least as something of the past and destined to fade away in the long run. This is all the more true for European economies, which are traditionally characterised by a robust welfare state.

However, the last few years have witnessed a gradual worsening of the welfare state in Europe along with the financial crisis of 2007 and the following sovereign debt crisis. Owing to generalised public debt consolidation policies, these crises are likely to lead to further contractions or beak-downs of the social safety nets provided by the State. This new picture leaves little room for excessive optimism and it is reasonable to believe that the poverty issue will cease to be exclusively associated with underdeveloped or developing economies. This is particularly true for Italy – a country which, more than any other in Europe, has suffered from the economic crisis and from tensions regarding its debt, and that, as some recent works demonstrate, has experienced increasing income inequality over the last two decades (Amendola, Brandolini and Vecchi, 2011; Jenkins, Brandolini, Micklewright and Nolan, 2011).

Despite this, absolute poverty in Italy, as in other European economies, remains a difficult phenomenon to pinpoint (Amendola, Salsano and Vecchi, 2011; ISTAT 2011). It would in fact be more appropriate to adopt a concept of *ex-ante* poverty in order to grasp not only, and not so much, poverty that is *observed* at a given moment in time, but rather *potential* future poverty. "Vulnerability to poverty" is a concept which aims to grasp the dimension of poverty linked to uncertainty. Uncertainty is an immanent element of an individual's existence and involves exposure to a set of risks which, given the institutional context, are never perfectly insurable. When risk materialises and turns into shock, the consequences can be a (temporary or permanent) decrease in income and, more generally, a worsening in living conditions.

In the light of the aforesaid considerations, this work has a dual purpose. On the one hand, it aims to enrich the descriptive picture of the dynamics of absolute poverty in Italy – to extend it so as to include the concept of "vulnerability to poverty", a term

we use concretely to define the likelihood that an individual may become poor in the more or less distant future. On the other, the article aims to provide an example of how using the measurement of vulnerability has important implications both in terms of the analysis of wellbeing and in terms of policy implications.

The methodologically innovative econometric analysis proposed in this work produces results that are surprising, in some respects. Starting from the latter half of the 1980s, an unexpectedly broad section of the Italian population, although not poor at the time of the survey, presented a high future "poverty risk". In the period examined, as many as 20-25 million *non*-poor individuals presented a higher than average probability of becoming poor within a year. The regional distribution of the phenomenon is also striking: a person emigrating from north to south of the country runs an extra risk of future poverty at least three times greater than the one found in the individual's region of origin. These estimates strongly point to the urgent need for actions to prevent the onset of poverty conditions that are potentially more widespread than we can imagine.

The rest of the article is organised as follows. Section 2 defines the concept of "vulnerability to poverty" at a conceptual and operational level, while section 3 illustrates the econometric model adopted to estimate vulnerability. Section 4 presents the main results obtained and then there is a concluding section.

2. Vulnerability to poverty

The term "vulnerability" is catching on in the scientific literature. It is an expression that has not only spread in the social sciences, but is also found in other disciplines such as environmental sciences, disaster management, and health and nutrition sciences [Alwang, Siegel and Jørgensen 2001]. Indeed, because of its very popularity and interdisciplinary nature, the term has taken on an elusive character over time: people of different fields use it in different ways. To avoid any ambiguity in interpretation, it is worth clarifying that in this work we have adopted a definition of economic vulnerability which is now taking root in the specific field of development economics and poverty analysis [Dercon 2001].

The reason why economists have introduced the concept of "vulnerability to poverty" lies in the fact that the traditional measurement of poverty focuses on a circumstance belonging to the past: the poor "are counted"... when they can be considered as such.

In this sense, in its traditional meaning, poverty is a state that can be defined and measured only *ex-post*. Although being a fundamentally important measurement, it seems legitimate and desirable – above all, from a policymaking standpoint – to attempt to devise also an *ex-ante* measure: that is, an indicator which can grasp potential poverty. An indicator of this kind would enable us to distinguish the temporary poor, i.e., those who are at low risk of future poverty but who are in effect poor, from the chronically poor, i.e., those who have a high probability of remaining poor. Moreover, and this is perhaps the most qualifying aspect of the concept of vulnerability, this kind of measurement would allow us to identify the section of the population at greater risk of poverty: we are referring to those who, although not poor today, may become so tomorrow if hit by a negative shock. Basically, it is a matter of acknowledging the explicit role played by uncertainty along with the imperfections or incompleteness of the markets which reallocate risk in determining individual well-being. Therefore, vulnerability to poverty may be defined as "the likelihood of becoming poor in the future" [Zhang and Wan 2009][1]. Vulnerability is thus a condition associated with potential, or latent, poverty which can affect not just, and not necessarily, those who are poor today, but also those who have a high probability of being poor tomorrow[2].

As an example, let us consider the case of two households that are identical in everything except for the head of the household's occupation; in particular, let us suppose that one of the two household heads is an employee while the other is self-employed. Let us assume that the two households have an identical expected future income for the whole working life of the head of the household. The *variability* of the two households' future incomes will, however, be different in that the income of self-employed people is more variable than the one of subordinate workers. The likelihood of experiencing future poverty will thus be different for the two

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[1] According to the definition given in the text, vulnerability is "expected poverty". Ligon and Shechter [2003] have defined vulnerability as "expected utility"; others have used the term vulnerability to mean "exposure to risk" (that is non-insurable): Hoddinot and Quisumbing [2003a] provide a review of the main approaches put forward in the literature.
[2] We must distinguish between the concept of vulnerability to poverty and that of the "risk of poverty and social exclusion" as defined by the European Union (EU) in its EU2020 strategy for combating poverty. According to the definition adopted by the EU, an individual is considered at risk of poverty and social exclusion if his/her family income is below 60% of the equivalent median income (a relative poverty threshold) or if s/he can be considered deprived on at least 4 of the new set of deprivation indicators or, finally, if s/he is underemployed (European Commission, 2010). Despite the terms used, this definition lacks direct connections to the dimension of future poverty.

households: the household whose income is the most variable will have a higher poverty risk (with expected income and every other household characteristic being equal) compared to the household whose income is less variable. The conclusion is that future income variability is an important factor in the determination of poverty risk.

In more general terms, the concept of variability involves two interrelated aspects: on the one hand, it explicitly introduces the role of *risk* and, on the other, the *response to risk*. Vulnerability depends on the fact that in an uncertain environment there are negative events which may arise with a certain probability and by the fact that these events, when they do occur, cause a loss in household well-being. The vulnerability of a family thus depends not only on the presence of negative shocks, but also on the capacity, or incapacity, to respond to risk: the strategy available to the household may be a *preventive* one – the household may, for instance, insure itself against risk – or a *reparatory* one for the damage caused by the shock, for example, through a decumulation of savings. It is common knowledge that households have a different degree of exposure to risk that does not only depend on the environment, but also on household characteristics and on the workings of, or access to, insurance and credit markets. For example, a household with more economically active adults will have a lower risk of becoming poor because it can implement a greater number of strategies to deal with negative events (such as by increasing the household's supply of labour). At the same time, having household assets or not is crucial in facilitating credit access and thus to guarantee the possibility of maintaining household consumption levels unchanged also in view of negative income shocks.

By shifting the focus from the condition of actually being poor to the likelihood of becoming poor in the future, it is possible to integrate the traditional analysis of poverty by grasping three fundamental aims: a) establishing the typologies of subjects who are the most vulnerable (those with a greater probability of becoming poor), b) understanding which mechanisms make them such, and c) stepping in preventively by devising support policies to prevent subjects from sliding into poverty. As regards policymaking, it is a matter of changing perspective, much like the idea of shifting from treatment to prevention.

Once the implicit change in perspective in the concept of vulnerability is clear, the main problem is how to concretely measure the phenomenon. Unlike poverty, vulnerability is a condition which, by definition, cannot be observed, but only

estimated. It is a kind of probability linked to a condition of future poverty. Various methods for estimating vulnerability have been put forward in the literature [Ravallion 1986; Murdoch 1994; Ligon and Schechter 2003; Dercon 2007] which produce results that are often consistent with the profiles observed [Bourguignon, Goh and Kim 2004]. Before going into the construction of a method which can be applied to the Italian historical context (see section 3), it is worth clearing up what we mean, *operationally*, by "vulnerability to poverty".

In the traditional concept of poverty, a household is defined as poor if its level of well-being – as measured by such things as the level of household expenditure on consumption, expressed in per capita terms – lies below a minimum threshold, called poverty line, in the year of reference. The procedure is the same in calculating vulnerability to poverty, but this time not referring to current consumption, but to the household's consumption in the following year. Expected consumption can be estimated without too many difficulties as long as adequate data are available: if, for example, there is a sample-based study on household budgets replicated over time, it is possible to devise a statistical model which stylises the consumer behaviour of households. It will then also be easy to estimate its parameters on the basis of the data and to use the results to make forecasts [Devicienti, Gualtieri and Rossi 2010]. Once forecasts have been obtained from the estimated model, a given household may be classified as "vulnerable" if it has a higher than average likelihood of falling below the poverty line in the following year.

There are thus four possible combinations and each household may be classified as: a) poor and vulnerable, b) poor but not vulnerable, c) not poor but vulnerable, and d) not poor and not vulnerable. Case d) is the least relevant for constructing a poverty profile since it concerns relatively "well-to-do" households far removed from a condition or risk of poverty. Case c) instead defines an extremely relevant circumstance, the one in which a household, although not poor, has a high (i.e. higher than average) risk of becoming poor: this kind of household is perhaps the most interesting one for policymakers because it represents a priority goal of poverty *prevention* policies. Case a), the poor and vulnerable household, is also interesting because it shows the existence of *chronic* poverty that households are trapped in. In this case, policymakers should devise radically different policies from the ones for case c): if insurance instruments may be effective with vulnerable but not poor households, then chronic households require actions which can permanently increase

their income generating capacity. Finally, case b) concerns households that lie in a condition of poverty which cannot be defined as chronic. Households belonging to the latter category could be the type a) households who had benefited from effective income support actions in the past: the increase of this category over time may, for example, indicate the success of policies combating the spreading of poverty.

The next section illustrates the method for estimating vulnerability, according to which Italian households are placed within the four aforesaid categories, in order to follow up the relative dynamics. The estimates concern the years 1985-2001 because the data suitable for the estimation method adopted here are only available for these years. It will then be possible to distinguish the different types of poverty – chronic, temporary, observed and potential poverty.

3. The method for estimating vulnerability

The method used for estimating vulnerability follows the lines put forward by Bourguignon, Goh and Kim [2004], Chaudhuri [2003], and Christiaensen and Subbarao [2004]. The first step in the procedure consists of estimating a consumption model:

(1) $\quad \ln C_{i,t} = X'_{j,i,t}\boldsymbol{\beta} + u_{j,i,t}$

where index i stands for the household, index j is the cohort it belongs to, and index t is time. Note that the stochastic error term $u_{j,i,t}$ is not homoscedastic. In particular, it is assumed that:

(2) $\quad u_{j,i,t+1} = h^{\frac{1}{2}}(X_{j,t}; \boldsymbol{\alpha})e_{i,j,t+1} \quad \text{where} \quad e_{i,j,t+1} \sim N(0, \sigma^2)$

Error variance differs from cohort to cohort, depending on household characteristics in the previous year. The heteroscedastic component is instead common to all households belonging to the same cohort for each year.

The specification established by equations (1) and (2) admits the presence of a differentiated effect of regressors on the mean and variance:

(3) $\quad E_t \ln C_{j,i,t+1} = X'_{j,i,t+1}\boldsymbol{\beta}$

(4) $\quad \text{Var}_t(\ln C_{j,i,t+1}) = h(X_{j,t}; \boldsymbol{\alpha})\sigma^2$

Let us consider an explicative variable such as wealth. Wealth is positively correlated with consumption, but it also produces a decrease in the variability of consumption itself. We may thus expect wealth to positively influence mean consumption (a positive sign in equation 3) and to negatively influence consumption variability (a negative sign in equation 4).

Equation (1) may be estimated when there are at least two consecutive waves of observations for the same household. This is only possible when there are longitudinal data, while the ISTAT data are cross-sectional. To get over this problem, we aggregated the households belonging to a similar group as if they represented a pseudo-household. The groups were established on the basis of date of birth, gender and residence of the head of the household. This is the same as identifying the "person" of our panel with a cohort of individuals that the data enable us to follow over time. This strategy allows turning the available data – which have a very long temporal dimension – into pseudo-longitudinal data.

The functional form chosen for $h(\ )$ in (4) is of the exponential type [Chaudhuri 2003]:

(5) $\qquad h(X_{j,t}; \boldsymbol{\alpha}) = \exp(X'_{j,t}\boldsymbol{\alpha})$

Coefficients $\boldsymbol{\alpha}$ and $\boldsymbol{\beta}$ are estimated by means of the three-stage procedure in order to correct for errors heteroscedasticity [Judge *et al.* 1988]. In a first step, through a least squares regression (equation 1) at the cohort level, we obtain the residuals from which to obtain an estimate of the error variance. Then, we generate consistent estimates of parameter $\boldsymbol{\alpha}$ by regressing $\ln \hat{u}^2_{j,t}$ on X. The third step consists of conducting a weighted estimate of (1) in order to account for the heteroscedasticity, by regressing $\ln C_{t+1} \exp(X'_{j,t}\boldsymbol{\alpha})^{-0.5}$ on $X'_{j,i,t}\boldsymbol{\beta}\exp(X'_{j,t}\boldsymbol{\alpha})^{-0.5}$. This enables us to obtain an estimate of the predicted value of consumption (as a logarithm) and its variance. These estimates allow us to construct a vulnerability index as follows:

(6) $\qquad v = \Pr\left(lnc_{i,t+1} < lnz \middle| \widehat{lnc_{i,t+1}}, \hat{\sigma}^2_{jt+1}\right) = \Phi\left(\frac{lnz - \widehat{lnc_{i,t+1}}}{\hat{\sigma}_{jt+1}}\right)$

where z is the poverty threshold (established at 60% of the median value of household consumption of the year 1985 and maintained constant – in terms of purchasing power – over the next years) and Φ is the normal distribution. Once probability v is estimated for each household in the sample, then in order to identify the vulnerable households it is necessary to establish a threshold above which the probability of an individual becoming poor is considered to be high. To this end, we can use the sample mean of the number of poor people in each year – interpretable as the average

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probability of becoming poor. In so doing, an individual is considered vulnerable if the probability of becoming poor is greater than the sample incidence of poverty.

The peculiar characteristic of the "vulnerability to poverty" concept, as defined in equation (6), lies in the fact that the measurement of vulnerability simultaneously accounts for the current *level* of household incomes and the *risk* that this level can decrease in the future owing to the uncertainty of the economic environment.

4. The vulnerability of the Italians

The uncertainty of future incomes is a very worrying thing for the Italians and it thus restricts their capacity to enjoy the high levels of well-being achieved over the years since the country's unification. It is certainly worth understanding to what extent this worry is just a subjective perception devoid of any actual empirical correlate or whether it reflects a real phenomenon. The analysis presented in this section allows us to shed some light on this aspect with regard to the years 1985-2001. By grouping together the data collected by the study on household consumption carried out by ISTAT every year, we obtain a sample of over half a million households, corresponding to 1.4 million individuals, who are surveyed for details on their consumption expenditure for goods and services as well as on their main socio-demographic characteristics. Applying the method illustrated in section 3, we estimated the vulnerability to poverty of the Italian population and then followed the development over time. The main results are summarised in figure 1.

Figure 1. Chronic poverty and poverty risk, Italy 1985-2001
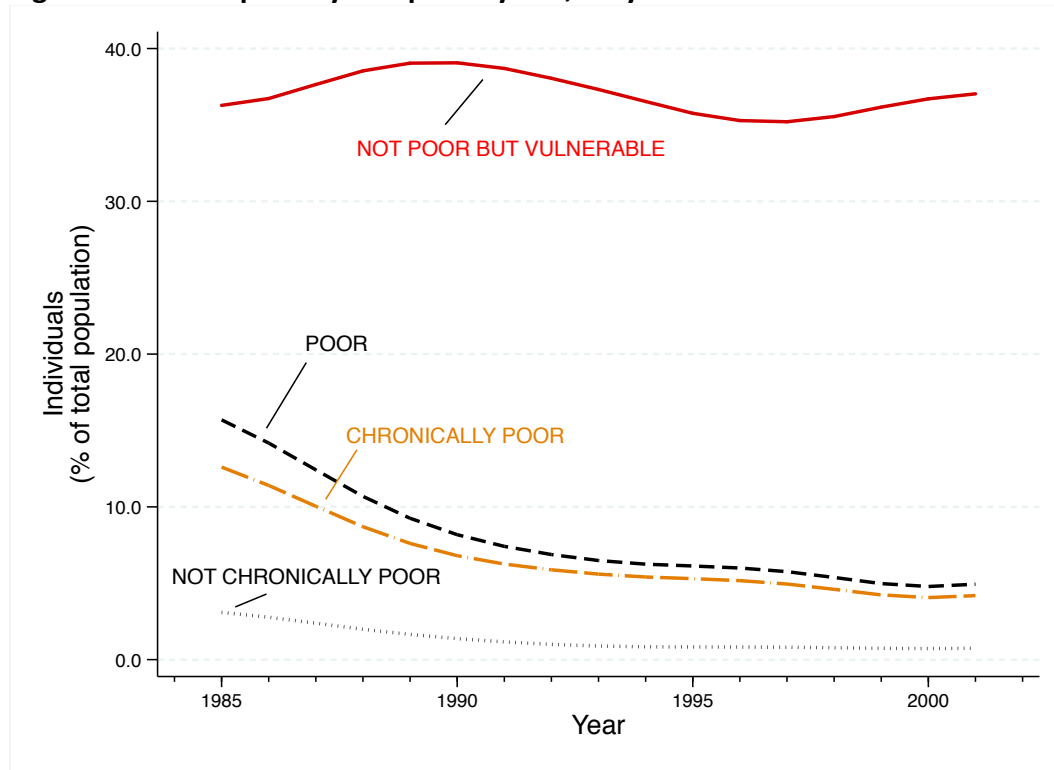
The figure shows the trend over time of the percentage of the Italian population classified as poor (broken black line), chronically poor (orange line) and temporary poor (dotted line). The figure also shows the percentage of the population at risk of poverty even if not actually poor (red line).

The first result concerns the trend of the country's incidence of absolute poverty, which fell significantly between 1985 and 2001. However, what is more interesting in this context is the nature of the Italians' poverty, which is considerably *chronic* (this is how we may interpret the proximity of the line of the chronically poor to the line of the total poor): of the poor households, the number of vulnerable households fluctuates from 80% in 1985 to 85% in 2001 (see table 1). It is worth stressing here that chronic poverty is probably the most loathsome form of poverty because the suffering caused by being poor is aggravated by the lack of hope of getting over this condition.

Table 1. Vulnerability to poverty in Italy, 1985-2001

	1985			1990			1995			2001		
	poor	not poor	total	poor	not poor	total	poor	not poor	total	poor	not poor	total
vulnerable	26.51	73.49	100.00	9.27	90.73	100.00	16.12	83.88	100.00	9.92	90.08	100.00
not vulnerable	6.16	93.84	100.00	1.27	98.73	100.00	1.52	98.48	100.00	1.31	98.69	100.00
total	16.15	83.85	100.00	5.19	94.81	100.00	7.22	92.78	100.00	4.84	95.16	100.00
vulnerable	80.57	43.01	49.07	87.49	46.88	48.99	87.21	35.31	39.06	84.08	38.87	41.06
not vulnerable	19.43	56.99	50.93	12.51	53.12	51.01	12.79	64.69	60.94	15.92	61.13	58.94
total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: our estimates based on ISTAT data.

The second result concerns the vulnerability to poverty of the non-poor population – the value which traditional measurements of poverty are unable to record. The figure shows that the population currently not classified as poor, but with a higher than average risk of becoming so, accounts for an unexpectedly high percentage: between 1985 and 2001 this percentage fluctuated stably between 35 and 40 percent. If we focus our attention on the non-poor population (calculating the incidence only on the non-poor population), the percentage is even higher.

The overall finding which emerges is that of a latent fragility in the economic health of Italian households during the period analysed. It is thus not merely subjective perception on the part of Italian households, but a real empirically proven phenomenon. Unfortunately, it is not possible to extend the analysis to the most recent decade owing to the variation in format with which ISTAT disseminates datasets on household consumption. However, it seems reasonable to assume that things have got worse rather than better, above all, if we think of the stagnation of Italy's GDP over the last ten years, to the effects of the Great Recession of 2008-09, and to the increase in the inequality of income distribution [Amendola, Brandolini and Vecchi 2011].

Still more eloquent is the finding on vulnerability to poverty disaggregated on the basis of geographical region. Figure 2 shows a growing gap between southern Italy, where vulnerability to poverty has increased dramatically, and the central and northern regions which instead show a decreasing trend. Statistical analysis of the vulnerability shows a lacerated country. The north-eastern regions show considerable success in reducing households' financial fragility to a greater degree compared to other areas of the country. Even the north-western regions have managed to reduce their residents' vulnerability to poverty, but to a lesser degree. With respect to these virtuous trends we find a clear worsening in the southern regions, with trends and

levels of poverty risk concerning over half the resident population. In more recent years, in Sicily and Sardinia alone, over six people out of ten have a higher than average probability of becoming poor – a negative record which underlines the urgent need for further analyses and in-depth studies.

Figure 2. Vulnerability is moving south, 1985-2001
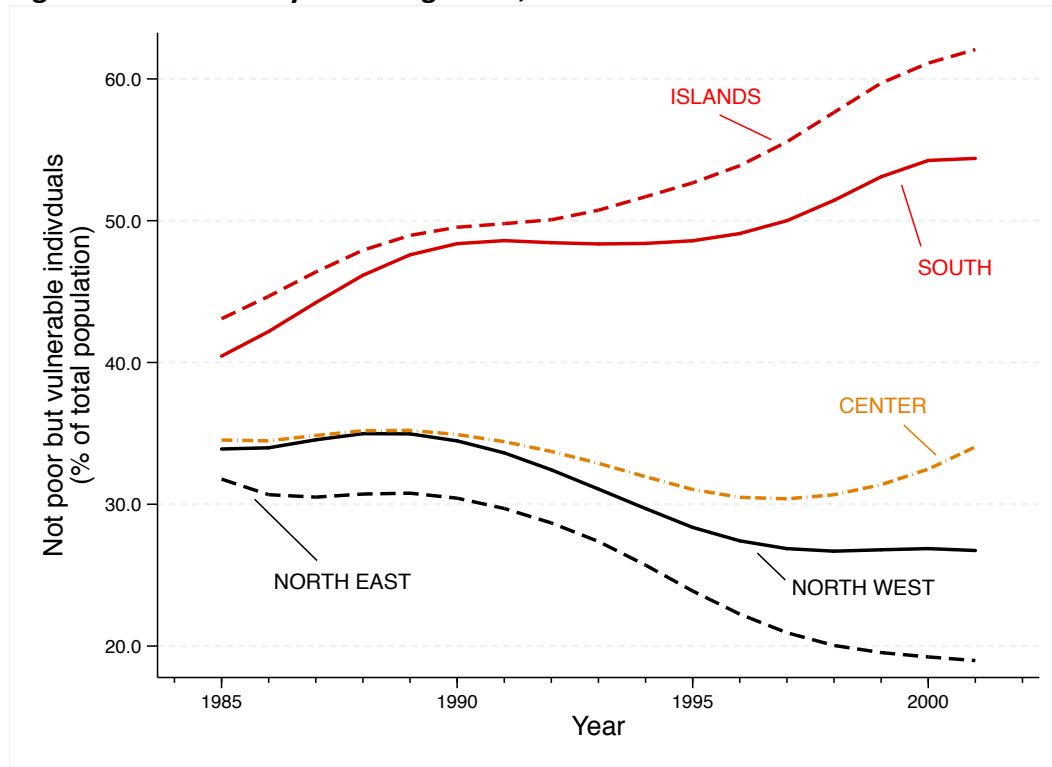
The figure shows the trend, over time, of the percentage of the non-poor, but vulnerable, Italian population, that is, those at risk of becoming poor.

Overall, the data show the coexistence of very different kinds of poverty: on the one hand, there is a hard core of decreasing, but significant, chronic poverty. The fact that this form of poverty has diminished is undoubtedly encouraging. However, the concomitant persistence of widespread vulnerability to poverty in the non-poor section of the population is a negative sign tempering the overall picture. Another worrying aspect is the marked and unequivocal broadening of the territorial gap in the degree of exposure to poverty risk – a finding which, even in this light, confirms the existence of unsolved economic integration problems afflicting the Italian economy[3].

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[3] See also [Conte, Rossi and Vecchi, 2011]

5. Conclusions

This article examined the role of uncertainty in determining the *potential* poverty of Italian households. A riskier environment, together with inadequate or non-existent insurance instruments or social protection networks, make individuals more vulnerable to negative shocks with regard to income and/or wealth. The method adopted in this article to estimate poverty risk is well suited to the country's data since it exploits the diachronic dimension. Although the analysis carried out has an experimental feature and is geared to describing, rather than explaining, the development of the poverty risk of Italian households, the results are encouraging and suggest that it is a useful tool in order to monitor the development of the phenomenon and to improve policymaking in the fight against poverty.

However, it is possible and desirable to extend the analysis of vulnerability. One possible direction for further study consists of establishing a more detailed profile of poverty risk in order to identify the characteristics of vulnerable households in greater detail. In this sense, the estimates of *vulnerability to poverty* presented in this work are a preliminary to more detailed future analysis and refinement, above all, with a view to meeting the knowledge needs of poverty prevention policies. The explorative nature of the analysis carried out in this work has not hindered the identification of two very different phenomena which are both present throughout the period examined: on the one hand, a "hard core" of *chronic* poverty and, on the other, the broader dimensions of *potential* poverty, a considerable section of the population who, although not currently poor, have a significant probability of becoming so in the future. This is a dimension of poverty of the Italians that has remained largely unknown and unexplored.

The fact that almost 90 percent of poverty is of a chronic nature means that there is no turnover among the poor – a result that is in line with the country's low social mobility (Piraino, 2007). High chronic poverty and high vulnerability to poverty are worrying factors because they show the country's poor resilience with regard to sudden changes in social protection systems or to cyclical macroeconomic turbulences.

Risk and uncertainty are unavoidable aspects of life. There are two ways, or a combination of the two, to deal with them. The first is to resort to private saving for "a rainy day", thereby taking resources away from current consumption, as Keynes

recalled in 1936. The other, theoretically more efficient, way is to implement a rapid intervention mechanism to, at least partly, safeguard households from the consequences of risk (Diamond, 1981). In the latter case, however, the welfare system must be well-organised to actually reach out to vulnerable households – not necessarily and not only the ones who are poor from an income standpoint.

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