The myth of 'three Italies': differences and similarities in environmental values between macro regions

Abstract

One of the most frequently perceived divisions in Italy is that of a substantial cultural discrepancy in the environmental values of the North, the Centre and the South. The recent and prolonged waste crisis in Southern Italy reinforced this common public discourse. There are, however, no recent studies that have explored these alleged differences. This study aims to fill this hiatus by analysing differences across macro-regions in terms of the endorsement of basic environmental values. Differences in environmental values are examined using the New Ecological Paradigm (NEP) scale with a multi-level variance components analysis. The findings suggest that whilst dissimilarities between macro-regions *do* exist, they are not in fact as significant as might be expected, thus indicating the existence of a national cultural homogeneity in terms of 'primitive' beliefs towards the nature of the earth and humanity's relationship with it. The findings also highlight the problems of Ecological Fallacy and underscore the complexity of the relationship between values and behaviour.

Keywords: Environmental Values, Italy, Macro regions, NEP

1. Introduction

On numerous occasions from 2008 until 2010, the international media broadcast vivid images of the streets of Naples overwhelmed by uncollected refuse. In this surreal scenario, the citizens of Naples were seen wearing anti-pollution masks to protect themselves from the toxic fumes and malevolent odours. Unsurprisingly, the 'garbage crisis' in the southern region of Campania, between 2006-2008 (Pasotti 2010), became one of the key issues on the agenda during the April 2008 parliamentary elections.

If, internationally, this crisis was perceived as an Italian failure, nationally the event was interpreted very differently. In Italy, a public discourse focusing on the cultural differences between the North, the Centre and the South emerged. Thus the crisis in Naples sparked a nationwide debate on the differences between regions and macro-regions in terms of environmentally sustainable practices and culture, and the reasons for this. For example, the fact that households in Southern Italy are less likely to recycle domestic waste by comparison to the North and the Centre has been attributed to differences in social capital (Fiorillo 2012).

Debates about the differences between the North, the Centre and the South have been present almost from Italy's creation as a unified state in the nineteenth century. 150 years later, during the national celebrations in 2011, these presumed cultural differences remained at the core of the public debate on Italian national identity. According to many scholars, politicians, and opinion-makers, the social, economic[1] and cultural differences within Italy are of such magnitude to allow us to speak of 'three Italies': Northern, Central and Southern. For example, the GDP *per capita* of the South is around 58% of the North and Centre, with 36% of the Italian population (Malanima and Zamagni 2010).

Debates about the disparity between the North and South have been present almost from Italy's creation as a unified state in the nineteenth century. 150 years later, during the national celebrations of 2011, the presumed cultural differences remain at the core of the public debate on Italian national identity. The later distinction between the North, Centre and South (Agnew, 2002; Cartocci, 2011; Coppola, 1997) introduced the idea of 'three Italies'. Surprisingly, since the publication of Edward Banfield's famous 'The moral basis of backward societies' (1965) and Robert Putman's 'Making Democracy Work' (1993), there has been a lack of recent research on the nature and extent of these cultural differences. There have

been some historical studies on the stereotypes of the South in Italian history and culture (Dickie, 1999; Lumley and Morris, 1997; McCrae et al., 2007), however, most studies are from the social capital literature (Leonardi 1995; Girlando, Anderson, & Zerillo, 2005) and little else has been published on the topic of cultural difference within Italy using more complete and larger sets of cultural indicators beside 'social capital' proxies.

Whilst Tabellini (2010) has investigated the role of cultural factors for economic development in European regions (including Italy), and studies on the differences in economic performance and the social structures of Italian 'macro-regions' abound, the issue of cultural difference has been only marginally touched upon.

The same can be said about the variances in environmental values within Italy. Although, there are numerous studies on the environmental attitudes of the Italians or other behavioural studies conducted in Italy (for example: Bonnes, Passafaro, and Carrus 2011; Carrus 2005; Lorenzoni and Hulme 2009; Mannetti 2004), there is virtually no research exploring these apparent differences.

This study analyses variations between Italian macro-regions in terms of environmental values as measured by the NEP scale (Dunlap, Van Liere, Mertig and Jones 2000). The aim of this study is twofold: first, to identify and assess the differences in environmental values between macro-regions in Italy, as well as exploring the culturally homogenous areas that exist between them; and second, to contribute to the scientific literature on environmental values, providing data and a methodology that allows us to understand their validity and interpretation. Data from the European Value Studies (EVS) will be used to undertake a multi-level variance components analysis to identify and determine macro-regional differences.

2 The causes and predictors of environmental behaviour

The relationship between causes and predictors of environmental behaviour are far from simple. For example Guagnano et al. (1995) identifies three key elements: behaviour (B) is an interactive product of personal-sphere attitudinal variables (A) and contextual factors (C). The attitude-behaviour association is strongest when contextual factors are neutral and approaches zero when contextual forces are strongly positive or negative, effectively compelling or prohibiting the behaviour in question (an inverted U-shaped function).

The attitudinal factors, in other words beliefs and attitudes are good predictors per se as shown by several studies (among the latest Latif et al., 2012; Aoyagi-Usui et al., 2003). While ideally a research might want to assess all the factors involved and their interactions, something that can be approximated in experimental design, very often a more pragmatic solution is to analysis one of each the components separately. This study analyse the attitudinal factors being aware of the different contextual factors across Italian regions and acknowledging the differences in behaviour. Contextual factors are accounted by the multilevel nature of the analysis and not investigated further because the focus is on the regional differences in the attitudinal dimension, more specifically in environmental values and environmentalism. The behavioural differences[2] between regions have been identified by recent studies such as Fiorillo (2012) and Carrus et al. (2005) and while different in institutional and contextual factors across Italy are common knowledge, little is known about cultural and attitudinal factors.

2.1 Environmentalism: The NEP Scale

In the current literature, there are different accounts about the determinants of environmentalism. Some theories treat environmentalism as a matter of worldviews (NEP Scale), other in terms of values and post materialism (Inglehart 1990), and others to religious values (White 1967), or altruism (Schwartz 1973, 1977). Perhaps the most promising one is the idea that it flows from adopting a New Environmental

(or Ecological) Paradigm, within which human activity and a fragile biosphere are seen as inextricably interconnected (Dunlap, Van Liere, Mertig, and Jones 2000).

The NEP scale measures attitudes towards very general issues regarding the human/nature relationship, that is, a general worldview in favour of nature (NEP), the problem of population growth and the dominance of humans over nature or 'human exceptionalism' (HEP). The NEP scale is thus designed to assess whether specific behavioural dispositions are rooted in very general pro-environment social values - as described in several models (Kotchen and Reiling 2000; Meyer and Liebe 2010). In other words, the NEP scale items are a measure of a paradigm or worldview that influences attitudes towards more specific environmental issues (Dunlap, Van Liere, Mertig and Jones 2000). In this regard, the NEP scale is particularly apt for cross-cultural comparisons between and within countries as it gauges 'primitive beliefs' about the nature of the earth and humanity's relationship to it, while eschewing specific (or contentious) environmental issues that might have different cultural constructions and meanings locally. The fact that the NEP Scale forms a primary component, along with fundamental values, of environmental belief systems has been substantiated empirically (Pierce, Lovirch, Tsurutani and Abe 1987; Stern 2000).

The original 12-item New Environmental Paradigm (NEP) Scale was designed to measure 3 facets of an ecological paradigm/worldview (Dunlap, Riley and Van Liere 1978): limits to growth, balance of nature, and the rejection of anthropocentrism (human dominance over nature). A revised New Ecological Paradigm Scale included 15 items designed to measure 5 facets (Dunlap et al. 2000): limits to growth, balance of nature, rejection of anthropocentrism, likelihood of eco-catastrophes and human exceptionalism (i.e. the notion that humans are exempt from the constraints of nature).

The NEP scale has been employed to measure environmental orientations in many countries - including the US, Mexico and Brazil (Bechtel, Verdugo and de Queiroz Pinheiro 1999), Sweden (Widegren 1998), Canada (Edgell and Nowell 1989), and Turkey (Furnam 1998). More recently, a short, seven-item version of the NEP scale was included in the European Values Study[3].

While there is a consistent body of literature that supports the overall validity of the NEP scale there is far less agreement as to whether it measures a single construct or is multidimensional. Most of the studies identified a three-factor structure with three distinct dimensions: balance of nature, limits to growth and human domination over nature (Albrecht et al. 1982; Geller and Lasley 1985; Noe and Snow 1990). However, several studies also found a one-factor solution indicating a single construct (Edgell and Nowell 1989). Moreover, other studies identified only two dimensions in one or more of their samples (Bechtel, Verdugo and de Queiroz Pinheiro 1999; Scott and Willits 1994). Dunlap et al. (2000) advocate a factor-analysis of the items to determine if the three widely used dimensions are, in fact, valid. A factor analysis of this kind is presented later in this paper, contributing to the aforementioned debate about the NEP's multidimensionality.

3. Methodology

The following analysis is based upon data from the 2008 European Value Studies (EVS), which is the most recent dataset for Italy available and is constituted by a statistically representative sample of 1519 participants. The EVS survey contains a short seven-item version of the NEP scale developed by Dunlap, Riley and Van Liere (1978).

Given the premises outlined in the introduction, this study focuses on two key research questions:

1. What, and how significant, are the macro-regional differences in Italy in terms of environmental values measured by the NEP Scale's conceptual and empirical constructs?
2. Considering the significant differences in terms of socio-economic conditions (contextual and institutional factors) across the country, do the five Italian macro-regions represent distinct cultural entities in terms of environmental values?

Several preparatory steps regarding the data were necessary before undertaking the main analysis. The first step was to recode the regional classification of respondents to create a variable for macro-region classification that is equal for both datasets. The Italian macro regions in this analysis are: the North-West (*N*=406) which includes Piedmont, the Aosta Valley, Liguria and Lombardy; the North-East (*N*=302) comprising the Veneto, Friuli Venezia Giulia, Trentino Aldo Adige (composed by the 'Autonomous Provinces' of Trento and Bolzano) and Emilia Romagna; the Centre (*N*=282) including Tuscany, Umbria, Marche and Lazio; the South (*N*=358) including Abruzzo, Molise, Campania, Apulia and Calabria; and the Islands, Sardinia and Sicily (*N*= 171). This configuration of regions within macro-regions is also that which is adopted by the Italian Statistical Office (ISTAT) and EUROSTAT. Moreover, the use of macro-regions provides larger statistical samples within Italy to carry out the multi-level variance components analysis. Data were 'nested' and analysed using the software MLwIN 2.14 (Rasbash et al. 2009).

The second step was to identify controlling variables to perform the between-groups comparisons. Two demographic characteristics were selected as control variables: age and education - because most studies found support for NEP to be positively related to education and negatively to age (Dunlap et al. 2000). Initially, the variable of 'income' was also selected, however it was later abandoned because of the high number of missing values in both datasets, which reduced the size of the sample for the subsequent analysis.

The third step was to compute a baseline two-levels model (with the two controlling variables) to determine variances at both levels. The forth was to perform a multilevel variance components analysis calculating the variance partition coefficient[4], the proportion of total variance due to level 2 (in this case macro-regional) differences. A VPC equal to 1 would inform us that all the people in a macro region have an identical level of the endorsement of a cultural indicator (that is, 100% of the total individual differences are at the macro regional level), and a VPC equal to zero would show that people do not share any macro-regional related common level of endorsement. A high VPC value informs us that macro-regions are very important in understanding individual differences in social values. On the other hand, a VPC of zero would imply that the macro-regions are similar to random samples taken from any location and therefore suggest that macro-regions are not significant for understanding cultural differences.

To quantify explained variance, R^2 analogs are defined at each level as the difference between the variance components for the baseline (i.e. intercepts only) model and the variance component for the current model divided by the variance component for the baseline model (Kreft and DeLeeuw 1998: p. 116–119). For testing the significance of the between macro regions variance, the log likelihood of the model that includes $\hat{\sigma}_u^2$ can be compared with the log likelihood of the almost identical model that does not include $\hat{\sigma}_u^2$. If the χ^2 test with 1 degree of freedom rejects the null hypothesis of no difference at a 0.05, then $\hat{\sigma}_u^2$ is statistically significant. If p is noticeably larger than 0.05 (for example: $p > 0.10$), then $\hat{\sigma}_u^2$ is not statistically significant.

In addition, a Principal Components Analysis (PCA) was conducted on the NEP scale items to identify the three dimensions discussed in the literature. Though a 7-item version of the NEP scale is used here, the three key factors, as established in previous

studies, are indeed 'Man over nature', 'Balance of Nature' and 'Limits to Growth' (Shetzer, Stackman, and Moor 1991; Bechtel et al. 1999).

4. Analysis: Environmental values and Italian macro regions

The set of indicators is composed of seven items of the shortened and adapted version of the 'New Ecological Paradigm' (NEP) scale[5] (Dunlap et al., 2000). The first item concerns giving away a portion of one's income to prevent the pollution of the environment. Table 1 reports the mean scores and standard deviations for the five macro-regions and it can be noticed that the all respondents tend to agree (with the Islands (M=2.45, SD=0.671) being slightly less supportive). Differences across macro-regions do not appear to be significant.

The second item indicates the endorsement of the statement 'we are approaching the limit of the number of people the earth can support'. As with the previous indicator, differences across regions are very small (Table 1) and all respondents lean towards agreeing with this statement. Only the Islands are slightly less in agreement compared to the other four macro-regions. The third item states 'when humans interfere with nature it often produces disastrous consequences'. Once again, there was little variation amongst respondents from the five macro-regions (Table 1). The fourth item involves the idea that human ingenuity can ensure the earth's survival, and all respondents lean towards disagreeing with this statement. The Islands (*M*=2.30, *SD*=0.735), Northwest (*M*=2.43, *SD*=0.688) and Northeast (*M*=2.44, *SD*=0.701) are the strongest endorsers, closely followed by the South (*M*=2.46, *SD*=0.726). The Centre (*M*=2.50, *SD*= 0.778) is the closest to disagreeing with the statement (and thus we might infer the most pessimistic about 'human ingenuity' securing the survival of the earth).

<u>INSERT TABLE 1</u>

The fifth item affirms that 'nature is strong enough to cope with the impacts of modern industrial nations', all respondents tend to disagree with this assertion. The Northeast (*M*=3.08, *SD*=0.622) and the South (*M*=3.03, *SD*=0.652) disagree the most, compared to the Islands (*M*=2.98, *SD*=0.679) and the Centre (*M*=2.97, *SD*=0.767). Slightly less negative is the Northwest (*M*=2.93, *SD*=0.688), however the variations remain very modest. The sixth item contains the statement 'Humans were meant to rule over the rest of nature'. The Islands (*M*=2.72, *SD*=0.803) and South (*M*= 2.97, *SD*=0.764) agreed the most, closely followed by Northwest (*M*=2.98, *SD*=0.738), while the Northeast (*M*=3.03, *SD*=0.723) and the Centre (*M*=3.06, *SD*=0.797) were the least likely to concur. The last indicator of the NEP Scale in the EVS poses the scenario that 'if things continue on their present course, we will soon experience a major ecological catastrophe'. All respondents lean towards agreeing with this statement. The South (*M*=1.79, *SD*=0.646) and Centre (*M*=1.88, *SD*=0.775) are the most pessimistic, closely followed by the Islands (*M*=1.91, *SD*=0.800). The Northeast has the highest score of disagreement. The NEP score of each macro-region is: The Northwest *M*=2.42, *SD*=0.335; The Northeast *M*=2.40, *SD*=0.312; The Centre *M*=2.38, *SD*=0.373; The South *M*=2.37, *SD*=0.350; and the Islands *M*=2.38, SD=0.406. The means reveal that the South is the most endorsing of the HEP worldview, while the Northwest is the most supportive of the NEP worldview but, again, the differences are very small.

Differences in scores in the NEP items are analysed using a one-way MANOVA, between-groups design controlled for age and education. This analysis reveals a significant multivariate effect of regional identity on values scores using macro-regions, F (27, 3307) = 2.345; p < 0.000; Wilks' λ 0.932. A subsequent ANOVA of the response variables showed that differences are only statistically significant at the p< .05 for four items: human ingenuity ensures the earth's survival F (4, 925)= 2.809, p <0.05; nature is strong enough to cope with impacts of industry F (4, 925) = 2.402, p <0.05; humans were meant to rule over nature F (4, 925)=

5.572, p< 0.000; if things continue we will experience a catastrophe F (4, 925)= 3.669, p< 0.05.

INSERT TABLE 2

Table 2 reports the amount of variance for the NEP's indicators at the macro-regions level σ_u^2 and at the individual level σ_e^2 for each of the seven indicators in the environmental values set. The proportion of variance due to differences at the macro-regional level for the first indicator, 'giving part of income to reduce pollution', amounts to 5.6%. The second indicator, 'approaching the limit of people that the earth can sustain', has a level-2 variance of 3%. The third item ('interference produces disastrous consequences') is 2% due to macro-regions differences. The fourth indicator concerning optimism about humans solving environmental problems shows a 6.9% of level-2 variance. The fifth item ('nature is strong enough to cope with impacts of industry') displays a 4.8% variance due to differences between macro-regions. The sixth item ('humans are meant to rule over nature') shows 7.1% of level-2 variance. The last item (concerning the apocalyptic scenario) has a 1.5% variance at macro-regions level.

A Principal Components Analysis (PCP) with a Varimax (orthogonal) rotation of the previous 7 Likert scale questions was conducted on the data gathered from 1519 participants. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO=0.688). The results of an orthogonal rotation of the solution are shown in Table 4. When loadings less than 0.20 were excluded, the analysis yielded a three-factors solution with a simple structure (factor loadings =>0.20). As shown in Table 3, a 'two factors solution' would be also be a suitable solution given that the third factor has an eigenvalue below 1. The common rule of thumb is to exclude factors below 1 (Kaiser 1960), however this should not be interpreted as an infallible 'golden rule' (Cliff 1988) and

should be used in combination with a scree plot (Cattell 1966). Therefore, the three factors solution was deemed stable.

INSERT TABLE 3

Table 4 reports the NEP scale loadings on the three factors. The latter were interpreted as follows: three items loaded mainly into one factor and one item – 'if things continue we will experience a catastrophe' – loaded negatively. Table 3 suggests that all items relate to a dimension of 'man over nature' or HEP (Human Exceptionalism Paradigm). Three items loaded only into a second factor and all related to a form of preserving a 'balance of nature'. Three other items loaded on a third factor with the major role of the item 'giving part of income to preserve the environment'. Overall, the third factor that can be interpreted as a sort of 'mild' NEP, in which there is awareness of the destructive role humans can play for nature; a general willingness to commit resources to preserving the environment; and a certain amount of confidence that human ingenuity will prevent an ecological catastrophe. Table 2 reports the amount of variance of all two factors due to differences at the

macro-regions level $(\overset{\sigma}{\underset{¿}{¿¿u^2}})$ and at the individual level $(\overset{\sigma}{\underset{¿}{¿¿e^2}})$. The proportion of variance due to differences at the macro-regional level for the first factor –'Man over Nature' or HEP dimension- amounts to 6.8%. The second factor on the dimension of 'Balance of Nature', level-two variance is at 4.9%, while the third factor – 'mild NEP' – has a level-two variance of 5.3%. However, when the statistical significance of using a two-level model versus a simpler one-level model, the results are: Factor 1 (HEP) χ^2 (1, N=930)=12.93, p< 0.001; Factor 2 (NEP) χ^2 (1, N=930)=0.91, p= 0.33; Factor 3 (mild NEP) χ^2 (1, N=930)=11.93, p< 0.001. Therefore, only for two factors is a multilevel model with two levels a better fit than a one-level model – indicating that for the 'Balance of Nature' dimension the variance

at level 2 due to differences at the macro-regional level is not statistically significant and does not improve the appropriateness of the model.

INSERT TABLE 4

5. Discussion

The analysis indicates that cultural differences - in terms of the endorsement of 'primitive' ecological beliefs measured by the NEP scale - between Italian macro-regions do exist but that they are very small. Findings indicate a surprising level of homogeneity across the country, with a variance due to macro-regional differences of between 5 and 7%. It is difficult to ascertain whether such differences should be interpreted as significant. Ideally, a comparison with other European countries and their internal diversity would provide a reference point. For example Steel and Taras (2010) consider a variance of 3% to be low and 18% to be significant at country level in their multilevel multivariate meta analysis, highlighting the danger of using national averages to make assumptions about individual cultural values. In general, in this study the proportion of variance 'explained' at the individual level (or the between-individuals differences) is much larger than that which is due to the differences at the macro-regional level for all NEP items. Therefore, macro regions are not homogenous and distinct cultural areas with respect to the dimensions measured by the NEP scale[6]. It follows that there is little evidence of any clearly dissimilar cultural macro-areas in terms of significant variation in the environmental values of Italian citizens.

The consequence of what stated above is that attitudinal factors are not a likely candidate to explain the differences between regions in terms of environmental behaviour. In turn, this means that contextual factors are the most likely cause of the differences in environmental behaviour.

The interpretation of these results can go in two different directions: first, it can discuss the found relative cultural homogeneity in terms of historical reasons; second, it can problematize more the relationship between attitudes and behaviour.

In the first direction, one should consider Italian history and in particular the relationship between Northern, Central and Southern Italy. Following the unification of the Italian kingdom (1861), there was an almost continual flow of immigration from southern Italy to the rest of the country, particularly after the Second World War (during the 50s and 60s) when an enormous number of people left the South to live in the Centre and the North of Italy. In other words, internal migration in Italy has been (and continues to be) a notable phenomenon. Hence, regional cultures have undergone many years of mutual contamination and influence. In addition, there are other important historical, social and cultural factors that acted as unifying forces: a) the mass media that, for many years, has provided a common cultural frame of reference (Italy's experience of state-owned media has been among the most significant in Western Europe); b) Institutions such as the public schools; c) Politics, mainstream political parties; d) The Catholic Church and their relatively recent doctrine about preserving the environment due to Pope John Paul II; etc. Undoubtedly, other of such unifying forces can be identified but it is outside the scope of this work. After considering these historical and cultural factors, the current debate about the relationship between values and behaviour might be useful in interpreting the surprising homogeneity in environmental values and at the same time for the difference in environmental behaviour across the Italian macro-regions.

In many ways, the tension between values and behaviour is similar to that between attitudes and behaviour. In general, the attitudes of people (their beliefs) are good predictors of behaviour (their actions), however there are several moderating

variables. Many studies establish attitudes as predictors of behavior and behavioral intentions (e.g. Ajzen & Fishbein 1980; Ajzen 1988; Heberlein 1989; Ajzen & Driver 1991; Ajzen & Driver 1992) and the same applies for environmental attitudes as mentioned earlier.

From this perspective, similarities in the endorsement of environmental values but variations in its practical application should be considered in light of the relationship between values and behaviour. The question of how people bridge the gap between their abstract, emotionally loaded, internal conception of values and more concrete judgment and action is a complex one. People can be aware of a value, and even find it to be highly important, but still not behave in a way that demonstrates their support for it. For example, in one famous experiment, Darley and Batson (1973) showed that seminary students who were on their way to speak about the parable of the 'Good Samaritan' would fail to help an ailing bystander if they were running late to give their speech. More specifically to environment and Italy, Mannetti (2004) found that although self-identity can play an important role in good intentions to recycle etc., the perceived behavioural[7] control is always the second best contributor in their structural equations models. A more refined discussion of the relationship between values and behaviour is offered by Tsirogianni and Gaskell (2011) who refer to the distinction, originally proposed by Charles Morris (Morris, 1956), between 'conceived and 'operative' values. While conceived values may be widely shared, operative values might vary depending on the social context.

The last point, related to the above discussion, concerns the importance of contextual and situational factors for the implementation of values. People implement and combine relational models depending on their values, position in society, group/institutional/cultural contexts, and relations to others etc. For example, the availability of recycling facilities, the quality of public transport, the

market supply of goods, or pricing regimes can strongly affect people's engagement in pro-environmental behaviour (Vining & Ebreo, 1992; Vlek & Stek, 2007).

In addition, people do maintain distinctive and inconsistent frames of action that are invoked in response to particular contextual cues (DiMaggio 1997). In addition, environmental values also compete strongly with social norms (Bardi and Schwartz 2003) and thus may not be implemented by individuals who value conformity to their social context (Bonnes et al. 2011; Lönnqvist et al. 2006; Mellema and Bassili 1995).

The extant differences in collective environmental behaviour between the Italian macro-regions are not explained by the presence of distinguishable cultural areas of different environmental values. The cultural dimensions of collective behaviour are indeed important but they ought to be conceptualized in light of the fundamental tensions between a particular set of beliefs and values and their impact on behaviour. The findings of this study, although limited to a specific case of cultural values in one country, lend support to the conception of culture as fragmented across groups and inconsistent in its manifestations (DiMaggio 1997); and to the idea of culture as a 'repertoire' (Tilly 1992) or 'toolkit' (Swidler 1986). Such an approach goes against the tactic of using 'culture' as an independent variable but rather supports a more fluid idea of cultural identity that is profoundly affected by situational and contextual forces.

Overall, the intriguing results obtained need further validation in the near future. The NEP scale can be considered a reliable scale but further testing is needed, using an alternative way of measuring core environmental values. Moreover, it would be interesting to test different set of values and their endorsement levels between macro-regions in Italy to understand if the presumed cultural differences are, today, only imaginary or still persist.

6. Conclusions

Italy's history and national identity is strongly characterized by the differences between the North, Centre and South, while shared cultural values have been overlooked.

This study's findings challenge the public discourse about the presence of 'three Italies' in terms of environmental values, in other words it does not support the notion of distinguishable culturally diverse areas of Italy as the main cause for the different environmental performances in these parts of Italy. It does so by proposing a methodology that can be applied to other countries when studying the internal variance of the endorsement of cultural values. There are, potentially, additional ways of measuring differences in environmental values and attitudes across Italy and therefore evidence should not be considered as conclusive. However, this analysis represents a scientific attempt at debunking an unfounded public discourse about the cultural roots of the differing environmental performances of certain parts of Italy that have often entailed discriminatory and xenophobic responses.

The mismatch between value similarities and differences in actual behaviour is also a reminder of the complex relationship existing between the two. Similarly to the attitude-behaviour relationship, values can be present in the culture of a community but the contextual and structural context can act as an obstacle for their behavioural expression. However, the implication of the findings is encouraging for policy makers seeking to change the environmental behaviour in under-performing areas. If the cultural basis is not a core obstacle, removing contextual obstacles - admittedly often a huge challenge in itself - should be considered the priority.

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1 For example, the GDP per capita of the South is around 58% of the North and Centre, with roughly the same population (Malanima and Zamagni 2010).
2 Recycling is the most common proxy for environmentally friendly behaviour because it is the most frequently monitored and therefore available. Unfortunately, other behavioural variables are difficult to obtain in many countries.
3 The European Values Study is a large-scale, cross-national, longitudinal survey research programme on basic human values. Every nine years (1981, 1990, 1999, 2008) the survey is repeated in an increasing number of countries. In 2008/09 (the fourth wave) some 70,000 individuals across Europe were interviewed, representing 47 European countries.
4 The formula for the VPC is:

$$VPC = \frac{\sigma_u^2}{\sigma_u^2 + \sigma_e^2}$$

For example, the level-two baseline model for one indicator with the controlling variables is:

$$v295_{ij} \sim N(XB, \Omega)$$

$$v295_{ij} = \beta_{0ij}\text{cons} + \beta_1 v303_{ij} + \beta_2 v336_{ij}$$

$$\beta_{0ij} = \beta_0 + u_{0j} + e_{0ij}$$

$$\begin{bmatrix} u_{0j} \end{bmatrix} \sim N(0, \Omega_u) \; : \; \Omega_u = \begin{bmatrix} \sigma_{u0}^2 \end{bmatrix}$$

$$\begin{bmatrix} e_{0ij} \end{bmatrix} \sim N(0, \Omega_e) \; : \; \Omega_e = \begin{bmatrix} \sigma_{e0}^2 \end{bmatrix}$$

*-2*loglikelihood(IGLS Deviance)* = 3149.891(1330 of 1519 cases in use)

5 All items of this set were rated on a 1-4 scale were 1 stands for 'agree strongly', 2 'agree', 3 'disagree' and 4'disagree strongly', Q85A-Q85G, EVS 2008.
6 The first issue is that basing an analysis of Italian citizens on macro regional characteristics is an example of 'Ecological Fallacy' (Robinson 1950; Hofstede 1980, 2001) - the attribution of group-level features to individuals. The application of group-level characteristics is not always problematic: there are many cases in which it makes perfect sense to attribute the characteristics of a group to all of its individual members. However, disaggregation leads to misrepresentation when: a) the grouping is not adequate for the characteristics under study, and b) the traits are distributed unequally among individuals.
7 The perceived behavioural control is one of the elements of the theory of planned behaviour (Ajzen 1991) and refers to people's perceptions of their ability to implement a given behaviour, and the beliefs about the presence of contextual factors that may facilitate or impede the performance of that behaviour

TABLES

Italian 5 Macro regions		environment: giving part of income (Q85A)	environment: approaching the limit of people (Q85B)	environment: interference produces disastrous consequences (Q85C)	environment: human ingenuity insures earth remaining fit (Q85D)	environment: nature is strong enough to cope with impacts of industry (Q85E)	environment: humans were meant to rule over nature (Q85F)	environment: if things continue we will experience a catastrophe (Q85G)
NO	Mean	2.27	2.54	1.80	2.43	2.93	2.98	2.03
	N	383	337	385	362	358	372	361
	Std. Deviation	.783	.711	.613	.688	.648	.738	.763
NE	Mean	2.16	2.53	1.76	2.44	3.08	3.03	1.94
	N	272	236	282	255	263	270	263
	Std. Deviation	.746	.711	.573	.701	.622	.723	.630
C	Mean	2.21	2.49	1.69	2.50	2.97	3.06	1.88
	N	248	204	262	227	239	248	242
	Std. Deviation	.829	.833	.689	.778	.767	.797	.775
S	Mean	2.20	2.55	1.71	2.46	3.03	2.97	1.79
	N	304	276	325	281	297	297	306
	Std. Deviation	.838	.739	.599	.726	.652	.764	.646
I	Mean	2.45	2.78	1.71	2.30	2.98	2.72	1.91
	N	143	117	158	129	131	145	137
	Std. Deviation	.901	.671	.671	.735	.679	.803	.800
Total	Mean	2.24	2.56	1.74	2.44	3.00	2.98	1.92
	N	1350	1170	1412	1254	1288	1332	1309
	Std. Deviation	.813	.739	.624	.722	.672	.764	.723

Table 1 Means and standard deviations of the NEP items by macro regions.

Item	Macro regional level variance (σ_u^2)	Individual level variance (σ_e^2)	VPC	VPC %	N
Environment: giving away part of income	0.036	0.607	0.05599	5.59	1350
Environment: approaching the limit of people	0.016	0.521	0.0298	2.97	1170
Environment: interference produces disastrous consequences	0.008	0.376	0.02083	2.08	1412
Environment: human ingenuity ensures the earth's survival	0.035	0.47	0.06931	6.93	1254
Environment: nature is strong enough to cope with impacts of industry	0.021	0.41	0.04872	4.87	1288
Environment: humans were meant to rule over nature	0.039	0.509	0.07117	7.11	1332
Environment: if things continue we will experience a catastrophe	0.008	0.505	0.01559	1.55	1309
Factor 1. Man Over Nature (HEP)	0.064	0.864	0.0689	6.89	930
Factor 2. Balance of Nature (NEP)	0.05	0.968	0.0491	4.91	930
Factor 3. Mild NEP	0.053	0.939	0.0534	5.34	930

Table 2 Multilevel variance components analysis of NEP scale items, total score and factors by macro-regions.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.132	30.461	30.461	2.132	30.461	30.461	1.784	25.488	25.488
2	1.325	18.933	49.394	1.325	18.933	49.394	1.524	21.774	47.261
3	.931	13.307	62.701	.931	13.307	62.701	1.081	15.439	62.701
4	.796	11.366	74.067						
5	.679	9.693	83.760						
6	.598	8.550	92.310						
7	.538	7.690	100.000						

Extraction Method: Principal Component Analysis.

Table 3 Eigenvalues of the PCA factorial analysis.

Rotated Component Matrix[a]	Component		
	1	2	3
environment: nature is strong enough to cope with impacts of industry (Q85E)	.762		
environment: humans were meant to rule over nature (Q85F)	.760		
environment: human ingenuity insures earth remaining fit (Q85D)	.728		.251
environment: approaching the limit of people (Q85B)		.796	
environment: if things continue we will experience a catastrophe (Q85G)	-.306	.648	
environment: interference produces disastrous consequences (Q85C)		.645	.352
environment: giving part of income (Q85A)			.885

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Table 4 Factor loadings based on a principle components analysis with varimax rotation for 7 items from the EVS version of the NEP scale (N=*1519*). Factor loadings <.2 are suppressed.