

FORTY YEARS OF ENVIRONMENTAL RISK PERCEPTIONS: EVIDENCE FROM THE SLOVENIAN PUBLIC OPINION SURVEY

Abstract. This paper examines a forty-year dynamic of concern for the environment among Slovenian respondents. It first makes an inventory of the variables that are presumed to influence perceptions of environmental risk, then proceeds to analyse twelve Slovenia Public Opinion datasets to observe the trends. The longitudinal evidence reveals considerable shifts in the perception of environmental concern, particularly in response to dramatic outside events (such as Chernobyl). The trends reveal a cyclic pattern, with 2011 levels of concern having returned to the levels observed in the early 1970s, following a peak in the early 1990s. No distinctive patterns for the different types of environmental risk can be observed, which suggests that respondents fail to make a distinction between the different types. Finally, the data reveals that previous differences of opinion that correlated with levels of education and age have gradually been disappearing. The observed trends in environmental concern are best explained by macro factors, in particular the challenge-response model, the agenda-setting model, and the issue-entrepreneurship model.

Keywords: environment, risk, agenda setting, mass media, public opinion

Introduction: the Elusive Concept of Environmental Risk

Is the environment still a relevant concern for the Slovenian public, or is the love affair that began in the mid 1980s over? Answering this question presents significant conceptual, methodological and analytical challenges, and this paper sets out to tackle some of them. It will focus on the cross-time dimension, specifically, the dynamic of environmental concern in Slovenia over the last four decades. The empirical evidence we are going to examine

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will give us a fairly accurate picture of how environmental concern has figured in public opinion, both at its peak and at its current level. We will offer some explanations for the trends observed, bearing in mind that the volume of relevant theoretical knowledge concerning environmental risk perceptions is not very extensive.

Our focus here is therefore not the whole range of *environmental attitudes* that would provide an in-depth insight into the state of environmental consciousness of the Slovenian public, but only the dynamic of *environmental concern*, inferred from perceptions of environmental threats. Other dimensions of environmental concern in the literature include questions that ask respondents to weigh the tradeoffs or to give opinions of more abstract environmental beliefs (Freudenburg, 1991); in our case, however, these were not available. The only aspect of ecological orientation that the *Slovenian Public Opinion Survey* (SPO), our only available data source, measured across such a lengthy time period was that of environmental threat. While a significant number of additional ecological indicators appeared in the 1990s, many of which were comparative (see Toš, 1997), we wanted to make use of the longest time series available.

Limiting ourselves to environmental risk perceptions has both favourable and unfavourable aspects. On one hand it is a widely used indicator. Comparative surveys provide increasing evidence that environmental concern is a worldwide phenomenon found at all social strata, among all races and at all educational levels, among the people of developed as well as developing nations (Mohai et al., 2010: 779). On the other hand, it obviously does not cover all relevant aspects of environmental attitudes and its definition is not consistent across surveys. As Heberlein observed during the first wave of environmental surveys three decades ago (1981: 1), there seems to be a lack of theoretical and methodological consensus as to what constitutes environmental concern, as well as the nature of its relation with environmental values, opinions, attitudes and orientations. In his opinion, research on environmental attitudes has largely been atheoretical and non-cumulative. Several attempts to measure them by multi-item scales discovered a variety of underlying components. For instance, Hoover and Schutz discovered more than 10 factors, while Steiner and Barnhart used a 250 item scale which yielded seven interpretable factors (in Heberlein, 1981: 16). Both studies indicated that these attitudes were tied to broader values such as individual liberties, property rights, democratic principles, personal responsibility, and regard for human life. Yet despite these early efforts, no theoretically-based standardised measures of environmental attitudes have been adopted by the international survey community to date.

In addition to the ambiguous relationship between environmental concern and the wider set of environmental attitudes, many findings indicate

that measuring environmental concern is very context-dependent. Asking respondents to evaluate the seriousness of various forms of pollution in their communities is important, but it is quite a different question from asking them about the same pollution problems at a state-wide or national level (Klineberg et al., 1998: 751–752). Also, environmental concern is associated with many different potential trade-offs that stimulate inconsistent responses. Importantly, people differ in the resources available to them and in the kinds of tradeoffs they are willing to accept. It is therefore unsurprising that perceptions of environmental concern tend to fluctuate quite significantly.

Difficulties in measuring environmental attitudes and particularly environmental concern arise from the fact that perceptions of these threats are rarely based on personal experience. Often, environmental threats are neither visible nor tangible to the lay-public, and will sometimes not even take their toll on the lifespan of the individuals affected. As Beck put it, they are in any case threats that require the sensory organs of science – theories, experiments, and measuring instruments – in order to become visible and interpretable as threats at all. In some cases, the threats have become detached from any possibility of being perceived; they are not only transmitted by science, but in the strict sense are scientifically constructed (Beck, 1993: 162). However, the decisive role of science in the *construction* of environmental risks does not mean that science has a decisive influence on the public's *perceptions* of these risks. As we shall see, media and political discourse appear to play a vital role here as mediators.

Our paper will proceed as follows. Firstly, based on a review of the literature we will make an inventory of the variables that are presumed to influence public perceptions of environmental risks. Secondly, we will then apply this conceptual framework to our Slovenian Public Opinion data to examine the forty-year dynamic of environmental concern and hypothesise the most likely explanations for it.

Pollution, Politics and the Media: the Driving Forces behind the Rise of Environmentalism

What does the literature say about the factors influencing the rise of environmentalist attitudes and concern? In our overview we will broadly divide them into two groups, depending on whether they operate at the macro or micro level.

Among the *macro variables*, the most obvious factor influencing the rise of environmentalist attitudes is the *objective conditions*. It seems self-evident that people's perceptions of environmental risks are based on their first hand experience, yet objective facts often seem to be in a rather ambiguous

relationship with public perceptions of them. On one hand, most industrialised countries have achieved substantial improvements in environmental quality since 1970 (Inglehart, 1995: 57-58). Air quality in OECD countries has vastly improved. Particulate emissions have declined by 60% and sulphur oxides by 38% since 1970. Lead emissions have fallen by 85% in North America and by 50% in most European cities. However, the situation is dramatically different in low-income countries. In developing countries, water quality has continued to deteriorate, whilst air pollution has increased. When this picture is compared with the empirical data on subjective perceptions, the data supports the influence of objective conditions on public attitudes, at least partly so. For example, motor traffic is regarded as being relatively more dangerous in Brazil, Hong Kong and Hungary than in the United States and Sweden because traffic conditions vary in these different countries. Such 'objective' factors might therefore be reflected in the local perception of the risks (Boholm, 1998: 145). Also, the 1990-93 World Values survey, carried out in 43 countries found that mass support for environmental protection tended to be greatest in those countries with relatively severe objective problems (as indicated by levels of air pollution and water pollution). This finding fits a "challenge-response" model which predicts that people are concerned about the environment because they face serious objective problems (Inglehart, 1995: 57).

However, objective trends in environmental risk do not always translate into subjective perceptions as expected. The intricate relationship between the objective and subjective levels of risk has been explored by several authors using a psychometric approach. Slovic asserted that laypeople think of hazards according to the attributes of the hazards, e.g. how urgent, observable and familiar they are, how easily controlled, how catastrophic, how equally distributed, and even their moral dimension (in Adeola, 2007: 15). Similarly, in his review of risk studies, Boholm states that, in perceiving risks, laypersons have a tendency to overestimate unusual and spectacular cases. Hazards that are more dramatic and spectacular may be more easily remembered and their higher cognitive 'availability' may thus explain the tendency among subjects to overrate the risks of such hazards. In addition, hazards considered to be 'voluntary' were also highly likely to be understood as 'controllable' and 'well known' (Boholm, 1998: 138). The so-called factual risk is not easy to define and assess, nor do we know how members of the public experience it. Aggregate measurements of risks, such as the annual rate of fatalities, cannot be experienced directly. As Boholm points out, factual risk is not a phenomenon but a construct - one that can be represented by statistical figures, or a condensed and powerful image, such as American war cemeteries (1998: 144-145).

As already mentioned, the experience of environmental risk is in many

cases indirect, encountered through statements made by experts and risk management institutions, news media, public agencies, political pressure groups, or informal networks of friends and family. If the availability heuristic is to be taken seriously as a theoretical framework for understanding the perception of risk, attention should be paid to the way in which the various hazards are represented socially, for example in the media, rather than as statistical records of accident rates (Boholm, 1998: 145).

It is precisely this indirect nature of experience that makes *news media* the second key factor in the public's perception of environmental risks. It is the mass media that decide whether and which kind of risk appears on the public's radar. While some risks might be amplified, observes Boholm (1998: 146), others might be attenuated by the way they are presented in the media. Several studies have suggested that the news media perform an important role in amplifying public perceptions of risk by presenting the information in such a way as to encourage the public to imagine scenarios, thus heightening their memorability by bringing the risks closer to home (Anderson, 1997: 187-88). The environment is a typical example. Media reporting is often risk-led, based on anxieties of threats to health posed by major incidents. The category "environment" often overlaps with the category "risk". Risk experts often criticise the mass media for being too reliant on pseudo-experts, and for treating issues in an emotive way through exploiting the human interest angle. TV news coverage of environmental risks tends to be event rather than issue-led, for example, the Chernobyl disaster (Anderson, 1997: 115-116). Such an approach may bias or 'deform' public perceptions of environmental risks.

The media's powerful means of influencing environmental concern is its ability to set the agenda, a process by which hierarchies of issues are mediated to the public. Anderson (1997: 24-26) observes that public and political concerns for social issues tend to be cyclical and that these agendas do not mirror the objective conditions. Just because an issue becomes less prominent in the media, it does not necessarily mean that the problem has become less severe, or that it has been solved. It may be that it is competing with other issues that are considered more 'sexy' or compelling. Adeola (2007: 15-16) points to a series of catastrophic environmental disasters in the past three decades - for instance, the 2005 Katrina flood in New Orleans, the 1989 Exxon Valdez oil spill, the 1986 Chernobyl nuclear meltdown in the Soviet Union, the 1984 catastrophic Union Carbide chemical release in Bhopal, India, the 1979 Three Mile Island nuclear reactor accidents in Pennsylvania - all of which sensitised people of different nationalities and cultural backgrounds to environmental risks. All of these disasters featured high on the media's agenda, which is why many authors have concluded that the dynamic of environmental concern can be explained to a great

extent by issue hierarchies in the media. It is argued that while the media may not change public attitudes, they do identify problems and specify the topic of public debate. In seeking to explain the peak in environmental concern in 1970, Heberlein has claimed that it is primarily the media's agenda-setting which the poll data is registering. In 1970, environmental pollution was on the public agenda; the public knew this and reported it to pollsters (Heberlein, 1981: 14).

Of course media influence is not straightforward and should not be simplified into a simple cause and effect model. As Boholm indicates (1998: 147), the media are not digested in isolation by individuals. What people read in the papers or watch on television tends to be discussed at work, with the family, and among friends and neighbours. Nevertheless, the media played a key role in integrating environmental issues into the public consciousness during the 1970s. According to Heberlein, information in the media modified two crucial beliefs: the individual's awareness of the interpersonal consequences of environmental actions (i.e. changing the environment harms people); and that individuals were personally responsible for these acts. This thrust the question of the environment into the moral domain, and thus it became material for public indignation (Heberlein, 1981: 15-16).

In other words, in the 1970s, environmentalism was raised to the status of a moral and political issue. The question is: why did this happen at this point in time? The answer seems to lie primarily in the political sphere. Environmental concern or consciousness was not an autonomous creation of the mass media. It was rather that the media picked up on and reinforced an underlying political process, which is where we encounter another macro factor that shapes public perceptions of environmental risks, namely *political and policy agendas*. As Anderson notes (1997: 29-32), with the exception of dramatic events, social issues do not ordinarily draw attention to themselves. They rely heavily upon the activities of issue-entrepreneurs or claims-makers to project them into the public domain. The construction of social problems can therefore be deliberate and their development closely associated with political and ideological factors. Various organisations often stand to gain from promoting particular issues as social problems. The media is the natural tool of promotion, but with certain limitations. Downs mentions the issue attention cycle, where interest in social issues such as crime, race, gender or ecology goes through a cyclical process of fervent concern and increasing boredom (in Parsons, 2003: 116-117; Anderson, 1997: 41). The environment competes for attention with a range of other issues or problems and 'political entrepreneurs' make active efforts to bring concern for the environmental into the media spotlight, at least in the initial phase. At this stage in particular, public opinion plays a major role when

pressure groups launch efforts to attract the attention of policymakers (Parsons, 2003: 110–111).

Over a period of time, however, many of the pressure groups that focus on attracting media publicity during the early stages move on to focus more of their energies on parliamentary activities. Since the late 1980s, large environmental NGOs have become increasingly prominent in the field of international environmental politics, as Anderson has remarked in her overview of the UK case. Historically, in the UK and USA the environmental lobby evolved from a relatively small number of wildlife protection and nature preservation groups. By the 1960s, many environmental organisations had broadened their focus to include threats such as global warming. It was in the late 1960s and early 1970s that environmentalism first took off in Britain with the publication of *The Limits to Growth*. By the 1970s, the environment had, to a large extent, become institutionalised. The general election manifestos of the major political parties in the UK now directly referred to “environmental” policy. While in 1970 only 15 countries had established environmental management institutions, by 1980 this figure had increased to 115 (Anderson, 1997: 79–81). According to O’Riordan, an issue only begins to become important when an institution within the political system becomes associated with it (Parsons, 2003: 117); this is something that environmentalism had successfully achieved by this point, having placed its goals on the policy agenda. The process corresponds to the ‘mobilisation’ or ‘exterior initiative’ policy model, in which a policy agenda is constructed in response to clearly articulated social demands where the activities of pressure groups and (new) social movements are a determining factor (Knoepfel et al., 2007: 140).

The fact that environmentalism became a widely embraced political discourse in many old democracies was also reflected in election results. Initially, environmentalist parties were important only in West Germany, but during the 1980s they spread to The Netherlands, Belgium, Austria, and Switzerland. In the 1990s, they made breakthroughs in Sweden and France, and also partly in Great Britain. According to Inglehart (1995: 68), these parties have successfully advocated environmental protection policies and have forced the established parties to adopt stronger environmental protection policies in order to compete for their voters. Some authors have argued that as a result of this process environmentalism is fast losing its identity as a counter discourse and is becoming a political ideology (Anderson, 1997: 101). In roughly the same period, green parties also achieved their greatest electoral success in Slovenia, winning around 9% of the vote in the nation’s first democratic election in 1990. The share however dropped to 4.4% in 1992, 2.3% in 1996 and has remained at around 1% ever since. As has happened elsewhere, most leading political parties have integrated the environmental agenda into their election programmes. As the model of ‘electoral

competition' predicts, once an issue captures the public's attention, most political parties will include it in their policy agendas to expand their pool of voters, so that the new political battle lines instead concern the selection of specific topics, the ideological dimensions and the issue of party credibility (Knoepfel et al., 2007: 142)

We have thus far observed that, despite its ups and downs in public perceptions and electoral results, environmentalism grew into a significant political and policy issue between 1970s and 1990s. But did it become a moral value? The most popular theory to advocate this view is Ronald Inglehart's theory of cultural dynamic, which claims that throughout industrial society, people's basic values and goals are gradually shifting. Instead of prioritising economic growth and consumption, they increasingly place greater emphasis on the quality of life (Inglehart, 1995: 61). Changing environmental attitudes are only one symptom of a much broader process of cultural change. The unprecedented degree of economic security experienced by the post-war generation in most industrial societies has led to a gradual shift from "materialist" values towards "post-materialist" priorities. People with "post-materialist" values emphasize self-expression and the quality of life, and are much more apt to set great store by protecting the environment (Inglehart, 1995: 57, 61). This makes the cultural dynamic the final macro factor which is presumed to influence environmental risk perceptions.

Yet Inglehart gives a mixed answer to the question of whether the rise of post-materialist values can help to account for the spectacular rise in the salience of environmental issues which took place between the 1970s and 1990s. On one hand, the results of his study suggest that the degree of public support for environmental protection in a given country tends to reflect that country's objective circumstances: the more severely polluted the country, the greater the public's concern. Yet quite apart from the relative severity of their objective pollution, he claims that a gradual shift towards post-materialist values has made some societies (Scandinavia in particular) increasingly sensitive to environmental quality (1995: 61.63). In advanced industrial societies, post-materialists are more than twice as likely to rank high on support for environmental protection as materialists, despite the fact that they have some of the world's lowest levels of air and water pollution. Of the 43 countries surveyed, the Nordic countries and the Netherlands rank highest in their support for protecting the environment countries surveyed. Inglehart concludes (1995: 57-67) that public support for environmental protection policies is stimulated by two completely different types of factors, i.e. post-materialist values (e.g. Scandinavia) and objective conditions (e.g. China, South Korea). Post-materialist values are not the only factor linked with a concern for the environment: it is clear that objective conditions also play an important role.

Does Environmentalism Appeal more to the Young and Educated?

This concludes our list of macro variables found in the literature as possible correlates of environmental concern. We now move on to *micro-level factors*, focusing on the individual characteristics of the respondents which influenced their perceptions of the risks. According to most authors, the effects at this level of causality are neither particularly strong nor consistent. Based on an extensive review of nearly thirty years of research on the demographic correlates of environmental concern, Klineberg and others (1998: 734–735) have established that when all the standard demographic predictors are combined, they rarely account for more than 15 percent of the variance. This would suggest that either macro-level factors are a much more powerful influence, or that micro-level indicators are still not adequately conceptualised and operationalised, a problem raised by Heberlein several decades ago.

Despite these underwhelming findings, some interesting consistencies have nevertheless been observed at the individual level, suggesting the existence of relevant effects. This is particularly true of the *social class* hypothesis, which postulates that concern for the environmental is positively associated with social class as defined via education, income, and occupational prestige. One explanation is that the upper and middle classes have solved their basic material needs and thus are free to focus on the more aesthetic aspects of human existence. This hypothesis rests on Maslow's hierarchy of needs theory, and assumes that concern for environmental quality is something of a luxury which can be indulged only after the more basic material needs have been met (in Liere and Dunlap, 1980: 183–1984). Other authors suggest that the middle and upper classes are the most politically and socially active segments of society, and that their concern over environmental problems is only an extension of a generalised concern for social problems. Alternatively, some point out that poverty might also be considered a determinant of risk perceptions. If one must struggle for survival and be subjected to constant threats on a daily basis, perhaps this might also increase one's general perception of risks at a more abstract level (Boholm, 1998: 149).

Another micro factor typically explored by literature is age. The theory of generations suggests that important historical events occurring at the crucial adolescent and young adulthood phase of the life cycle can permanently affect a cohort throughout its existence. In the case of the USA, Malkis and Grasmick have suggested that the exposure to the "youth movement" of those who, in the sixties and seventies, were aged from 18 to 30 in that period may to some extent account for their greater concern for environmental problems. The continued exposure to alarming information on environmental deterioration has left an indelible imprint on many young people, forming an ecology-minded generation whose commitment to

environmental reform is unlikely to disappear as they move into adulthood (in Liere and Dunlap, 1980: 183). According to this theory, the generations of the last two or three decades, exposed to extensive environmental information, will be more prone to adopt pro-environmental attitudes.

By contrast, relatively few researchers have paid attention to gender in their studies of environmental concern. Some argue that because males are more likely to be politically active, more involved with community issues, and have a higher level of education than females, they will be more concerned about environmental problems. Others, however, argue that males are more likely than females to worry about jobs and economic growth, and are thus less likely than females to worry about the quality of the environment (Liere and Dunlap, 1980: 185–186). Alternatively, in a study by Flynn et al, it was not the responses of women that stood out as ‘peculiar’, but those of white men with power, and with good income and education, whose ratings in this respect were very low. White men control, manage and benefit from the world, which they also see as less risky (in Boholm, 1998: 151). The gender association is therefore rather inconsistent and inconclusive.

Several authors explore the relationship between the individual’s world view or *political culture* and their ecological concern. Social trust seems to be a particularly interesting dimension here. As already noted, most environmental risks are not easily perceptible to the human eye, and therefore rely on trust in both those who define them and those who deal with their consequences. This field of studies has shown that respondents who had a high degree of trust in government regulation, a positive view of the benefits of technology, and who displayed a low degree of worry and low personal control, also displayed a low risk perception. People who have a high degree of trust in authorities and the management in charge of technology or industrial plants perceive fewer risks than people with a lower degree of trust in such systems (Adeola, 2007: 15–17). In addition to trust, some other aspects of political culture were also found to be important. Respondents with an ‘ecological’ or ‘feminist’ orientation tended to evaluate a greater level of risk in the risks that they identified (Boholm, 1998: 151–152).

Finally, *residence* is an individual-level characteristic often hypothesised to be associated with risk perceptions, in particular along the urban-rural divide. Urban residents can be expected to be more concerned about the environment because they generally are exposed to higher levels of pollution and other types of environmental deterioration. Rural residents are more likely to have a utilitarian orientation toward the natural environment because of their involvement with “extractive” occupations such as farming, logging, and mining (Liere and Dunlap, 1980: 184, 191). However, the association is not consistent, particularly when the geographical frame of reference is wide. Residence seems to be most strongly associated with

environmental concern when local environmental conditions are the focus of attention.

To summarise, socio-demographic factors hardly boast spectacular explanatory power or law-like consistency, therefore, their contribution to explaining environmental concern is moderate. In 1980, during the first wave of scientific exploration of environmental attitudes, Liere and Dunlap reviewed surveys that produced evidence on the social correlates of environmental concern and concluded that only three of the hypothesised relationships should be considered empirical generalisations. Age, education, and political ideology were consistently (albeit moderately) associated with environmental concern. Younger, well-educated, and politically liberal persons tended to be more concerned about environmental quality than their older, less educated, and politically conservative counterparts. The evidence was less conclusive for residence, political party identification, and occupational prestige (Liere and Dunlap, 1980: 192–193). Similarly, in a more recent review, Klineberg reports that the only two demographic variables that are consistently correlated with environmental concern across all the different measures are age and education. Younger and better-educated members of the public do indeed appear to be more concerned about issues of environmental quality and more committed to environmental protection, almost regardless of how the dependent variable is measured (Klineberg et al., 1998: 747, 751). In contrast, household income has a significant effect, albeit almost exclusively on questions that measure the respondents' willingness to accept higher costs for consumer goods and the reported frequency of pro-environmental behaviours that reflect individual or community resources.

In the rest of the paper, we will first consider the forty year trend of environmental concern in Slovenia. Along with the overall picture, we will also examine sub-trends for educational, age and gender groups; certain other relevant explanatory variables (e.g. political ideology) could not be included due to missing or incomparable measurements. We will conclude the paper with a discussion of the observed longitudinal patterns, applying our inventory of predictors to provide relevant explanations for the dynamic behind environmental concern.

Forty Years of Environmental Concern: a Moderate Start, an Explosive Climb and a Long Descent

Our empirical source for assessing the levels of environmental concern is the *Slovenian Public Opinion Survey*¹, specifically, a selection of data

¹ The survey is based at the Public Opinion Research Centre, University of Ljubljana, and has been fielded annually since in 1968

sets from the time period between 1973 and 2011. Twelve of the surveys included identical measures of environmental risk perception based on representative samples of the adult Slovenian population: 1973 (N = 2098), 1976 (N = 2059), 1980 (N = 2031), 1982 (N = 2049), 1986 (N = 2053), 1987 (N = 2033), 1990 (N = 2050), 1993 (N = 1044), 1998 (N = 1050), 2001 (N = 1098), 2003 (N = 1073) and 2011 (N = 1082) (Toš, 1997, Toš 1999). The measurements span nearly forty years and cover very diverse historical periods. The first five waves date back into the socialist and pre-Chernobyl era, while the remaining seven extend over the period of transition at a time when social stresses first reached their peak; this was followed by a period of social stabilisation and economic prosperity. The latest wave was fielded when the global economic downturn that began in 2008 was already well under way. This gives us the opportunity to study how and whether the changing historical, economic and political context has affected the dynamic of environmental concern.

Our dependant concept is the perception of environmental risks. The question wording was: *Do the following phenomena in your living and working environment threaten you, concern you, or are non-existent? (Air pollution, water pollution, nuclear waste, forest decay)*. The items were measured on a five-point labelled ordinal scale: 1 – *This is not a problem at all in my environment*; 2 – *I am not bothered by it*; 3 – *I am bothered, but not too much*; 4 – *I am bothered a lot*; 5 – *It is life-threatening*. Environmental concern was therefore implicitly measured at the local level, assuming that this is what respondents understood by ‘your living and working environment’. However, since the term ‘local community’ was not explicitly used, the respondents’ geographical reference point remains somewhat vague and possibly heterogeneous. Nevertheless, the wording was standardised across time so whatever measurement error may be built into the indicators, it can be expected to remain constant.

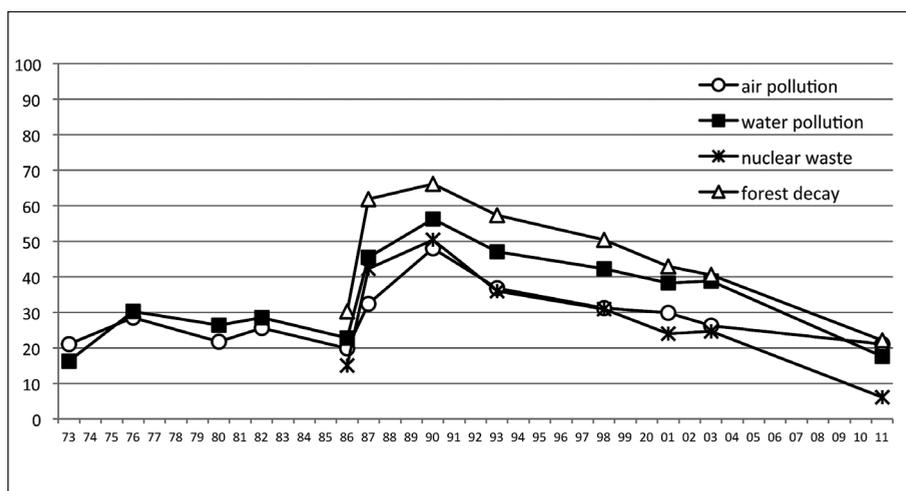
Our independent variables were education, age and gender. We used education as a standalone measure of social class because family income was not included in earlier surveys. Even after it appeared, the scale and currencies differed significantly between periods. Education too was measured on several different ordinary scales across time, so we re-coded them into just two groups (a 3-year vocational school or lower and 4-year secondary school or higher) to obtain a robust measure. Age was measured by year of birth and re-coded into three age groups.

We will firstly examine the overall trend of environmental concern for four environmental risks – air pollution, water pollution, nuclear waste and forest decay (Figure 1). The chart reveals an interesting dynamic across the three or four decades, depending on when the item was first measured. Ecological concern was initially relatively low in 1973, at around 20%, and

remained such until the measurement in 1986, by which time all four risks were already present. In 1987 it shot up abruptly and reached its peak in 1990, when the share of environmentally concerned respondents swelled to 50–65%. After 1990, the level of concern began to decline and this trend has continued to the end point in 2011 where it sits at 5–20%. These are roughly the same starting levels as 1973 or 1986; in some cases (e.g. nuclear waste) the current level is even lower than its starting level.

Interestingly, despite the fact that the four items under observation represent a rather diverse set of environmental threats, their trajectory is similar. All of them seem to grow and fall in parallel, a pattern which suggests that their distinctive content was lost on respondents. The four distinct threats more or less fail to translate into distinct dimensions of environmental risk and seem to stand for a single construct in respondents' perceptions.

FIGURE 1: SHARE OF RESPONDENTS EXPRESSING ENVIRONMENTAL CONCERN IN THE 1973–2011 PERIOD (THE SUM OF 'I AM BOTHERED A LOT' AND 'IT IS LIFE-THREATENING')



Source: Slovenian Public Opinion Survey

The most striking feature in the chart is of course the sudden jump of environmental concern recorded in 1987. This is not, however, a distinctive characteristic of Slovenian public opinion. Surveys have shown that in the USA concern rose significantly between the mid 1960s and the early 1970s when it began to level off – picking up again during the 1980s. In West Germany and Britain interest in the environment increased during the 1980s; in Britain it peaked during the summer of 1989 when 35% of respondents stated that the environment was among the most important issues facing the country. However, by the autumn of 1990 only 9% gave the same response,

since law and order, health care and unemployment had taken precedence (Anderson, 1997: 90–91).

The peak around 1990 can be associated fairly safely with the Chernobyl nuclear disaster. According to O’Riordan, the progress of a public issue is shaped by a degree of particularity – the extent to which an issue can be exemplified by a particular occurrence or event, which is particularly the case with the environment; its ups and downs coincide with disasters and ‘crises’ of various kinds (in Parsons, 2003: 117). The Chernobyl disaster was a powerful example of such particularity. It brought about an exponential growth in media coverage of environmental issues, as well as emphatic political response. As noted by Strydom, the Chernobyl disaster marked the turning point in public risk discourse. Assumptions about nature, social institutions, science and technology, expertise and progress which had been taken for granted were now challenged. Risk awareness, concerns, and anxiety spread across different groups, nationalities, and sub-nationalities reflecting the characteristics of a global risk society (in Adeola, 2007: 15–16). This event was a particularly vivid illustration of the fact that environmental problems can not only prove damaging to the quality of life, but may also pose an immediate threat to life itself (Inglehart, 1995: 65). As the chart clearly demonstrates, in Slovenia too the cycle of environmental concern reached its peak in the years immediately following Chernobyl, which was also reflected in the political sphere by the green parties reaching their election maximum.

Figures 2 and 3 present the same trend for the water and air pollution, both measured since 1973, with levels of environmental concern broken down into two educational groups. Here an interesting trend emerges – the charts seem to indicate a general decline in the differences between educational groups. In the period between 1973 and 1993, environmental concern was, in both cases, consistently higher in the better educated group. However, after 1993 this gap begins to close and more or less disappears by the end of 90s. If during the first twenty years education was the attribute that amplified the perceptions of environmental risk, then this is no longer the case.

A similar phenomenon seems apparent with age groups, where we presented perceptions of nuclear waste threat as an example (Figure 4). We can see that the gap in concern between the young and the senior group was quite significant between 1987 and 1993, with the young group consistently expressing higher levels of concern. This gap then began to close and had disappeared by the 2011 measurement.

Figure 2: THE SHARE OF RESPONDENTS EXPRESSING CONCERN ABOUT WATER POLLUTION IN THE 1973–2011 PERIOD BY EDUCATIONAL GROUP.

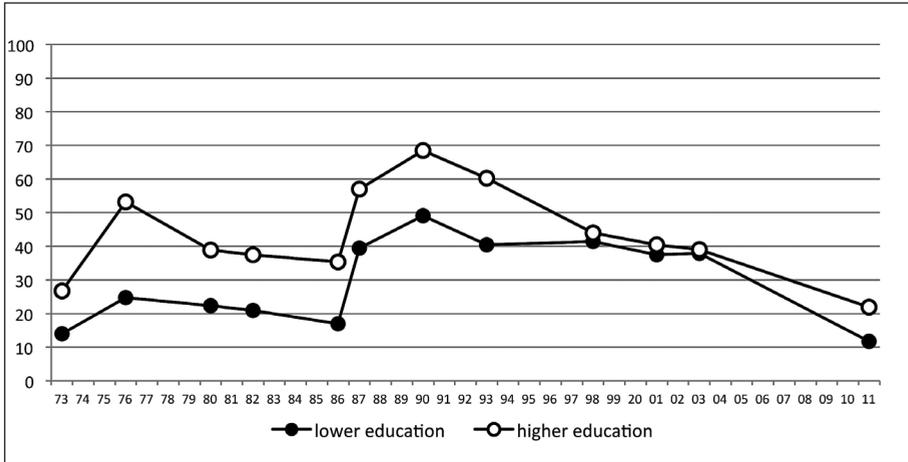
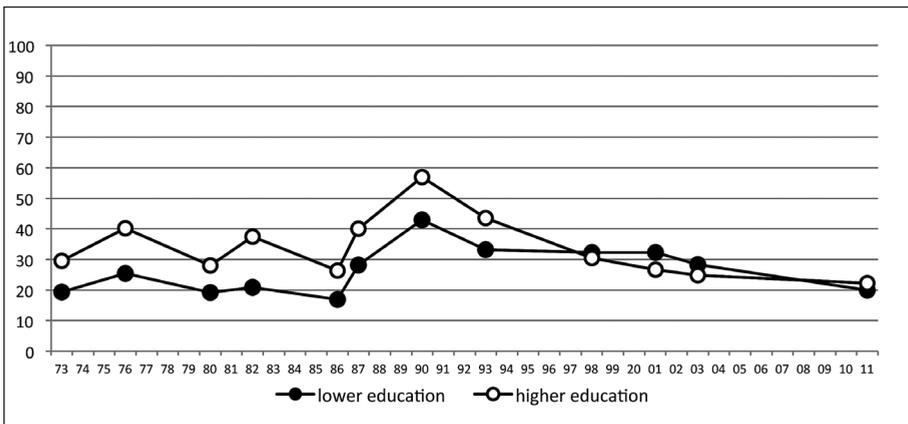


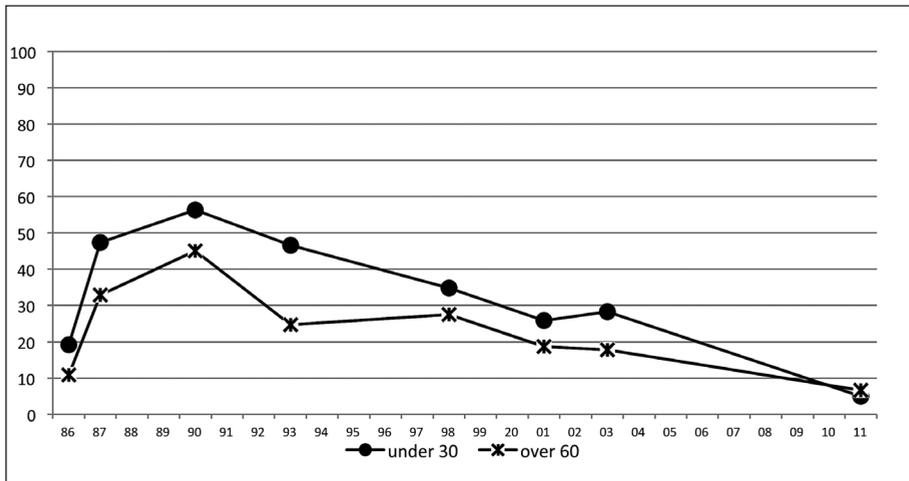
Figure 3: THE SHARE OF RESPONDENTS EXPRESSING CONCERN ABOUT AIR POLLUTION IN THE 1973–2011 PERIOD BY EDUCATIONAL GROUP.



As for a study of gender differences, they yield no clear or consistent patterns in the perceptions of environmental concern across this period.

To sum up: the forty year trend of environmental concern in Slovenia reveals a considerable cross-time dynamic, particularly in response to an outside dramatic event. It shows a cyclical pattern, with levels of concern returning to their starting figures after nearly four decades. It shows no distinctive trajectories for the different environmental risk items, and detects a gradual disappearance of inter-group differences.

Figure 4: THE SHARE OF RESPONDENTS EXPRESSING CONCERN ABOUT NUCLEAR WASTE IN THE 1986–2011 PERIOD BY AGE GROUP.



Discussion: Back to Where We Began?

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It would seem that two questions present themselves for discussion. Firstly: What explains the dynamic of environmental risk perceptions? Secondly, What should we make of the fact that levels of concern at both the starting and ending point of the survey period are nearly identical?

As for the explanations of the trend observed, we will first examine the possibility that it could be interpreted, at least partially, by objective conditions, i.e. by the challenge-response model. Some facts about the magnitude of environmental risks during the last few decades can be obtained from statistical data. According to measurements of trends in air pollution by the Slovenian Environment Agency, there was a relatively sharp decline in sulphur dioxide emissions (SO_2) in all Slovenian regions between 1992 and 2010 (ARSO, 2010: 38). Sulphur dioxide is a gas caused mostly by industry. At the same time, annual emissions of mono-nitrogen oxides (NO_x), which are mainly caused by cars, dropped 23.8% in 2009, compared to 1987, despite a huge increase in the number of motor vehicles (ARSO, 2010: 41). Only greenhouse gas emissions grew about 10% between 1990 and 2009 (SURS, 2010: 481). As for water quality, the discharge of industrial waste water was reduced from 1,024,983 (1000 m³) in 1995 to 774,003 in 2009 (SURS, 2010: 484). In the case of forests, none of the key statistical indicators suggest environmental problems. On the contrary, the amount of forested land grew from 943,209 hectares in 1960 to 1,186,104 in 2009, resulting in an increase over half a century in timber yields, which jumped from

an annual yield of 150,047 m³ in 1961 to 327,459 m³ in 2009 (SURS, 2010: 314–315; see also Malnar and Šinko, 2000). Finally, there were no incidents concerning the sole Slovenian nuclear power plant at Krško, or any new incidents elsewhere in Europe following the Chernobyl disaster. So even if we cannot establish a direct empirical link between these objective measures and the gradual decrease of environmental concern in public opinion after 1990, we can at least argue that the objective conditions in Slovenia have provided little basis either to sustain high or ‘urgent’ levels of environmental concern among the public, or to justify making environmental risks a prominent item on the media’s agenda.

Secondly, due to the extremely flexible, even ‘explosive’, character of the jump in environmental concern observed in 1987, our data also seems to discourage the cultural dynamic explanation of the perception of risk. By definition, cultural shift is a slow and gradual process subject to generational cycles. This explains why opinion trends on the environment often shift wildly, leading some authors to question the thesis that environmental values in the developed world are strengthening as part of a post-modern values shift. For instance, Diez-Nicolas observes that concern for the environment tends to decline when society experiences economic crises, while other post-materialist values do not seem to be affected so immediately by changes in objective economic conditions (Diez-Nicolas, 1999: 347; see also Malnar, 2002). Of course our data only includes environmental risk perceptions, meaning that the cultural shift thesis could still provide a more powerful explanatory tool for other dimensions of environmental attitudes of which risk perceptions are just one segment.

On the other hand, the observed longitudinal patterns correspond rather well with several other explanatory concepts outlined in the introductory part. As mentioned earlier, the sudden jump in environmental concern after 1987 seems to have been an immediate consequence of the Chernobyl disaster and its ‘resounding particularity’. Such emphatic public reaction is predicted by the psychometric approach which suggests that laypeople respond disproportionately strongly to urgent, dramatic and spectacular hazards over which they have little control. The jump in risk perceptions is also predicted by theories of availability heuristics and agenda setting, which maintain that environmental risks are mainly experienced by the public when made visible or ‘available’ by the media and political players.

The fact that environmental concern has remained elevated for more than a decade corresponds with the claims-making or issue-entrepreneurship model, which claims that issues stick in the public consciousness when purposefully projected into the public domain by political advocates. According to Anderson (1997: 79–81), in the US, many issue entrepreneurs and activists moved from the civil rights agenda to the environmental

agenda, so that the environmental movement in the early 1960s had strong links with the anti-war movement. A somewhat similar case took place in Slovenia in the mid-1980s, when environmentalism became part of the wider democracy and independence movement, symbolising, among other likes, national distinctiveness.

Finally, the observed trend corresponds to models that argue that public issues and attention tend to be cyclical and do not necessarily mirror objective conditions. In the years after Chernobyl, our data source recorded an indiscriminate boost to all types of ecological concern. The event, even though related to nuclear energy, generally sensitised the public to environmental issues, and the ensuing institutionalisation of ecological goals kept them high on public agenda for about five years. The appeal began to wear off and, during the period of economic transition in 1990s, issues of social welfare and unemployment began to prevail. The declining visibility of environmental issues continued during a period of economic prosperity and then the recent economic crisis, resulting in the 2011 measurement which indicates that levels of concern are equal to those at the initial points.

Does this mean that environmentalism in Slovenia is back where it started four decades ago? We cannot make such a claim based solely on the low indicators of ecological concern. Low concern could actually reflect public satisfaction with the current state of affairs in which environmental concern is taken for granted by all relevant political parties. What we can observe is that, at this point in time, the environment is not regarded by the public and the media as an urgent issue. In part, the reduced levels of concern may also reflect the methodological characteristics of public opinion measurement, since risk perceptions are strongly influenced by media exposure and dramatic, 'mediagenic' events. Such events have either failed to take place during the last two decades, or their effect has not been striking or dramatic enough to mobilise the media and public opinion in ways that the Chernobyl disaster did.

Most importantly, we should bear in mind that the respondent's environmental concern is a much narrower concept than the respondent's environmental orientations or values, which we did not analyse, since we lacked the longitudinal indicators to do so. Things become even more complex if one moves to the level of actual environmental behaviour. As the literature suggests, it is quite important to distinguish between trends in opinions on environmental issues and trends in behaviour. Opinions on environmental matters are not always reliable indicators of the strength of people's feeling (Anderson, 1997: 91). For instance, Martinsson and Lundquist report that in Sweden only 3% of respondents can be defined as consistent environmental Believers, meaning only 3% combine green attitudes and green practice. 5% are Hypocrites, meaning green in attitudes but not in practice,

and 11% are Coverts, grey in attitudes and green in practice. The remaining 81% are Diehards, grey in both attitudes and practice (Martinsson and Lundqvist, 2010: 527). Such findings imply a rather loose relationship between environmental attitudes and practice, which suggests that the relationship between risk perceptions and green practice is even looser, with risk estimates involving less moral judgment and fewer ethical dilemmas.

However, the apparent fall in environmental concern should not lead us to conclude that environmental orientations in general are also declining. There is evidence of association between the two levels. Other things being equal, we can expect that people will be more willing to make environmental sacrifices if their level of concern is higher. For instance, in 2000, 64% of those respondents who thought that a nuclear disaster similar to Chernobyl would not occur in Europe during the next 5 years were in favour of Krško, Slovenia's nuclear power plant, remaining operational for its full period of life. In contrast, of those who believed a nuclear disaster in Europe was quite possible in the next 5 years, only 20% supported this view (Malnar, 2002: 282–283). By analogy, higher levels of ecological concern may, at least temporarily, inspire more individuals to engage in other green activities, while lower levels may discourage them, and currently the concern is very low.

Another interesting fact revealed by the cross-time data is the gradual disappearance of differences between education and age groups. While in the first twenty-five years the better educated and, to a lesser extent, the younger respondents expressed markedly higher levels of environmental concern, this has not been the case over the last decade. What is the reason for this decline in environmental enthusiasm among the educated? One possible explanation could be the changing status and persuasiveness of scientific argumentation on environmental issues. During the first two decades, the topic of environmental protection was new and heavily reliant on scientific tools, which appealed more to the educated. According to the centre and periphery theory (in Diez-Nicolas: 335), social attitudes are transmitted from the social centre to the social periphery, meaning that the educated are usually better informed and more receptive to scientific arguments. In the 1970s and 1980s, being environmentally-informed meant embracing emerging environmental warnings; later, however, scientific arguments became more diversified. The institutionalisation of divisions in scientific opinion has meant that conflicts of opinion have become more difficult to contain within the scientific community (Anderson, 1997: 115–116). It is possible that inconclusive and often radically conflicting scientific argumentation may have encouraged the educated to assume a more critical stance towards environmental issues and scares, therefore their share of the environmentally concerned has dropped to the same levels of other groups. In the young, the same outcome could be the result of the institutionalisation of

environmentalism, which has ceased to be a counter discourse and become part of mainstream policy.

To conclude: our data shows that in 2011 environmental concern among the Slovenian public had returned to levels originally observed in the early 1970s, after having peaked in the early 1990s. The future task remains to determine whether this relapse implies environmental satisfaction or environmental fatigue, and to explore current patterns of environmental attitudes, possibly to create a relevant typology of groups according to their 'green' or 'grey' orientations and practices. In order to achieve this, different analytical tools and data sets should be used, focusing primarily on cross-sectional and comparative aspects, rather than the time-series aspect.

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