

**Weather Impacts on Natural, Social
and Economic Systems (WISE)
Part II: Individual Perception of
Climate Extremes in Italy**

Marzio Galeotti, Alessandra Gorla,
Paolo Mombri and Evi Spantidaki

NOTA DI LAVORO 32.2004

FEBRUARY 2004

CCMP – Climate Change Modelling and Policy

Marzio Galeotti, *University of Milan and Fondazione Eni Enrico Mattei*
Alessandra Gorla, *Fondazione Eni Enrico Mattei*
Paolo Mombri, *University of Bergamo*
Evi Spantidaki, *Fondazione Eni Enrico Mattei*

This paper can be downloaded without charge at:

The Fondazione Eni Enrico Mattei Note di Lavoro Series Index:
<http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm>

Social Science Research Network Electronic Paper Collection:
<http://ssrn.com/abstract=522342>

The opinions expressed in this paper do not necessarily reflect the position of
Fondazione Eni Enrico Mattei

Weather Impacts On Natural, Social And Economic Systems (WISE) Part II: Individual Perception of Climate Extremes in Italy

Summary

This paper focuses on the results of the research work carried out by Fondazione Eni Enrico Mattei (FEEM) within the WISE project. This project aims at investigating the effects and the impacts of extreme weather events, particularly very warm summers, mild winters and storms, on the socio-economic systems of European countries. The output consists of a series of empirical studies, both of quantitative and qualitative-descriptive nature. The work of FEEM in the WISE project covers the quantitative analysis of the impacts of climate extremes on the socio-economic system in Italy and the analysis of individuals' perception of climate extremes based on results from individuals' surveys. In this paper is considered the study of the perception of weather impacts through questionnaire survey to the general public. With regard to the individuals' perception survey, a sample of 300 individuals were interviewed by telephone: 150 extracted from the North of Italy and 150 from the South of Italy. Individuals were asked general questions about their perception of climate extremes, and about the impacts of weather extremes on their daily habits at work, at home, in their leisure activities, on their transport patterns, on their health and tourism choices.

Keywords: Climate change, Weather extremes, Perception, Impacts

JEL Classification: Q2, Q250

Address for correspondence:

Marzio Galeotti
Fondazione Eni Enrico Mattei
Corso Magenta, 63
20123 Milano
Italy
Phone: +39-02-52036936
Fax: +39-02-52036946
E-mail: marzio.galeotti@feem.it

TABLE OF CONTENTS

1. Introduction	1
2. Public Perception Survey of Climate Impacts	2
2.1. Introduction	2
2.2. Methods	2
2.3. Perception of Hot and Dry Summers	3
2.4. Perception of Mild Winters	5
2.5. Perceptions of Climate Change	7
2.6. Adaptation	10
2.7. Perception of Temperature	14
2.8. Conclusions	16
3. Conclusions	17
Appendix 1: Econometric Investigation	18
Appendix 2: Italian WISE Questionnaire	30

LIST OF FIGURES

Figure 1. Positive and negative aspects of warm and dry summers
Figure 2. Positive and negative aspects of warm and dry summers by region
Figure 3. Consumption of energy during hot and dry summers
Figure 4. Positive and negative aspects of mild winters
Figure 5. Positive and negative aspects of mild winters by region
Figure 6. Specific aspects of mild winter
Figure 7. Air quality during mild winters
Figure 8. Evaluation of increased heat
Figure 9. Evaluation of increased heat by region
Figure 10. Prospects of climate change
Figure 11. Prospects of climate change by region
Figure 12. Adaptation transport modes
Figure 13. Adaptation transport modes by region
Figure 14. Adaptation behaviour
Figure 15. Adaptation behaviour by region
Figure 16. Adaptation holiday behaviour
Figure 17. Adaptation holiday behaviour by region
Figure 18. Adaptation of day trip
Figure 19. Adaptation of short holidays
Figure 20. Perceived summer temperature
Figure 21. Perceived summer temperature by region
Figure 22. Perceived mild winters
Figure 23. Perceived mild winters by region

LIST OF TABLES

- Tables 1. Influence of hot summer on aspects of everyday life
- Table 2. Air quality in hot and dry summers
- Tables 3. Water and energy consumption during hot summers
- Table 4. Car use in hot summers
- Tables 5. Activities influenced by hot summer
- Tables 6. Adaptation of day trips and short holidays during hot summers
- Tables 7. Adaptation of plans for main vacation during hot summers
- Table 8. Evaluation of increased heat
- Tables 9. Influence of mild winter on aspects of everyday life
- Table 10. Air quality in mild winter
- Table 11. Energy consumption in mild winter

1. Introduction

The paper presents the results of the research work carried out by Fondazione Eni Enrico Mattei (FEEM) within the WISE project.

WISE is a project financed by European Commission within the Environment and Climate Research Programme.

The FEEM's partners involved in the project are: the Climatic Research Unit (CRU), University of East Anglia, Norwich (UK); the Postdam Institute for Climate Impact Research (PIK), Postdam (Germany); the Institute for Environmental Studies (IVM), Vrije Universiteit, Amsterdam (NL).

The WISE project aims at investigating the effects and the impacts of extreme weather events, particularly very warm summers, mild winters and storms, on the socio-economic systems of European countries.

The main objectives of WISE were:

- to examine the impacts of a recent hot summer and a recent mild winter on the natural environment and on national economies; to set a monetary value on these impacts, where possible.
- To examine how the impacts of extreme seasons propagate between the national economies of the member countries of the EU. The sectors to be analysed were tourism and agricultural products.
- To examine the impact of climate 'shocks'. The selected shocks are wind storm and cold spells. The sectors to be examined are forestry and property insurance for wind storm, and health and energy supply for cold spells.
- To investigate the perceptions of the general public and management regarding climate extreme and shocks.

The output of the project consists of a series of empirical studies, both of quantitative and qualitative-descriptive nature.

The research work carried out by FEEM was developed in parallel with the research carried out by the other partners: the methodology adopted for the econometric analysis and the economic evaluation of the impact of weather extremes is homogenous across all partners, the surveys' questionnaire for Italy instead was slightly modified in order to be carried out through telephone interviews.

The work of FEEM in the WISE project covered:

- the quantitative analysis of the impacts of climate extremes on the socio-economic system in Italy.
- The analysis of individuals' perception of climate extremes based on results from individuals' surveys.
- Where possible, the economic evaluation of the impacts of weather extremes on the various sectors under analysis.

In this paper is considered the study of the perception of weather impacts through questionnaire survey to the general public.

In a previous paper is considered the statistical modelling of the impact of weather, through quantitative analysis of activity time series.

Surveys were carried out in order to complement through qualitative tools the quantitative evidence on the climate extremes' impacts on the Italian economy and society. With regard to the individuals' perception survey, 300 individuals were interviewed by telephone: 150 individuals in the sample were extracted from Lombardy, a northern Italian region, and the remaining 150 individuals were extracted from Sicily, the Southern island. Individuals were asked general questions about their perception of climate extremes, and about the impacts of weather extremes on their daily habits at work, at home, in their leisure activities, on their transport patterns, on their health and tourism choices.

In *Appendix 1* is presented an econometric investigation, based on the same telephonic interviews, to better understand the socio-demographic factors that could influence the perception of extreme seasons.

2. Public Perception Survey of Climate Impacts

2.1. Introduction

The results of the perception survey aim at providing further possible explanations for trends in activities and impacts related to climate change identified through the econometric analysis.

The survey in particular aims at finding out how well people remember unusually extreme seasons and at identifying individuals' adaptive behaviour. Adaptive behaviour is analysed with regard to water and energy consumption, transport patterns, habits at work and at home, as well as tourism choices. The survey identifies which weather extremes' impacts on individuals' behaviour are perceived as relevant, and whether these impacts are positive or negative.

The survey mainly addresses adaptive behaviour to weather sensitivity, although marginally it addresses as well global warming issues, in order to motivate people to answer all the questions.

2.2. Methods

The survey questionnaire is in the Appendix.

The survey was conducted by SELECTA, a market research Italian firm, on behalf of Fondazione Eni Enrico Mattei.

Phone interviews have been carried out on a stratified sample of 300 individuals, selected from two Italian regions, Lombardy and Sicily, located respectively in the North and in the South of Italy.

The two regions differ considerably because of geographical and climate characteristics, as well as because of economic and cultural features.

Lombardy is a flatland and mountain region, characterised by a continental climate, endowed with a highly productive economic activity, concentrated mainly in the industry and service sectors. Sicily, a beautiful and renowned island in South, is indeed characterised by a Mediterranean climate; its beautiful setting, and its historical and cultural richness, represent a big attractiveness for tourism: its economy is mainly based on agriculture and tourism activities.

These two regions have been selected to represent respectively the North and the South, since they exemplify the main differences in terms of economic, cultural, geographic and climate characteristics between the North and the South of Italy. Therefore we refer indiscriminately to the North and to the South when reporting the survey results respectively from Lombardy and Sicily.

The sample is stratified by age, sex and city size. In the sample individuals are identified as well by income level, occupation, education, province and city of residence.

2.3. Perception of Hot and Dry Summers

Figure 1 shows whether for the two regions on average hot and dry summers have a positive or negative influence on individuals' behaviour. In general, people value negatively hot and dry summers. Hot and dry summers have a negative impact on comfort, work, household's activities, leisure, health, commuting and air quality. Air quality is the most important negative aspect associated to hot, dry summers. With regard to water and energy consumption, water use increases considerably during hot and dry summers, while electricity and gas consumption remain constant.

Figure 2 displays the distribution of the perception of specific impacts of hot and dry summers by region. All the impacts are evaluated more negatively by interviewees from the Southern region, Sicily, except for the impact on air quality which is perceived as stronger in Lombardy. The consumption of water and energy in hot and dry summers tends to increase in the South, particularly with regard to water. In Lombardy, there is a positive effect on water consumption, whereas the effect on energy is neutral.

In Figure 3, a closer look at the regional distribution of the level of consumption of energy and gas in hot and dry summers shows a large variability of answers. In the North, for most interviewees the effect of hot and dry summers on energy consumption is mainly neutral, or negative; hot and dry summers tend to have a relatively bigger positive effect on energy consumption in Sicily.

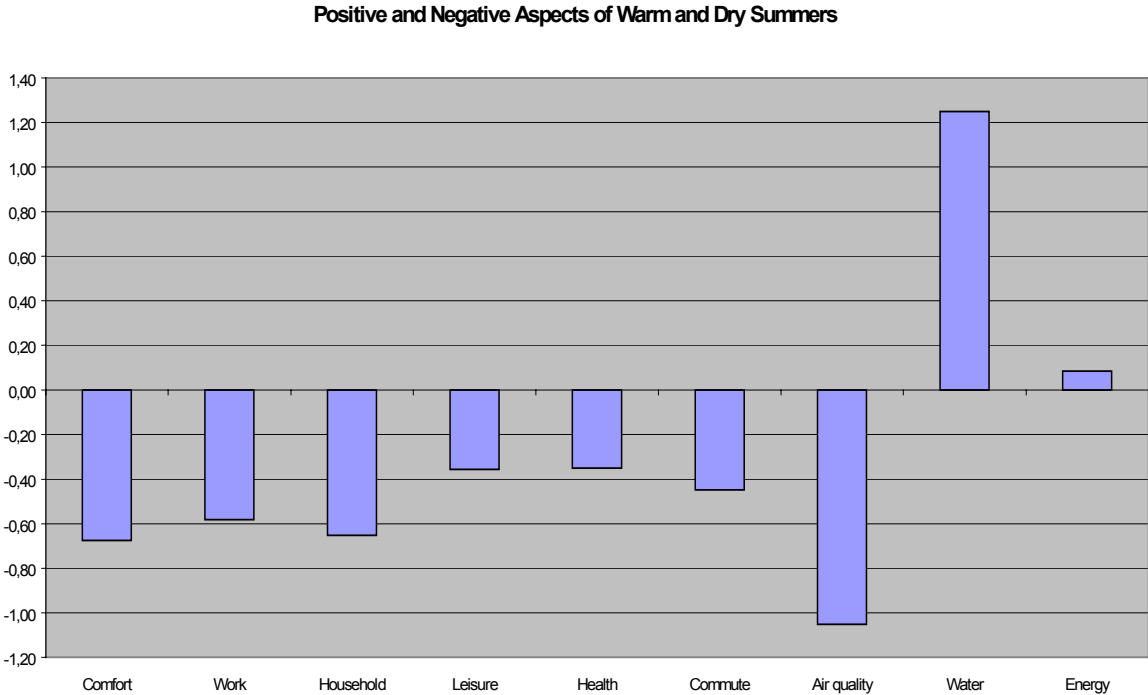


Figure1

Positive and Negative Aspects of Warm and Dry Summers by Region

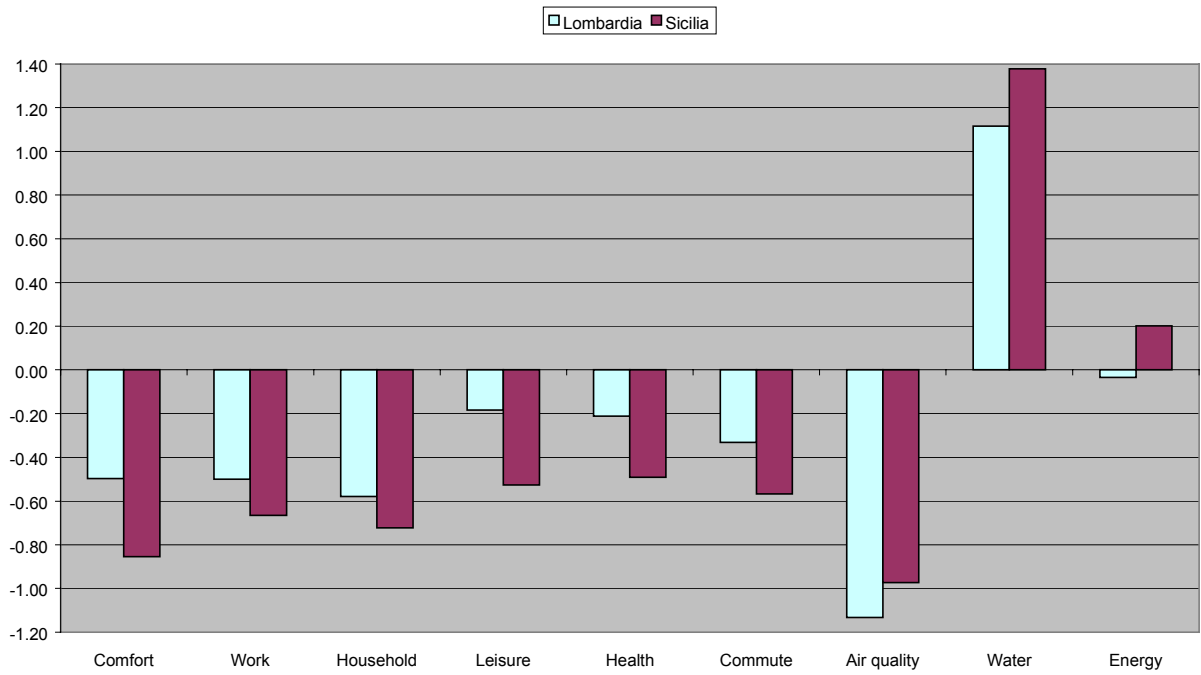


Figure 2

Consumption of Energy during Hot and Dry Summers

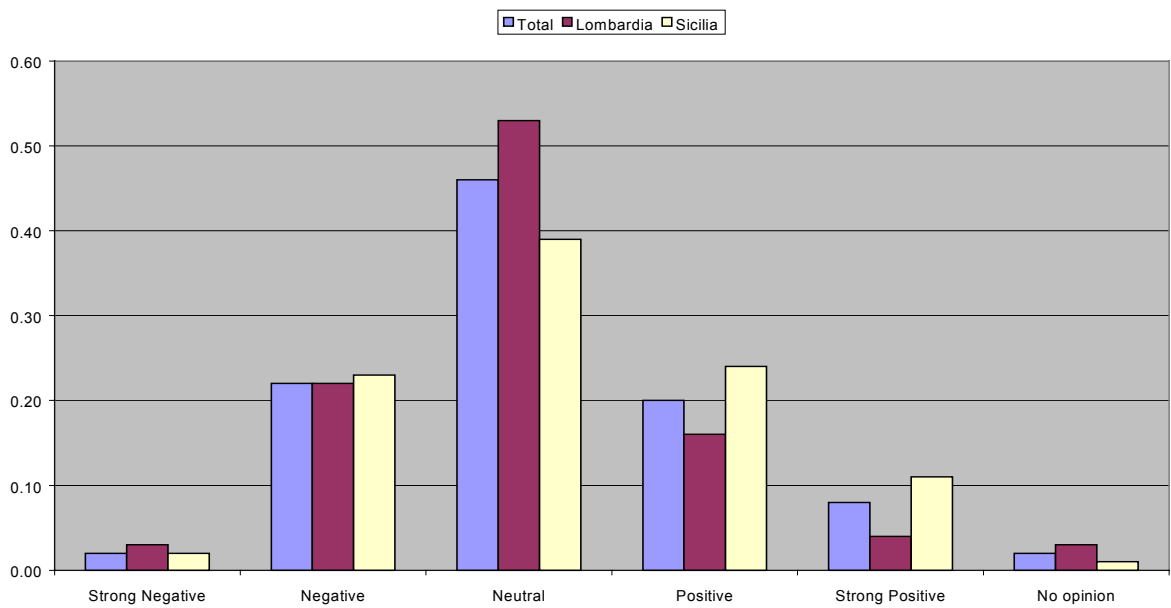


Figure 3

2.4. Perception of Mild Winters

Figure 4 shows the perceived impacts of mild winters. In general, people value positively mild winters, with an exception for air quality, energy consumption and the practice of winter sports, which are negatively affected by mild winters. The negative effect of mild winters on air quality is perceived as the strongest negative effect, whereas the positive impact on comfort is perceived as the strongest positive impact.

Figure 5 shows that the sensitivity to weather extremes in terms of comfort, leisure, health, commuting and insects is perceived more positively in Lombardy than in Sicily. The sensitivity to mild winters in terms of air quality is indeed perceived considerably more negatively in Lombardy. Surprisingly, the practice of winter-sports is perceived as affected more negatively by mild winters in Sicily than in Lombardy. Energy consumption in mild winters as well is affected more negatively in Sicily than in Lombardy.

Figure 6 displays the impacts which show a large variability of answers, with regard to atmosphere, health and air quality. Responses on the other impacts show a low-variance distribution.

In Figure 7, the distribution of the individuals' perception of air quality reveals that in Lombardy most people consider the air quality to be negatively influenced by weather extremes, while in Sicily the spread of the answers is large. However in both regions the size of the indecisive answers is quite large.

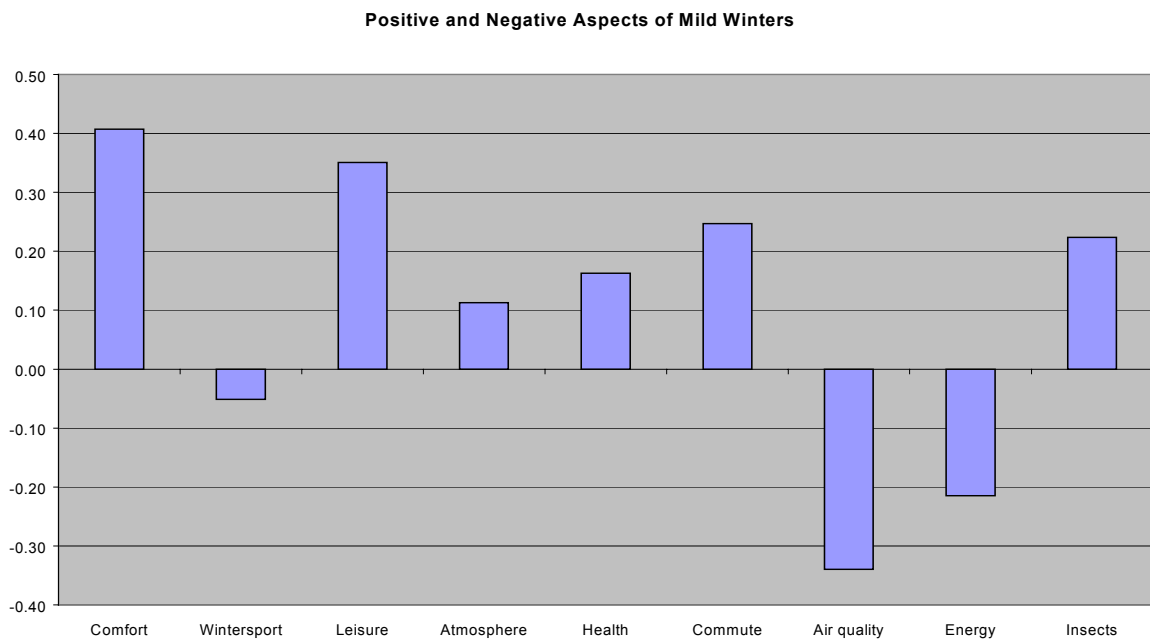


Figure 4

Positive and Negative Aspects of Mild Winters by Region

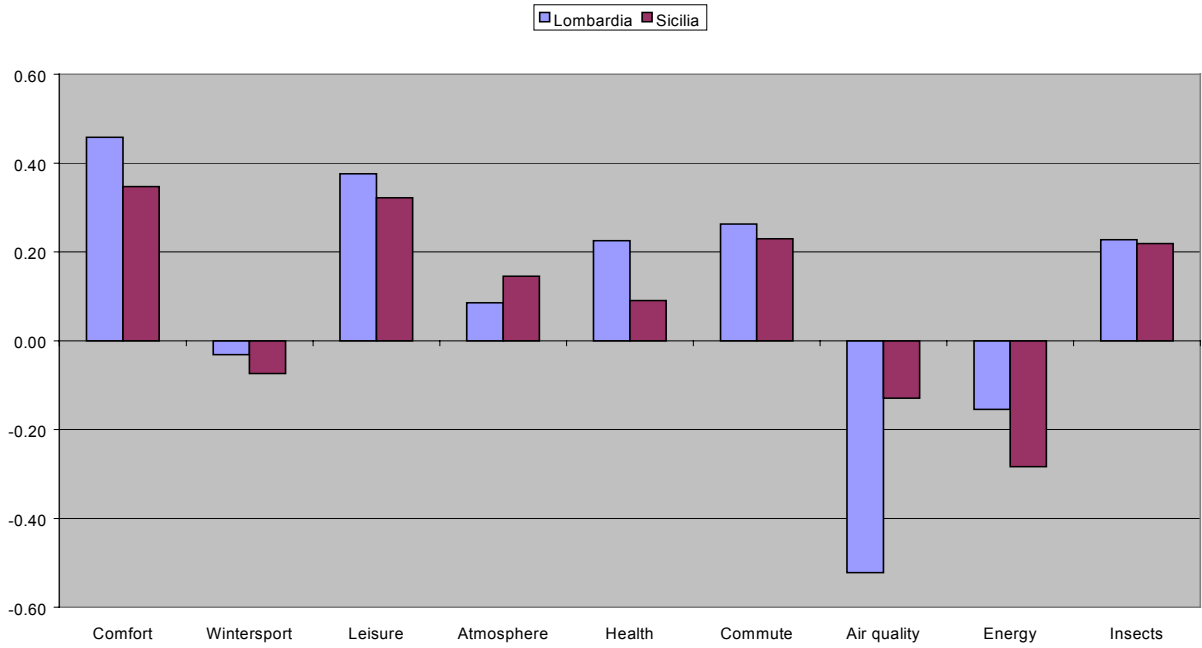


Figure 5

Specific Aspects of Mild Winters

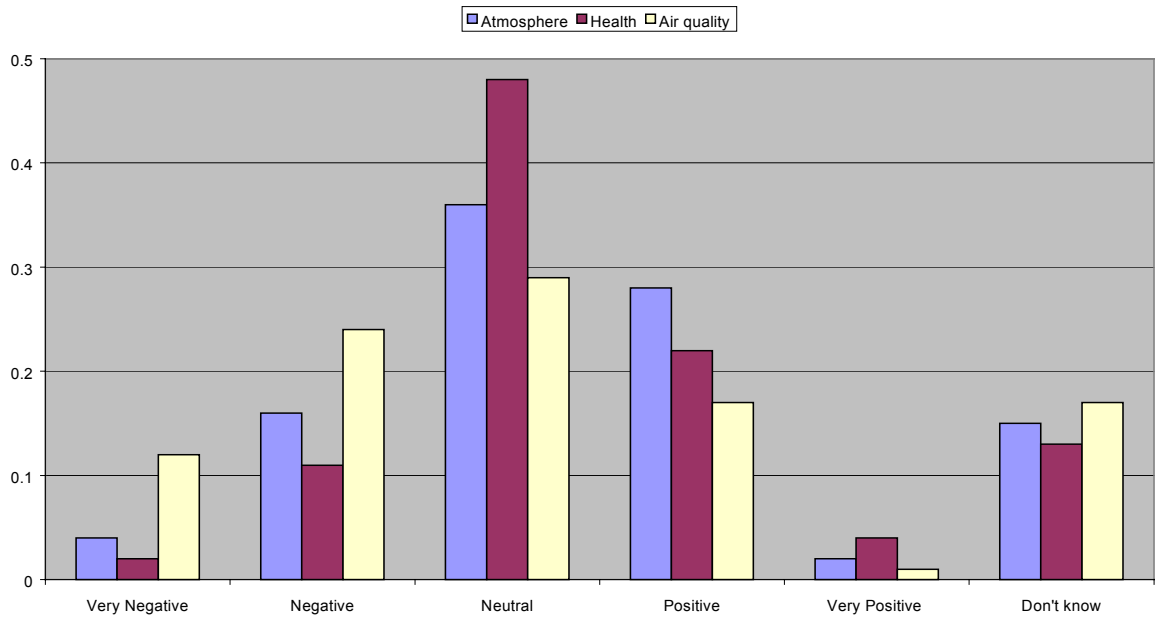


Figure 6

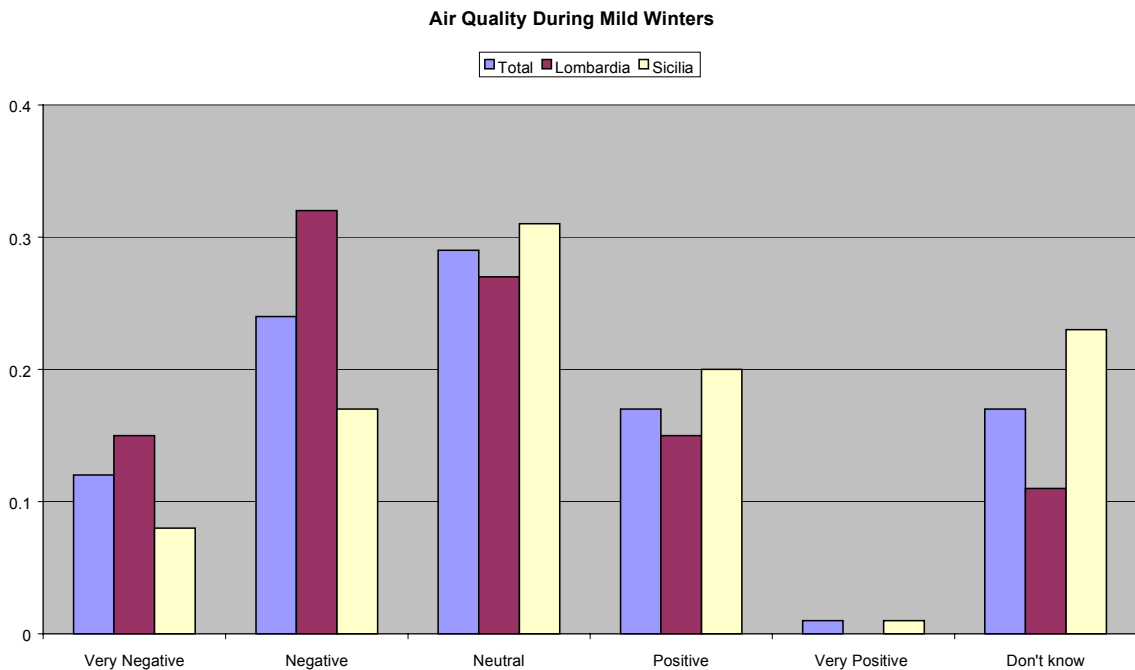


Figure 7

2.5. Perceptions of Climate Change

In Figure 8 we can notice that, although the number of indecisive answers is large, the majority of interviewees think that it is very likely, or simply likely, that hot and dry summers will become more frequent in the future. Figure 9 clearly shows that this opinion is stronger in the region of Sicily, with a larger number of indecisive answers in Lombardy.

Figure 10 shows that when interviewees are asked whether they find worrying the prospect of climate change, the majority finds it very worrying or simply worrying. In this case the number of indecisive answers is limited. In Figure 11 it can be noted that the spread of answers by region is similar.

Evaluation of Increased Heat

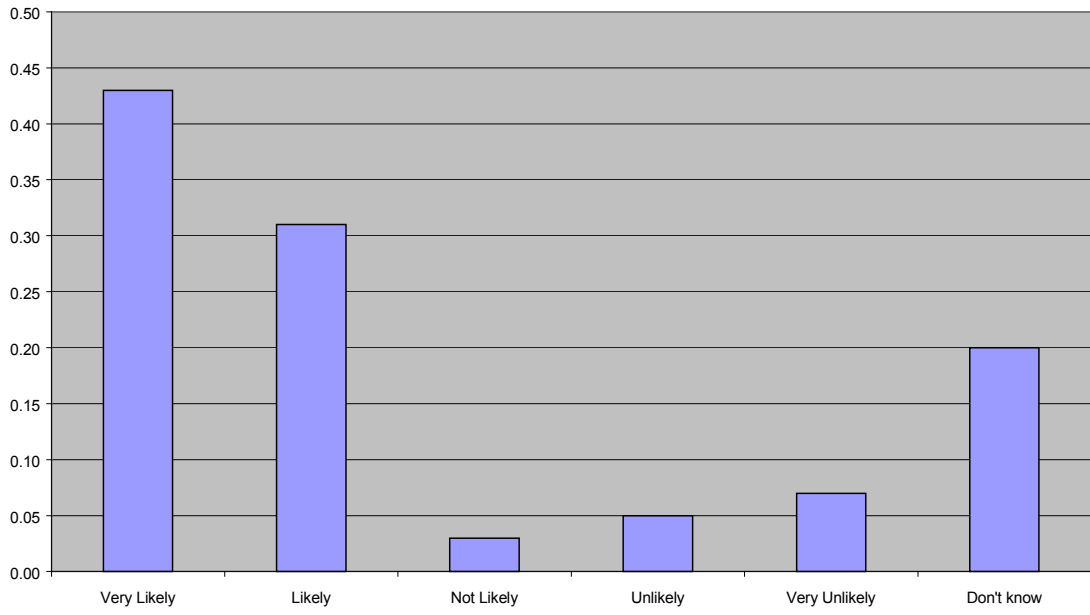


Figure 8

Evaluation of Increased Heat by Region

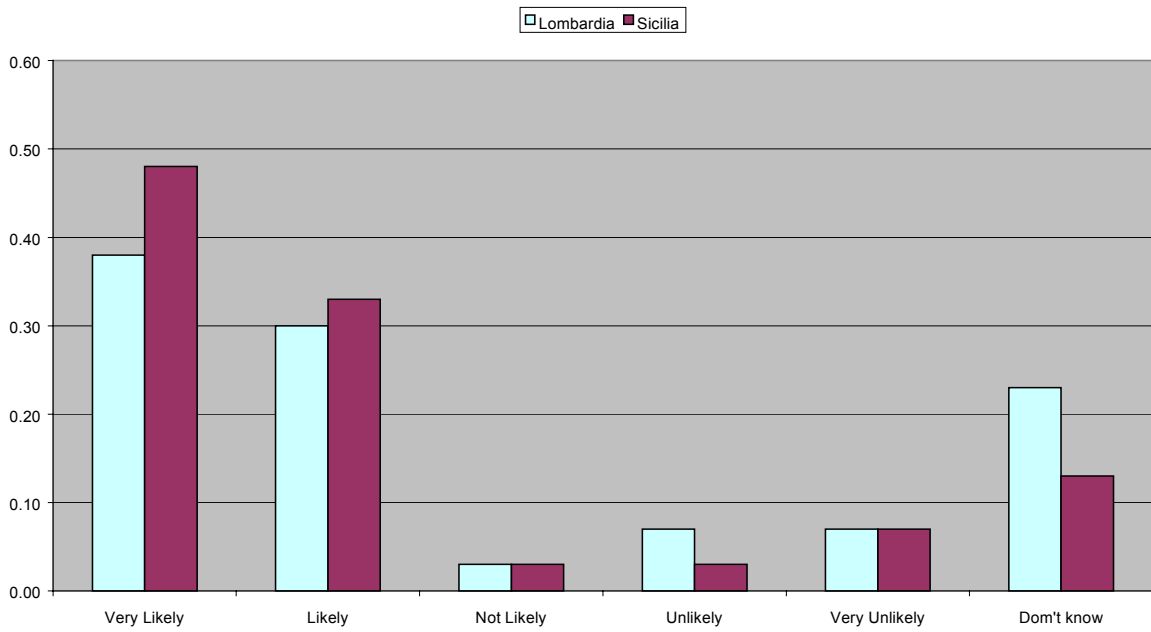


Figure 9

Prospects of Climate Change

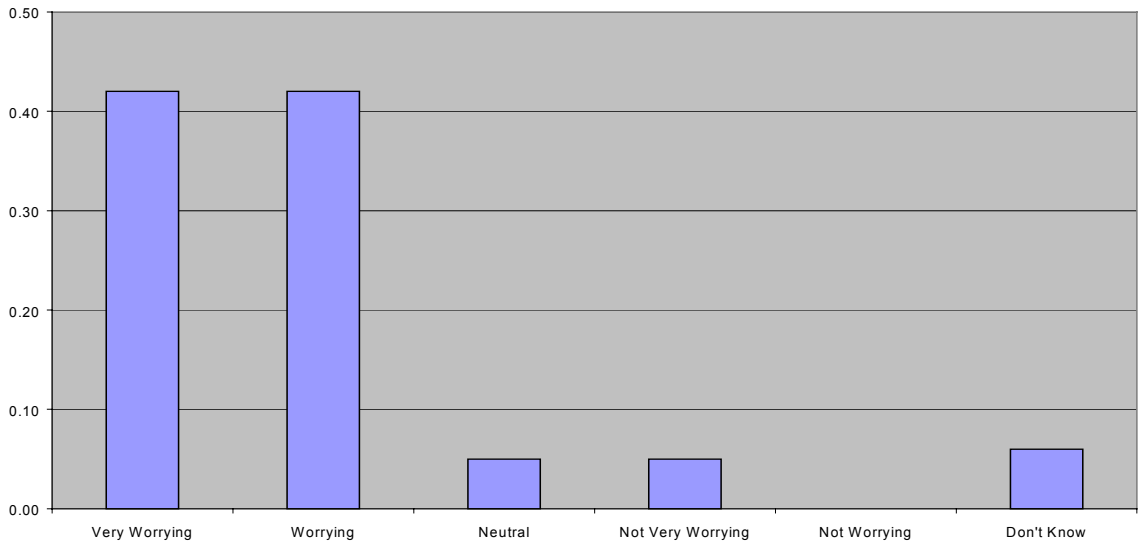


Figure 10

Prospects of Climate Change by Region

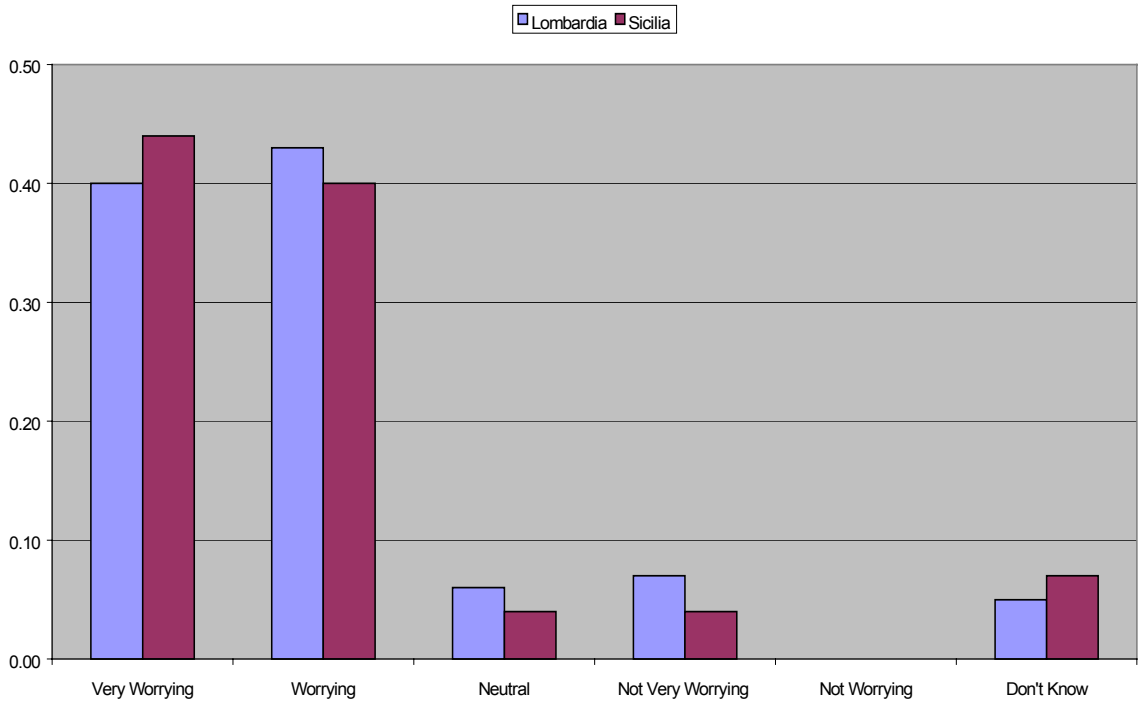


Figure 11

2.6. Adaptation

Figures 12-17 display how interviewees perceive that their behaviour is altered during periods of hot and dry weather.

Figure 12 shows that people tend to use more their motors and their bikes, while the propensity to use public transport, cars and to walk tends to decrease. The distribution of answers by region in Figure 13 reveals that the use of motors and bikes is more popular in Lombardy than in Sicily.

Figure 14 displays how people tend to change their consumption patterns during hot and dry summers. As it could be expected, people tend to prefer outdoor services and activities, such as going to the beach, to the swimming-pool, and being in the nature, with the exception of the preference for outdoor sports which remains constant in Lombardy.

A comparison between the two regions in Figure 15 shows that people from Sicily have a higher preference for going to the beach and to the outdoor restaurants/bars when compared to those from Lombardy. People from Lombardy indeed favour going to the swimming-pool and being in the nature with respect to people from Sicily.

Figure 16 shows that most people do not change their plans for their main vacation due to the extreme seasons, and, if they change them, they prefer to stay home. In addition, short holidays seem to be as responsive as day trips. Figure 17 shows that the answers between the two regions are very similar.

In Figures 18 and 19 a closer look at the distribution of day trips and short holidays following weather extremes reveals that the distribution of answers is spread: there are people who did more day trips/holidays and people who did much less, or simply less. The distribution of the positive, neutral or negative perception between the two regions varies particularly with regard to the negative and neutral impact of weather extremes in terms of adaptation of day trips.

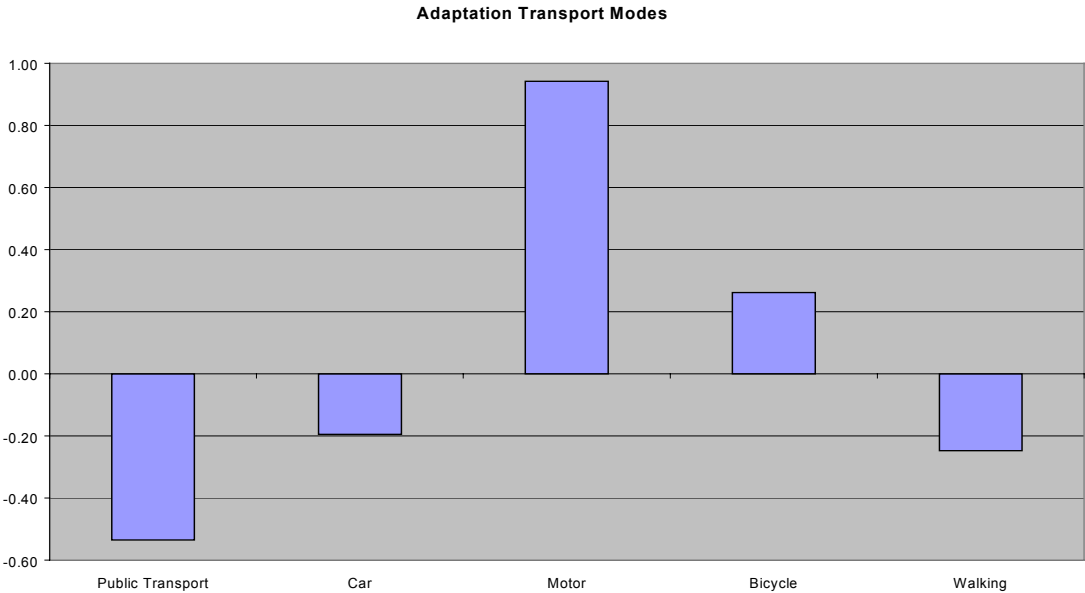


Figure 12

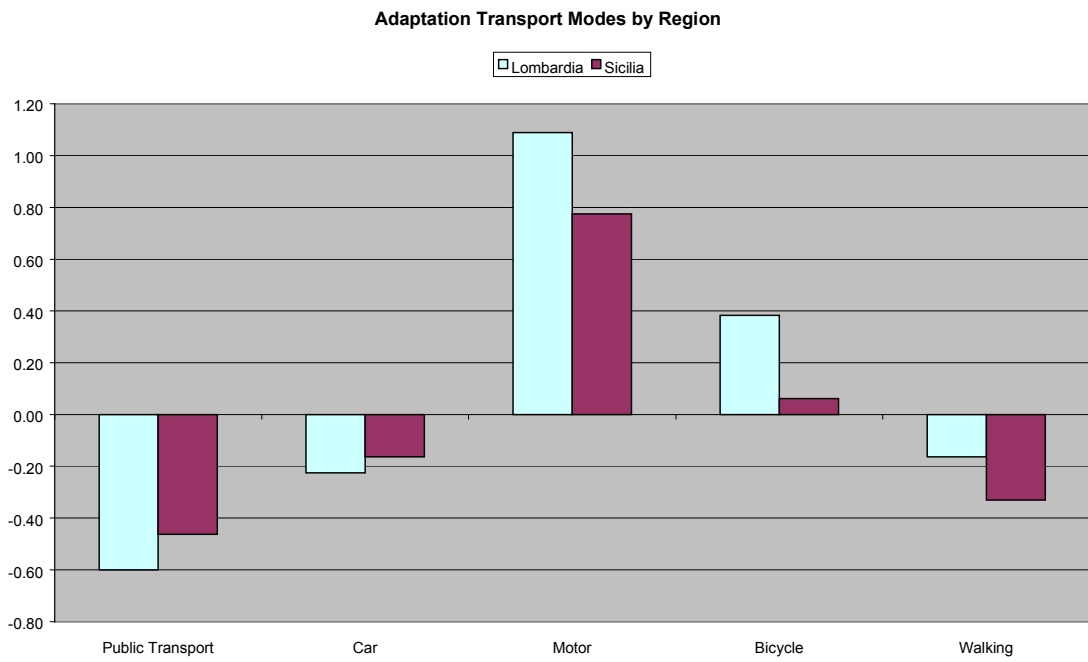


Figure 13

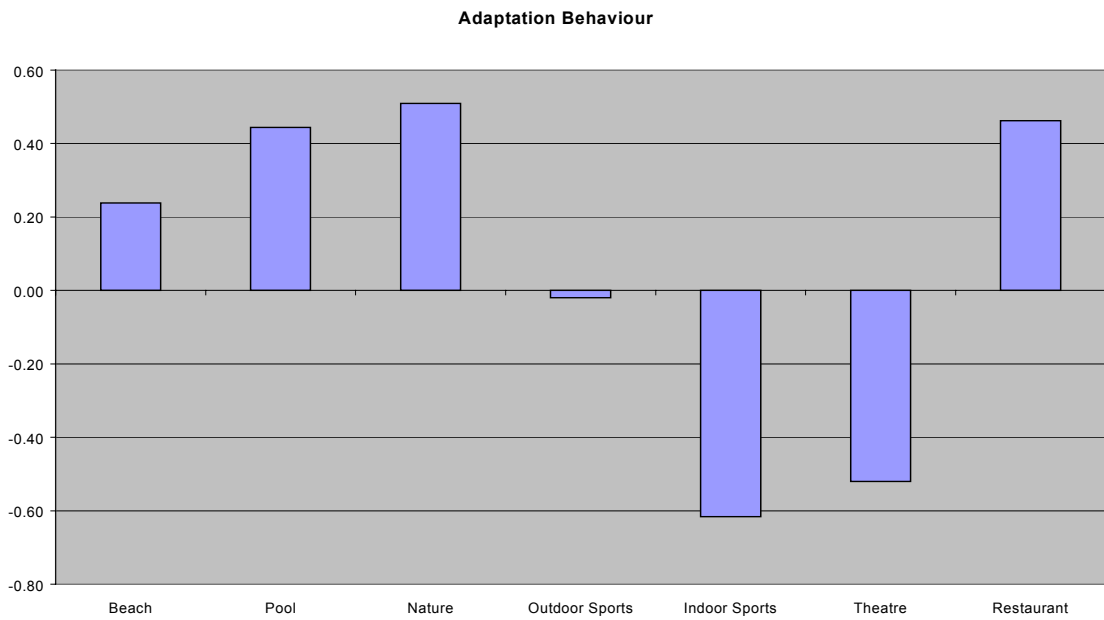


Figure 14

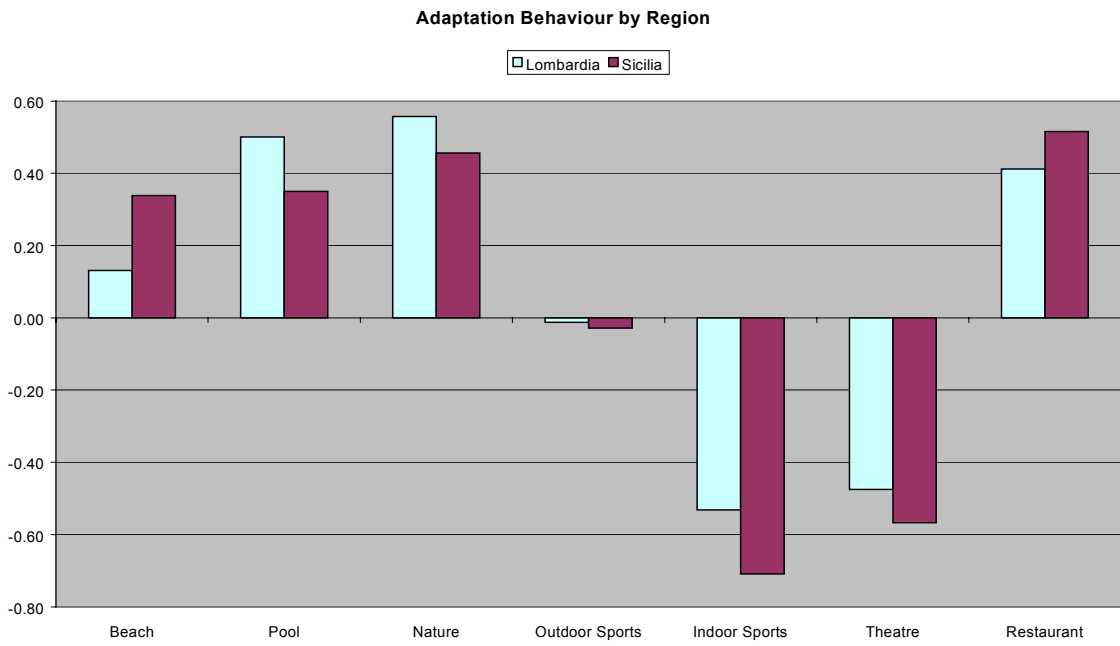


Figure 15

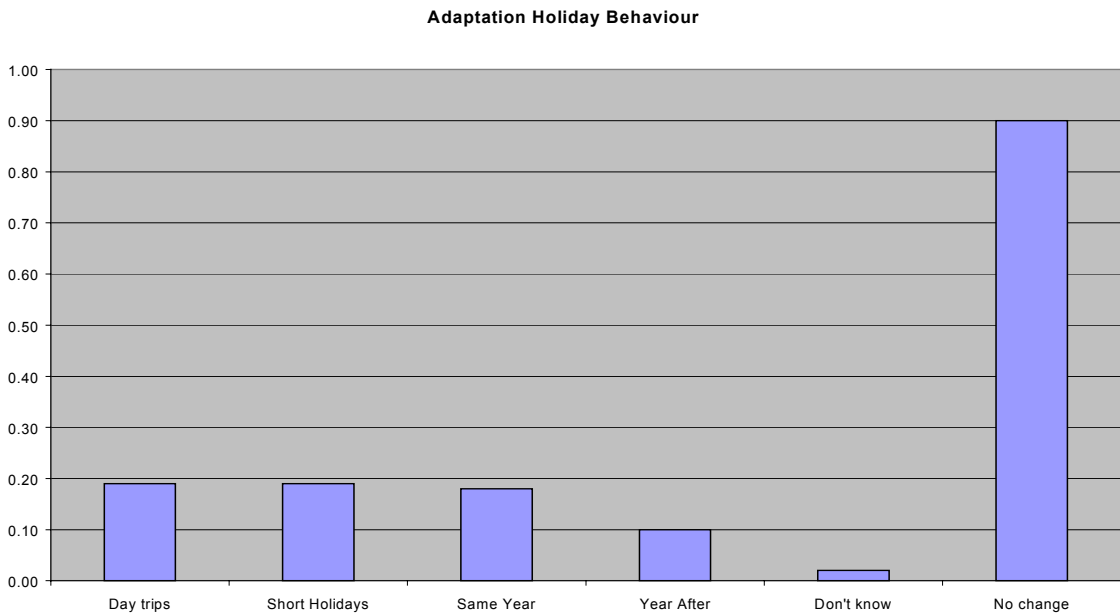


Figure 16

Adaptation Holiday Behaviour by Region

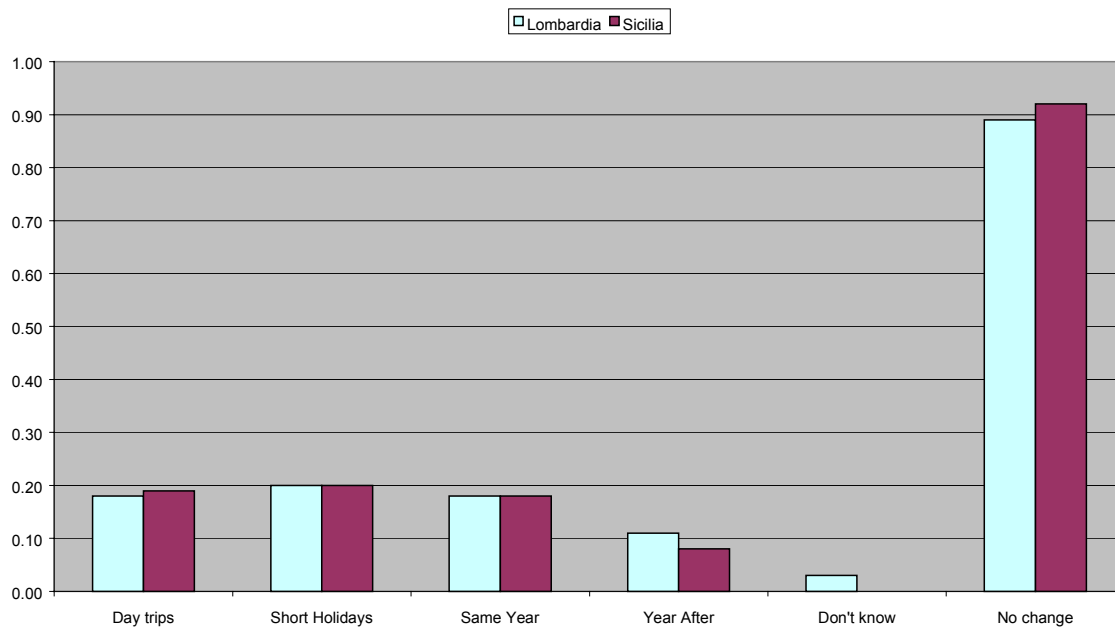


Figure 17

Adaptation of Day Trips

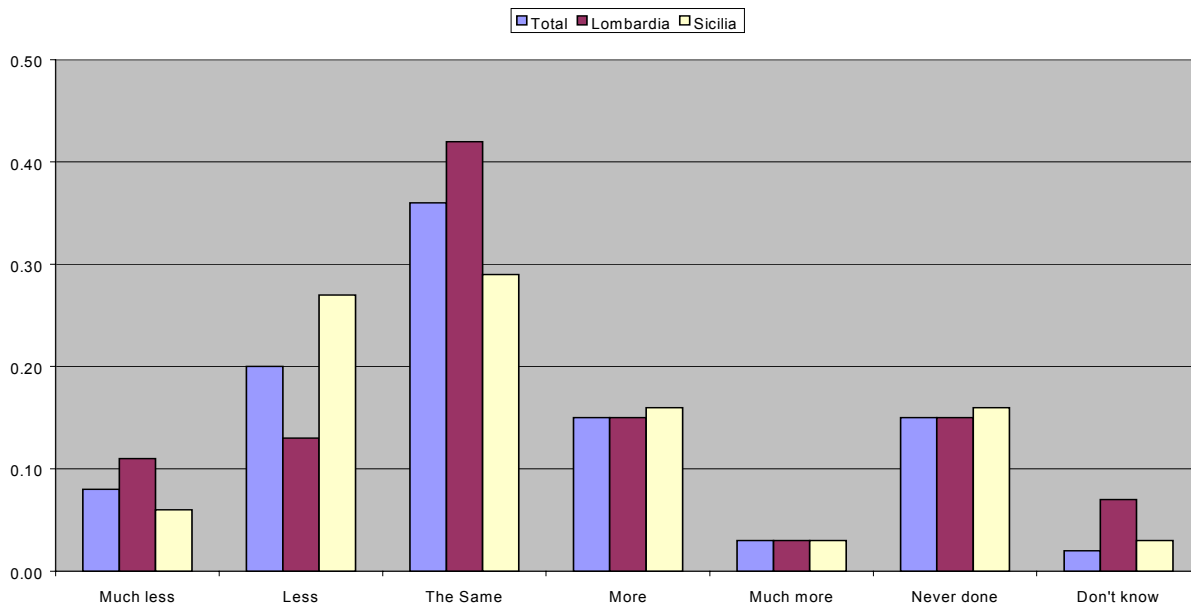


Figure 18

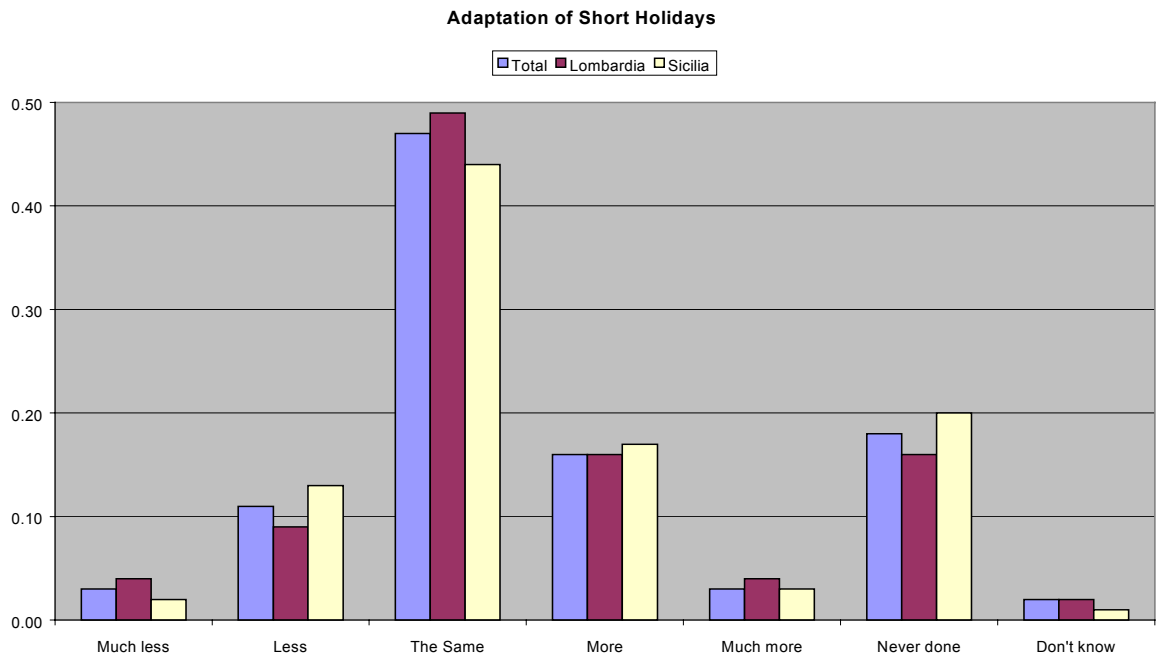


Figure 19

2.7. Perception of Temperature

People were then asked to indicate which summer they remembered being very hot and dry, and which winter was very mild.

Figures 20-23 show that most people think that the last summer was very hot and dry and the last winter was very mild, which may be indicative of ‘short memory’. With regard to the mild winter, however, there was a big number of indecisive answers.

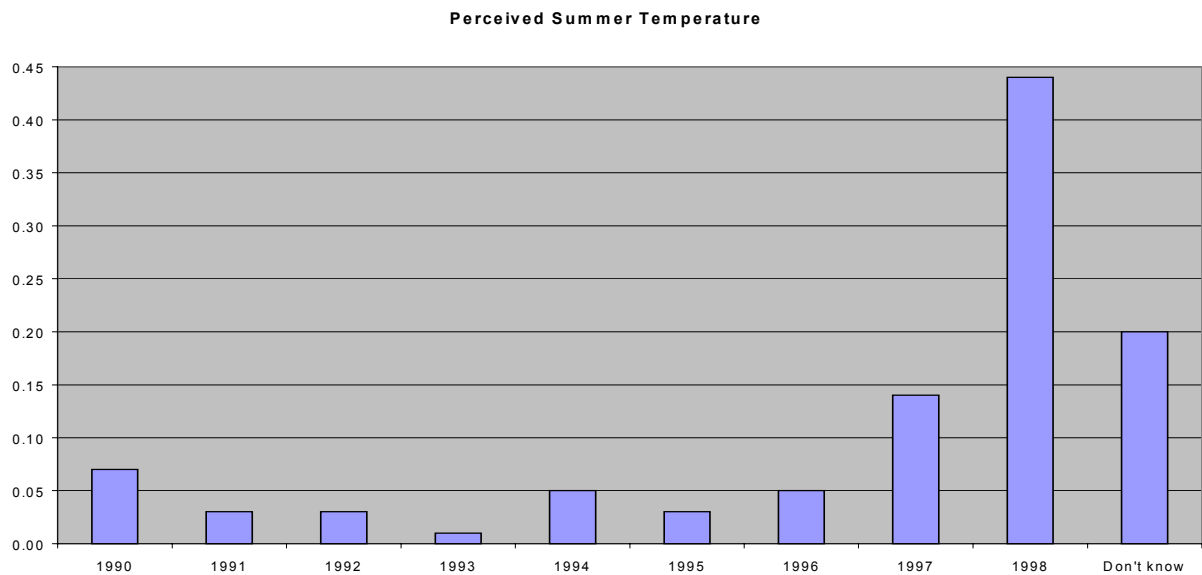


Figure 20

Perceived Summer Temperature by Region

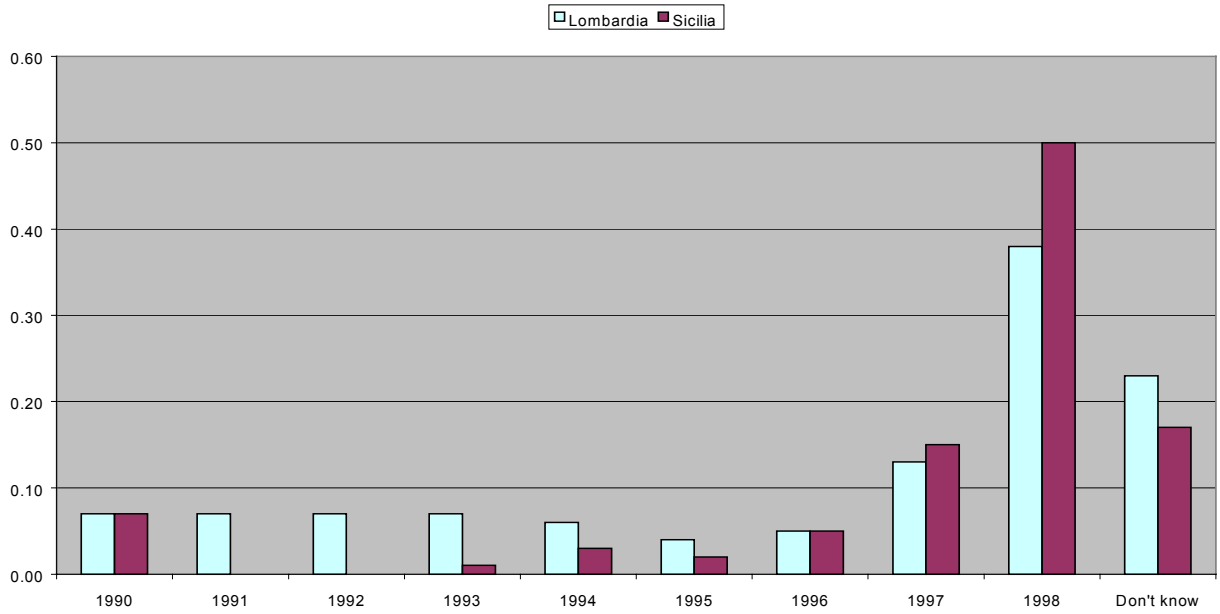


Figure 21

Perceived Mild Winters

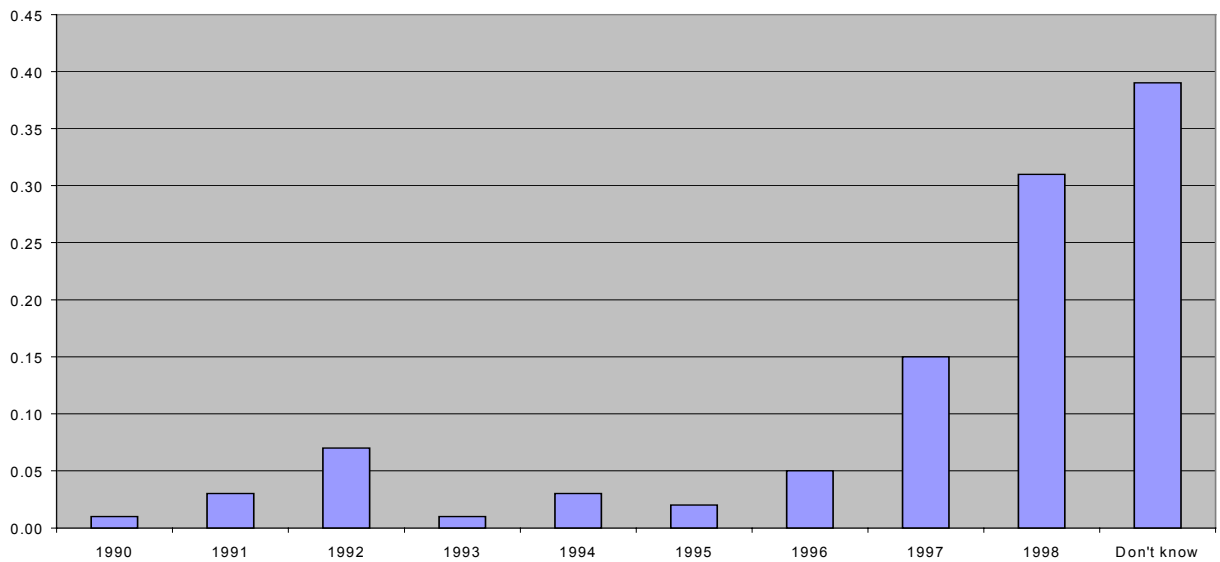


Figure 22

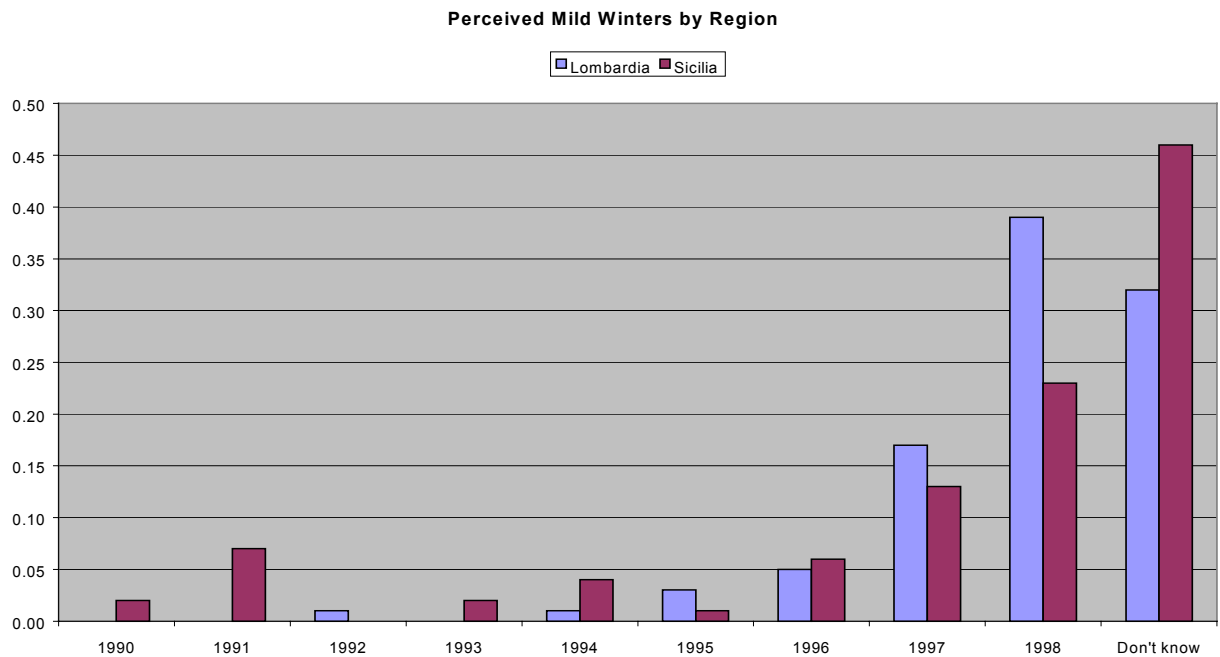


Figure 23

2.8. Conclusions

The survey results show that in the selected sample from the North and the South of Italy individuals perceive unusually extreme seasons as having considerable effects on their life: generally people identify negative effects of extremely hot and dry summers and mild winters on their quality of life, in terms of weather impacts on their comfort, work, leisure, health, commuting and transport patterns, as well as household activities.

Energy and water consumption seem to be quite sensitive to climate extremes, particularly in the South, where water and energy consumption tend to increase during hot and dry summers.

Individuals are particularly concerned about the extreme seasons' impacts on air quality. This concern is definitely stronger in the Northern region.

Regional differences between the North and the South induce people to favour different adaptive behaviours to climate extremes in their daily lives, such as enjoying more activities to the beach and sea-side, abandoning indoor activities, in Sicily, or being more in the nature, going to the swimming pool, using considerably less public transports and private cars in favour of motors and bicycles in Lombardy.

One side of individuals' adaptive behaviour which seems to be not too sensitive to climate extremes is tourism: in both regions vacation patterns do not change neither due to unusually hot and dry summers, nor due to mild winters.

Other interesting results emerge from the individuals' evaluation of the prospect of climate change which is considered to be very worrying, or worrying, for the majority of interviewees.

Past extreme seasons cannot be easily identified by the individuals in the sample: people tend to recall the last summers as being the hottest and driest in the past, which may be indicative of a 'short memory'. More indecisive answers apply to the memory of mild winters.

Overall the survey results suggest that individuals are aware of the effects of climate extremes on their daily habits and on their life's quality, and that they tend to respond to climate extremes through some adaptive behaviour.

3. Conclusions

The results of the public perception survey conducted in Italy show that individuals perceive unusually extreme seasons as having considerable effects on their life: generally people identify negative effects of extremely hot and dry summers and mild winters on their quality of life, in terms of weather impacts on their comfort, work, leisure, health, commuting and transport patterns, as well as household activities.

Energy and water consumption seem to be quite sensitive to climate extremes, particularly in the South.

Individuals, mainly in the Northern region, are particularly concerned about the extreme seasons' impacts on air quality.

Regional differences between the North and the South induce people to favour different adaptive behaviours to climate extremes in their daily lives but in both regions are preferred outdoor activities.

One side of individuals' adaptive behaviour which seems to be not too sensitive to climate extremes is tourism: vacation patterns do not change neither due to unusually hot and dry summers, nor due to mild winters.

Other interesting results emerge from the individuals' evaluation of the prospect of climate change which is considered to be very worrying, or worrying, for the majority of interviewees.

Indicative of a 'short memory' about years with extreme weather is the fact that past extreme seasons cannot be easily identified by the individuals in the sample.

Overall the survey results suggest that individuals are aware of the effects of climate extremes on their daily habits and on their life's quality, and that they tend to respond to climate extremes through some adaptive behaviour.

The WISE surveys show consistent and explicable results within and between countries. Perception and adaptation to unusual hot and dry summer weather have an inverse relation to the daily maximum summer temperature. The higher this temperature the less favourably the weather was perceived and the less actively people reacted.

In the UK and The Netherlands unusual hot and dry summer weather was perceived rather favourably, instead in Germany and Italy it was perceived more unfavourably and as a consequence people there reacted less actively.

Clear positive effects of mild winter weather on everyday life were perceived for almost all selected items in all countries except for Germany.

APPENDIX 1: ECONOMETRIC INVESTIGATION*

Introduction

In this appendix are presented the results of an econometric investigation based on the qualitative analysis conducted by FEEM in the WISE project. As previously showed in this paper, one of the objective of WISE project was to analyse the perception of general public regarding climate extremes and, in particular, about the impacts of weather extremes on daily habits at work, at home, in leisure activities, on transport patterns, on health and tourism choices. Using the data of telephonic interviews (the text of the interview is included in *Appendix 2*), has been possible to carry out an analysis of regressions to quantify the relation between the individual characteristics of the interviewees (gender, age, income class, number of persons in the household, region and size of the village/town) and the probability to reply in certain way.

Methodology

Regressions were made using the *binary probit model* and the *ordered probit model*, models whose dependent variables are of qualitative nature. Coefficients obtained by regressions express how much the probability to reply in a certain way depends on the vector containing the individual characteristic of each interviewee.

At the beginning the regressions were made including in the independent variables all the individual characteristic available (gender, age, income class, number of persons in the household, region and size of the village/town). Afterwards were included, from time to time, the independent variables that were considered explanatory of the behaviour of the dependent variable represented by the replies to interview.

Regression models were chosen depending on the nature of the values of the dependent variable: most times was used the *ordered probit model* because the observed dependent variable denoted outcomes representing ordered or ranked categories (the possible answers were discrete and ordered, for example from “much less” to “much more”); only in a couple of regressions was used the *binary probit model*, model in which the dependent variable may take on only two values (the alternative replies were NO-YES (0-1)).

Coefficients obtained by regressions show the average change of the dependent variable for each positive unitary change of independent variables (in this case for the independent variables were determined certain classes of age, size of the town and income classes).

Econometric analysis

Tables 1 show that the negative influence of hot and dry summer on many aspects of everyday life is related with gender, age, income and region. In fact, it results that women and interviewees from Sicily perceive more negatively extreme summers. Furthermore, it was predictable that older people suffered more high temperatures but surprises the fact that the higher is the income class the higher is the discomfort caused by hot seasons.

* by Paolo Mombrini, thesis 2001: "*Cambiamento Climatico: Impatti Socioeconomici degli Eventi Climatici Estremi*"

Tables 1: Influence of hot summer on aspects of everyday life

Dependent Variable: Comfort				
Method: ML - Ordered Probit				
Included observations: 214				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
INCOME	-0.145683	0.058523	-2.489329	0.0128
GENDER(m-f)	-0.426082	0.151784	-2.807151	0.0050
REGION(L-S)	-0.466430	0.149326	-3.123578	0.0018
AGE	-0.095230	0.044510	-2.139517	0.0324
Limit Points				
LIMIT_2:C(5)	-2.929708	0.463876	-6.315713	0.0000
LIMIT_3:C(6)	-1.779227	0.447191	-3.978672	0.0001
LIMIT_4:C(7)	-0.757167	0.441625	-1.714501	0.0864
LIMIT_5:C(8)	0.166364	0.464623	0.358062	0.7203
Akaike info criterion	2.657463	Schwarz criterion	2.783294	
Log likelihood	-276.3485	Hannan-Quinn criter.	2.708310	
Restr. log likelihood	-287.6198	Avg. log likelihood	-1.291348	
LR statistic (4 df)	22.54244	LR index (Pseudo-R2)	0.039188	
Probability(LR stat)	0.000156			

Dependent Variable: Work				
Method: ML - Ordered Probit				
Included observations: 213				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
INCOME	-0.103174	0.058816	-1.754176	0.0794
GENDER	-0.616322	0.157544	-3.912069	0.0001
AGE	-0.075543	0.045878	-1.646618	0.0996
Limit Points				
LIMIT_2:C(4)	-2.526504	0.410371	-6.156637	0.0000
LIMIT_3:C(5)	-1.460092	0.395509	-3.691675	0.0002
LIMIT_4:C(6)	0.296009	0.392424	0.754308	0.4507
LIMIT_5:C(7)	1.022314	0.444548	2.299673	0.0215
Akaike info criterion	2.350657	Schwarz criterion	2.461122	
Log likelihood	-243.3449	Hannan-Quinn criter.	2.395299	
Restr. log likelihood	-251.8704	Avg. log likelihood	-1.142465	
LR statistic (3 df)	17.05092	LR index (Pseudo-R2)	0.033849	
Probability(LR stat)	0.000690			

Dependent Variable: Health				
Method: ML - Ordered Probit				
Included observations: 302				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-0.119963	0.035685	-3.361710	0.0008
GENDER	-0.492851	0.128047	-3.848986	0.0001
REGION	-0.337690	0.126950	-2.660011	0.0078
Limit Points				
LIMIT_2:C(4)	-3.036247	0.334576	-9.074901	0.0000
LIMIT_3:C(5)	-2.020899	0.318902	-6.337052	0.0000
LIMIT_4:C(6)	-0.337258	0.302756	-1.113961	0.2653
LIMIT_5:C(7)	0.331173	0.315075	1.051091	0.2932
Akaike info criterion	2.390975	Schwarz criterion	2.476979	
Log likelihood	-354.0373	Hannan-Quinn criter.	2.425386	
Restr. log likelihood	-370.3513	Avg. log likelihood	-1.172309	
LR statistic (3 df)	32.62795	LR index (Pseudo-R2)	0.044050	
Probability(LR stat)	3.86E-07			

Dependent Variable: Commute				
Method: ML - Ordered Probit				
Included observations: 301				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
GENDER	-0.497634	0.128565	-3.870679	0.0001
REGION	-0.286754	0.127486	-2.249297	0.0245
Limit Points				
LIMIT_2:C(3)	-2.564434	0.294516	-8.707272	0.0000
LIMIT_3:C(4)	-1.338242	0.275180	-4.863157	0.0000
LIMIT_4:C(5)	0.357615	0.269752	1.325714	0.1849
LIMIT_5:C(6)	1.043488	0.300522	3.472246	0.0005
Akaike info criterion	2.292254	Schwarz criterion	2.366150	
Log likelihood	-338.9842	Hannan-Quinn criter.	2.321824	
Restr. log likelihood	-349.8704	Avg. log likelihood	-1.126193	
LR statistic (2 df)	21.77244	LR index (Pseudo-R2)	0.031115	
Probability(LR stat)	1.87E-05			

Air quality in hot and dry summers is perceived more negatively in Lombardy and in bigger towns. Moreover, as before, women and people with higher income are more influenced (*table 2*).

Table 2: Air quality in hot and dry summers

Dependent Variable: Air quality				
Method: ML - Ordered Probit				
Included observations: 206				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
TOWN SIZE	-0.151824	0.052941	-2.867819	0.0041
REGION	0.390232	0.156318	2.496404	0.0125
GENDER	-0.363941	0.156450	-2.326238	0.0200
INCOME	-0.108489	0.059992	-1.808407	0.0705
Limit Points				
LIMIT_2:C(5)	-1.183041	0.392595	-3.013388	0.0026
LIMIT_3:C(6)	0.170005	0.387308	0.438939	0.6607
LIMIT_4:C(7)	1.239683	0.402613	3.079089	0.0021
LIMIT_5:C(8)	1.855802	0.457801	4.053733	0.0001
Akaike info criterion	2.332033	Schwarz criterion	2.461271	
Log likelihood	-232.1994	Hannan-Quinn criter.	2.384301	
Restr. log likelihood	-242.4366	Avg. log likelihood	-1.127181	
LR statistic (4 df)	20.47446	LR index (Pseudo-R2)	0.042226	
Probability(LR stat)	0.000402			

According to the sample considered, the domestic consumption of water, electricity and gas in extremely hot summers would increase more in Sicily and in smaller villages. Furthermore, as intuitable, an higher income would permit higher consumption of water. At last it is curious to observe that, consequently to hot temperatures, men increase more than women the consumption of energy (*tables 3*).

Tables 3: Water and energy consumption during hot summers

Dependent Variable: Water				
Method: ML - Ordered Probit				
Included observations: 212				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
REGION	0.421689	0.160721	2.623727	0.0087
INCOME	0.134037	0.061648	2.174224	0.0297
TOWN SIZE	-0.090398	0.052514	-1.721410	0.0852
Limit Points				
LIMIT_2:C(4)	-1.939723	0.459778	-4.218825	0.0000
LIMIT_3:C(5)	-1.132652	0.340361	-3.327801	0.0009
LIMIT_4:C(6)	-0.210860	0.315146	-0.669086	0.5034
LIMIT_5:C(7)	0.626132	0.318279	1.967242	0.0492
Akaike info criterion	2.236665	Schwarz criterion	2.347495	
Log likelihood	-230.0864	Hannan-Quinn criter.	2.281460	
Restr. log likelihood	-236.3018	Avg. log likelihood	-1.085313	
LR statistic (3 df)	12.43079	LR index (Pseudo-R2)	0.026303	
Probability(LR stat)	0.006044			

Dependent Variable: Energy				
Method: ML - Ordered Probit				
Included observations: 296				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
REGION	0.306593	0.125295	2.446968	0.0144
TOWN SIZE	-0.093506	0.040392	-2.314961	0.0206
GENDER	-0.255663	0.124936	-2.046346	0.0407
Limit Points				
LIMIT_2:C(4)	-2.217069	0.325411	-6.813141	0.0000
LIMIT_3:C(5)	-0.871605	0.285796	-3.049748	0.0023
LIMIT_4:C(6)	0.420954	0.281884	1.493359	0.1353
LIMIT_5:C(7)	1.280227	0.295518	4.332141	0.0000
Akaike info criterion	2.604763	Schwarz criterion	2.692035	
Log likelihood	-378.5050	Hannan-Quinn criter.	2.639705	
Restr. log likelihood	-385.3417	Avg. log likelihood	-1.278733	
LR statistic (3 df)	13.67348	LR index (Pseudo-R2)	0.017742	
Probability(LR stat)	0.003385			

As regards the adaptation of transport modes caused by hot summers, the most significant results concern car use (*table 4*): women and older people would tend to use it less. Also the income class and the size of the town seem to affect the propensity to use car in warm seasons: people with high income and that live in bigger towns would reduce less the use of their cars.

Table 4: Car use in hot summers

Dependent Variable: Car				
Method: ML - Ordered Probit				
Included observations: 214				
Number of ordered indicator values: 6				
	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-0.178977	0.047342	-3.780540	0.0002
INCOME	0.136200	0.058152	2.342138	0.0192
TOWN SIZE	0.103515	0.050914	2.033119	0.0420
GENDER	-0.272313	0.151175	-1.801303	0.0717
Limit Points				
LIMIT_2:C(5)	-1.813646	0.398280	-4.553693	0.0000
LIMIT_3:C(6)	-1.523276	0.392111	-3.884804	0.0001
LIMIT_4:C(7)	-0.758502	0.383514	-1.977771	0.0480
LIMIT_5:C(8)	0.785306	0.385188	2.038763	0.0415
LIMIT_6:C(9)	1.565269	0.419126	3.734605	0.0002
Akaike info criterion	2.755988	Schwarz criterion	2.897547	
Log likelihood	-285.8907	Hannan-Quinn criter.	2.813191	
Restr. log likelihood	-300.8316	Avg. log likelihood	-1.335938	
LR statistic (4 df)	29.88193	LR index (Pseudo-R2)	0.049666	
Probability(LR stat)	5.17E-06			

The coefficients obtained by regressions relating to consumption patterns during hot and dry summer point out that people that tend to go more to the beach are the younger, persons from Sicily and from bigger towns and obviously people with high income. Interviewees that decide to stay more in the countryside are men and Lombards (*tables 5*).

Tables 5: Activities influenced by hot summer

Dependent Variable: Beach				
Method: ML - Ordered Probit				
Included observations: 214				
Number of ordered indicator values: 6				
	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-0.236255	0.046467	-5.084367	0.0000
INCOME	0.144958	0.057228	2.533001	0.0113
REGION	0.445262	0.149671	2.974940	0.0029
TOWN SIZE	0.105924	0.051637	2.051327	0.0402
Limit Points				
LIMIT_2:C(5)	-0.785482	0.351388	-2.235370	0.0254
LIMIT_3:C(6)	-0.542924	0.348730	-1.556860	0.1195
LIMIT_4:C(7)	-0.223708	0.346841	-0.644988	0.5189
LIMIT_5:C(8)	0.978158	0.353775	2.764914	0.0057
LIMIT_6:C(9)	1.695085	0.362256	4.679247	0.0000
Akaike info criterion	3.015478	Schwarz criterion	3.157038	
Log likelihood	-313.6562	Hannan-Quinn criter.	3.072681	
Restr. log likelihood	-338.1497	Avg. log likelihood	-1.465683	
LR statistic (4 df)	48.98702	LR index (Pseudo-R2)	0.072434	
Probability(LR stat)	5.88E-10			

Dependent Variable: Nature				
Method: ML - Ordered Probit				
Included observations: 302				
Number of ordered indicator values: 6				
	Coefficient	Std. Error	z-Statistic	Prob.
REGION	-0.290113	0.122625	-2.365846	0.0180
GENDER	-0.294290	0.122943	-2.393705	0.0167
Limit Points				
LIMIT_2:C(3)	-2.070174	0.275931	-7.502511	0.0000
LIMIT_3:C(4)	-1.989745	0.274236	-7.255583	0.0000
LIMIT_4:C(5)	-1.769411	0.270366	-6.544501	0.0000
LIMIT_5:C(6)	-0.643356	0.260529	-2.469419	0.0135
LIMIT_6:C(7)	0.289197	0.261071	1.107734	0.2680
Akaike info criterion	2.935179	Schwarz criterion	3.021183	
Log likelihood	-436.2121	Hannan-Quinn criter.	2.969590	
Restr. log likelihood	-442.3921	Avg. log likelihood	-1.444411	
LR statistic (2 df)	12.35999	LR index (Pseudo-R2)	0.013970	
Probability(LR stat)	0.002070			

To analyse the replies relating to influence of hot summer on holiday behaviour see *tables 6*. Compared to a normal summer it results that women and older people express their discomfort doing less day trips and short holidays; on the contrary are willing to do this kind of holidays the young, in particular males.

Tables 6: Adaptation of day trips and short holidays during hot summer

Dependent Variable: Day trips				
Method: ML - Ordered Probit				
Included observations: 296				
Number of ordered indicator values: 6				
	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-0.171942	0.035084	-4.900787	0.0000
GENDER	-0.370871	0.122971	-3.015918	0.0026
Limit Points				
LIMIT_2:C(3)	-2.267024	0.260820	-8.691913	0.0000
LIMIT_3:C(4)	-1.933363	0.253561	-7.624853	0.0000
LIMIT_4:C(5)	-1.327970	0.245578	-5.407536	0.0000
LIMIT_5:C(6)	-0.259961	0.240524	-1.080810	0.2798
LIMIT_6:C(7)	0.779324	0.262919	2.964120	0.0030
Akaike info criterion	3.120342	Schwarz criterion	3.207614	
Log likelihood	-454.8106	Hannan-Quinn criter.	3.155284	
Restr. log likelihood	-470.5916	Avg. log likelihood	-1.536522	
LR statistic (2 df)	31.56201	LR index (Pseudo-R2)	0.033534	
Probability(LR stat)	1.40E-07			

Dependent Variable: Short holidays				
Method: ML - Ordered Probit				
Included observations: 212				
Number of ordered indicator values: 6				
	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-0.108061	0.044932	-2.404976	0.0162
GENDER	-0.413723	0.152166	-2.718894	0.0066
INCOME	0.143639	0.057545	2.496099	0.0126
Limit Points				
LIMIT_2:C(4)	-1.692735	0.386460	-4.380109	0.0000
LIMIT_3:C(5)	-1.543774	0.384528	-4.014727	0.0001
LIMIT_4:C(6)	-1.190626	0.382163	-3.115495	0.0018
LIMIT_5:C(7)	0.163210	0.376511	0.433481	0.6647
LIMIT_6:C(8)	1.320404	0.401321	3.290141	0.0010
Akaike info criterion	2.832794	Schwarz criterion	2.959458	
Log likelihood	-292.2762	Hannan-Quinn criter.	2.883989	
Restr. log likelihood	-303.7446	Avg. log likelihood	-1.378661	
LR statistic (3 df)	22.93679	LR index (Pseudo-R2)	0.037757	
Probability(LR stat)	4.16E-05			

The results obtained by regressions show that the choice to modify the plans for main vacation due to the extreme season depends particularly on income: the higher is the income, the smaller is the propensity to change the plans (*tables 7*). Also the gender and the region are explanatory variables of holiday behaviour: women would not change their plans for main vacation of the same year and people from Sicily would not change their plans for vacation of the following year.

Tables 7: Adaptation of plans for main vacation during hot summer

Dependent Variable: Holiday behaviour (same year)				
Method: ML - Binary Logit				
Included observations: 211				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
GENDER	-0.703000	0.202600	-3.469888	0.0005
INCOME	-0.213579	0.123476	-1.729720	0.0837
Mean dependent var	0.170616	S.D. dependent var		0.377068
S.E. of regression	0.380024	Akaike info criterion		0.939578
Sum squared resid	30.18346	Schwarz criterion		0.971349
Log likelihood	-97.12545	Hannan-Quinn criter.		0.952420
Avg. log likelihood	-0.460310			
Obs with Dep=0	175	Total obs		211
Obs with Dep=1	36			

Dependent Variable: Holiday behaviour (one year later)				
Method: ML - Binary Logit				
Included observations: 212				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
INCOME	-0.595855	0.200327	-2.974417	0.0029
REGION	-0.582316	0.271663	-2.143523	0.0321
Mean dependent var	0.103774	S.D. dependent var		0.305688
S.E. of regression	0.304594	Akaike info criterion		0.678362
Sum squared resid	19.48325	Schwarz criterion		0.710028
Log likelihood	-69.90638	Hannan-Quinn criter.		0.691161
Avg. log likelihood	-0.329747			
Obs with Dep=0	190	Total obs		212
Obs with Dep=1	22			

For the majority of interviewees it is very likely that extreme summers will become more frequent in the future. Looking at the values in *table 8* it can be noted that the reply to this question is related to gender and age: older people and, in particular, women express more this problem.

Table 8: Evaluation of increased heat

Dependent Variable: Evaluation of increased heat				
Method: ML - Binary Logit				
Included observations: 248				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
GENDER	1.213773	0.278264	4.361956	0.0000
AGE	0.153385	0.104999	1.460819	0.1441
Mean dependent var	0.899194	S.D. dependent var		0.301681
S.E. of regression	0.296367	Akaike info criterion		0.626152
Sum squared resid	21.60703	Schwarz criterion		0.654486
Log likelihood	-75.64289	Hannan-Quinn criter.		0.637559
Avg. log likelihood	-0.305012			
Obs with Dep=0	25	Total obs		248
Obs with Dep=1	223			

Passing on the analysis of the answers relative to a recent mild winter (*tables 9*), it is evident that the highest comfort of unusual mild temperatures is perceived by women. With regard to health, instead, higher benefits

are noticed in Lombardy and in smaller villages. At last, both concerning comfort and health, it results that older people enjoy less the positive effect of unusual warm winter.

Tables 9: Influence of mild winter on aspects of everyday life

Dependent Variable: Comfort				
Method: ML - Ordered Probit				
Included observations: 263				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
GENDER	0.391534	0.135037	2.899455	0.0037
AGE	-0.058819	0.038914	-1.511506	0.1307
Limit Points				
LIMIT_2:C(3)	-1.653330	0.299445	-5.521306	0.0000
LIMIT_3:C(4)	-0.877086	0.268965	-3.260966	0.0011
LIMIT_4:C(5)	0.436338	0.267562	1.630791	0.1029
LIMIT_5:C(6)	1.974139	0.288395	6.845263	0.0000
Akaike info criterion	2.402154	Schwarz criterion	2.483648	
Log likelihood	-309.8832	Hannan-Quinn criter.	2.434904	
Restr. log likelihood	-315.5252	Avg. log likelihood	-1.178263	
LR statistic (2 df)	11.28386	LR index (Pseudo-R2)	0.017881	
Probability(LR stat)	0.003546			

Dependent Variable: Health				
Method: ML - Ordered Probit				
Included observations: 264				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-0.057120	0.039632	-1.441258	0.1495
TOWN SIZE	-0.084838	0.043121	-1.967434	0.0491
REGION	-0.170433	0.135236	-1.260257	0.2076
Limit Points				
LIMIT_2:C(4)	-2.652018	0.313611	-8.456395	0.0000
LIMIT_3:C(5)	-1.739622	0.280565	-6.200426	0.0000
LIMIT_4:C(6)	-0.144748	0.267189	-0.541744	0.5880
LIMIT_5:C(7)	1.046824	0.279531	3.744927	0.0002
Akaike info criterion	2.359281	Schwarz criterion	2.454098	
Log likelihood	-304.4252	Hannan-Quinn criter.	2.397382	
Restr. log likelihood	-309.1018	Avg. log likelihood	-1.153126	
LR statistic (3 df)	9.353255	LR index (Pseudo-R2)	0.015130	
Probability(LR stat)	0.024945			

As observed for extreme summers, also in winters with mild temperatures air quality seems to be negatively influenced in particular in Lombardy and in bigger towns (*table 10*).

Table 10: Air quality in mild winter

Dependent Variable: Air quality				
Method: ML - Ordered Probit				
Included observations: 250				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
REGION	0.496889	0.137207	3.621471	0.0003
TOWN SIZE	-0.219650	0.043320	-5.070454	0.0000
Limit Points				
LIMIT_2:C(3)	-1.049706	0.242446	-4.329651	0.0000
LIMIT_3:C(4)	-0.049596	0.233869	-0.212067	0.8321
LIMIT_4:C(5)	0.966395	0.240432	4.019404	0.0001
LIMIT_5:C(6)	2.530168	0.323219	7.828026	0.0000
Akaike info criterion	2.669052	Schwarz criterion	2.753567	
Log likelihood	-327.6315	Hannan-Quinn criter.	2.703067	
Restr. log likelihood	-345.4300	Avg. log likelihood	-1.310526	
LR statistic (2 df)	35.59692	LR index (Pseudo-R2)	0.051526	
Probability(LR stat)	1.86E-08			

With regard to domestic consumption of electricity and gas (*tables 11*), it is important to say that, as for hot summers, also in mild winters people that live in smaller village change more their consumption: in this case they reduce it. Another analogy with the results of the consequences of hot summers, is the fact that, with unusually mild winter temperatures, women decrease more energy consumption. Observing the results of regressions emerges that also the income class is an explanatory variable: the higher is the income, the higher is the reduction of consumption in mild winter.

Tables 11: Energy consumption in mild winter

Dependent Variable: Energy				
Method: ML - Ordered Probit				
Included observations: 187				
Number of ordered indicator values: 5				
	Coefficient	Std. Error	z-Statistic	Prob.
INCOME	-0.105242	0.060304	-1.745190	0.0810
TOWN SIZE	0.122106	0.050903	2.398765	0.0165
GENDER	-0.255924	0.161428	-1.585369	0.1129
Limit Points				
LIMIT_2:C(4)	-2.312964	0.389984	-5.930923	0.0000
LIMIT_3:C(5)	-0.616029	0.348963	-1.765313	0.0775
LIMIT_4:C(6)	0.658325	0.348141	1.890976	0.0586
LIMIT_5:C(7)	1.442897	0.366160	3.940618	0.0001
Akaike info criterion	2.469073	Schwarz criterion	2.590023	
Log likelihood	-223.8583	Hannan-Quinn criter.	2.518082	
Restr. log likelihood	-228.9838	Avg. log likelihood	-1.197103	
LR statistic (3 df)	10.25098	LR index (Pseudo-R2)	0.022384	
Probability(LR stat)	0.016549			

Conclusions

The results obtained by the analysis of regressions show that the answers to the questions of the interview depends on almost all the individual characteristics considered.

The strongest influence is exerted by the gender of the interviewees. In fact, in most of the regressions the independent variable relative to the gender is explanatory of the replies. Women are strongly and negatively influenced by hot and dry summers, both in everyday life (in particular at work and at school), and in holiday behaviour. Discomfort caused by high temperatures perceived by women is so strong that they would be willing to reduce the number of short holidays and day trips, but not the plans for main holidays. In unusual mild winters, on the contrary, women are influenced positively and in particular improves their personal comfort. It is curious the fact that, concerning domestic consumption of gas and electricity, women always restrict the use: in hot summer, in fact, men increase more the consumption and in mild winter are women to decrease it more.

Another significant independent variable is the age, although in this case the relation was predictable. Older people, in fact, are more influenced by summer heat perceiving negative effects especially on their health. Adaptive behaviour consists on change some daily habits and on the tendency to move less, reducing the use of almost all the means of transport. Less foreseeable was the fact that also in mild winters the old enjoy less the unusually high temperatures. As regards the assumption that future summers will be increasingly hot and dry, older people and women think that this is a very probable and worrying prospect.

Analysing the relation between region and the replies to interview is clear that in Sicily people is more influenced by extreme summer seasons. Considering the impacts on health, in summer the worst effects emerge in Sicily and in winter the advantages are perceived more in Lombardy. As concerns air quality, when occur extreme seasons (hot summers and mild winters) people from Lombardy assert that air become considerably worse.

From the analysis appears that some answers depend on the size of the town in which interviewees live. People living in bigger towns are strongly influenced by extreme seasons and, in particular, perceive a worsening of air quality. Consequently they decide to go more to the seaside and countryside. On the other side, people that live in smaller villages in hot summers adapt their behaviour reducing more the use of their cars and in mild winters they obtain more advantages. As regards the consumption of water, gas and electricity, in summers they would increase more in smaller villages, while in winters would decrease more in bigger towns.

It is interesting to notice that the perception of hot summer is influenced also by income: people with higher incomes are strongly and negatively influenced in their activities at work and in daily habits; furthermore they perceive more that air quality get worse. To limit these negative impacts they would allow themselves more day trips, in particular to the seaside, but they would not be willing to modify their plans for main holidays and to lessen the use of their cars. As concerns the consumption, in hot and dry summer, as predictable, people with higher income would use more water and in mild winter they would reduce more, in proportion, the consumption of electricity and gas.

To finish, it must be underlined that from the regressions emerges that the number of persons living in the household is not a significant explanatory variable of the replies to the interview.

APPENDIX 2: ITALIAN WISE QUESTIONNAIRE

You can probably remember a hot and dry summer in recent years. Please think about this unusual summer, and answer the following questions.

1. In your everyday life, did an especially hot and dry summer here in Italy had any impacts on?

	(-2)	(-1)	(0)	(1)	(2)	
	<i>very</i>	<i>somewhat</i>	<i>un-</i>	<i>somewhat</i>	<i>very</i>	<i>can't</i>
	<i>unfavourably</i>	<i>unfavourably</i>	<i>changed</i>	<i>favourably</i>	<i>favourably</i>	
	<i>remember</i>					
A Your personal comfort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Your activities at work / school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C Your housework	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D Your outdoor leisure activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E Your health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F Your everyday travel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>much</i>	<i>somewhat</i>	<i>un-</i>	<i>somewhat</i>	<i>much</i>	<i>can't</i>
	<i>less</i>	<i>less</i>	<i>changed</i>	<i>more</i>	<i>more</i>	<i>remember</i>
H Your water use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I Your domestic consumption of electricity and gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Did you change the way you travelled during the especially hot and dry summer weather?

	(-2)	(-1)	(0)	(1)	(2)		
	<i>much</i>	<i>somewhat</i>	<i>un-</i>	<i>somewhat</i>	<i>much</i>	<i>never</i>	<i>can't</i>
	<i>less</i>	<i>less</i>	<i>changed</i>	<i>more</i>	<i>more</i>	<i>use</i>	<i>remember</i>
A Public transport use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Private car use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C Motorbike/scooter use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D Bicycle use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E Walking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. How did the especially hot and dry summer weather influence the following activities?

	(-2)	(-1)	(0)	(1)	(2)		
	<i>much less</i>	<i>somewhat less</i>	<i>un- changed</i>	<i>somewhat more</i>	<i>much more</i>	<i>never use</i>	<i>can't remember</i>
A Beaches / lakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Swimming pools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C Countryside (e.g. forests, National parks et.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D Outdoor sport facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E Indoor sport centres	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F Theatres/cinemas/museums	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G Outdoors restaurants/bars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Did you make fewer or more day trips during the hot and dry summer compared to a normal summer?

(-2)	(-1)	(0)	(1)	(2)		
<i>much less</i>	<i>somewhat less</i>	<i>un- changed</i>	<i>somewhat more</i>	<i>much more</i>	<i>never made</i>	<i>can't remember</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Did you make fewer or more weekend trips and short holidays breaks (2-3 days) during the hot and dry summer?

(-2)	(-1)	(0)	(1)	(2)		
<i>much less</i>	<i>somewhat less</i>	<i>un- changed</i>	<i>somewhat more</i>	<i>much more</i>	<i>never made</i>	<i>can't remember</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Did the hot summer influence your main summer holiday plans for this year?

<i>yes</i>	<i>no</i>	<i>can't remember</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Did the hot summer influence your main summer holiday plans for the next year?

<i>yes</i>	<i>no</i>	<i>Can't remember</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If yes in what way(s) did you change your plans?

(Please tick all that apply).

- | | |
|---|--------------------------|
| A. Stayed at home instead of going away | <input type="checkbox"/> |
| B. Went away instead of staying at home | <input type="checkbox"/> |
| C. Stayed in Italy instead of going abroad | <input type="checkbox"/> |
| D. Went abroad rather than remaining in Italy | <input type="checkbox"/> |
| E. Changed the timing of my main holiday | <input type="checkbox"/> |
| F. Took more days holiday | <input type="checkbox"/> |

8. Perhaps you remember which unusually hot and dry summer you have been thinking about.

		<i>can't</i>
		<i>remember</i>
Year	<input type="text"/>	<input type="checkbox"/>

Thank you for answering the questions about a previous hot summer. Now we'd like to ask you some questions about the future.

1. How probable do you think is the assumption that future summers will be increasingly hot and dry?

<i>(-2)</i>	<i>(-1)</i>	<i>(0)</i>	<i>(1)</i>	<i>(2)</i>
<i>very</i>	<i>somewhat</i>	<i>neither</i>	<i>somewhat</i>	<i>very</i>
<i>probable</i>	<i>probable</i>	<i>nor</i>	<i>improbable</i>	<i>improbable</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How do you judge the prospect of global warming?

<i>(-2)</i>	<i>(-1)</i>	<i>(0)</i>	<i>(1)</i>	<i>(2)</i>
<i>very</i>	<i>somewhat</i>	<i>indifferent</i>	<i>somewhat</i>	<i>very</i>
<i>worrying</i>	<i>worrying</i>		<i>attractive</i>	<i>attractive</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For the next set of questions, we would like you to remember an unusually warm winter in the last few years.

3. In your everyday life, did an especially warm winter here in Italy had any impacts on?

	(-2)	(-1)	(0)	(1)	(2)	
	<i>Very unfavourably</i>	<i>somewhat unfavourably</i>	<i>un- changed</i>	<i>somewhat favourably</i>	<i>very favourably</i>	<i>can't remember</i>
A Your personal comfort	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Your everyday travel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C Practising winter sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D Other outdoor leisure activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E Your perception of winter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F Your health	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G Air quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>much less</i>	<i>somewhat less</i>	<i>un- changed</i>	<i>somewhat more</i>	<i>much more</i>	<i>can't remember</i>
H Your consumption of electricity & gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I Insects, mice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Perhaps you remember which unusually warm winter you have been thinking about.

		<i>can't remember</i>
Year	<input type="text"/>	<input type="checkbox"/>

Could you please provide us with some information about yourself ?

S1. What is the name of the village/town and province where you live?

S2. Which size has the village/town where you live?

<10	10-20	20-100	100-500	500-1000	>1000	don't know
-----	-------	--------	---------	----------	-------	------------

S3. Your gender?

Male	<input type="checkbox"/>	Female	<input type="checkbox"/>
------	--------------------------	--------	--------------------------

S4. Which age group do you belong to?

- | | | | |
|----------|--------------------------|----------|--------------------------|
| A. 16-24 | <input type="checkbox"/> | E. 55-64 | <input type="checkbox"/> |
| B. 25-34 | <input type="checkbox"/> | F. 65-74 | <input type="checkbox"/> |
| C. 35-44 | <input type="checkbox"/> | G. 75+ | <input type="checkbox"/> |
| D. 45-54 | <input type="checkbox"/> | | |

S5. Which of the following best describes you?

- | | |
|---|--------------------------|
| A Student | <input type="checkbox"/> |
| B Housewife | <input type="checkbox"/> |
| C Employed | <input type="checkbox"/> |
| D Freelance | <input type="checkbox"/> |
| E Seeking work | <input type="checkbox"/> |
| F Retired | <input type="checkbox"/> |
| G Other (<i>please say what it is</i>): | <input type="checkbox"/> |

.....

If employed, please give occupation:

.....

S6. In which of the following income classes does your family belong?

- | | |
|------------------------------------|--------------------------|
| A until 1.500.000 Lire | <input type="checkbox"/> |
| B from 1.500.000 to 3.000.000 Lire | <input type="checkbox"/> |
| C from 3.000.000 to 4.500.000 Lire | <input type="checkbox"/> |
| D from 4.500.000 to 6.000.000 Lire | <input type="checkbox"/> |
| E from 6.000.000 to 7.500.000 Lire | <input type="checkbox"/> |
| F more than 7.500.000 Lire | <input type="checkbox"/> |

S7. How many persons live in your household?

Please state the number

Many thanks for your kind collaboration.

NOTE DI LAVORO DELLA FONDAZIONE ENI ENRICO MATTEI

Fondazione Eni Enrico Mattei Working Paper Series

Our Note di Lavoro are available on the Internet at the following addresses:

<http://www.feem.it/Feem/Pub/Publications/WPapers/default.html>

<http://www.ssrn.com/link/feem.html>

NOTE DI LAVORO PUBLISHED IN 2003

PRIV	1.2003	<i>Gabriella CHIESA and Giovanna NICODANO</i> : <u>Privatization and Financial Market Development: Theoretical Issues</u>
PRIV	2.2003	<i>Ibolya SCHINDELE</i> : <u>Theory of Privatization in Eastern Europe: Literature Review</u>
PRIV	3.2003	<i>Wietze LISE, Claudia KEMFERT and Richard S.J. TOL</i> : <u>Strategic Action in the Liberalised German Electricity Market</u>
CLIM	4.2003	<i>Laura MARSILIANI and Thomas I. RENSTRÖM</i> : <u>Environmental Policy and Capital Movements: The Role of Government Commitment</u>
KNOW	5.2003	<i>Reyer GERLAGH</i> : <u>Induced Technological Change under Technological Competition</u>
ETA	6.2003	<i>Efrem CASTELNUOVO</i> : <u>Squeezing the Interest Rate Smoothing Weight with a Hybrid Expectations Model</u>
SIEV	7.2003	<i>Anna ALBERINI, Alberto LONGO, Stefania TONIN, Francesco TROMBETTA and Margherita TURVANI</i> : <u>The Role of Liability, Regulation and Economic Incentives in Brownfield Remediation and Redevelopment: Evidence from Surveys of Developers</u>
NRM	8.2003	<i>Elissaios POPYRAKIS and Reyner GERLAGH</i> : <u>Natural Resources: A Blessing or a Curse?</u>
CLIM	9.2003	<i>A. CAPARRÓS, J.-C. PEREAU and T. TAZDAÏT</i> : <u>North-South Climate Change Negotiations: a Sequential Game with Asymmetric Information</u>
KNOW	10.2003	<i>Giorgio BRUNELLO and Daniele CHECCHI</i> : <u>School Quality and Family Background in Italy</u>
CLIM	11.2003	<i>Efrem CASTELNUOVO and Marzio GALEOTTI</i> : <u>Learning By Doing vs Learning By Researching in a Model of Climate Change Policy Analysis</u>
KNOW	12.2003	<i>Carole MAIGNAN, Gianmarco OTTAVIANO and Dino PINELLI (eds.)</i> : <u>Economic Growth, Innovation, Cultural Diversity: What are we all talking about? A critical survey of the state-of-the-art</u>
KNOW	13.2003	<i>Carole MAIGNAN, Gianmarco OTTAVIANO, Dino PINELLI and Francesco RULLANI (lix)</i> : <u>Bio-Ecological Diversity vs. Socio-Economic Diversity. A Comparison of Existing Measures</u>
KNOW	14.2003	<i>Maddy JANSSENS and Chris STEYAERT (lix)</i> : <u>Theories of Diversity within Organisation Studies: Debates and Future Trajectories</u>
KNOW	15.2003	<i>Tuzin BAYCAN LEVENT, Enno MASUREL and Peter NIJKAMP (lix)</i> : <u>Diversity in Entrepreneurship: Ethnic and Female Roles in Urban Economic Life</u>
KNOW	16.2003	<i>Alexandra BITUSIKOVA (lix)</i> : <u>Post-Communist City on its Way from Grey to Colourful: The Case Study from Slovakia</u>
KNOW	17.2003	<i>Billy E. VAUGHN and Katarina MLEKOV (lix)</i> : <u>A Stage Model of Developing an Inclusive Community</u>
KNOW	18.2003	<i>Selma van LONDEN and Arie de RUIJTER (lix)</i> : <u>Managing Diversity in a Globalizing World</u>
Coalition		
Theory	19.2003	<i>Sergio CURRARINI</i> : <u>On the Stability of Hierarchies in Games with Externalities</u>
Network		
PRIV	20.2003	<i>Giacomo CALZOLARI and Alessandro PAVAN (lx)</i> : <u>Monopoly with Resale</u>
PRIV	21.2003	<i>Claudio MEZZETTI (lx)</i> : <u>Auction Design with Interdependent Valuations: The Generalized Revelation Principle, Efficiency, Full Surplus Extraction and Information Acquisition</u>
PRIV	22.2003	<i>Marco LiCalzi and Alessandro PAVAN (lx)</i> : <u>Tilting the Supply Schedule to Enhance Competition in Uniform-Price Auctions</u>
PRIV	23.2003	<i>David ETTINGER (lx)</i> : <u>Bidding among Friends and Enemies</u>
PRIV	24.2003	<i>Hannu VARTIAINEN (lx)</i> : <u>Auction Design without Commitment</u>
PRIV	25.2003	<i>Matti KELOHARJU, Kjell G. NYBORG and Kristian RYDQVIST (lx)</i> : <u>Strategic Behavior and Underpricing in Uniform Price Auctions: Evidence from Finnish Treasury Auctions</u>
PRIV	26.2003	<i>Christine A. PARLOUR and Uday RAJAN (lx)</i> : <u>Rationing in IPOs</u>
PRIV	27.2003	<i>Kjell G. NYBORG and Ilya A. STREBULAIEV (lx)</i> : <u>Multiple Unit Auctions and Short Squeezes</u>
PRIV	28.2003	<i>Anders LUNANDER and Jan-Eric NILSSON (lx)</i> : <u>Taking the Lab to the Field: Experimental Tests of Alternative Mechanisms to Procure Multiple Contracts</u>
PRIV	29.2003	<i>TangaMcDANIEL and Karsten NEUHOFF (lx)</i> : <u>Use of Long-term Auctions for Network Investment</u>
PRIV	30.2003	<i>Emiel MAASLAND and Sander ONDERSTAL (lx)</i> : <u>Auctions with Financial Externalities</u>
ETA	31.2003	<i>Michael FINUS and Bianca RUNDSHAGEN</i> : <u>A Non-cooperative Foundation of Core-Stability in Positive Externality NTU-Coalition Games</u>
KNOW	32.2003	<i>Michele MORETTO</i> : <u>Competition and Irreversible Investments under Uncertainty</u>
PRIV	33.2003	<i>Philippe QUIRION</i> : <u>Relative Quotas: Correct Answer to Uncertainty or Case of Regulatory Capture?</u>
KNOW	34.2003	<i>Giuseppe MEDA, Claudio PIGA and Donald SIEGEL</i> : <u>On the Relationship between R&D and Productivity: A Treatment Effect Analysis</u>
ETA	35.2003	<i>Alessandra DEL BOCA, Marzio GALEOTTI and Paola ROTA</i> : <u>Non-convexities in the Adjustment of Different Capital Inputs: A Firm-level Investigation</u>

GG	36.2003	<i>Matthieu GLACHANT</i> : <u>Voluntary Agreements under Endogenous Legislative Threats</u>
PRIV	37.2003	<i>Narjess BOUBAKRI, Jean-Claude COSSET and Omrane GUEDHAMI</i> : <u>Postprivatization Corporate Governance: the Role of Ownership Structure and Investor Protection</u>
CLIM	38.2003	<i>Rolf GOLOMBEK and Michael HOEL</i> : <u>Climate Policy under Technology Spillovers</u>
KNOW	39.2003	<i>Slim BEN YOUSSEF</i> : <u>Transboundary Pollution, R&D Spillovers and International Trade</u>
CTN	40.2003	<i>Carlo CARRARO and Carmen MARCHIORI</i> : <u>Endogenous Strategic Issue Linkage in International Negotiations</u>
KNOW	41.2003	<i>Sonia OREFFICE</i> : <u>Abortion and Female Power in the Household: Evidence from Labor Supply</u>
KNOW	42.2003	<i>Timo GOESCHL and Timothy SWANSON</i> : <u>On Biology and Technology: The Economics of Managing Biotechnologies</u>
ETA	43.2003	<i>Giorgio Busetti and Matteo MANERA</i> : <u>STAR-GARCH Models for Stock Market Interactions in the Pacific Basin Region, Japan and US</u>
CLIM	44.2003	<i>Katrin MILLOCK and Céline NAUGES</i> : <u>The French Tax on Air Pollution: Some Preliminary Results on its Effectiveness</u>
PRIV	45.2003	<i>Bernardo BORTOLOTTI and Paolo PINOTTI</i> : <u>The Political Economy of Privatization</u>
SIEV	46.2003	<i>Elbert DIJKGRAAF and Herman R.J. VOLLEBERGH</i> : <u>Burn or Bury? A Social Cost Comparison of Final Waste Disposal Methods</u>
ETA	47.2003	<i>Jens HORBACH</i> : <u>Employment and Innovations in the Environmental Sector: Determinants and Econometrical Results for Germany</u>
CLIM	48.2003	<i>Lori SNYDER, Nolan MILLER and Robert STAVINS</i> : <u>The Effects of Environmental Regulation on Technology Diffusion: The Case of Chlorine Manufacturing</u>
CLIM	49.2003	<i>Lori SNYDER, Robert STAVINS and Alexander F. WAGNER</i> : <u>Private Options to Use Public Goods. Exploiting Revealed Preferences to Estimate Environmental Benefits</u>
CTN	50.2003	<i>László Á. KÓCZY and Luc LAUWERS</i> (Ixi): <u>The Minimal Dominant Set is a Non-Empty Core-Extension</u>
CTN	51.2003	<i>Matthew O. JACKSON</i> (Ixi): <u>Allocation Rules for Network Games</u>
CTN	52.2003	<i>Ana MAULEON and Vincent VANNETELBOSCH</i> (Ixi): <u>Farsightedness and Cautiousness in Coalition Formation</u>
CTN	53.2003	<i>Fernando VEGA-REDONDO</i> (Ixi): <u>Building Up Social Capital in a Changing World: a network approach</u>
CTN	54.2003	<i>Matthew HAAG and Roger LAGUNOFF</i> (Ixi): <u>On the Size and Structure of Group Cooperation</u>
CTN	55.2003	<i>Tajji FURUSAWA and Hideo KONISHI</i> (Ixi): <u>Free Trade Networks</u>
CTN	56.2003	<i>Halis Murat YILDIZ</i> (Ixi): <u>National Versus International Mergers and Trade Liberalization</u>
CTN	57.2003	<i>Santiago RUBIO and Alistair ULPH</i> (Ixi): <u>An Infinite-Horizon Model of Dynamic Membership of International Environmental Agreements</u>
KNOW	58.2003	<i>Carole MAIGNAN, Dino PINELLI and Gianmarco I.P. OTTAVIANO</i> : <u>ICT, Clusters and Regional Cohesion: A Summary of Theoretical and Empirical Research</u>
KNOW	59.2003	<i>Giorgio BELLETTINI and Gianmarco I.P. OTTAVIANO</i> : <u>Special Interests and Technological Change</u>
ETA	60.2003	<i>Ronnie SCHÖB</i> : <u>The Double Dividend Hypothesis of Environmental Taxes: A Survey</u>
CLIM	61.2003	<i>Michael FINUS, Ekko van IERLAND and Robert DELLINK</i> : <u>Stability of Climate Coalitions in a Cartel Formation Game</u>
GG	62.2003	<i>Michael FINUS and Bianca RUNDSHAGEN</i> : <u>How the Rules of Coalition Formation Affect Stability of International Environmental Agreements</u>
SIEV	63.2003	<i>Alberto PETRUCCI</i> : <u>Taxing Land Rent in an Open Economy</u>
CLIM	64.2003	<i>Joseph E. ALDY, Scott BARRETT and Robert N. STAVINS</i> : <u>Thirteen Plus One: A Comparison of Global Climate Policy Architectures</u>
SIEV	65.2003	<i>Edi DEFRANCESCO</i> : <u>The Beginning of Organic Fish Farming in Italy</u>
SIEV	66.2003	<i>Klaus CONRAD</i> : <u>Price Competition and Product Differentiation when Consumers Care for the Environment</u>
SIEV	67.2003	<i>Paulo A.L.D. NUNES, Luca ROSSETTO, Arianne DE BLAEIJ</i> : <u>Monetary Value Assessment of Clam Fishing Management Practices in the Venice Lagoon: Results from a Stated Choice Exercise</u>
CLIM	68.2003	<i>ZhongXiang ZHANG</i> : <u>Open Trade with the U.S. Without Compromising Canada's Ability to Comply with its Kyoto Target</u>
KNOW	69.2003	<i>David FRANTZ</i> (Iix): <u>Lorenzo Market between Diversity and Mutation</u>
KNOW	70.2003	<i>Ercole SORI</i> (Iix): <u>Mapping Diversity in Social History</u>
KNOW	71.2003	<i>Ljiljana DERU SIMIC</i> (Ixi): <u>What is Specific about Art/Cultural Projects?</u>
KNOW	72.2003	<i>Natalya V. TARANOVA</i> (Ixi): <u>The Role of the City in Fostering Intergroup Communication in a Multicultural Environment: Saint-Petersburg's Case</u>
KNOW	73.2003	<i>Kristine CRANE</i> (Ixi): <u>The City as an Arena for the Expression of Multiple Identities in the Age of Globalisation and Migration</u>
KNOW	74.2003	<i>Kazuma MATOBA</i> (Ixi): <u>Glocal Dialogue- Transformation through Transcultural Communication</u>
KNOW	75.2003	<i>Catarina REIS OLIVEIRA</i> (Ixi): <u>Immigrants' Entrepreneurial Opportunities: The Case of the Chinese in Portugal</u>
KNOW	76.2003	<i>Sandra WALLMAN</i> (Ixi): <u>The Diversity of Diversity - towards a typology of urban systems</u>
KNOW	77.2003	<i>Richard PEARCE</i> (Ixi): <u>A Biologist's View of Individual Cultural Identity for the Study of Cities</u>
KNOW	78.2003	<i>Vincent MERK</i> (Ixi): <u>Communication Across Cultures: from Cultural Awareness to Reconciliation of the Dilemmas</u>
KNOW	79.2003	<i>Giorgio BELLETTINI, Carlotta BERTI CERONI and Gianmarco I.P. OTTAVIANO</i> : <u>Child Labor and Resistance to Change</u>
ETA	80.2003	<i>Michele MORETTO, Paolo M. PANTEGHINI and Carlo SCARPA</i> : <u>Investment Size and Firm's Value under Profit Sharing Regulation</u>

IEM	81.2003	<i>Alessandro LANZA, Matteo MANERA and Massimo GIOVANNINI: <u>Oil and Product Dynamics in International Petroleum Markets</u></i>
CLIM	82.2003	<i>Y. Hossein FARZIN and Jinhua ZHAO: <u>Pollution Abatement Investment When Firms Lobby Against Environmental Regulation</u></i>
CLIM	83.2003	<i>Giuseppe DI VITA: <u>Is the Discount Rate Relevant in Explaining the Environmental Kuznets Curve?</u></i>
CLIM	84.2003	<i>Reyer GERLAGH and Wietze LISE: <u>Induced Technological Change Under Carbon Taxes</u></i>
NRM	85.2003	<i>Rinaldo BRAU, Alessandro LANZA and Francesco PIGLIARU: <u>How Fast are the Tourism Countries Growing? The cross-country evidence</u></i>
KNOW	86.2003	<i>Elena BELLINI, Gianmarco I.P. OTTAVIANO and Dino PINELLI: <u>The ICT Revolution: opportunities and risks for the Mezzogiorno</u></i>
SIEV	87.2003	<i>Lucas BRETSCGHER and Sjak SMULDERS: <u>Sustainability and Substitution of Exhaustible Natural Resources. How resource prices affect long-term R&D investments</u></i>
CLIM	88.2003	<i>Johan EYCKMANS and Michael FINUS: <u>New Roads to International Environmental Agreements: The Case of Global Warming</u></i>
CLIM	89.2003	<i>Marzio GALEOTTI: <u>Economic Development and Environmental Protection</u></i>
CLIM	90.2003	<i>Marzio GALEOTTI: <u>Environment and Economic Growth: Is Technical Change the Key to Decoupling?</u></i>
CLIM	91.2003	<i>Marzio GALEOTTI and Barbara BUCHNER: <u>Climate Policy and Economic Growth in Developing Countries</u></i>
IEM	92.2003	<i>A. MARKANDYA, A. GOLUB and E. STRUKOVA: <u>The Influence of Climate Change Considerations on Energy Policy: The Case of Russia</u></i>
ETA	93.2003	<i>Andrea BELTRATTI: <u>Socially Responsible Investment in General Equilibrium</u></i>
CTN	94.2003	<i>Parkash CHANDER: <u>The γ-Core and Coalition Formation</u></i>
IEM	95.2003	<i>Matteo MANERA and Angelo MARZULLO: <u>Modelling the Load Curve of Aggregate Electricity Consumption Using Principal Components</u></i>
IEM	96.2003	<i>Alessandro LANZA, Matteo MANERA, Margherita GRASSO and Massimo GIOVANNINI: <u>Long-run Models of Oil Stock Prices</u></i>
CTN	97.2003	<i>Steven J. BRAMS, Michael A. JONES, and D. Marc KILGOUR: <u>Forming Stable Coalitions: The Process Matters</u></i>
KNOW	98.2003	<i>John CROWLEY, Marie-Cecile NAVES (Ixxiii): <u>Anti-Racist Policies in France. From Ideological and Historical Schemes to Socio-Political Realities</u></i>
KNOW	99.2003	<i>Richard THOMPSON FORD (Ixxiii): <u>Cultural Rights and Civic Virtue</u></i>
KNOW	100.2003	<i>Alaknanda PATEL (Ixxiii): <u>Cultural Diversity and Conflict in Multicultural Cities</u></i>
KNOW	101.2003	<i>David MAY (Ixxiii): <u>The Struggle of Becoming Established in a Deprived Inner-City Neighbourhood</u></i>
KNOW	102.2003	<i>Sébastien ARCAND, Danielle JUTEAU, Sirma BILGE, and Francine LEMIRE (Ixxiii) : <u>Municipal Reform on the Island of Montreal: Tensions Between Two Majority Groups in a Multicultural City</u></i>
CLIM	103.2003	<i>Barbara BUCHNER and Carlo CARRARO: <u>China and the Evolution of the Present Climate Regime</u></i>
CLIM	104.2003	<i>Barbara BUCHNER and Carlo CARRARO: <u>Emissions Trading Regimes and Incentives to Participate in International Climate Agreements</u></i>
CLIM	105.2003	<i>Anil MARKANDYA and Dirk T.G. RÜBBELKE: <u>Ancillary Benefits of Climate Policy</u></i>
NRM	106.2003	<i>Anne Sophie CRÉPIN (Ixiv): <u>Management Challenges for Multiple-Species Boreal Forests</u></i>
NRM	107.2003	<i>Anne Sophie CRÉPIN (Ixiv): <u>Threshold Effects in Coral Reef Fisheries</u></i>
SIEV	108.2003	<i>Sara ANIYAR (Ixiv): <u>Estimating the Value of Oil Capital in a Small Open Economy: The Venezuela's Example</u></i>
SIEV	109.2003	<i>Kenneth ARROW, Partha DASGUPTA and Karl-Göran MÄLER(Ixiv): <u>Evaluating Projects and Assessing Sustainable Development in Imperfect Economies</u></i>
NRM	110.2003	<i>Anastasios XEPAPADEAS and Catarina ROSETA-PALMA(Ixiv): <u>Instabilities and Robust Control in Fisheries</u></i>
NRM	111.2003	<i>Charles PERRINGS and Brian WALKER (Ixiv): <u>Conservation and Optimal Use of Rangelands</u></i>
ETA	112.2003	<i>Jack GOODY (Ixiv): <u>Globalisation, Population and Ecology</u></i>
CTN	113.2003	<i>Carlo CARRARO, Carmen MARCHIORI and Sonia OREFFICE: <u>Endogenous Minimum Participation in International Environmental Treaties</u></i>
CTN	114.2003	<i>Guillaume HAERINGER and Myrna WOODERS: <u>Decentralized Job Matching</u></i>
CTN	115.2003	<i>Hideo KONISHI and M. Utku UNVER: <u>Credible Group Stability in Multi-Partner Matching Problems</u></i>
CTN	116.2003	<i>Somdeb LAHIRI: <u>Stable Matchings for the Room-Mates Problem</u></i>
CTN	117.2003	<i>Somdeb LAHIRI: <u>Stable Matchings for a Generalized Marriage Problem</u></i>
CTN	118.2003	<i>Marita LAUKKANEN: <u>Transboundary Fisheries Management under Implementation Uncertainty</u></i>
CTN	119.2003	<i>Edward CARTWRIGHT and Myrna WOODERS: <u>Social Conformity and Bounded Rationality in Arbitrary Games with Incomplete Information: Some First Results</u></i>
CTN	120.2003	<i>Gianluigi VERNASCA: <u>Dynamic Price Competition with Price Adjustment Costs and Product Differentiation</u></i>
CTN	121.2003	<i>Myrna WOODERS, Edward CARTWRIGHT and Reinhard SELTEN: <u>Social Conformity in Games with Many Players</u></i>
CTN	122.2003	<i>Edward CARTWRIGHT and Myrna WOODERS: <u>On Equilibrium in Pure Strategies in Games with Many Players</u></i>
CTN	123.2003	<i>Edward CARTWRIGHT and Myrna WOODERS: <u>Conformity and Bounded Rationality in Games with Many Players</u></i>
	1000	Carlo CARRARO, Alessandro LANZA and Valeria PAPPONETTI: <u>One Thousand Working Papers</u>

NOTE DI LAVORO PUBLISHED IN 2004

IEM	1.2004	<i>Anil MARKANDYA, Suzette PEDROSO and Alexander GOLUB: <u>Empirical Analysis of National Income and So₂ Emissions in Selected European Countries</u></i>
ETA	2.2004	<i>Masahisa FUJITA and Shlomo WEBER: <u>Strategic Immigration Policies and Welfare in Heterogeneous Countries</u></i>
PRA	3.2004	<i>Adolfo DI CARLUCCIO, Giovanni FERRI, Cecilia FRALE and Ottavio RICCHI: <u>Do Privatizations Boost Household Shareholding? Evidence from Italy</u></i>
ETA	4.2004	<i>Victor GINSBURGH and Shlomo WEBER: <u>Languages Disenfranchisement in the European Union</u></i>
ETA	5.2004	<i>Romano PIRAS: <u>Growth, Congestion of Public Goods, and Second-Best Optimal Policy</u></i>
CCMP	6.2004	<i>Herman R.J. VOLLEBERGH: <u>Lessons from the Polder: Is Dutch CO₂-Taxation Optimal</u></i>
PRA	7.2004	<i>Sandro BRUSCO, Giuseppe LOPOMO and S. VISWANATHAN (lxv): <u>Merger Mechanisms</u></i>
PRA	8.2004	<i>Wolfgang AUSSENEGG, Pegaret PICHLER and Alex STOMPER (lxv): <u>IPO Pricing with Bookbuilding, and a When-Issued Market</u></i>
PRA	9.2004	<i>Pegaret PICHLER and Alex STOMPER (lxv): <u>Primary Market Design: Direct Mechanisms and Markets</u></i>
PRA	10.2004	<i>Florian ENGLMAIER, Pablo GUILLEN, Loreto LLORENTE, Sander ONDERSTAL and Rupert SAUSGRUBER (lxv): <u>The Chopstick Auction: A Study of the Exposure Problem in Multi-Unit Auctions</u></i>
PRA	11.2004	<i>Bjarne BRENDSTRUP and Harry J. PAARSCH (lxv): <u>Nonparametric Identification and Estimation of Multi-Unit, Sequential, Oral, Ascending-Price Auctions With Asymmetric Bidders</u></i>
PRA	12.2004	<i>Ohad KADAN (lxv): <u>Equilibrium in the Two Player, k-Double Auction with Affiliated Private Values</u></i>
PRA	13.2004	<i>Maarten C.W. JANSSEN (lxv): <u>Auctions as Coordination Devices</u></i>
PRA	14.2004	<i>Gadi FIBICH, Arieh GAVIOUS and Aner SELA (lxv): <u>All-Pay Auctions with Weakly Risk-Averse Buyers</u></i>
PRA	15.2004	<i>Orly SADE, Charles SCHNITZLEIN and Jaime F. ZENDER (lxv): <u>Competition and Cooperation in Divisible Good Auctions: An Experimental Examination</u></i>
PRA	16.2004	<i>Marta STRYSZOWSKA (lxv): <u>Late and Multiple Bidding in Competing Second Price Internet Auctions</u></i>
CCMP	17.2004	<i>Slim Ben YOUSSEF: <u>R&D in Cleaner Technology and International Trade</u></i>
NRM	18.2004	<i>Angelo ANTOCI, Simone BORGHESI and Paolo RUSSU (lxvi): <u>Biodiversity and Economic Growth: Stabilization Versus Preservation of the Ecological Dynamics</u></i>
SIEV	19.2004	<i>Anna ALBERINI, Paolo ROSATO, Alberto LONGO and Valentina ZANATTA: <u>Information and Willingness to Pay in a Contingent Valuation Study: The Value of S. Erasmo in the Lagoon of Venice</u></i>
NRM	20.2004	<i>Guido CANDELA and Roberto CELLINI (lxvii): <u>Investment in Tourism Market: A Dynamic Model of Differentiated Oligopoly</u></i>
NRM	21.2004	<i>Jacqueline M. HAMILTON (lxvii): <u>Climate and the Destination Choice of German Tourists</u></i>
NRM	22.2004	<i>Javier Rey-MAQUIEIRA PALMER, Javier LOZANO IBÁÑEZ and Carlos Mario GÓMEZ GÓMEZ (lxvii): <u>Land, Environmental Externalities and Tourism Development</u></i>
NRM	23.2004	<i>Pius ODUNGA and Henk FOLMER (lxvii): <u>Profiling Tourists for Balanced Utilization of Tourism-Based Resources in Kenya</u></i>
NRM	24.2004	<i>Jean-Jacques NOWAK, Mondher SAHLI and Pasquale M. SGRO (lxvii): <u>Tourism, Trade and Domestic Welfare</u></i>
NRM	25.2004	<i>Riaz SHAREEF (lxvii): <u>Country Risk Ratings of Small Island Tourism Economies</u></i>
NRM	26.2004	<i>Juan Luis Eugenio-MARTÍN, Noelia MARTÍN MORALES and Riccardo SCARPA (lxvii): <u>Tourism and Economic Growth in Latin American Countries: A Panel Data Approach</u></i>
NRM	27.2004	<i>Raúl Hernández MARTÍN (lxvii): <u>Impact of Tourism Consumption on GDP. The Role of Imports</u></i>
CSRM	28.2004	<i>Nicoletta FERRO: <u>Cross-Country Ethical Dilemmas in Business: A Descriptive Framework</u></i>
NRM	29.2004	<i>Marian WEBER (lxvi): <u>Assessing the Effectiveness of Tradable Landuse Rights for Biodiversity Conservation: an Application to Canada's Boreal Mixedwood Forest</u></i>
NRM	30.2004	<i>Trond BJORN DAL, Phoebe KOUNDOURI and Sean PASCOE (lxvi): <u>Output Substitution in Multi-Species Trawl Fisheries: Implications for Quota Setting</u></i>
CCMP	31.2004	<i>Marzio GALEOTTI, Alessandra GORIA, Paolo MOMBRINI and Evi SPANTIDAKI: <u>Weather Impacts on Natural, Social and Economic Systems (WISE) Part I: Sectoral Analysis of Climate Impacts in Italy</u></i>
CCMP	32.2004	<i>Marzio GALEOTTI, Alessandra GORIA, Paolo MOMBRINI and Evi SPANTIDAKI: <u>Weather Impacts on Natural, Social and Economic Systems (WISE) Part II: Individual Perception of Climate Extremes in Italy</u></i>

- (lix) This paper was presented at the ENGIME Workshop on “Mapping Diversity”, Leuven, May 16-17, 2002
- (lx) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications”, organised by the Fondazione Eni Enrico Mattei, Milan, September 26-28, 2002
- (lxi) This paper was presented at the Eighth Meeting of the Coalition Theory Network organised by the GREQAM, Aix-en-Provence, France, January 24-25, 2003
- (lxii) This paper was presented at the ENGIME Workshop on “Communication across Cultures in Multicultural Cities”, The Hague, November 7-8, 2002
- (lxiii) This paper was presented at the ENGIME Workshop on “Social dynamics and conflicts in multicultural cities”, Milan, March 20-21, 2003
- (lxiv) This paper was presented at the International Conference on “Theoretical Topics in Ecological Economics”, organised by the Abdus Salam International Centre for Theoretical Physics - ICTP, the Beijer International Institute of Ecological Economics, and Fondazione Eni Enrico Mattei – FEEM Trieste, February 10-21, 2003
- (lxv) This paper was presented at the EuroConference on “Auctions and Market Design: Theory, Evidence and Applications” organised by Fondazione Eni Enrico Mattei and sponsored by the EU, Milan, September 25-27, 2003
- (lxvi) This paper has been presented at the 4th BioEcon Workshop on “Economic Analysis of Policies for Biodiversity Conservation” organised on behalf of the BIOECON Network by Fondazione Eni Enrico Mattei, Venice International University (VIU) and University College London (UCL), Venice, August 28-29, 2003
- (lxvii) This paper has been presented at the international conference on “Tourism and Sustainable Economic Development – Macro and Micro Economic Issues” jointly organised by CRENoS (Università di Cagliari e Sassari, Italy) and Fondazione Eni Enrico Mattei, and supported by the World Bank, Sardinia, September 19-20, 2003

2003 SERIES

CLIM	<i>Climate Change Modelling and Policy</i> (Editor: Marzio Galeotti)
GG	<i>Global Governance</i> (Editor: Carlo Carraro)
SIEV	<i>Sustainability Indicators and Environmental Valuation</i> (Editor: Anna Alberini)
NRM	<i>Natural Resources Management</i> (Editor: Carlo Giupponi)
KNOW	<i>Knowledge, Technology, Human Capital</i> (Editor: Gianmarco Ottaviano)
IEM	<i>International Energy Markets</i> (Editor: Anil Markandya)
CSR	<i>Corporate Social Responsibility and Management</i> (Editor: Sabina Ratti)
PRIV	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)
CTN	<i>Coalition Theory Network</i>

2004 SERIES

CCMP	<i>Climate Change Modelling and Policy</i> (Editor: Marzio Galeotti)
GG	<i>Global Governance</i> (Editor: Carlo Carraro)
SIEV	<i>Sustainability Indicators and Environmental Valuation</i> (Editor: Anna Alberini)
NRM	<i>Natural Resources Management</i> (Editor: Carlo Giupponi)
KTHC	<i>Knowledge, Technology, Human Capital</i> (Editor: Gianmarco Ottaviano)
IEM	<i>International Energy Markets</i> (Editor: Anil Markandya)
CSR	<i>Corporate Social Responsibility and Management</i> (Editor: Sabina Ratti)
PRA	<i>Privatisation, Regulation, Antitrust</i> (Editor: Bernardo Bortolotti)
ETA	<i>Economic Theory and Applications</i> (Editor: Carlo Carraro)
CTN	<i>Coalition Theory Network</i>