Appendix 5

Questionnaires used for the Contingent Valuation Study .

Age _____ **Class** _____ **Female/Male**

Part 1

Do you think that environment influences health:	
Very much	○
To some extent	○
Not so much	○
Little	○
Not at all	○

Answer Yes or No:	**Yes**	**NO**
If my classmate is in a difficult situation I try to help him/her	○	○
I am sorry if my classmate cannot come to school because he/she is not feeling good	○	○
If my classmate has nothing to eat during the break I will share mine with him/her	○	○
I will lend money to my classmate if he/she needs money to buy something	○	○

Do you worry for your health ?

Very much ○

To some extent ○

Not so much ○

Little ○

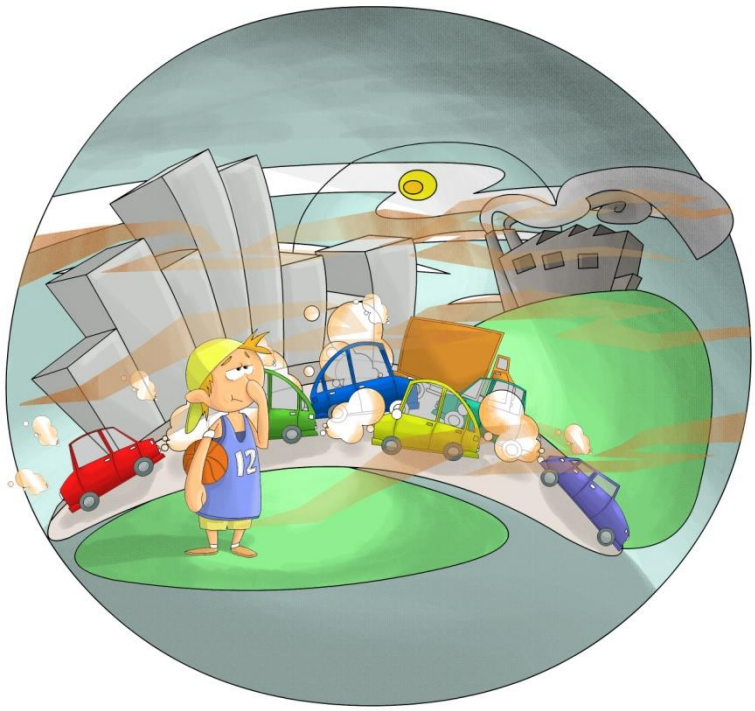
Not at all ○

Answer Yes or No:	**Yes**	**NO**
I always brush my teeth before going to bed	○	○
I always use sunscreen to avoid sun burning	○	○
I always wash my hands before going to eat because I am afraid of germs	○	○
I always use the seatbelt when I am in a car	○	○
I always wear and helmet when riding the motorbike	○	○

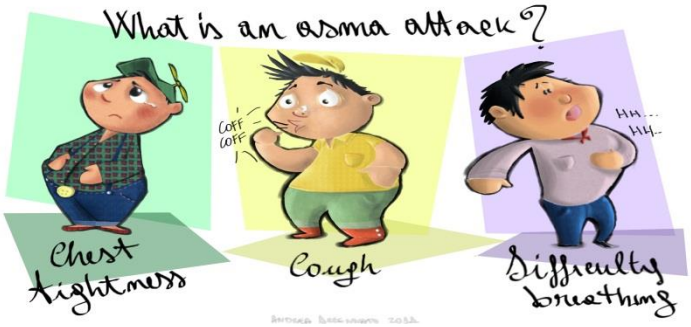
Answer Yes or No:	**Yes**	**NO**
I would not go for a safari in the jungle	○	○
I am scared when the motorbike goes fast	○	○
I like going on holiday to places that I know because it is safer	○	○
I don't like to do dangerous sport (e.g. Banjee Jumping)	○	○
I pay high attention when I cross the street	○	○

Part 2

Imagine that you are Jack. Jack is a boy living in a polluted city where 20 children in 100 have an asthma attack each month.(See Visual Aids provided)



An asthma attack is described in the vignette below.



Have you even suffered from asthma attacks?

Yes Often ○

Seldom ○

Never ○

Imagine that is possible for Jack to pay a monthly amount to implement a policy intervention to reduce the risk of having asthma attack. Remember that Jack has a monthly budget constraint of €32.

If you were Jack would you be willing to pay to decrease the risk of having an asthma attack?

Yes ○ **No** ○

I your answer was **Yes** remember that your monthly budget is €32 and answer to the three following questions:

If you were Jack, how much would you be willing to pay to reduce the risk of having an asthma attack from **20** in **100 to 1** in **100** children: (See Visual Aids provided)

(Please cross the selected amount in the list below)

€0	€2	€4	€10	€26
€1	€2.50	€6	€13	€30
€1.50	€3	€8	€20	€32

If you were Jack, how much would you be willing to pay to reduce the risk of having an asthma attack from **20** in **100 to 10** in **100** children: (See Visual Aids provided)

(Please cross the selected amount in the list below)

€0	€2	€4	€10	€26
€1	€2.50	€6	€13	€30
€1.50	€3	€8	€20	€32

If you were Jack, how much would you be willing to pay to reduce the risk of having an asthma attack from **20** in **100 to 16** in **100** children: (See Visual Aids provided)

(Please cross the selected amount in the list below)

€0	€2	€4	€10	€26
€1	€2.50	€6	€13	€30
€1.50	€3	€8	€20	€32

If your answer was **NO** please answer to the following questions:

Answer Yes or No:	**NO**	**Yes**
I do not care about health	○	○
The Major should deal with these problems		○
I do not have enough money to deal with this problem	○	○
I think there are other priorities	○	○
The change in health risk was too low	○	○
I needed more information to answer to the question	○	○

What do you think about this questionnaire

How did you find it:

Very Easy

Easy

Difficult

Very Difficult

What do you think about the research project: Respiriamolacitta:

Interesting, I would do a similar one again

Not Interesting but I would not do a similar one again

Dear Parent

Thank you very much for your precious collaboration. We would be very grateful if you can reply to this short quesitonnaire. It will not take longer than ten minutes.

Men ◯ Female ◯

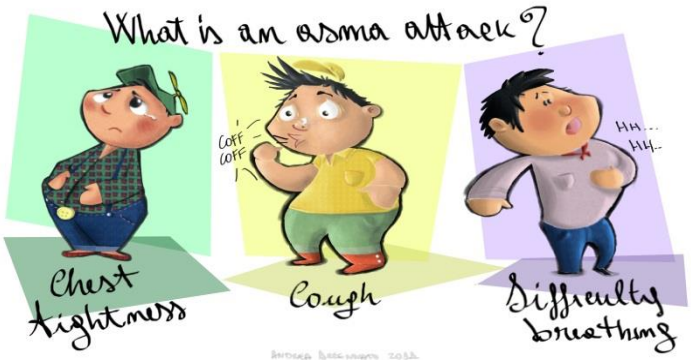
Date of birth : ……/……/……..

Job :_____

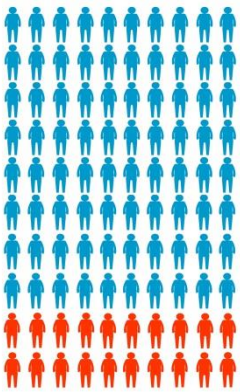
How many people there are in your family? _____

Part 1

Imagine that the city where you live with your child suffers from air pollution. Because of pollution children living in your city suffer from a medical condition named asthma. The possible consequences of an asthma attack are described in the vignette reported below. As you can see asthma can be associated with difficulties in breathing, cough and chest tightness.



Imagine that in the city where you live with your child the risk of having an asthma attack is 20 in 100 children each month.



In the Figure the human figures in red represent the children suffering from asthma while in blue there are the children who do not suffer from asthma.

<u>Please read carefully the questions before answering.</u>

Imagine that after paying for accommodation and food your remaining monthly family budget is €400.

- Bearing in mind that the monthly family budget is €400. How much would you be willing to pay each month for a policy intervention to reduce the risk of having an asthma attack to your child: from **20** in **100** to **10** in **100** children: (See the Visual Aids for health risk reduction)

(Please cross the selected amount)

€0	€10	€40	€150	€300
€2	€20	€50	€200	€350
€5	€30	€100	€250	€400

- Bearing in mind the monthly family budget is €400. How much would you be willing to pay each month for a policy intervention to reduce the risk of having an asthma attack to your child: from **20** in **100** to **16** in **100** children: (See the Visual Aids for health risk reduction)

(*Please cross the selected amount)*

€0	€10	€40	€150	€300
€2	€20	€50	€200	€350
€5	€30	€100	€250	€400

- Bearing in mind that the monthly family budget is €400. How much would you be willing to pay each month for a policy intervention to reduce the risk of having an asthma attack to your child: from **20** in **100** to **1** in 1**00** children: (See the Visual Aids for health risk reduction)

(*Please cross the selected amount)*

€0	€10	€40	€150	€300
€2	€20	€50	€200	€350
€5	€30	€100	€250	€400

If your answer was €0 to all the three previous questions Please answer to the questions included in the following Table:

Answer Yes or Not	Yes	No
I do not care about health	○	○
The Major should deal with these problems	○	○
I do not have enough money to deal with this problem	○	○
I think there are other priorities	○	○
The change in health risk was too low	○	○
I needed more information in order to answer to the question	○	○

Part 2

Do you think that environment influences health:

- Very much ○
- To some extent ○
- Not so much ○
- Little ○
- Not at all ○

Please indicate how much is spent each month in your family excluding accommodation and food expenses?

€50	€200	€500	€800	€1500
€100	€300	€600	€900	€2000
€150	€400	€700	€1000	>€2000

Please answer: "Often", "Seldom" and "Never"	**Often**	**Seldom**	**Never**
I always use sunscreen to avoid sun burn			
I always wash my hands before going to eat because I am afraid of germs			
I always use helmet for my children when riding a motorbike			
I smoke			
I practice sport			
I would not go for a safari in the jungle			
I am scared when the motorbike goes fast			
I like going on holiday to places that I know because it is safer			
I like playing dangerous sports			
I pay attention when I cross the street			

Do you worry about your health ?

Very much ○

To some extent ○

Not so much ○

Little ○

Not at all ○

Do you worry about your child health?

Very much ○

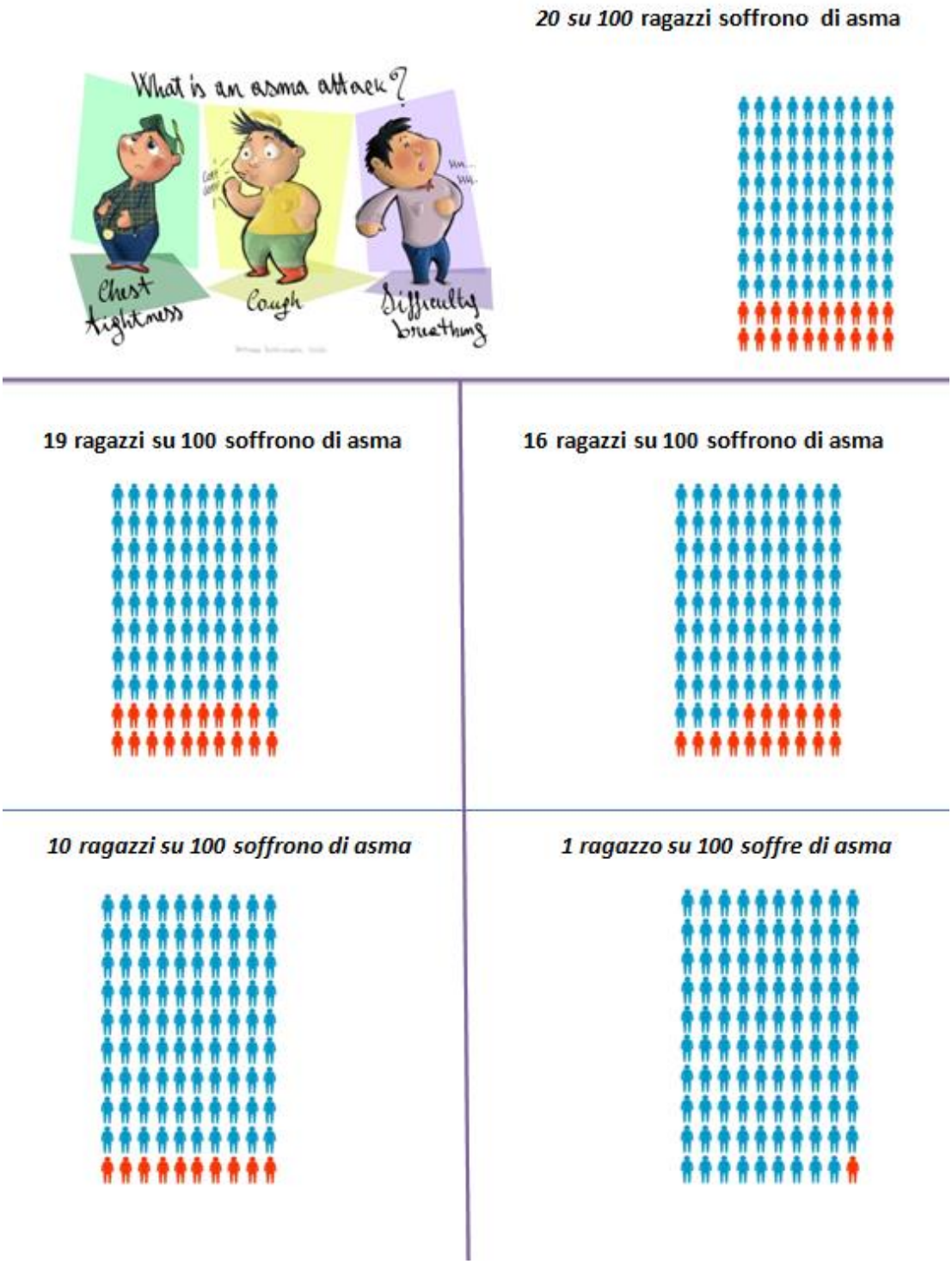
To some extent ○

Not so much ○

Little ○

Not at all ○

Figure 1. Visual Aids provided in the children and parents questionnaire



The theoretical model including children preferences.

Three household decision making models have been used to estimate parents' WTP for health risk reductions for their children: the unitary, the collective and the non-cooperative models [1, 2] . The adoption of one model rather than another leads to different assumptions about the household decision making process and ultimately about parental WTP estimates [2].

Household behavior in the unitary model is analysed using a single household utility function which is maximised subject to a pooled budget constraint [2]. Despite the advantages of adopting a unitary model such as having testable underling hypotheses on household behavior, empirical and theoretical studies have shown that assuming that the household behaves as a single individual does not reflect the real household behaviour [2]. Empirical studies have also shown that, in the majority of cases, the hypotheses underlying the unitary model (e.g. demand should satisfy the income pooling property) do not hold [3].

The collective model has been proposed to describe non-unitary household decision making in order to account for these weaknesses. According to the collective model each member within the household has defined preferences over the goods consumed by the household [2]. The household decision process leads to Pareto efficient allocations of resources [2, 4]. In a model involving two parents and children, for example, parents allocate resources between their own private consumption and expenditures for their children. Unlike the unitary model the collective model accounts for the effect of distributional factors on decision making power [4]. The third approach proposed in the literature is the non-cooperative approach in which each parent individually makes choices about reducing health risk to their children [5]. In this approach household decisions are not Pareto efficient meaning that it is possible that parents "buy" a health risk reduction for a child that is higher or lower than the efficient amount [1].

The few studies which predict household decisions about health risks (assuming that only the parents are decision makers) report mixed findings. Bateman and Munro rejected the hypothesis of a unitary household model. According to their study WTP depends on the type of respondent considered, individual or household, and there is not a consensus between spouses in their WTP for reducing

children's health risk [6]. Recently Adamowicz et al., using stated preference data from 432 matched pairs of mothers and fathers, investigated parents' willingness to purchase a hypothetical good to decrease their own and their children's risk of heart disease. Studies that assume collective decision making suggest that households are willing to pay the same amount of money to reduce the health risk of each household member (mother, father and child). Unlike Bateman and Munro the study also shows that parents' WTP estimates are based on household rather than on individual valuation. Finally, another important result of the study is that shifting the decision making power between spouses does affect the WTP for all the family members' health risk reduction. Despite the theoretical and empirical weaknesses, the unitary model is the most commonly adopted as conceptual basis for the monetary evaluation of changes in children's health risk from a parental perspective [7, 8].

The different models have been applied to estimate the value of child health risk reduction but have not considered children as autonomous agents with defined preferences and consequently assume that parents are the only decision makers within the household. The objective of this section is to incorporate the preferences of children in the different approaches to model parents' WTP for child health risk reductions. Children's preferences can affect the decision process directly or indirectly by influencing parents' preferences (assuming that parents are altruistic towards their children's health)

According to Browning & Chiappori the collective household can be extended to more than two people in the household to account for the presence of children. For example, for a household comprising two parents, A and B, and one child, named C, the household demand will depend on the consumption of four goods: private consumption of each person, q^A, q^B and q^C and consumption of public good Q. The demand function can be expressed as follows:

1. $q^A + q^B + q^C + Q = q$

The parents' utility depends on their consumption of private and public goods and on their child's consumption (parents show altruistic preferences) and their preferences will be defined as follow

$u^i(q^i,q^c,Q)$ where i = A,B. Assuming for simplicity that children are egoistical agents their utility function will depend only on their private and public consumption $u^C(q^c,Q)$.

Following Browning & Chiappori, if all the individuals within the household have the same preferences ($u^C = u^B = u^A$), or bargaining is absent and only one of the household members imposes his/her preferences acting as unique decision maker within the household, then we can adopt a unitary model in which a common utility function is maximized given the pooled household budget constraint. If on the other hand, all individuals utility functions are strongly concave and thus highly differentiable given the household budget constraint, x, an allocation of the resources is Pareto efficient if for any price income bundle (**p**,x) the consumption vector chosen by the household (q^A, q^B, q^C, Q) is such that any other vector in the budget set could not make all the members better off.

2. $\max_{q^A,q^B,q^C} \mu_A(p,x,\pi)(q^A,q^C,Q) + \mu_B(p,x,\pi)(q^B,q^C,Q) + \mu_c(p,x,\pi)(q^C,Q)$

Subject to the household budget constraint:

3. $p(q^A + q^B + q^C + Q) = x$

The μ_i parameter, also referred to as the Pareto weight, is bounded by 0 and 1 and indicates the distribution of power within the household. If μA =0 and μc =0 then B is the effective dictator if on the other hand μi> 0 ∀ i each member of the household has some decision power. As shown in the equation the Pareto weight depends on three elements: prices, expenditure and distribution factors (π). The distributional factors are variables that affect the decision power of the economic agents but not their preferences [9]. Typical examples of distributional factors are the relative income share of the individuals within the household, the gender proportion (number of women vs. number of men) or legislation related to divorce [4]. The decision process in the collective model can be defined in two steps: the first step defines any price income bundle on the Pareto frontier using the budget constraint and the household utility function u^H.

4. $u^H = (q,\mu) = \max_{q^A,q^B,q^C} \mu_A(q^A,q^B,q^CQ) + \mu_B(q^A,q^B,q^C,Q) + \mu_c(q^A,q^B,q^C,Q)$

In the second step the Pareto weights of each household member determines the location along the Pareto frontier.

Previous studies using the collective model to predict the parents' demand for health risk reduction did not include in the utility of children (u^c) because they assumed that children are not mature enough to make a tradeoff between money and health risk reduction. Another limitation in the case of children is that they are not aware of the budget constraint neither have control over their financial resources (income of the child equals zero). According to the model proposed by Adamovicz et al. the household utility function (assuming two parents and a passive child) can be expressed as follows:

5. $u^H = \mu\, U^m\left(q^m, R^{km}\right) + (1-\mu)U^f\left(q^f, R^{kf}\right) \qquad i = m, f$

Subject to budget constraint:

6. $\boldsymbol{p}(q^m + q^f + G) = m = y_m + y_f$

Assuming that each parent's utility function depends on the consumption of a private good q^i and given that each parent is an altruist toward their child their utility also depend on their perception of the health risk to the child R^{ki}. Compared to the model proposed by Adamovicz et al. it has been excluded in the present model the case in which parents' utility function is influenced by their perception of their own health risk. The parents' perception of the health risk to the child depends on the use of a market good G to reduce the perceived health risk perceived, and on the parents' attitudes and behaviors A^i (e.g. risk aversion, degree of altruism, information about the health risk) towards their child's health risk.

7. $R^{ki} = R^{ki}(G, A^i)$

The budget constraint of the family is given by the sum of the parents' income. As seen in this model children are considered bystanders and only influence the household utility function indirectly though R^{ki} which denotes the parents' perception of health risk to their children. Further assumptions of this model are that the parents' labor supply is fixed and that parents allocate resources only in one period.

If on the other hand, children have a defined utility function, U^k, including private consumption of other goods q^k and their risk perception for their own health risk the proposed household utility function can be expanded as follows:

$$8.\ H = \mu_m U^m\left(q^m, R^{km}, q^k\right) + \mu_f U^f\left(q^f, R^{kf}, q^k\right) + \mu_k U^k\left(q^k, R^{kk}\right)$$

Subject to the family budget constraint:

$$\mathbf{9}.\ \boldsymbol{p}\left(q^m + q^f + q^k + G\right) = m = y_m + y_f + y_k$$

As before given that parents are altruistic towards their child their utility function depends on their private consumption, the private consumption of the child and their perception of the health risk to the child. In the case of a child we assume that their utility function depends on their private consumption and on their own health risk perception. This extended utility function specification leads potentially to different possible estimates of the household WTP for children's health risk reductions. Even if the child has his/her own preferences if their Pareto weight is equal to zero they will not influence household decisions ($u^C \neq u^B and\ u^C \neq u^A\ and\ in\ particualr\ R^{km} \neq R^{kk} and\ R^{kf} \neq R^{kk}$). In this case if only one parent is making decisions about the child's health it would be like a unitary model. If the child has a positive Pareto weight within the household his/her preferences for health risk reduction will influence the selection of the optimal bundle of goods on the Pareto frontier. Possible factors influencing the child's Pareto weight are their demographic characteristics and in particular age. According to Alberini et al. the WTP to pay for children's health risk reduction decreases as the parents feel less responsible to protect children from health hazards [7]. The older the child the higher the likelihood of the child being decision maker within the household even respect the purchase of health risk reducing goods. For example it is very likely that from a certain age children decide or participate in the decision of which bicycle helmet to but to protect themselves against injuries. Another possible distributional factor influencing the child's Pareto weight is income share within the household. Children aged 16 and older may work and receive their own income, yk≠0, this as demonstrated by Douphin et al. does influence their ability to be decision makers within the household. Also, as shown in previous psychological studies, even younger children because of the money transfers from their parents have to some extent a financial autonomy.

The third possible option, if children have some financial autonomy and defined preferences over G consumption, is that the household behaves non-cooperatively, meaning that parents and children decide individually whether or not to purchase the good for reducing children's health risk [1]. The outcome of a non-cooperative model is not efficient because each member makes decisions about the good for the child according to his own valuation and budget constraint. Where all members autonomously buy G using personal available income a quantity in excess of the efficient level it is likely to be purchased [1, 10]. If on the other hand the parents ignore the child's preferences (but their utility depends on their perception of health risk to the child) and only the child buys the good it is likely that a less than efficient quantity will be purchased.

References

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9. Dauphin A. et al., *Are Children Decision-Makers Within the Household?* Economic Journal, 2011. **121** (553): p. 871–903.
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Table 1. Description of the explanatory variable: Children's and parents' questionnaires.

Variable	Description	Original question in Weber et al. scale[1]	Rationale
Children's Questionnaire			
GENDERC	Respondent's gender	NA	WTP may vary by gender
Child Age	Children's age divided into age groups: 7-9; 10-11; 12-13; 14-15; 16-17; 18-19 years. Age groups correspond to the age composition of pupils in each class.	NA	WTP may vary with children's age.
Asthma	Categorical variable for children's asthma health status: 1= Frequent asthma attack, 2= Rare asthma attacks; 3=Never experienced asthma attack	NA	Asthma health status may influence respondent WTP asthma health risk reduction.
Pocket Money	Monthly amount of pocket money received from the parents.	NA	Stated WTP may depend on pocket allowance children receive each month.
Environmental-hazards-on-children's-health	Children trust in the relationship between environment and health is measured using a categorical variable: 0=Little influence, 1 = High Influence	NA	WTP may be related to the degree of belief in the possibility of environmental hazards of influencing children' health
General-altruism	"If my classmate is in a difficult situation I try to help him/her"; 0=No, 1=Yes	NA	WTP may depend on generic altruistic predisposition
Health-related-altruism	"I am sorry if my classmate cannot come to school because he/she is not feeling good". 0=No, 1=Yes	NA	WTP may depend on health/welfare related altruistic predisposition
Welfare-related-altruism	"If my classmate has nothing to eat during the break I will share mine with him/her" 0=No, 1=Yes	NA	WTP may depend on health/welfare related altruistic predisposition
Non-paternalistic-altruism	"I will lend money to my classmate if he/she needs money to buy something" 0=No, 1=Yes	NA	WTP may depend on non-paternalistic altruism.
Care-of-children-for own-health	Five point categorical variable indicating the degree of care/worry for own health: 5= High concern, 4=Concerned, 3= Indifferent, 2= Little concern, 1=Not concerned at all	NA	WTP may be influenced by respondent's concern for his/her own health.
Health-risk-aversion-1	"I always brush my teeth before going to bed" 0=No, 1=Yes	NA	WTP may depend on health and safety risk attitude.
Health-risk-aversion-2	"I always use sunscreen to avoid sun burning" 0=No, 1=Yes	" Never using sunscreen when you sunbathe"	WTP may depend on health and safety risk attitude.
Health-risk-aversion-3	"I always wash my hands before going to eat because I am afraid of germs" 0=No, 1=Yes	NA	WTP may depend on health and safety risk attitude.

Health-risk-aversion-4	"I always use the seatbelt when I am in a car" 0=No, 1=Yes	"Not wearing a seatbelt when being a passenger in the front seat"	WTP may depend on health and safety risk attitude.
Health-risk-aversion-5	"I always wear and helmet when riding the motorbike" 0=No, 1=Yes	"Not wearing a helmet when riding a motorbike"	WTP may depend on health and safety risk attitude.
Recreational-risk-aversion-1	"I would do a safari in the jungle" 0=No, 1=Yes	"Going camping in the wilderness, beyond the civilization of a campground"	WTP may depend on recreational risk attitude.
Recreational-risk-aversion-2	"I am scared when the motorbike goes fast" 0=No, 1=Yes	NA	WTP may depend on recreational risk attitude.
Recreational-risk-aversion-3	"I like going on holiday to places that I know because it is safer" 0=No, 1=Yes	"Going on a vacation in a third world country without prearranged travel and hotel accommodations"	WTP may depend on recreational risk attitude.
Recreational-risk-aversion-4	"I don't like to do dangerous sport (e.g. Banjee Jumping)" 0=No, 1=Yes	"Trying bungee jumping at least once"	WTP may depend on recreational risk attitude.
Recreational-risk-aversion-5	"I pay high attention when I cross the street" 0=No, 1=Yes	NA	WTP may depend on recreational risk attitude.
Rating	Feedback about the questionnaire: Very Easy=1, Easy, 3=Difficult, 4=Very difficult	NA	Ability to understand WTP questions may influence WTP estimates.
Parents' questionnaire			
Parent Age	Parent's Age. Continuous variable	NA	WTP may be influenced by respondents' age
Parent Gender	Gender of parent. 0=Female,1=Male	NA	WTP may change with gender
Family size	Number of family members. Continuous variable.	NA	Family size may affect WTP
Job type	Profession was used as a proxy of parent educational attainment. Parents answers were grouped into a three score categorical variable: 1= Profession requiring university degree, 2=profession not requiring university degree, 3= Unemployed.	NA	WTP may be related to parent's employment type
Family Budget	Family monthly budget excluding food and accommodation expenses was recorded using a categorical variable: 1= <€600; 2=€600-€1200, 3=€1200-€2000; 4=>€2000	NA	WTP for health risk reduction tends to increase with income
Environmental-hazards-on-children's-health-parents	Parents' trust in the relationship between environment and health is measured using a categorical variable: 0=Little influence; 1=Significant influence; 2= High Influence.	NA	WTP may be related to the degree of belief in the possibility of environmental hazards of influencing children' health
Care-for-their-	Five point categorical variable	NA	WTP may be influenced

own-health-parents	indicating the degree of care/worry for own health: 1= High concern; 2=Concerned; 3= Indifferent, 4= Little concern, 5=No concerned at all.		by the respondent's concern for his/her own health.
Care-for-children's-health-parents	Five point categorical variable indicating the degree of care/worry for child's health: 1= High concern; 2=Concerned; 3= Indifferent, 4= Little concern, 5=No concerned at all.	NA	WTP may be influenced by the respondent's concern for their children's health.
Health-risk-aversion-5-parents	"I always use sunscreen to avoid sun burning" 1=Never, 2=Seldom, 3=Often	" Never using sunscreen when you sunbathe"	WTP may depend on health & safety risk attitude.
Smoking	"Do you smoke? 1=Never, 2=Seldom, 3=Often	NA	WTP may depend on health & safety risk attitude.
Exercising	"Do you exercise?" 1=Never, 2=Seldom, 3=Often	NA	WTP may depend on health & safety risk attitude.
Health-risk-aversion towards-children	"I always use the helmet for my child when riding the motorbike" 1=Never, 2=Seldom, 3=Often	"Not wearing a helmet when riding a motorbike"	WTP may depend on health & safety risk attitude towards children.
Recreational-risk-aversion-2-parents	"I am scared when the motorbike goes fast" 1=Never, 2=Seldom, 3=Often	NA	WTP may depend on recreational risk attitude.
Recreational-risk-aversion-3-parents	"I like going on holiday in places that I know because is safer" 1=Never, 2=Seldom, 3=Often	"Trying bungee jumping at least once"	WTP may depend on recreational risk attitude.
Recreational-risk-aversion-5-parents	"I pay high attention when I cross the street" 1=Never, 2=Seldom, 3=Often	NA	WTP may depend on recreational risk attitude.

NA: Not available; 1: Weber et al. (2002) A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. J Behav. Dec. Mak. . Vol. 15 Issue 4 pp: 263-290.

Table 2. Payment card lists used in the final experiment

Payment card list	**Range**	**Center**							

Version 1	**€0-€7.5**	**€3**							
€0	€2.0	€3.5	€5.0						
€1	€2.5	€4.0	€6.0						
€1.5	€3.0	€4.5	€7.5						
Version2	**€0-€21**	**€5**							
€0	€2.0	€4.0	€8.0	€15.0					
€1.0	€2.5	€5.0	€10.0	€18.0					
€1.50	€3.0	€6.0	€13.0	€21.0					
Version 3	**€0-€32**	**€6**							
€0	€2.0	€4.0	€10.0	€24.0					
€1.0	€2.50	€6.0	€16.0	€28.0					
€1.50	€3.0	€8.0	€20.0	€32.0					
Version 4	**€0-€43**	**€8**							
€0	€2.0	€4.0	€10.0	€18.0	€30.0				
€1.0	€2.50	€6.0	€13.0	€20.0	€35.0				
€1.60	€3.0	€8.0	€15.0	€25.0	€43.0				
Version 5	**€0-€200**	**€30**							
€0	€2.0	€4.0	€10.0	€26.0	€40.0	€55.0	€75.0	€120.0	€160.0
€1.0	€2.50	€6.0	€13.0	€30.0	€45.0	€60.0	€85.0	€140.0	€180.0
€1.50	€3.0	€8.0	€20.0	€35.0	€50.0	€65.0	€100.0	€150.0	€200.0

Table 3. Test for inconsistencies to WTP questions. Children Sample

	Yes	No
wtp1=wtp2=wtp3	32(10%)	300(90%)
wtp1>wtp2 and wtp2 =wtp3	17(5%)	315(95%)
wtp1<wtp2 & wtpt2 > wtpt3	27(13%)	305(97%)
wtp1 > wtp2 & wtp2 < wtp3	29(9%)	303(91%)

Table 4. Test for inconsistencies to willingness to pay questions. Parents Sample

	Yes	No
wtp1=wtp2=wtp3	56(32%)	117(68%)
wtp1>wtp2 and wtp2 =wtp3	21(12%)	152(88%)
wtp1<wtp2 & wtpt2 > wtpt3	5(3%)	168(97%)
wtp1 > wtp2 & wtp2 < wtp3	8(5%)	165(95%)

Appendix 6

Table 1. Design Efficiency measures for Random Parameters Panel Model

D-error	0.0102
A-error	0.0126
B-estimate	58.350
S-estimate	163.576

Table 2. Ngene Design. Example for Budget Constraint €32

Choice Set	Alt1	Al1	Alt3
1			
Risk after the policy	20%	16%	1%
Cost for the policy	€0	€1	€2
2			
Risk after the policy	20%	16%	19%
Cost for the policy	€0	5	2
3			
Risk after the policy	20%	19%	16%
Cost for the policy	€0	1	10
4			
Risk after the policy	20%	10%	16%
Cost for the policy	€0	10	1
5			
Risk after the policy	20%	19%	10%
Cost for the policy	€0	2	5
6			
Risk after the policy	20%	1%	19%
Cost for the policy	€0	2	1
7			
Risk after the policy	20%	19%	1%
Cost for the policy	€0	10	1

Analyses including all respondents.

Table 3. Conditional logit model. All Respondents.

Model Parameters	Coefficient (S.E.)
Health Risk	0.116(0.004)***
Cost	-0.312(0.002)***
No. individuals	367
No. observations	7707
R^2	0.206
X^2(df)	1163.11(2)
Log-Likelihood	-2238.06

S.E.: Standard Error ;*p<0.05; **p<0.01; ***p<0.001

Table 4. Conditional Logit model with children characteristics. All Respondents.

Model Parameters	Coefficient (S.E.)
Risk Reduction	
Age 7-8	0.200(0.027)***
Age 9-10	0.150(0.011)***
Age 11-13	0.180(0.012)***
Age 14-15	0.100(0.007)***
Age 16-17	0.110(0.009)***
Age 18-19	0.106(0.011)***
Gender	0.017(0.008)*
Asthma	-0.014(0.007)
Cost	-0.029(0.002)***
No. individuals	367
No. observations	7707
R^2	0.219
X^2(df)	1239.00(9)
Log-Likelihood	-2199.95

S.E.: Standard Error ;*p<0.05; **p<0.01; ***p<0.001

Table 5. Conditional Logit model with children' income. All Respondents.

Model Parameters	Coefficient (S.E.)
Risk Reduction	0.116(0.004)***
Cost	
Cost x (<€96)	-0.032(0.003)***
Cost x (≥€96)	-0.030(0.002)***
No. individuals	323
No. observations	6783
R^2	0.206
X^2(df)	1163.37(3)
Log-Likelihood	-2237.92

S.E.: Standard Error ;*p<0.05; **p<0.01; ***p<0.001

Table 6 . Conditional Logit and Mixed Logit results accounting for different risk reduction size. All Respondents

	Conditional Logit	Mixed Logit	
Model Parameters	**Coefficient (S.E.)**	**Coefficient (S.E.)**	**S.D. (S.E.)**
Risk Reduction			
19 in 100	2.671(0.090)***	3.851(0.219)***	2.688(0.229)***
10 in 100	2.177(0.121)***	2.639(0.215)***	2.357(0.301)***
4 in 100	1.514(0.080)***	1.966(0.108)***	-0.425(0.192)*
1 in 100	1.07 (0.071)***	1.289(0.109)***	1.266(0.124)***
Cost	- 0.047(0.002)***	-0 .063(0.003)***	
No. individuals	367	367	
No. observations	7707	7707	
R^2	0.253	NA	
$X^2(df)$	1430.31(5)	259.21(5)	
Log-Likelihood	-2104.4555	-1974.85	

S.D.: Standard Deviation; S.E.: Standard Error ;*p<0.05; **p<0.01; ***p<0.001