Appendix A

Dependent var = *DamageOffsets*	ALL	ALL	LOW	LOW	HIGH	HIGH
Surplus	0.4	0.52	0.48	0.6	0.21	0.32
	(0.30)	(0.31)	(0.43)	(0.42)	(0.19)	(0.21)
*Resp*Surplus*	-0.04	-0.05	-0.05	-0.06	-0.02	-0.03
	(0.03)	(0.03)	(0.05)	(0.04)	(0.02)	(0.02)
DamagesCaused	-0.76**	-0.62*	-1.02*	-0.96**	-0.5	-0.42
	(0.37)	(0.34)	(0.52)	(0.41)	(0.38)	(0.35)
*Resp*DamageC*	0.09**	0.07*	0.12**	0.11**	0.05	0.04
	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)
TotalDamages	0.58**	0.53**	0.96**	0.84***	0.19	0.05
	(0.23)	(0.22)	(0.44)	(0.29)	(0.16)	(0.15)
*Resp*TotalD*	-0.06**	-0.05**	-0.09*	-0.07**	-0.02	-0.01
	(0.03)	(0.02)	(0.05)	(0.03)	(0.02)	(0.01)
Responsibility	59.67**	54.53*	93.65	75.33*	21.66	5.27
	(29.11)	(27.91)	(58.57)	(39.53)	(19.87)	(17.77)
Period	-1.55**	-1.56*	-1.15	-1.31	-2.15***	-2.28***
	(0.79)	(0.79)	(1.23)	(1.29)	(0.79)	(0.85)
Seller		3.32		1.27		6.01
		(7.28)		(10.36)		(6.34)
Female		-6		-19.35*		3.96
		(7.37)		(10.40)		(6.49)
Age		2.57		1.93		2.84*
		(2.07)		(3.22)		(1.66)
MajorEcon		-23.71**		-39.98*		-10.44
		(11.17)		(23.99)		(9.60)
FamilyIncome		-1.79		-2.75		-3.59
		(2.89)		(4.05)		(3.31)
Conservative		-3.5		-6.8		-15.48
		(10.29)		(11.48)		(13.02)
Liberal		-7.01		-14.27		-0.16
		(8.69)		(14.84)		(6.69)
Religion		-5.34		-7.02		-3.27
		(3.38)		(5.02)		(2.53)
GiveHomeless		4.29		5.14		4.46**
		(3.06)		(4.38)		(1.97)
SocialPolicy		2.1		4.55		-0.83
		(3.42)		(5.17)		(2.29)
Unemp_vs_Env		-1.71		-5.12		-1.83
		(5.11)		(7.70)		(2.59)
Trust		3.74		4.07		-1.75
		(3.61)		(5.23)		(3.07)
Low	52.82***	54.25***				
	(7.91)	(7.27)				
Constant	-617.47**	-652.84**	-976.08*	-898.31**	-159.76	-62.57
	(265.22)	(256.56)	(503.33)	(361.25)	(185.66)	(166.43)
Observations	720	720	360	360	360	360

Standard errors are clustered at the individual level. Robust standard errors in parentheses.
*** denotes significance at 1 percent, ** denotes significance at 5 percent, * denotes significance at 10 percent
Regressions presented in columns (1) and (2) use pooled data from treatments LOW and HIGH.

Table A.1: Tobit Regressions

Dependent var = *DamageOffsets*	Low Responsibility		Average Responsibility		High Responsibility	
	(1)	(2)	(3)	(4)	(5)	(6)
Surplus	0.08	0.20**	-0.03	0.10*	0	0.04
	(0.11)	(0.09)	(0.07)	(0.05)	(0.08)	(0.05)
DamagesCaused	-0.16	-0.09	-0.04	0	0.29***	0.27***
	(0.13)	(0.09)	(0.10)	(0.08)	(0.08)	(0.08)
TotalDamages	0.23**	0.24***	-0.09	-0.05	-0.01	0.09
	(0.09)	(0.06)	(0.08)	(0.06)	(0.08)	(0.07)
Period	-1.71	-1.58	-0.14	-0.47	-2.31	-2.76*
	(1.58)	(1.54)	(0.76)	(0.81)	(1.56)	(1.61)
Low	67.17***	69.52***	28.99**	31.40***	62.48***	59.85***
	(13.60)	(11.66)	(12.29)	(6.77)	(11.75)	(10.95)
Constant	-274.73**	-310.75***	116.8	-205.87	-46.43	-115.23
	(108.66)	(101.84)	(101.21)	(153.73)	(82.26)	(73.31)
Controls added	No	Yes	No	Yes	No	Yes
Observations	290	290	220	220	210	210
Standard errors are clustered at the individual level. Robust standard errors in parentheses. *** denotes significance at 1 percent, ** denotes significance at 5 percent, * denotes significance at 10 percent						

Table A.2: Tobit Regressions for Different Responsibility Levels

Here we provide a quick look at the effect of treatments on trading prices. Figure A.1 shows the average price of a traded unit per period for each treatment. We find that prices increase from Part 1 (Periods 1-5) to Part 2 (Periods 6-15), although the effect is only statistically significant for the BASELINE (Mann-Whitney tests, *p-value=0.05* for the BASELINE, *p-value=0.13* for the HIGH, and *p-value=0.28* for LOW). More importantly, pairwise comparisons confirm that prices are not different across treatments (rank-sum tests; all *p-values* are larger than 0.512 for part 1 and all *p-values* are larger than 0.275 for part 2).

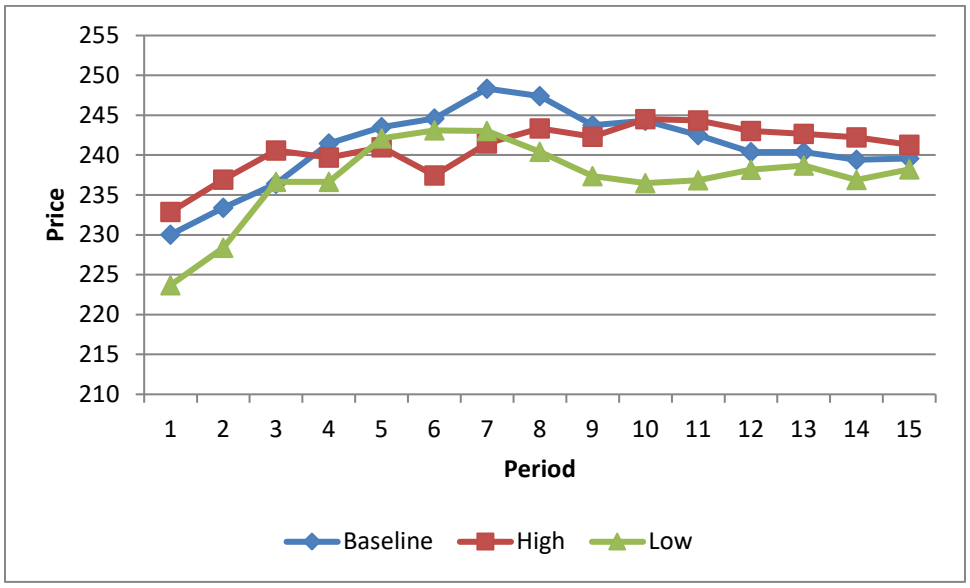

Figure A.1: Mean Price per Period

Appendix B

In this section we investigate the damages done by subjects net of their offset purchases. We define the variable *NetDamages* as the difference between *DamagesCaused*/2 and the offset purchases of a given subject in a given period. The variable *NetDamages*, therefore, gives a measure of whether a subject completely offsets his/her share of the damages, more than offsets or under offsets, assuming an equal share of damages caused by the trades of subjects among buyers and sellers. Table B.1 shows the number of people in each treatment that belong to these different categories, as well as the number of people who never offset throughout the experiment.

	HIGH	LOW
$NetDamages \leq -1$	-	1
$-1 < NetDamages \leq 1$	-	1
$1 < NetDamages \leq 50$	1	12
$50 < NetDamages$	27	20
$Never\ Offsets$	8	2
The categories are not overlapping. In particular, individuals that never offset their damages are a separate category than the individuals with net damages greater than 50.		

Table B.1: Number of subjects corresponding to different levels of net damage.

To study the correlates of *NetDamages*, we run an additional regression analysis (see Table B.2). It is surprising to observe that female subjects have higher net damages. Our analysis in Section 6 shows that females trade less and they buy less offsets. Table B.2 shows their net damages is above male subjects. In addition, we see being an economics major is marginally significant in the LOW treatment, and being conservative (over being moderate) is significant in the HIGH treatment.[1]

[1] Note that the Responsibility variable is not significant in these regressions. This does not conflict with our previous results since these regressions do not control for either own damages caused or its interaction with the responsibility variable.

Dependent var = *NetDamages*	ALL	ALL	LOW	LOW	HIGH	HIGH
	(1)	(2)	(3)	(4)	(5)	(6)
Surplus	0.11***	0.13***	0.08	0.1	0.17***	0.18***
	(0.04)	(0.03)	(0.07)	(0.06)	(0.03)	(0.03)
TotalDamages	0.03	0.03	-0.05	-0.12	0.09***	0.10***
	(0.04)	(0.04)	(0.09)	(0.09)	(0.03)	(0.03)
Period	0.66	0.67	0.83	1.19	1.00**	1.01**
	(0.47)	(0.47)	(1.01)	(1.08)	(0.38)	(0.38)
Seller		5.64		6.17		4.33
		(5.60)		(8.68)		(5.53)
Female		4.31		18.98**		-1.38
		(5.96)		(9.09)		(3.98)
Age		-0.01		-0.72		0.39
		(1.85)		(3.08)		(0.90)
MajorEcon		9.9		45.26*		-3.61
		(8.71)		(24.18)		(4.67)
FamilyIncome		2.6		7.11		2.76
		(2.47)		(4.22)		(1.67)
Conservative		2.38		8.23		13.53**
		(8.15)		(10.65)		(6.55)
Liberal		6.56		15.28		5.05
		(7.11)		(14.50)		(5.67)
Religion		3.07		5.74		1.24
		(2.63)		(5.07)		(1.46)
Responsibility		0.92		0.19		0.6
		(2.14)		(3.03)		(1.42)
GiveHomeless		0.13		-2.82		-0.85
		(2.47)		(4.56)		(1.88)
SocialPolicy		-1.94		-4.22		0.17
		(2.53)		(4.46)		(1.44)
Unemp_vs_Env		2.04		6.63		-1.33
		(3.99)		(6.58)		(1.58)
Trust		-1.83		-1.73		-0.82
		(2.67)		(4.49)		(1.53)
Low	-32.41***	-32.37***				
	(5.50)	(5.39)				
Constant	31.91	12.13	106.27	148.45	-49.24	-81.36*
	(43.46)	(61.69)	(99.14)	(119.76)	(34.50)	(40.55)
Observations	720	720	360	360	360	360
R^2						

Standard errors are clustered at the individual level. Robust standard errors in parentheses.
*** denotes significance at 1 percent, ** denotes significance at 5 percent, * denotes significance at 10 percent

Table B.2: OLS Regressions for Net Damages

Appendix C

Instructions

Thank you for agreeing to participate in this experiment. Please make sure your cell phone is turned off to avoid interruptions during the meeting.

This experiment deals with the economics of decision making. Your participation in this experiment is voluntary. You will be compensated for your participation. Your earnings in the experiment depend on your and other people's decisions.

The experiment proceeds in two parts. Part 1 of the experiment is described in detail on the following pages. After Part 1 of the experiment is over, you will be provided with instructions for Part 2. After conclusion of Part 2 you will be asked to fill out a questionnaire while you wait to be paid.

During the experiment your earnings will be calculated in Tokens. To determine your final earnings in Tokens we add up your earnings from Part 1 and Part 2. At the end of the experiment the total amount of Tokens you have earned will be converted to US Dollars at the following rate:

100 Tokens = 1.00 US Dollars

Your computer has been assigned an ID number that you will be informed of. Your decisions and payoffs from the experiment will be recorded with that ID number. At no time will your name be linked to that ID number. At the end of the experiment, you will be paid in private.

Please do not communicate with the other participants during the experiments. Should you have any questions, please raise your hand.

Part 1

In this experiment we simulate a market in which some of you are buyers and some of you are sellers in a sequence of trading periods. In total there are 12 people in this experiment. After the instructions phase of the experiment is over, the computer will randomly select 6 of you as buyers and 6 of you as sellers. You will see whether you are a buyer or a seller at the top of your computer screen. Your role never changes during the experiment.

The commodity to be traded is divided into distinct items or "units". We will not specify a name for the commodity, but simply refer to units. There will be 5 trading periods in total. We first explain the trading rules. Then there are specific instructions for buyers and sellers. Since you do not know whether the computer will assign you a role as a buyer or a seller you should read the instructions for both buyers and sellers.

Trading Rules

Each trading period lasts for 200 seconds. At any time during the period, any buyer is free to submit a 'bid' (to buy a unit at the price specified in the bid). Similarly, any seller is free to submit an 'ask' (to sell a unit at the price specified in the ask). All bids and asks pertain to trading one unit. It is not possible to sell/buy two units as a package. All active bids and asks will be listed on your screen as shown in Figures 1 and 2. Figure 1 is an example of a buyer's screen and Figure 2 is an example of a seller's screen. (Note that, the precise numbers in Figure 1 and 2 are only for demonstration purposes and will be different on the real screen). Please take a moment now to study these figures.

There is one restriction on the bids and asks that you can enter. The computer requires you to improve on the highest bid or lowest ask currently posted: If you post a bid it must be higher than any bid already posted. If you post an ask, it must be lower than all of the other asks posted.

At any point in time you can press the ACCEPT button on your screen. If you are a buyer this means that you pay the lowest ask price posted on the screen and receive the unit value listed in Figure 1. This value depends on whether it is the first, second, third, fourth, or fifth unit you buy. If you are a seller and press the ACCEPT button, you receive the highest bid price posted and have to pay the cost listed in Figure 2. Again the cost will depend on how many units you traded previously.

If a bid/ask is accepted, a binding contract has been closed for a single unit and the buyer and seller will see their corresponding earnings on their computer screens. After each contract is closed, all previous bids and asks will be automatically withdrawn before any new ones can be made (In Figures 1 and 2 the bids and asks are kept for illustrative purposes).

All buyers and sellers have anonymous identification numbers; your number is shown on your computer screens. The numbers are randomly assigned among sellers and buyers. The computer will always report the ID number of the buyer or seller posting a bid/ask. For example, if Buyer 1 submits a bid of 120, all of you will see this on your screens as: Buyer 1 bids 120. At this point a seller may accept this bid, a seller may make another offer, or a buyer (including Buyer 1 himself) may make another bid. All these can be followed from your computer screens. For example, in Figure 1 and 2, you see that Seller 2 asks 200, followed by Seller 3 asking 190.

Payments to Buyers

At the beginning of each period you will receive 100 tokens. In addition you can increase your earnings through buying units. You can buy up to 5 units. During each trading period you are free to purchase from any seller or sellers. Each unit that you buy has a specific *value* which will be indicated on your computer screen as in Figure 1. These values will be randomly drawn each period. Each buyer will have a different set of values.

For the first unit that you buy during a trading period you will receive the amount listed as the 1^{st} unit value; if you buy a second unit you will receive the additional amount listed as the 2^{nd} unit value, etc. Under no conditions may you buy a unit for a price that exceeds its unit value. The

surplus from each purchase is computed by taking the difference between the unit value and purchase price of the unit.

Your surplus (when you buy one unit) = unit value – purchase price

Your earnings in a given period depend on your total surplus and "damages" that are generated by completed trades. Every completed trade causes a damage of 4 tokens for everyone in the room. If you agree to a trade you lose 4 tokens due to damages. In addition, everyone else in the room loses 4 tokens as well. This means that all 12 participants lose 4 tokens each independently of who made the trade. The total damages that you pay is therefore given by:

Damages you pay = 4 tokens * total number of trades

Your earnings in tokens in a given period is then given by:

Your earnings = 100 tokens + sum of your surplus from your trades – damages

The computer records and reports your surplus from each trade, your total surplus (excluding damages), damages that you pay (4 times the total number of trades), damages caused by your trades (48 times the number of your trades) and your earnings in the period. The sum of all your earnings in all periods will be paid out to you at the exchange rate of 100 Tokens = $1 after Part 2 of the experiment.

Payments to Sellers

At the beginning of each period you will receive 100 tokens. In addition, you can increase your earnings through selling units. Each seller can sell up to 5 units. During each trading period you are free to trade with any buyer or buyers. Each unit that you sell has a specific *cost* which will be indicated on your computer screen as in Figure 2. These costs will be randomly drawn each period. Each seller will have a different set of costs.

For the first unit that you sell during a trading period you will pay the amount listed as the 1^{st} unit cost; if you sell a second unit you will pay the additional amount listed as the 2^{nd} unit cost, etc. Under no conditions may you sell a unit for a price lower than its unit cost. The surplus from each purchase is computed by taking the difference between the price of the unit and the unit cost:

Your surplus (when you sell one unit) = price - unit cost

Your earnings in a given period depend on your total surplus and "damages" that are generated by completed trades. Every completed trade causes a damage of 4 tokens for everyone in the room. If you agree to a trade you lose 4 tokens due to damages. In addition, everyone else in the room loses 4 tokens as well. This means that all 12 participants lose 4 tokens each, independently of who made the trade. The total damages that you pay are therefore given by:

Damages you pay = 4 tokens * total number of trades

Your earnings in tokens in a given period is then given by:

Your earnings = 100 tokens + sum of your surplus from your trades – damages

The computer records and reports your surplus from each trade, your total surplus (excluding damages), damages that you pay (4 times the total number of trades), damages caused by your trades (48 times the number of your trades) and your earnings in the period. The sum of all your earnings in all periods will be paid out to you at the exchange rate of 100 Tokens = $1 after Part 2 of the experiment.

Please take a moment now to study Figures 1 and 2 one more time.

Keeping track of your payments

After each trading period, you will be provided with an "income screen" like the one shown in Figure 3. The income screen will remind you of the sum of your surplus from each trade, damages you paid, damages your trades caused for everyone, and your earnings.

Period	Number of your trades	Your fixed payment	Sum of your surplus from your trades	Damages you paid	Damages your trades caused for everyone	Total damages caused by all trades	Earnings
1							
2							
3							
4							
5							

Figure 3: Income Screen

Please do not talk to each other. If you have a question, raise your hand. We will be happy to answer your questions at anytime during the experiment.

Figure 1: Buyer's Screen

Trading period = 3 out of 5 Time left = 185 seconds

You are a BUYER. Your ID number is 4.

	Unit values	Price	Surplus
1st unit	240	190	50
2nd unit	200		
3rd unit	189		
4th unit	177		
5th unit	150		

Type	ID	Trade Type	Price
Buyer	1	bids	120
Seller	2	asks	200
Seller	6	asks	190
Buyer	4	bids	170

Enter your bid here:

Press submit to submit your bid SUBMIT

Press accept any time you like to accept the last offer (ask)

ACCEPT

[Buyer 4 accepts the last offer (ask):]

Number of trades you made	Number of trades not related to you	Damages caused by your trade(s)	Damages you pay	Total surplus from your trades	Your earnings
1	0	48	4	50	146

Figure 2: Seller's Screen

Trading period = 3 out of 5 Time left = 185 seconds

You are a SELLER. Your ID number is 2.

	Unit costs	Price	Surplus
1st unit	130		
2nd unit	131		
3rd unit	180		
4th unit	220		
5th unit	250		

Type	ID	Trade Type	Price
Buyer	1	bids	120
Seller	2	asks	200
Seller	6	asks	190
Buyer	4	bids	170

Enter your ask here:

Press submit to submit your ask SUBMIT

Press accept any time you like to accept the last offer (bid) ACCEPT

[Buyer 4 accepts the last offer (ask):]

Number of trades you made	Number of trades not related to you	Damages caused by your trade(s)	Damages you pay	Total surplus from your trades	Your earnings
0	1	0	4	0	96

Part 2

Part 2 consists of 10 periods. Each period consists of 2 rounds. The first round is exactly the same as a trading period in Part 1 (200 seconds of trading). In the second round, there is an opportunity for each of you to buy *damage offsets*. This will allow you to reduce the damages that have been created in the trading round.

Buying damage offsets is entirely voluntary and 1 unit of damage offset costs $\frac{1}{2}$ token. You or any other participant may buy damage offsets and reduce the damages up to the total number of damages that was created in the trading round. Each subject decides how many damage offsets to purchase without knowing the decisions of others.

A unit of damage offset purchased (independent of who purchased it), reduces the total damages by 1 token. Each of you will benefit from this equally. So, each participant will receive a damage rebate of $\frac{1}{12}$ token. The same is true for all the units purchased up to the total number of damages. If enough damage offsets have been purchased to eliminate all damages you cannot benefit from purchasing more offsets.

For example, if total damages were 1,000 tokens and the total number of damage offsets purchased is 700, then total damages will be reduced by 700 and each of you will receive a damage rebate of $\frac{700}{12}$ tokens. However, if the total damages were 1,000 tokens and the total number of damage offsets purchased is 1,300, then total damages will reduce by 1,000 tokens (down to zero) and the damage rebate will be $\frac{1{,}000}{12}$ tokens for each of you. Note that the 300 units of damage offsets are wasted.

Your earnings for the period is equal to your earnings from the trading round minus the amount you paid for damage offsets plus the damage rebate:

Your earnings from the trading round – your payment for damage offsets + damage rebate

The following explains your earnings in more detail. Suppose you decide to buy x units of damage offsets and others in the room buy y units of damage offsets. Then, the total number of damage offsets purchased is $(x+y)$. More specifically, if $(x+y)$ is less than or equal to the total number of damages, then your earnings for the period will be:

Your earnings from the trading round – $(\frac{1}{2}*x)$ + $(\frac{1}{12} * (x + y))$

However, if $(x+y)$ is more than the total number of damages, then your earnings for the period will be:

Your earnings from the trading round – $(\frac{1}{2}*x)$ + $(\frac{1}{12}$ * total number of damages)

Note that if nobody purchases any damage offsets, then your earnings is equal to your earnings from the trading round. However, if any one of the subjects buys some damage offsets, then your earnings will change.

You need to enter the amount you wish to purchase on your computer screens. If you do not want to buy any damage offsets, you need to enter 0. The cost of the total damage offsets you purchase cannot exceed your earnings from the previous trading round. After you enter your decision, you need to press "submit". Everyone decides how much (if any) damage offset to buy without seeing other subjects' decisions.

Your computer screen will be divided into two parts. The top part shows your trade, damages and earnings information from the trading round:

Reminder Screen:

Number of your trades this period	Your fixed payment	Sum of your surplus from your trades	Damages you paid	Damages your trades caused for everyone	Total damages caused by all trades	Earnings

---

Figure 4: Reminder Screen

The bottom part is the decision screen where you will be able to enter how many damage offsets you would like to purchase:

Decision Screen:

Tokens available to purchase offset = _____

Reminder: To purchase 1 damage offset, you need to pay $\frac{1}{2}$ token. Each damage offset purchased by you or any other participant (up to the number of total damages = ____) decreases the total damages by 1 unit, or decreases the individual damages by 1/12 tokens. However, damage offsets that are more than the number of total damages will be wasted. Your earnings from this period will be given by:

Your earnings from the trading round – your payment for damage offsets + damage rebate

How many damage offsets would you like to purchase = ☐

CONTINUE

Figure 5: Decision Screen

At the end of each period you will be provided with an "income screen" like the one shown in Figure 6.

Damage Information

Period	Damage offsets you purchased ***(x)***	Damage offsets purchased by others ***(y)***	Reduction in total damages	Reduction in your own damages (Damage Rebate)
1				
2				
3				
4				
…				

Your earnings

Period	Earnings before damage offsets	Amount you paid to purchase damage offsets	Reduction in your own damages (Damage Rebate)	Earnings after damage offsets
1				
2				
3				
4				
…				

Figure 6: Income Screen

After Part 2 is over, you will be provided with a short questionnaire. Please fill in the questionnaire and press OK when you are finished and wait to be paid.

Part 3

1. Age:
2. Gender:
3. Major:
4. Family income:
   a) less than 75,000
   b) between 75,000 and 150,000
   c) between 150,000 and 225,000
   d) more than 225,000

5. What is your political view:
   a) conservative
   b) moderate
   c) liberal

6. How important is religion in your life:
   a) very important
   b) important
   c) somewhat important
   d) not important

7. How often have you donated blood during the last 3 years?
   a) More than three times
   b) Three times
   c) Twice
   d) Once
   e) Not at all in the past 3 years

8. Have you decided for environmental reasons to reuse or recycle something rather than throw it away?
   a) Always
   b) Often
   c) Sometimes
   d) Rarely
   e) Never

9. During the past 12 months, how often have you given food or money to a homeless person?

a) More than once a month
b) Once a month
c) At least 2 or 3 times in the past year
d) Once in the past year
e) Not at all in the past year

10. During the past 12 months, how often have you done any kind of volunteer work?

a) More than once a month
b) Once a month
c) At least 2 or 3 times in the past year
d) Once in the past year
e) Not at all in the past year

Please tell us whether you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree with the following statements:

11. Those in need have to take care of themselves.

a) Strongly agree
b) Agree
c) Neither agree nor disagree
d) Disagree
e) Strongly disagree

12. I would buy things at a 20% higher price if it helped to protect the environment.

a) Strongly agree
b) Agree
c) Neither agree nor disagree
d) Disagree
e) Strongly disagree

13. Generally speaking, most people can be trusted.

a) Strongly agree
b) Agree
c) Neither agree nor disagree
d) Disagree
e) Strongly disagree

14. If we want to combat unemployment in this country, we shall just have to accept environmental problems.

a) Strongly agree
b) Agree
c) Neither agree nor disagree
d) Disagree
e) Strongly disagree