

Altruism and the Theory of Rational Choice: an Empirical Exploration¹

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¹ This paper is part of a project on altruism and the rescue of persecuted minorities I share with Meir Yaish.

Abstract

A classic issue in the theory of rational choice is whether individuals' preferences should and can be measured. This paper suggests that studies of altruistic behavior will benefit from trying to measure altruistic preferences. Such an effort would enable scholars to test the separate effect of preferences and situational factors on action.

The above suggestions are applied to the case of the rescue of Jews during the Nazi occupation of Europe. The paper uses the APPBI data on those who rescued Jews and those who did not rescue Jews during the Nazi occupation of Europe (N=510). It employs the 'prosocial action orientation' personality as a proxy for an altruistic preference and shows that in arriving at altruistic behavior situational factors activate an existing preference. Applying nonparametric techniques to the analysis of the APPBI data, the paper rules out the hypothesis that this activation process is governed by a threshold effect. Instead, this process is linear. A discussion of the implications of this study for the theory of rational choice concludes the paper.

'No doubt, men are capable of much more unselfish service than they generally render; and the supreme aim of the economist is to discover how this latent social asset can be developed more quickly and turned to account more wisely' (Marshall, 1890: 9).

1. Introduction

At its simplest, the theory of rational action can be stated succinctly and cogently. The basic unit of analysis is the individual actor, with a set of well-specified preferences. Such an actor behaves rationally by acting upon her preferences: when facing two opposite courses of action, she will choose the one that most closely fits her preferences and is the least costly. The individual choice will be transitive and consistent: if she prefers A to B and B to C, she will also prefer A to C. When presented with identical options in identical circumstances, she will make the same choice.¹

Despite the apparent simplicity of the general theory, a number of assumptions has been hotly debated and disagreement still remains rampant. Some of the disputes are methodological, while others are substantive. A methodological question is whether preferences can be measured or should be assumed. Several authors, especially economists, argue that preferences cannot be measured accurately and rely on what has come to be known as the theory of 'revealed preferences'. People – the argument goes - reveal their preferences by their action. Some support this view by assuming that all preferences derive, in the end, from self-interest.

This theory has been criticized on logical ground, as a form of circular reasoning (Sen, 1973; Opp, 1999). From the point of view of empirical social science, it will be argued below, the main lacuna in the theory of revealed preferences is that it does not specify the connection between preferences and action. In order to establish such a connection, an effort should be made at measuring preferences, using the instruments of empirical social science.

By being able to measure preferences independently of behavior, we can then test the extent to which people act on their preferences ($P_1 \rightarrow A_1$) or whether some other factor overwhelms the preference and produces an unintended behavior ($P_1 \rightarrow A_2$). Most importantly, we can say whether an existing preference was not activated due to situational constraints ($P_1 \rightarrow A_0$). This is most significant in cases of behavior in high risk situations, when information is not likely to flow easily: members of underground movements, rescuers of persecuted minorities, and the like might be inclined to act but fail to know how to go about their act. Furthermore, by having an independent measure of preferences, we can evaluate the separate effect of situational factors on a preference ($P_{1\text{and } SF_1} \rightarrow A_1$). Finally, we should be able to test whether the activation of behavior is governed by a threshold effect or the relationship between preference and situational factor is linear, namely, the stronger a given preference is, the more likely it is that a situational factor activates that preference.

The empirical domain of this paper is the rescue of Jews by non-Jews during the Nazi occupation in Europe and the situational factor we concentrate upon is a request to help (for the importance of asking as a trigger of helping behavior in this context see Varese and Yaish, 2000). We carry out a secondary analysis of data on rescuers and non-rescuers collected originally by the APPI project, led by Oliner and Oliner (1988).

The paper is organized as follows: the next section presents the theoretical discussion. Section Three describes the data. Section Four presents a factor analysis aimed at identifying a ‘pro-social orientation personality’ among the people interviewed in the APPI project. This in turn will be treated as proxy for a preference to help people in need. Section Five addresses the relationship between such a preference and a request to help. Section Six explores whether a threshold effect activates this preference, or whether the relationship between disposition to help and request to help is linear. Section Seven discusses the hypothesis that people miscalculated the risk involved in their rescue activities. Section Eight concludes the paper.

2. The theory of rational choice

Rational choice assumes that an action satisfies three optimality conditions. First, actors have preferences or desires. Such desires cannot be classified as rational or irrational. They act as “the unmoved mover of the theory” – used to assess the rationality of the action while they are not subjects to any such assessment (Elster, 1989: 4; Elster and Skog, 1999: 16). Second, the action has to be the best means of realizing the agents’ desires or preferences, given the agents’ beliefs and information. Third, these beliefs themselves have to be optimal, given the information available to the agent. Finally, the amount of information (or, more accurately, the amount of resources spent on acquiring information) must itself be optimal, given the agent prior beliefs about the costs and benefits of information acquisition and the importance of the decision to him (Elster and Skog, 1999)

How do we know people’s desires or preferences? According to the ‘narrow’ version of Rational Choice (see Opp, 1999), we cannot know them. Olson puts the point starkly: “it is not possible to get empirical proof of the motivation behind any person’s action; it is not possible to definitely say whether a given individual acted for moral reasons or for other reasons in some particular case” (Olson, 1965: 61). If we just ask people why did what they did, they *could* give noble or moral reasons, which might result inaccurate or false. The solution is to observe behavior and infer back the preference. The following causal arrow gives a pictorial description of the above argument.²

Fig. 1: the ‘revealed preference model’

Preferences ← Behavior

A recent critic of the theory of revealed preferences has pointed to the circularity of the reasoning: “If the observed behavior is the only evidence for the preference, the

reasoning becomes circular: the behavior to be explained is taken as an indicator of the preference that is said to explain the behavior.” (Opp, 1999: 177)

In the case of donations to charities, people might claim they donate out of their good heart while in fact they donate in order to gain public recognition or access to a valuable network. At the Art Institute in Chicago, for instance, the size of the plaque honoring the donor is – writes Elster – “carefully adjusted to the size of the donation”. The donor might be not only motivated to give in order to gain public recognition, but might also be motivated to give *more than* other donors, as noted by Elster (1989b: 52). In these cases, we might infer a given preference from the rules of the charity: if we observe people donating only to charities that publish donor names, we could assume that donors value public recognition.

Some charities however do not publish the donors’ name; some forms of help are not reciprocated; in some cases, the risk involved is so high that it is hard to invoke self-interest as the motivation. When a material reward cannot be sensibly assumed, such as rescuing people for nothing in return, economists invoke a psychic reward. In particular, Becker (1974) and Andreoni (1990) have assumed that people acquire a psychic good, or a ‘warm glow’ by giving. When nothing can be found, the warm glow does the trick.

The ‘warm glow’ explanation has produced skeptical responses. Jon Elster calls it ‘plain wrong’. If one is motivated by the ‘warm glow’, he continues, such person is not being altruistic but rather involved in “narcissistic role-playing”. The fact that a person risks her life and puts her family in danger in order to obtain a psychic good (the pleasure of helping a stranger) does sound implausible. Indirectly, it suggests that altruism is a form of addiction. Alternatively, one might suspect that genuine altruistic preferences are at work. Some people are willing to incur costs for themselves and their families in order to benefit others. If such preferences exist and affect behavior, empirical social science should try to evaluate the relative importance of self-interested preferences and altruistic preferences in generating a given action.

Not only altruistic preferences might engender action. They might also not be sufficient to generate action. If we were able to test preferences independently of behavior, we could then test the extent to which people act on their preferences or whether some other factor might trigger their behavior. Most importantly, we can say whether a given preference which might be present, was not activated due to situational constraints, such as the lack of information or another opportunity. This is most significant in cases when a given preference is likely to lead to highly risky behavior, such as rescuing a member of a persecuted minority.

What is the relationship between the intensity of the preference and a situational factor, such as asking for help? At least two hypotheses could be explored. The first is that the activation of helping behavior is governed by a threshold effect. Only after a certain level, the act of asking generates action. The alternative hypothesis is that the stronger a given preference is, the more likely it is that a situational factor activates that preference. In other words, the relationship between preference and situational factor is linear.

Finally, if we have evidence of people's preferences and constraints, we can evaluate whether their action fulfils their preference or whether the individual acted under the effect of a less-than-rational impulse or on the basis of less-than-optimal information on the risk of the action. In the latter case, the true preference of the individual would be not to help. In the case of the rescue of persecuted minorities in high-risk situations, an actor might think that rescuing is a low cost activity. If she were fully informed about the risk of her activity, she would not do it (this is a hypothesis put forward by Opp, 1997).

This paper suggests that the individual's personality is a proxy for the individual's preference. Second, it explores the interaction between preferences and one particular situational factor, namely a request to help somebody in need. Third, it asks whether the relationship between preference and request to help is linear or is governed by a threshold effect. Finally, it presents data on risk assessment in order to evaluate whether rescuers and non-rescuers evaluated differently the risk involved in helping.

3. Data

This study is based on data collected by The Altruistic Personality and Prosocial Behavior Institute (APPBI), which were first analyzed by Oliner and Oliner (1988). The data as we received them from APPBI contain a sample of 346 identified Jewish rescuers,³ and a sample of 164 individuals who lived in Nazi Europe during WWII but were not identified as Jewish rescuers (N=510; see Oliner and Oliner, 1988: appendix A). In this section we present the data, their sampling designs, the variables and the technique employed in the analysis.

The Oliners' first task was to identify a sample of *altruist* individuals who helped Jews during the War period – i.e., the *case*. For Oliner and Oliner, behaviour is characterised as altruistic when: '(1) it is directed toward helping another; (2) it involves a high risk or sacrifice to the actor; (3) it is accompanied by no external reward; (4) it is voluntary' (1988: 6). The majority of rescuers (95%) were sampled from the Yad Vashem list of 'Righteous Among the Nations,' which included at the time of the collection of the data approximately 5,500 rescuers.⁴ However, individuals were not randomly sampled from that list; they were selected so that the entire sample would be as diversified as possible in terms of age, socioeconomic class, country of origin, as well as other factors (Oliner and Oliner, 1988: 263). The other five per cent in this category consisted of individuals whose names were obtained from rescuees interviewed by the project (Oliner and Oliner, 1988: 262). The APPBI data we analyze include 346 individuals that meet these criteria of altruistic behavior.

The second task was to identify a sample of individuals who did not help Jews during the War period – i.e., the *control*. Oliner and Oliner defined a non-rescuer as 'a person neither on *Yad Vashem* list nor verified by our project as a rescuer living in Nazi occupied Europe during the War' (1988: 263). Again, these individuals were not randomly sampled from the entire universe of non-rescuers. Furthermore, the case and the control samples did not share the property of *matched* case control samples (cf. Agresti, 1990; 1996). Instead, non-rescuers were selected so that no statistically

significant differences between the rescuers and the non-rescuers existed in relation to age, sex, education, and geographical location during the War period (1988: 263).⁵ The data we analyze include 164 non-rescuers. However, when the non-rescuers were interviewed, it became apparent that they were not homogeneous on the dependent variable; that is, with respect to helping behavior. Some 40 per cent of these ‘non-rescuers’ claimed to ‘have done something out of the ordinary to help people during the War period’.

The APPBI data we analyze (N=510), then, are made up of two samples that consist of three sub-populations: (i) identified rescuers (N=346); (ii) self reported rescuers (N=67); and (iii) non-rescuers (N=97). Oliner and Oliner approached these data by analyzing the three sub-populations separately (1988: 264). In our analysis, our *case* sample includes both the identified rescuers and the self reported rescuers (N=346+67=413), while the *control* sample includes only those who did not help anyone during the War period (N=97). The only appreciable difference between the two populations is that self reported rescuers were not – in 1988 - certified by the Yad Vashem authority (a number of them were certified later). We decided to keep the two sub-populations together in our analyses for two reasons. First, we have no reason to doubt the claim of self-reported rescuers.⁶ Second, consolidating the two sub-populations has the advantage of increasing the total N in our analysis.

The most appropriate method to adopt in the analysis of these data is the *case-control* samples. This method requires us to apply logistic regression to the analysis of these data, which is based on odds ratios, in order to estimate the retrospective effects of the independent variables on the response variable. Since we do not have information on the true marginal distribution of the response variable in the population, we are unable to weight the data. This would cause problems in interpreting the intercept in our models. However, the coefficients for the effects of the independent variables are interpretable. That is to say, we lose the predictive power of the models, but we can learn about the effects of different variables on the outcome we are interested in.

The dependent, or response, variable **ALTRUIST** corresponds to the *case* (RESCUE=1 and E9a=1) and the *control* (RESCUE \neq 1 and E9a \neq 1) samples, as we have explained above. Since we have already shown in a previous study that a request to help is the most important determinant of altruistic behavior in these data (Varese and Yaish, 2000), we consider only two independent variables in the analysis. The first – **ASKED** – corresponds to the situation (opportunity), and the second – **PROSOCIAL ACTION ORIENTATION** – corresponds to the personality of the individual (i.e., a proxy of the individual’s preference).

The variable **Asked** distinguishes between those who were asked to help (Asked=1), and those who were not asked to help (Asked=0). This variable is constructed separately for the case and the control samples. Those who did behave altruistically during the War (*case*) were asked to report (E27): ‘*How did you become involved in this first activity? Did you initiate it yourself or did someone ask for your help?*’ Those who did not behave altruistically during the War (*control*) were asked to report (E40): ‘*Was there ever a time during the war that you were asked to help somebody and had to say no?*’⁷ We restrict our analysis to the *first* involvement in helping activity (or the first rejection of a request for such involvement), because a path-dependent process can account for subsequent behavior.⁸

Our proxy for a preference is the **Prosocial Action Orientation** score. This variable was first constructed from the APPBI data by Oliner and Oliner (1988), and it represents one of three factors that emerged from a factor analysis on 42 personality items relating to present time (F14: 1-42; see, Oliner and Oliner, 1988: 317). We followed Oliner and Oliner in constructing this variable (see Appendix A below).⁹ Below we discuss the potential bias that this variable may produce in the analysis.

4. Can Preferences be measured? The Pro-social Orientation Personality

In the APPBI survey respondents were asked to indicate, on a five-point scale, the degree to which they agree with 42 personality questions that were related to the present time

(1=strongly agree—5=strongly disagree). Using a factor analysis technique to these 42 personality items, Oliner and Oliner (1988) have identified a Prosocial Action Orientation factor. In the APPBI survey respondents were asked to indicate, on a five-point scale, the degree to which they agree with 42 personality questions that were related to the present time (1=strongly agree—5=strongly disagree). The values of the Prosocial Action Orientation variable in our analysis are the products of the same items. That is, we selected into a factor analysis procedure (principle component) the items that Oliner and Oliner already identified (see, Oliner and Oliner, 1988: 317, Table 7.16).

This analysis yielded three factors, the first of which explained about 26 per cent of the variance. The remaining two factors contributed about nine additional per cent each. We then reapplied to these data a factor analysis, but restricted the number of factors to one (this factor explained about 25 per cent). Table 1 below presents the items that were included in this analysis and the loading of each item on this factor.

Table 1: *The personality items in the Prosocial Action Orientation factor*

<i>Q. No.</i>	<i>Personality item</i>	<i>N</i>	<i>Loading</i>
F14: 2	Every person should give time for the good of the country	492	0.352
F14: 3	I feel I am a person of worth at least on an equal basis with others	490	0.301
F14: 7	I can not feel good if others around me feel sad	491	0.515
F14: 8	The feelings of people in books affect me	487	0.464
F14: 10	I get very upset when I see an animal in pain	490	0.495
F14: 12	It upsets me to see helpless people	491	0.476
F14: 21	I get angry when I see someone hurt	488	0.494
F14: 26	The words of a song can move me deeply	489	0.374
F14: 28	I feel very bad when I have failed to finish something I promised I would do	486	0.431
F14: 29	I get very involved with my friends' problems	489	0.463
F14: 35	If it is worth starting, it is worth finishing	484	0.477
F14: 36	Seeing people cry upsets me	481	0.452 ₁

The saved scores of the one factor procedure are then the values of the Prosocial Action Orientation variable in our analysis.

Since our Prosocial Action Orientation measure is the product of a factor analysis on 42 personality items relating to *present time*, we make a rather strong assumption about the

consistency and stability of an individual's personality characteristics over time. Thus, we assume that the 'prosocial action orientation' measure, which considers present day attitudes, is a valid and accurate measure of an individual's prosocial action orientation during the Second World War. This issue is even more significant in our analysis because the event of helping a distressed Jew during the War – or having experienced the hardship of this period – may have affected one's attitudes and orientations. We cannot resolve this problem, nor can we estimate the bias it may generate in our analysis. However, the psychological literature, which has confronted this issue extensively, suggests that attitudes and orientations are developed early in life, and after these impressionable years attitudes and orientations are fairly stable and consistent (Searing et al., 1976; Sears, 1981; 1983). The Bennington study, for example, provides a critically important support to this claim, as it is concluded that 'after some early period of influence and change, attitudes become crystallized and increasingly stable with age' (Alwin, Cohen, and Newcomb, 1991: 264).¹⁰

The second issue that needs further scrutiny is the extent to which the 'pro-social personality' is a proxy for preferences. The advantage of using personality as a proxy for a preference is that we do not simply ask 'why did you help?' This however begs a further question: what is the connection between personality and preference? At this stage of the paper, we do not further elaborate on this point, but clearly the connection between personality and preferences should be examined further.

5. Preferences and action: The importance of being asked

We take the 'prosocial orientation' to be a proxy for a preference to help. A simplistic view of social action would postulate that all those who have a given preference act upon it. Rather, situational factors interact with preferences to produce action. One might have a given preference and not be able to act upon it. A cross tabulation of the variables **Asked** by **Altruist** (see Table 2) shows that two-thirds (237/359=66%) of the rescuers were asked to help, and only one third initiated their action.

Table 2: Cross Tabulation of the Variables Asked by Altruist ($N=450$)

Altruist			
Asked	<i>Yes</i>	<i>No</i>	<i>Total</i>
<i>Yes</i>	237	10	247
<i>No</i>	122	81	203
<i>Total</i>	359	91	450

Moreover, nearly all of those who were asked to help Jews, did so ($237/247=96\%$). Furthermore, a request to give help increased the likelihood of helping others by a factor of two compared to help that was initiated without a request ($237/122=1.94$).

Given that preferences and situational factors interact with each other, we would expect that being asked to help may guide behavior by activating a preference. This being the case, then, we would expect to find a positive interaction effect between a request for help and the individual's personality. This hypothesis, then, is the focus of the next analysis.

Table 3 presents four logistic regression models on the dependent variable: helping vis-à-vis not helping. Model I assesses the log-odds effects of our 'prosocial orientation action' variable on helping behavior. As one might expect, this model reveals that the higher is one's prosocial orientation, the more likely this person is to help Jews.

Table 3: Logistic Regression on Variable Altruist (standard error in parentheses)

	<i>Model I</i>	<i>Model II</i>	<i>Model III</i>	<i>Model IV</i>
<i>Independent variables</i>				
Asked	--	2.790 (0.373)	2.840 (0.377)	3.392 (0.524)
Prosocial orientation	0.321 (0.139)	--	0.409 (0.162)	0.196 (0.179)
(Orientation*asked)	--	--	--	1.023 (0.410)
Constant	1.333 (0.126)	0.327 (0.151)	0.354 (0.154)	0.338 (0.152)
<i>Fit statistics</i>				
Deviance	402	318	312	305
d.f.	390	390	389	388
R ² (Cox & Snell)	0.013	0.204	0.217	0.230
N	392	392	392	392

In model II presented in table 3 we assess the log-odds effects of being asked on helping behavior. This model reveals that asking for help is positively and statistically significantly associated with helping behavior. Respondents who were asked to help were more than 16 times more likely to help ($e^{2.79}=16.3$) compared to respondents who were not asked.¹¹ Model III then estimates the effects of both prosocial orientation and being asked to help on helping behavior. It is shown that each of the two factors (i.e., personality cum preference and situational, respectively) exerts an independent, and relatively stable (compared with models I and II) effect on helping behavior. It is also apparent from this analysis that being asked is a more powerful predictor of that behavior.¹²

To what extent a direct appeal might guide behavior by activating an existing preference of the individual? If this were the case, we would expect an interaction effect between our two independent variables – asked and prosocial action orientation. Model IV, then,

provides an empirical test of this hypothesis. Allowing for an interaction between asked and prosocial action orientation improves the overall fit of the model (relative to model III) significantly (the deviance is reduced by more than 6 points for one additional parameter used by the interaction effect), and the return Cox and Snell R^2 is the highest achieved. More importantly, however, the interaction effect is positive and statistically significant. Thus, a request for help increases the likelihood of helping Jews by a factor of 30 ($e^{3.392}=29.7$), but a request for help to someone who is also prosocially oriented increases this likelihood even more (by a factor of 3 [$e^{1.023}=2.78$] for every unit increase in prosocial orientation). We interpret this positive interaction effect as a confirmation of our hypothesis that a direct appeal activates a pre-existing preference to engage in helping activity.

6. Intensity of preferences

What is the relationship between the intensity of the preference and a situational factor? Schwartz (1977: 242) argues that the activation of helping behavior is governed by a threshold effect. Only after a certain level, the act of asking has an effect. Alternatively, one could hypothesize that the stronger a given preference is, the more likely it is that a situational factor, such as a direct appeal, activates that preference. If this were to be the case, the interaction between situational and motivational factors should be linear. Thus, it is expected that the interaction between situational and motivational factors should not be accurately estimated by a linear function. Our final analysis assesses this hypothesis.

In the following, we explore the interaction model by applying nonparametric techniques to the analysis of the APPBI data. More specifically, we draw on S-Plus's 'Modern Regression Module' (Venables and Ripley, 1994: ch. 10). These regression methods do not necessarily use non-linear parameterisation, but they do allow non-linear functions of the independent variables to be chosen by the procedures (1994: 247). Thus, for example, in our original logistic regression models (see Table 3) there are n observational units, each of which records a random variable Y_i with a binomial (n_i, p_i) distribution, and (p_i) is determined by

$$\log(p) = \alpha + \sum_{j=1}^p \beta_j X_j$$

The procedure GAM (generalized additive models) in S-Plus then replaces the linear function $\beta_j X_j$ by a non-linear function, to get

$$\log(p) = \alpha + \sum_{j=1}^p f_j(X_j)$$

Since it will not be useful to allow an arbitrary function f_j , it will be useful to think about it as a *smooth* function. In what follows, we use the *spline* smoothing function.

In examining the interaction effect, we apply a generalized additive model to each category of the variable ASKED. That is, in the first model we predict altruistic behavior as a smoothed function of prosocial action orientation only for those who *were* asked to help, while in the second model the same procedure is followed but only for those who were *not* asked to help. Figure 1 presents the smoothed functions of the predictor prosocial action orientation, separately for the two sub-samples. Table 4 then indicates that neither of these smoothed function is statistically different from the linear functions (the nonparametric chi-square is reduced by little over 5 points for 3 nonparametric d.f.).

Table 4: Non-parametric test for the effect of Prosocial Orientation on Altruist

Effect	Npar d.f.	Npar Chisq	p-value (chi)
Were asked to help: Spline (orientation)	3	5.384	0.142
Were not asked to help: Spline (orientation)	3	5.140	0.365

Figure 1 [in progress]

The conclusion from the above analyses is that the interaction term in our model is linear. In other words, we find no evidence in our data that would suggest a threshold effect in the activation of motivational factors.

7. Altruism and the perception of risk

People who have a prosocial personality were more likely to help, and even more so if they were asked directly to help. Could it be that they miscalculated the risk they were taking upon themselves and their families? The notion that rescuers of persecuted Jews may have not fully evaluated the risk finds some support in the APPBI data. Amongst those who helped after being asked (minimum N=147), 75% made the decision within minutes, 77% did not consult anyone about this decision. Among these rescuers, 46% claimed to have taken extreme risk to themselves and 54% claimed to have taken extreme risk to their family. Amongst those who helped without being asked (minimum N=91), 80% made the decision within minutes, 80% did not consult anyone about this decision; 51% of these rescuers claimed to have taken extreme risk to themselves and 44% claimed to have taken extreme risk to their family. About eighty percent of those who did not help after being asked claimed to have been facing *extreme* risk. However, we are unable to carry out a more robust analysis of the effect of perceived risk on helping behavior because we lack information on the perceived risk of those who did not help and were not asked to help. Also the numbers of those who were asked and did not help is very small (N=10), making any conclusion based on these data only tentative (for the significance of this, see Varese and Yaish, 2000).

8. Conclusion

Rational choice oriented social scientists should make an effort at measuring preferences and social psychology offers ways to measure personality. This paper suggests that the personality could be considered as a proxy for preferences. Measuring preferences is even more relevant if we expect that altruistic preferences exist. Measuring preferences as separate from actions allows us to test the extent to which situational factors affect behavior. Data on rescuers of Jews during the Nazi occupation of Europe suggests that rescuers were more likely to help Jews the more pro-social their personality was. Even

more significantly, rescuers who had a prosocial personality were not all equally likely to help. Situational factors, such as a direct request for help, significantly increased the likelihood that a person would help. We also show that the stronger a given preference is, the more likely it is that a situational factor activates that existing preference. Finally, data on rescuers suggests those rescuers overall perceived less risk in their actions than non-rescuers.

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Appendix A:

Table A1: *Descriptive Statistics for Prosocial Action Orientation*

In Table A1 we present the means (and standard errors) of the prosocial action orientation scores of selected sub populations in the APPBI data. Note that the higher the value is the weaker the prosocial action orientation (see the five-point scale). Thus, in the final analysis we multiplied the prosocial action orientation score by -1 , so that higher values will indicate a stronger prosocial action orientation.

<i>Variable Name</i>		<i>Mean</i>	<i>s.e</i>	<i>N</i>
<i>Altruist</i>	No	0.239	0.959	89
	Yes	-0.059	0.834 ₁	361
<i>Asked</i>	No	0.049	0.847	181
	Yes	0.036	0.885 ₁	217

NOTES:

¹ See Elster.

² The standard formulation of the theory of revealed preferences is in Samuelson, 1938a and 1938b. See also Ricker and Odershook 1973; and Lewin, 1996.

³ The Yad Vashem institute in Jerusalem undertook the identification process. The Yad Vashem is an Israeli agency established in 1953, seeking to identify and give due recognition to rescuers of Jews during Nazi rule in Europe. Over the years, it has certified more than six thousand people as 'Righteous Among the Nations' (Oliner and Oliner, 1988: 262). It should be noted that the number of Yad Vashem rescuers per country does not correspond to the number of Jews rescued per country.

⁴ Today the Yad Vashem list of 'Righteous Among the Nations' includes 16,542 identified rescuers (<http://www.yad-vashem.org.il/righteous/index.html>).

⁵ In the non-rescuer sample the mean average age is four years lower than in the rescuer sample.

⁶ We have nevertheless repeated our analyses without the 'self-reported altruist' and found that the pool of self-reported rescuers did not alter the final result we report; that is, our decision to put together self-reported and 'identified' rescuers has not effected our results. We are willing to supply the relevant analysis to those who might be interested.

⁷ As in every survey, the issue of the validity of the answers applies here. This issue is even more significant in the case of individuals who might be unwilling to admit having being asked and refused to help fellow human beings in danger. However, the wording of the question by Oliner and Oliner enables the respondent to admit to not having helped with minimal loss of face. Indeed, the survey was able to identify a number of people who were both asked and replied in the negative. Furthermore, it was able to establish that most people had to be asked in order to help Jews (Oliner and Oliner, 1988; Varese and Yaish, 2000). In other words, rescuers did not offer their help spontaneously, an admission which might also be unwelcome. Set aside the general question surrounding the reliability of survey data, the validity of the results presented below seems to us to be worth taking seriously.

⁸ The psychological literature discusses in this context the 'foot in the door' effect (Freedman and Fraser, 1966). Although not completely comparable with the path dependence process that we refer to, it emphasises that people are likely to take a large and consequential action if they are initially induced to take a small and non-consequential action (cf. Ross and Nisbett, 1991: 50-1).

⁹ We have constructed this measure in various other ways, all of which did not produce significantly different results. The results of these analyses can be obtained on request.

¹⁰ It follows from the above that young individuals (in the War period) may be a greater source of bias in our analysis. Thus, we repeated the analysis excluding those under 21 years of age in 1940, and found no significantly differently results. These results can be obtained from the first author on request.

¹¹ In a similar analysis with the APPBI data, Varese and Yaish included in this model a variety of independent variables (demographic and opportunity) and arrived at a similar conclusion (2000: 322). In that analysis they were not only able to show that these demographic and opportunity variables have relatively weak effects, but also that the vast majority of them are not statistically significant (Varese and Yaish, 2000: 321, Table 4). In light of this, we do not think that it is necessary to 'control' for these covariates in our analysis.

¹² Varese and Yaish (2000) argue that a selection process governs the identification of potential helpers who may then be asked to help. That is, persecuted Jews did not ask for help at random. One of the implications of this is that the effect of being asked is biased, and hence very strong.

