Joanna Dzionek-Kozłowska

University of Lodz

e-mail: joanna.dzionek@uni.lodz.pl

ORCID: 0000-0003-2146-5491

Sharaf Rehman

University of Texas Rio Grande Valley

e-mail: sharaf.rehman@utrgv.edu

ORCID: 0000-0002-8317-0990

CAREER CHOICES AND MORAL CHOICES. CHANGING TRACKS IN THE TROLLEY PROBLEM*

Abstract. Numerous authors indicate that the influence of academic education extends beyond the growth of specialized knowledge gained by the graduates. Scholars are trying to identify and examine the potential impact of higher learning on students' attitudes and choices. One of the dimensions considered by the researchers is the effect of university training on students' moral choices. Our paper attempts to identify differences between the students' declared moral choices and their majors (fields of studies). Working with a sample of university students of Economics and Sociology ($N = 181$), and using three variants of the Trolley Problem, the subjects' responses are used to identify the similarities and differences between their choices. The participants were asked to respond to three hypothetical situations regarding a runaway trolley. Their decision in the first scenario could save a person's life or let her be run over by the trolley. In the second scenario, their decision could either let one person die and save five lives or save one life and let five people be killed. These two scenarios required pulling a lever to switch the trolley from one track to another. The third scenario requires pushing an obese person in front of the runaway trolley to stop it from killing five persons. As expected, we found a significant difference between the two groups (the economists and the sociologists) in the case of our third scenario, however, we found no evidence supporting the indoctrination hypothesis. We conclude that the existing differences between the choices made by the future economists and sociologists may support the preselection hypothesis.

Keywords: decision making, Trolley Problem, inconsistency of choices, indoctrination hypothesis, preselection hypothesis.

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1. Introduction

There is a common agreement that the influence of academic education may extend far beyond the growth of the specialized knowledge of the students. Scholars from various academic disciplines examine the differences in attitudes and choices made by the students from different academic fields. The researchers try to assess whether these differences are the outcome of the university training or the results of students' preselection of paths leading to their academic and professional careers. The former line of inquiry tests the indoctrination hypothesis; the latter the preselection effect.

The previous investigations, so far, have been inconclusive. It remains unclear if it is the academic training or the personality (formed a long time before they enter the university lecture halls) that is more important. Diverse findings on the nature of the differences have been reported. For instance, the students of economics and management have been found to be more prone to free-riding (Marwell & Ames, 1981; Frank, Gilovich & Regan, 1993) and self-centered (Frank, Gilovich & Regan, 1993; Frey & Meier, 2003; Lopes, Garça & Correia, 2015), the students of political sciences have been reported to be more skeptical of the idea of participatory democracy (Esaiasson & Persson, 2014), yet, more engaged in civic issues than the other graduates (Paterson, 2009), whereas the police cadets and the nurses seem to become more cooperative and pro-social after completing their respective educations (Cadsby & Maynes, 1998; Ahmed, 2008).

Among the most complex dimensions of the alleged impact of university training on the graduates is if it changes their values and norms. Despite its complexity, some studies have been dedicated to inquiries on the modifications in students' ethical philosophies and moral choices (cf. Gandal et al., 2005; Neubaum et al., 2009; Hummel, Pfaff & Rost, 2016). These researches asked the respondents to rank-order a variety of values assessing the extent to which they agreed or disagreed with certain statements.

Our study aims to contribute to the discussion on the academic education's influence on the moral choices of the students by examining their reactions to three scenarios based on the Trolley Problem introduced to the ethical and social science literature by Foot (1967) and elaborated by Thomson (1976; 1985). We conducted a survey study ($N = 181$) investigating the differences between the choices made by the less and more advanced students of two fields of studies: Economics and Sociology. Gender and relationship status were also considered as potentially significant variables in influencing the moral choices.

We hypothesized that there would be certain differences between future economists and future sociologists, as well as between the choices of the freshmen and the more advanced students. Our expectation was that the choices of Economics students, being better familiar with the rational choice theory and utilitarian ideas, would be more consistent than the choices of the future sociologists. Our data render partial support for the preselection hypothesis, however, contrary to our expectations, the material fails to support the indoctrination hypothesis.

The paper presents a brief description of the Trolley Problem to set the stage. Against this backdrop, we report on the sample and the data collected for our study. The conclusions and recommendations are presented in the final section of the paper.

2. The Trolley Problem

The Trolley Problem is a thought-experiment that demonstrates the inconsistency of moral choices. It refers to a hypothetical situation in which one is supposed to be a trolley driver. On the track in front, the driver sees five workers. Unhappily, as the trolley charges down the steep hill, the driver realizes that the trolley's brakes are jammed. The driver is unable to stop the trolley. At the last moment, the driver sees a spur track to one side and realizes that the trolley can be diverted onto it to save the five workers. However, there is one worker repairing the spur track. The moral dilemma pointed to by Foot (1967, pp. 10–11) was: Is it morally right for the driver to divert the trolley and kill one worker instead of letting five workers die.

The situation described above is comparable to another, somewhat similar scenario, *The Organ Transplant*, in which five patients are waiting for different organs at a hospital. A young man arrives for his annual physical check-up. His organs will be a perfect match for the five patients awaiting organ donors. The participants in the experiment are supposed to play the role of an extremely gifted and lucky surgeon with a one-hundred percent success rate with organ transplants, i.e., no organ transplanted by him was ever rejected by a recipient. In this experiment, the question is whether one may kill a perfectly healthy person to save five other people (Thomson, 1976, pp. 205–206; cf. Thomson, 1985, p. 1395).

In both cases, the choices are identical: saving several lives at the “cost” of taking one. Yet, the typical reactions of the respondents in these two situations are different—whereas they are more likely to save the five in *The Trolley Driver* case, they are strongly opposed to a similar option in *The Organ Transplant* scenario (cf. Lanteri, Chelini & Rizzello, 2008).

Numerous variations of the same problem were coined by Thomson (1976; 1985) who proposed, for instance, to modify *The Trolley Driver* case by assuming the decision maker was not the driver but a bystander who could turn a lever to divert the trolley. Such a version, introduced to increase neutrality of an agent, was named *Bystander at the Switch* (1985, p. 1397). This scenario is commonly regarded as the standard trolley problem (cf. for instance: Singer, 2005, p. 339)

Another variant—*Fat Man*—moves a decision maker to a footbridge over the trolley track. The runaway trolley is moving towards a group of five people. However, in this case, there is a chance to stop the trolley and save the workers by putting a massive object in the path of the trolley. Conveniently, an excessively overweight person is leaning over the footbridge looking at the trolley. If pushed over, the obese person's body would stop the trolley. As in the previous experiments, the options are to save five lives by sacrificing one or to refrain from acting and letting the five persons meet their death (Thomson, 1976, pp. 207–208; 1985, p. 1409).

There are strong parallels between *Trolley Driver* and *Bystander at the Switch*, and between the *Organ Transplant* and *Fat Man* scenarios. The respondents are confronted with choices that put reason against emotions.

3. The study

In the philosophical debates about the Trolley Problem, the focus has been on providing an explanation as to why the common responses of the people in the two cases are different, or to justify their intuitive reactions. However, as Peter Singer rightly noted, “every time a seemingly plausible justifying principle has been suggested, other philosophers have produced variants on the original pair of cases that show that suggested principle fails in justifying our intuitive responses” (2005, p. 340). Our research takes a different perspective. Instead of making attempts to provide certain acceptable reasons for such inconsistencies of choices, we focus on identifying if the academic education might exert an influence on the decisions of the respondents.

3.1. Instrument and the sample

In our study, we employed three scenarios. We replaced the workers with anonymous persons tied on the tracks and unable to escape. This adjustment was made to eliminate the responses such as: “I would shout at the workers to warn them and make them run away.”

In our first scenario, the runaway trolley is approaching a fork. It can go on track A or track B. A person is tied to track A. Track B seems clear—although not much of it is visible. A bystander is at the switch lever and can divert the trolley from track A to track B. We named this version as the *Ill-informed Bystander*. In this case, the bystander can pull the lever and send the trolley onto the empty spur. The bystander knows neither where the empty track leads nor what might lie ahead. We expected that all the respondents would pull the lever. The obvious choices were to let a person die by doing nothing, or to switch the path and save their life without any noticeable “price” to pay. In addition, we used the two common versions of the Trolley Problem: The *Bystander at the Switch* and the *Fat Man*.

Instead of a verbal description, we used drawings of the scenarios. The respondents were shown the first sketch, the one with the ill-informed bystander and a person tied on the track and were asked to record their response on a notecard. Then, they were shown the second sketch where they saw that while one person is tied on track A, there were five people tied on track B. The respondents were requested to write their answer. Finally, they were shown the third sketch and asked to record their response. The respondents were neither allowed to go back and change their responses nor to discuss the scenarios with other participants.

The respondents were students of Economics and Sociology at the University of Lodz, Poland. The data were gathered in May and June 2018. All the participants came from Poland. Since there was cultural homogeneity in the sample, we argue that the influence of culture was controlled. In addition to the field of studies, we examined three other variables: gender, class standing, and relational status. Among the 181 participants, 131 (72%) were females and 50 (28%) were males. The male/female ratio in both groups was almost identical—there were 27% males in the sociology subsample and 28% in the economics one.

The sample consisted of 51 Sociology students and 130 Economics students.

In our sample, 66 students were freshmen, 49 were second-year students, and the remaining 66 were graduate students. In terms of their relational status, 97 (54%) participants declared they were single, 84 (46%) claimed they were either in a relationship or married.

3.2 Data and results

According to our expectations, in the case of the first scenario 170 (94%) participants stated they would act to save the person by switching the lever.

Only 11 (6%) said they would refrain from changing the trolley’s path.

In making a choice between saving five people versus one in the second scenario, i.e. *Bystander at the Switch*, 157 respondents said they would divert the trolley to the spur with one person and save the five on the main track. In other words, 87% chose to save five lives by sacrificing one.

In accordance with the previous research, in the case of the *Fat Man* scenario, the share of those willing to push the man off the bridge was significantly smaller than in *Bystander at the Switch*. Faced with the choice presented in the third sketch, only 101 respondents (56%) said they would push the man off to stop the trolley and save the people on the track.

The data on majors (Economics, Sociology), gender, class standing (years of study), and relational status are presented in the sections below.

3.2.1. Major

The data show that the reactions to the first two scenarios by the Economics and Sociology students are similar. In the case of *Ill-informed Bystander*, a slightly higher percentage of the future economists (7%) were reluctant to switch the lever than future sociologists (4%). In the *Bystander at the Switch* scenario, a higher percentage of the sociologists (16%) than the economists (12%) were reluctant to act to save five lives at the expense of one. The differences between the two groups are not statistically significant.

The difference between the economists and the sociologists was significant in the *Fat Man* case. A higher percentage of the economics students (64%) were willing to push the obese man to his death as compared with 35% of the sociology students. The difference is statistically significant. Table 1 presents the breakdown based on the two majors.

Table 1
Results of *Ill-informed Bystander*, *Bystander at the Switch*, and *Fat Man* scenarios for students of Economics and Sociology

Scenario 1	Would pull the lever to save a person (percentages of students of Economics/Sociology)	Would not pull the lever (percentages of students of Economics/Sociology)
Students of Economics	121 (93%)	9 (7%)
Students of Sociology	49 (96%)	2 (4%)

$\chi^2 = 0.5781, p = .4470$. This difference is not significant.

Scenario 2	Would pull the lever to save five persons and sacrifice one (percentages of students of Economics/Sociology)	Would not pull the lever (percentages of students of Economics/Sociology)
Students of Economics	114 (88%)	16 (12%)
Students of Sociology	43 (84%)	8 (16%)

$\chi^2 = 0.3635$, $p = .5465$. *This difference is not significant.*

Scenario 3	Would push off one man to save five (percentages of students of Economics/Sociology)	Would not push the man off (percentages of students of Economics/Sociology)
Students of Economics	83 (64%)	47 (36%)
Students of Sociology	16 (35%)	33 (65%)

$\chi^2 = 12.1075$, $p = .0005$. *This difference is significant.*

3.2.2. Gender

Our data suggest that, for these scenarios, females are more likely to act than males. In all three scenarios, the share of women willing to act was higher than that of men. However, the difference based on gender was statistically significant only in the first two scenarios and not in the third. The results based on gender are presented in Table 2.

Table 2
Results of *Ill-informed Bystander*, *Bystander at the Switch*, and *Fat Man* scenarios for males and females

Scenario 1	Would pull the lever to save a person (percentages of males/females)	Would not pull the lever (percentages of males/females)
Males	44 (88%)	6 (12%)
Females	126 (96%)	5 (4%)

$\chi^2 = 4.245$, $p = .039$. *This difference is significant.*

Scenario 2	Would pull the lever to save five persons and sacrifice one (percentages of males/females)	Would not pull the lever (percentages of males/females)
Males	49 (80%)	10 (10%)
Females	117 (89%)	14 (11%)

$\chi^2 = 2.729$, $p = .098$. This difference is is significant.

Scenario 3	Would push off one man to save five (percentages of males/females)	Would not push the man off (percentages of males/females)
Males	25 (50%)	25 (50%)
Females	76 (58%)	55 (42%)

$\chi^2 = 0.943$, $p = .3316$. This difference is not significant.

3.2.3. Class Standing (years of study)

The data from the perspective of advancement in the students' academic education might have confirmed the indoctrination hypothesis. Indeed, we have found differences between the first-year and more advanced level students in two out of the three scenarios. The readiness to act to save a person in the case of *Ill-informed Bystander* grew from 88% for the first-year students to 100% for the graduate students. Due to insufficient observations in each cell, the Chi-square analysis was not adequate to determine the significance of this trend.

The difference was statistically significant for the *Fat Man* scenario. However, it would be difficult to interpret such a result as a support for the indoctrination hypothesis, as no clear tendency in the students' answers is visible. The share of respondents declaring their readiness to push the man was smaller for the second-year students than for their first-year colleagues, yet, it was also smaller than in the case of the graduates.

What is even more important, no tendencies could be detected when the Economics and Sociology samples were analyzed separately. However, because of the sample-size limitation, our data did not permit us to use the chi-square statistic in the case of the *Ill-informed Bystander* scenario for the two groups. For the same reason, we were unable to employ this test to assess the difference between choices declared in the *Bystander at the Switch* scenario by the sociologists. Yet, in the three remaining cases, i.e. the *Fat*

Man scenario for the students of both Economics and Sociology, and the *Bystander at the Switch* scenario analyzed for the students of Economics the differences were not statistically significant.

Table 3

Results of *Ill-informed Bystander*, *Bystander at the Switch*, and *Fat Man* scenarios for the subsequent years of study

Scenario 1	Would pull the lever to save a person (percentages of students at the subsequent years of studies)	Would not pull the lever (percentages of students at the subsequent years of studies)
1 st year	58 (88%)	8 (12%)
2 nd year	46 (94%)	3 (6%)
Master studies	66 (100%)	0 (0%)

The Chi-square statistic is inappropriate.

Scenario 2	Would pull the lever to save five persons and sacrifice one (percentages of students at the subsequent years of studies)	Would not pull the lever (percentages of students at the subsequent years of studies)
1 st year	57 (86%)	9 (14%)
2 nd year	44 (90%)	5 (10%)
Master studies	56 (85%)	10 (15%)

$\chi^2 = 0.6113$, $p = .7366$. *This difference is not significant.*

Scenario 3	Would push off one man to save five (percentages of students at the subsequent years of studies)	Would not push the man off (percentages of students at the subsequent years of studies)
1 st year	35 (53%)	31 (47%)
2 nd year	22 (45%)	27 (55%)
Master studies	44 (67%)	22 (33%)

$\chi^2 = 5.7266$, $p = .05781$. *This difference is significant at $p < .10$.*

However, for the third scenario, the difference between the second-year students and the graduate students is significant at $p < .05$ (Chi-square = 5.54, p-value .019).

3.2.4. Relational Status

Contrary to previously reported findings on Hispanic American students (cf. Rehman & Dzionek-Kozłowska, 2018), present data do not show any significant differences between the choices made by the students who declared to be single and those in relationships. The results for the Single and Non-Single respondents are reported in Table 4.

Table 4

Results of *Ill-informed Bystander*, *Bystander at the Switch*, and *Fat Man* scenarios for students of Economics and Sociology

Scenario 1	Would pull the lever to save a person (percentages of Single/Non-Single students)	Would not pull the lever (percentages of Single/Non-Single students)
Singles	89 (92%)	8 (8%)
Non-Singles	81 (96%)	3 (4%)

$\chi^2 = 1.724$, $p = .1891$. This difference is not significant.

Scenario 2	Would pull the lever to save five persons and sacrifice one (percentages of Single/Non-Single students)	Would not pull the lever (percentages of Single/Non-Single students)
Singles	83 (86%)	14 (14%)
Non-Singles	74 (88%)	10 (12%)

$\chi^2 = 0.25$, $p = .6169$. This difference is not significant.

Scenario 3	Would push off one man to save five (percentages of Single/Non-Single students)	Would not push the man off (percentages of Single/Non-Single students)
Singles	56 (58%)	41 (32%)
Non-Singles	45 (53%)	39 (47%)

$\chi^2 = 0.57$, $p = .316$. This difference is not significant.

4. Conclusions

Our research confirms the previous findings that people's choices are not fully consistent. The differences in the answers between the second and the third of our scenarios, i.e. *Bystander at the Switch* and *Fat Man*, demonstrate that the respondents are disinclined to act if they are required to be emotionally and physically engaged in the process of decision making with the visible "costs" of the accessible options (cf. Greene et al., 2001). However, our results for the Economics and the Sociology students show a significant difference between the choices by the two groups in the *Fat Man* scenario. In this case, the students of Sociology are less willing to sacrifice one life to save five than the future economists. Could such a finding be recognized as evidence for the indoctrination hypothesis? Our analysis of the responses of the beginning or the advanced students does not warrant such a conclusion. We may suppose that the observed differences may be the result of the preselection—the people who decide to study economics are inherently different from those who opt for sociology. We believe that working with larger samples of sociology students may allow us to make more conclusive claims.

We also found that females are slightly more willing to act than males, although the differences based on gender were relatively small. Nor do our data reveal any (statistically significant) difference between the choices made by single and non-single respondents.

In our study, we have tried to control for several variables that may influence the respondents' choices. By selecting a homogeneous sample of Polish university-age students, we controlled for the variations in age and cultural diversity. By employing hypothetical scenarios that remove the genetic relationships, we have also controlled for the bias that may occur if the subjects were to collaborate with, or offer help to, their genetically connected relatives. The importance of such links was demonstrated by, among others, Bleske-Rechek et al. (2010). We have tried to create a situation where the beneficiaries are unknown to the benefactors and the anticipated return for the effort or any reward is nonexistent.

Further research is needed with respondents that are following different career paths. Bourget & Chalmers (2014) found that the professional philosophers are much more reluctant to act not only in the *Fat Man* scenario but also in the *Bystander at the Switch* case (no more than 68.2% of the participants in their study declared they would change the trolley's route to save five lives). Examining the reactions of students of philosophy might reveal indoctrination effect of philosophical studies. Another intriguing

ing path of research may be to analyze the answers given by the students of the same field of study coming from different countries and cultures. Hence, our effort is a small step and an invitation to others for engaging in similar studies that explore decision making and moral choices.

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