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**JÖVŐBELI KÖZGAZDÁSZOK TÁRSADALMI PREFERENCIÁI: EGY KÍSÉRLETI
TANULMÁNY KÖZÉPISKOLÁS DIÁKOKON**

**SOCIAL PREFERENCES OF FUTURE ECONOMISTS: AN EXPERIMENTAL STUDY
ON HIGH SCHOOL STUDENTS**

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Abstract: A large body of experimental studies suggest that university students of economics are more likely to behave in their self-interest than students of other subjects. There is no consensus however, if this difference is due to selfish high school students self-selecting themselves to study economics, or to the effect studying economics has on them. I test the self-selection hypothesis using survey data of high school students after the deadline for university application submissions, the earliest point in time economists and non-economists can be differentiated. I am unaware of any studies that have investigated this issue at this stage. The sample includes 243 individuals from 3 different Hungarian high schools. Respondents were asked to indicate their behavior in three incentivized setups: a dictator, an ultimatum and a public goods game. I also explore if differences exist in competitiveness, risk-taking, and time preferences between students who plan to continue their studies in different fields. Results only show significant differences in bargaining situations, that I interpret as weak evidence for self-selection. Additionally, economists appear to be significantly more risk tolerant than non-economists.

Absztrakt: Számos kísérleti tanulmány jutott arra, hogy egyetemi közgazdász hallgatók hajlamosabbak a saját érdekük szerint viselkedni, mint más szakok hallgatói. Afelől azonban nincsen egyetértés, hogy ez a különbség annak köszönhető-e, hogy már eleve önzőbb középiskolások választják a gazdasági pályát, vagy pedig annak, hogy a közgazdasági oktatás változtatja meg a viselkedésüket. Az önkiválasztási hipotézist tesztelem egy kérdőív segítségével, amit középiskolás diákok töltöttek ki az egyetemi jelentkezési határidő után. Legjobb tudásom szerint eddig nem született kutatás, ami ezt a kérdést ebben a stádiumban vizsgálta volna. A minta 243 tanulót tartalmaz, 3 különböző magyar középiskolából. A válaszadóknak három ösztönzött helyzetben kellett kérdésekre válaszolniuk: egy diktátor-, egy ultimátum-, és egy közjószág játékban. Emellett megvizsgáltam a különböző irányban továbbtanuló diákok közötti különbségeket versenyszellemben, kockázatvállalásban és időpreferenciákban. Az eredmények arra utalnak, hogy szignifikáns különbségek csak alkuhelyzetben jelentkeznek, amit az önkiválasztás gyenge bizonyítékaként értelmezek. Továbbá, a közgazdászok lényegesen kockázatvállalóbbnak tűnnek, mint a nem közgazdászok.

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I. Introduction

Standard economic theory assumes that individuals are perfectly rational, and given all information, always make optimal decisions. For the type of man, it deals with, it is attributed to John Stuart Mill to coin the term “economic man” or “homo economicus” (Mill, 1844) (even though neither of these phrases actually appear in his original essay). In practice however, we both observe and experience, that members of the actual species we belong to – homo sapiens – often fail to act according to those assumptions of microeconomics (DellaVigna, 2009). Having said that, one group in particular seems to be more resistant to such failures. The group of economists. University students of economics apparently tend to behave more in their own self-interest in lab experiments than their peers from different majors. This includes being less generous, less cooperative, and more likely to engage in free-riding behavior (Marwell & Ames, 1981; Carter & Irons, 1991; Frank, Gilovich & Regan, 1993). In this paper my goal is to investigate if this tendency of economists precedes their exposure to the ideas of individual rationality, and it appears before that, or otherwise, they only adapt it after already being enrolled in economic education.

To do so I conducted a survey-based field experiment in 3 Hungarian high schools, recording the preferences of a combined 243 students from 8 different study classes. All of them were in their final year of high school, and the experiment was conducted after the national deadline for submitting university applications, so that I could distinguish individuals who are most likely to become economists from those who chose other disciplines to continue their studies in. The students had to make incentivized decisions in three simple games: a dictator game, an ultimatum game, and a public goods game. Apart from that, I also measured their risk preferences, time preferences, and competitiveness, in an unincentivized manner. This design allowed me to test the selection hypothesis, which states that economists make more selfish decisions because more selfish individuals tend to self-select themselves into the field of economics. This is in contrast to the learning or indoctrination hypothesis, which blames the difference on the effect of being exposed to economic concepts and ideas, or economic education in general (Carter & Irons, 1991).

My paper expands on existing literature in two major ways. Firstly, studies so far mainly focused on the learning hypothesis. Given that researchers often cannot recruit experimental subjects easily, other than university students, this is not surprising, however this means that data so far was only collected from individuals, who already are engaged in economic education. The main method for controlling for self-selection was in many cases to include both

first-year economics students and others much closer to the end of their studies, and compare their answers to see if there is a tendency for more selfish behavior from people studying economics for a longer time (Carter & Irons, 1991; Frey & Meier, 2003; Gandal, Roccas, Sagiv & Wrzesniewski, 2005). Recently, others tried to experiment with the same subjects at two different times: before starting and after finishing specific university courses (Girardi, Mamunuru, Halliday & Bowles, 2024). These approaches cannot be satisfactory to fully test the selection hypothesis. They fail to capture any effect, that enrollment itself in an economics program can have on the individual. Maybe the first few weeks or months of exposure to standard economic theory are so profound that they alter individuals' behavior in a significant way. It might also be the case that high schoolers who get accepted to a program of a certain discipline, adopt a social identity associated with that discipline, hence the more selfish economics undergraduates. To sufficiently test the selection hypothesis, it is necessary to perform the experiment among students who cannot yet be considered as economists, but who clearly indicated their intentions of becoming one. Secondly, most research about the differences between economics and non-economics students focused on social preferences. I am unaware of studies that investigate if there is a gap between these two groups in risk, time and competitive preferences. Through my study, I shed light on this issue as well.

The structure of the paper is as follows. In Section 2 I give a brief overview of previous research on this topic. Then I provide a detailed description of the design of the survey-based experiment subjects underwent. In Section 4 I summarize results, first for the analysis of the selection hypothesis, then for the differences in other preferences. After that follows a short discussion, and at the end I conclude.

II. Literature review

The first to investigate the social preferences of economists were Marwell and Ames (1981), who conducted 13 experiments, using a public goods game to measure differences in free riding among different groups. The 13th experiment included 32 first semester economics students who contributed an average of 20% of their endowment. This was significantly less than the average contribution of 40-60%, that occurred in the other 12 cases, where the groups consisted of different, non-economist individuals. To test if maybe economics students behaved differently because they tried to give the mathematically optimal solution to the problem of the individual in the public goods game, they asked them to recall the relevant theory that is used to predict behavior in this case. Out of the 32 subjects 2 were able to do so. This result suggests that it was not because of their familiarity with economic theory that they gave more selfish

answers. The researchers also asked subjects about their concepts of fairness. Economics students were not only more likely to say that no contribution, or less than 50% is fair than other subjects, they were also half as likely to say that they were concerned about fairness when making their decisions. The differences between economists and other people might stem from the more self-centered concepts of fairness of the former group. Marwell and Ames (1981) were also the first ones to explicitly formulate the selection and learning hypotheses. The selection hypothesis says that economists are different because people who are already likely to behave in that particular manner self-select themselves into the field of economics, while according to the learning hypothesis these differences arise as a result of economic education.

To test which of the two effects is more important, Carter and Irons (1991) designed an experiment where their 92 subjects included university students both from economics and non-economics programs and both freshmen and seniors. Subjects played an ultimatum game in pairs, where the proposer was endowed with 10 dollars. They found that both the amount they offered and the minimum they would have been willing to accept were significantly less for economists than for non-economics students, reinforcing the results of Marwell and Ames (1981). In addition, no significant difference was found between the answers of freshman and senior economic students, which they interpreted as evidence against the learning hypothesis. They also tested if better deductive skills can explain observations, as being a common reason behind both selfishness and selecting economics as a field of study, but no significant effect was found there either. Their results suggest that the selection effect is more significant, notably however, this was not tested directly by comparing individuals prior to them enrolling in an economics program, only indirectly, by testing the learning hypothesis, and finding no support for it. This is a general shortcoming of existing literature (Frank et al., 1993; Frey & Meier, 2003; Girardi et al., 2024), that I propose a solution for by designing an experiment for high school students with no prior economic education. Differences between subjects who plan to study in the field of economics in the future and subjects who chose a different field should only be caused by the selection effect.

The third foundational study done on this topic was of Frank et al. (1993), who introduced an alternative methodology to lab experiments for investigating selfishness, which was to collect real-world data about individual charity donation amounts. This was later used many times to imply selfish or generous behavior, either without change, using charity donation data (Frey & Meier, 2003; Bauman & Rose, 2009), or something similar, for example association membership fee contributions (Laband & Beil, 1999). Frank et al. (1993) collected survey data from university professors of various disciplines asking them about their donations

to university charity funds. The rate of 0 donations was highest among economics professors and their median donations were also the lowest. Complementing their survey results they also conducted an experiment with university students from various fields. In a prisoner's dilemma game defection rate among economics undergraduates was significantly higher than among other groups. Importantly, these differences disappeared if subjects could make promises to each other about their future decisions, and in follow-up questions economics students indicated on average a lower expectation of cooperation from their partners, and they also constructed the objective of the game more abstractly, focusing less on the other person's feelings. These results suggest that it is maybe a lower level of trust what drives economists to behave in their self-interest, which effect disappears if others can make promises to them. Regarding the potential mechanism, this study presents weak evidence for the learning hypothesis. While students of other disciplines became more and more cooperative with time, such differences were absent between freshman and senior economics students, meaning that comparatively economic education significantly affected selfishness. This is in contrast to Carter & Irons (1991), who argued for the significance of selection. Using honesty surveys, Frank et al. (1993) also found that exposure to microeconomics courses tends to inhibit cooperation, through the exposure to the self-interest model.

The first 3 studies established the direction further research on the topic would take. Later researchers would either use a lab experiment or social contribution data to recognize selfish behavior, and the method for differentiating between the selection and indoctrination effects was to include economics students who are at different stages of their programs. Results were mixed.

Replicating lab experiment outcomes was generally successful. Kroncke and Mixon (1993) conducted an experiment very similar to Carter and Irons (1991), and also found that university students of economics were more selfish than others. They introduced a control variable for previous exposure to economics (for example some pre-university economic education), but its effects were not significant, slightly hindering the plausibility of the learning hypothesis. Instead, they recognized that engineers are also slightly more selfish than others, which, combined with the fact that people with higher grades on macroeconomics courses too, behave more selfishly, led them to believe that it is the ability to understand economic concepts that makes them different. They concluded that people who understand economic theory more, are more likely to apply its principles. A counterexample to previous results was offered by Yezer, Goldfarb and Poppen in 1996. In a lost-letter experiment (envelopes containing money were left in classrooms with addresses to be returned to) return rate of economics students was

highest compared to political scientists, history and psychology students. They did not only find that economists were in fact more cooperative than others, but they also replicated the honesty survey that Frank et al. used in 1993. Here their results contradicted previous findings again, showing no significant change in individuals' selfish answers after completing economics courses. Frank, Gilovich and Regan (1996) emphasized in a response article, that exposure to economics courses does not have a direct effect on cooperativeness, it alters the expectation of students of other people's cooperativeness, and this reduction is what will make them behave more in their self-interest. Their dispute is still yet to be resolved. James, Soroka and Benjafield (2001) aimed to replicate the results of the 1993 lab experiment of Frank et al., in which they were successful, but only if they compared students of economics to students of psychology. When they included a third category, that was everyone else, the differences disappeared, and if anything, psychology students seemed to deviate from the rest in that they were more cooperative than the average. This study greatly highlights the significance of selecting a proper control group for experiments, for which goal sociologists and psychologists exclusively might not be perfectly fit, but are frequently the only choice because of their availability at social sciences faculties, where economics is also taught. In a novel experiment Selten and Ockenfels (1998) found that economics students offered a significantly smaller portion of their winnings in a bet to the losers of an identical bet. Their results interestingly were exclusively driven by males, with no difference between female economists and non-economists. University students of economics were also found to behave more selfishly than their peers in a simple dictator game (Girardi et al., 2024), a more complex dictator game with communication, production and distribution phases (Hole, 2013), and in a third-party punishment game (Gerlach, 2017). Generally, aside from rare and conditional exceptions, economics students in fact appear to express more selfish behaviors when observed in experimental settings than their counterparts from different disciplines.

Another branch of researchers focused their attention on finding real-world evidence for the selfish behavior of economists, following the results of Frank et al. (1993). Laband and Beil (1999) looked at the membership fee data of the American Economic Association, the American Sociological Association, and the American Political Science Association. Membership fees in the mentioned organizations depend on the income level of members, the income level however, is self-reported. If an individual reports a lower amount than their actual income, they will have to pay a lower fee. It turns out, that people who cheat the most in this context, are sociologists, followed by political scientists, and economists are actually the most honest of the groups. One caveat to these results is that incentives line up in a similar order, fees are highest

for sociologists and lowest for economists, meaning that the prior can save the most by misreporting their income level, while the latter can save the least. This effect might crowd out the effects of individual selfishness. Later, students were also examined in a similar context. Frey and Meier (2003) used the social funds donation data of 28,586 students of the University of Zurich. Uniquely, they distinguish business economists from political economists and find that the lesser contribution of economists in general is entirely driven by business economists. They also find clear evidence for the selection effect, but to get an indoctrination effect, they too, run into the issue of who to compare economists to. Students of many disciplines express characteristic behaviors, for example theology students, and the choice of the control group can have a major impact on the significance and direction of the learning effect. A more clear-cut result was obtained by Bauman and Rose (2009), who again examined donation contributions of university students, this time from the University of Washington. Compared to everyone else, economics majors were found to be less generous. In summary, there is some evidence for economists being more selfish in real-world settings, not only in lab experiments, but overall results are not as convincing.

As for why differences may exist between economists and other people in selfishness, many researchers turned to investigate individuals' preferences for fairness, first brought up by Marwell and Ames (1981) in their foundational paper. After reviewing previous literature, Lanteri (2008) concludes that the selection hypothesis in itself cannot be a satisfactory explanation for the difference. He proposes that their concepts of fairness alter the behavior of economists in two ways. Firstly, after they are exposed to the individual rationality model, they might expect other people to behave in a more selfish manner than before, after which it is only logical that they also adapt and become more selfish themselves. This also was suggested by Frank et al. (1993) previously. Secondly, economists might think of fairness entirely differently, they might recognize rational allocations as being fair allocations, after being taught that individual rationality in many cases leads to social optimum. Hole (2013) compared first year economics students to first year engineering students from two Norwegian universities. Economists expressed more selfish behaviors in a dictator game experiment and also differed from engineers in their concepts about fairness. They gave much less weight to fairness considerations when making the decision, and took into account the fairness ideal of the other person in the game more heavily than their own fairness ideals. This means that if they expected someone not to be fair, they also would very likely not be. For engineers this effect was not prominent as they weighted their own fairness ideals more, not that of the other. Somewhat complementing these results were the findings of Gerlach (2017). After submitting their

answers in an online experiment, involving a third-party punishment game, subjects were asked about their considerations prior to decision-making. Economics students, who were found to behave more selfishly in the game, mentioned fairness far fewer times as something they considered. They agreed with other groups on what fair allocations are, but they were the most likely to expect selfish behaviors from other people. There is good evidence to suggest that economists think about fairness in a way that differs from the general population, mainly in that they expect less cooperation, and more selfish behavior from others. This likely affects their day-to-day decision making to an extent.

While differences in the perception of fairness might be a partially satisfying explanation, other potential mechanisms were also investigated. It was first suggested by Caudill and Gropper (1991) that it might not only be economists who behave more selfishly, but everyone, who is more able to grasp economic concepts. They proposed that this should also be true for engineering students, since they generally perform well on microeconomics courses. This idea was later tested by Kroncke and Mixon (1993), who in fact found that both economics and engineering students expressed more selfish behaviors, and better performance on macroeconomics courses resulted in more selfish decisions. Their results however were contradicted by Hole (2013), who found a significant difference between economists and engineers. This latter study on the other hand did not include a third control group, and also did not control for performance on economics courses. Gandal et al. (2005) conducted a study to see if maybe differences in individuals' value preferences might have a significant effect. Compared to other social scientists (again the issue of a proper control group is present) economists were found to put more emphasis on achievement, hedonistic values, and power, while putting less emphasis on universalism values. They theorize that this might explain why lab experiments show much clearer results compared to real-world data. Mixed-motive games are competitive, hence economists can express their selfishness, while in the real world, benevolence is the most important factor, which they value just as much as others. Lanteri (2008) argued that economists might adopt a social identity, after being enrolled in an economics program, which can alter their behavior. He also mentions the possibility that exposure to economic concepts perhaps makes purely rational decision-making more salient to individuals, hence affecting behavior. Meanwhile Selten and Ockenfels (1998) suggested a solution that is not general, but rather specific for different experimental games. Instead of looking for an answer for overall differences, they state that deviations in dictator games are due to altruism, while deviations in ultimatum games are due to resisting unfairness, without a more general underlying behavioral pattern, like selfishness. In summary, many alternative

mechanisms have been proposed so far, but each without a strong empirical foundation. It is likely that most of the mentioned factors have some effect on the selfish behavior of economists, but further research is required to evaluate their relevancy.

By including subjects who just started their economics studies, and ones who are about to finish them, both Carter and Irons (1991) and Frank et al. (1993) aimed at distinguishing the effects of selection and indoctrination. The former found evidence for selection, while the results of the latter supported the learning hypothesis. This issue remained at the center of future discussion on the topic. The same methodology was used by several later researchers. Frey and Meier (2003) found clear evidence for a selection effect, but not for the indoctrination effect. Gandal et al. (2005) have also drawn similar conclusions. Bauman and Rose (2009) noticed that among their subjects, exposure to microeconomics courses had some negative impact on future donations of university students, but only for non-economics majors. Economics students were unaffected, so the fact that they were less generous was support for the selection hypothesis. Girardi et al. (2024) employed a slightly different method, in that they ran their experiment twice, with the same subjects, before and after completing an intermediate microeconomics course. They again, found that this had no effect on subjects' behavior. Previously more selfish economists remained similarly more selfish. Even their expectations of other people's fairness did not change. Overall, it is apparent that the learning hypothesis has very little evidence supporting it (this also somewhat undermines results that link the behavioral differences to fairness considerations, since those are supposedly affected by economic education). This does not however mean that the selection hypothesis is necessarily true. All former attempts at recognizing its significance were indirect methods, that directly measured indoctrination effects, and only implied the presence of self-selection. While freshman university students of economics being just as more selfish compared to peers as their older counterparts provides weak evidence for selection, a direct measurement is needed for a proper evaluation. My goal is to attempt such a direct measurement. Experimenting with high school subjects after their university application deadline has passed, allows me to investigate the selection effect directly.

Lastly, it is worth emphasizing the importance of the comparison group. As first theorized by Caudill and Gropper (1991), more selfish behaviors might not be unique to economists. Not being consistent with whom they are compared to can explain much of the variance in previous results, most clearly presented by James et al. (2001), and Frey and Meier (2003). Both their results show that significant differences can be found between economists' behavior and others', but these effects might disappear if we do not restrict the control group to only include students from a select few disciplines (e.g., sociology or psychology). Having seen

such conclusions, the only reasonable direction for future research is to try and include as much variety as possible as comparison to economists. With high school subjects I am able to accomplish this goal. The diversity of the different classes that participated in my experiment provided data from students with aspirations in a wide range of academic disciplines, with notable exceptions being agricultural and theological studies.

In conclusion, the social preferences of economists are extensively studied, still, a comprehensive explanation for their apparent selfish behavior is yet to be presented. Lab experiments time and time again showed that economics students tend to behave more selfishly than their counterparts from other disciplines (Carter & Irons, 1991; Gerlach, 2017). Results of field experiments are less convincing (Laband & Beil, 1999; Bauman & Rose, 2009), perhaps the phenomenon is restricted to mixed-motive games (Gandal et al., 2005). As for why these differences exist, many researchers proposed the idea that the way economists think about fairness is different from the rest (Frank et al., 1993; Hole, 2013). The compiled evidence suggests that this is indeed a contributing factor. Other mechanisms have also been propounded, such as the ability to comprehend economic concepts (Kroncke & Mixon, 1993), or social identity (Lanteri, 2008). None of these have enough support so far to be definitely accepted. One of the most researched aspects of the topic is the question of the selection and indoctrination hypotheses. Previous literature mostly concluded that the indoctrination effect is insignificant (Frey & Meier, 2003; Girardi et al., 2024), while a direct test for the selection hypothesis has not been implemented yet. This is the main focus of the current study. Finally, researchers have found that while economists might be more selfish compared to some groups of people, the effects might not be present compared to other groups (James et al., 2001). This problem is also yet to be resolved. My experimental subjects are not coming from only a single faculty or field of study, so the control group consists of students with varying aspirations.

As for the nature of other social preferences of economists, such as risk aversion, time preference, and competitiveness, these were the subjects of no previous studies to my knowledge. Analysis in this direction will purely be exploratory. Table 1 provides a compact summary of previous findings in the literature.

Table 1: Summary of the main findings in the literature

Study	Covered topics	Findings
Marwell & Ames, 1981	- cooperation, public goods experiment - fairness concepts - <i>subjects</i>: 32 first-semester graduate students in economics from the University of Wisconsin	- economists only contributed 20% of their endowment compared to the 40-60% average of other groups - more economists consider little or no contribution as fair, economists are half as likely to be concerned about fairness
Carter & Irons, 1991	- selfishness, ultimatum game experiment - test for learning hypothesis - test for deductive skills - <i>subjects</i>: 92 freshman and senior economics and non-economics students from the College of the Holy Cross	- economists keep 7.1% more and accept 7.4% less of the endowment - no evidence for learning effects - deductive skills don not matter
Frank et al., 1993	- cooperation, prisoner's dilemma experiment - donation data of university professors - fairness concepts - test for learning hypothesis - <i>subjects</i>: 576 college professors of 23 disciplines	- defection rate among economists is 60.4%, while for non-economists it is 38.8% - economics professors are the most likely to donate nothing to charity and their median donation rate is also the lowest - weak evidence for learning effects
Kroncke & Mixon, 1993	- selfishness, ultimatum game experiment - test for the ability to understand economic concepts - <i>subjects</i>: 76 sophomores, juniors, and seniors from various curriculums	- students who complete economics courses keep 0.6% more of the endowment compared to their offer - engineers also propose a greater gap and perform well on economics courses, so the reason for selfishness might be the ability to understand economic concepts
Yezer et al., 1996	- cooperation, lost-letter experiment - <i>subjects</i>: letters were left in 128 undergraduate and upper-level economics and non-economics classes, each with between 15 and 25 students	- return rate of economists was 56% while 31% for others (note that this study shows counter evidence for the selfishness of economists)
Selten & Ockenfels, 1998	- selfishness, solidarity game experiment - gender differences - <i>subjects</i>: 120 university students	- economists offered less as conditional gifts than others - the effect was driven by males, female economists and non-economists did not differ
Laband & Beil, 1999	- academic associations membership fee data - <i>subjects</i>: 892 non-student members of academic associations	- sociologists pay only 78% of recommended fee memberships, political scientists pay 91%, and economists 93% (economists seem the least selfish, however fees are the lowest for them, and highest for sociologists)
James et al., 2001	- cooperation, prisoner's dilemma experiment - comparison group - <i>subjects</i>: 33 undergraduate students	- defection rate of economists is 54%, while it is 45% for psychologists - for the third group (everyone else), it is 58%, so it is actually psychologists who are more cooperative than the rest
Frey & Meier, 2003	- social fund donation data - test for learning hypothesis - comparison group - <i>subjects</i>: data of 28,586 students form the University of Zurich	- 68.7% of non-economist students contribute to at least one social fund, while only 61.8% of economists do so as well - differences do not increase over time - the effect is driven by business economists, while political economists are no more selfish than others

Gandal et al., 2005	- test for learning hypothesis - value hierarchies - <i>subjects</i>: Study 1: 262 Israeli college students; Study 2: 351 economics students at the beginning and at the end of freshman year; Study 3: 193 first- and third-year economics students	- students studying economics longer have no different values than students just starting their economics program - economists value achievement, hedonism, and power more, while put less emphasis on universalism values
Lanteri, 2008	- fairness concepts - social identity - saliency of rational decision-making - <i>subjects</i>: 32 first-semester graduate students in economics	- economics students consider rational allocations to also be fair - they protect themselves with selfish behavior, since they expect others to also be selfish - adopting an “economist social identity” can make individuals more selfish - economic education makes rational decision making more salient
Bauman & Rose, 2009	- university donation data - test for learning hypothesis - <i>subjects</i>: data of 8,743 students from the University of Washington	- economics majors are 5.6 percentage points less likely to donate than others - economics education only impacts non-economics majors and makes them more selfish; economists are not affected
Hole, 2013	- altruism, dictator game experiment - fairness concepts - <i>subjects</i>: 188 first-year economics and engineering students from two Norwegian universities	- economists offered 30.9% on average, while non-economists offered 46.3% - economists are most likely to consider strict egalitarianism fair - economists tend to bias the notion of fairness in favor of themselves
Gerlach, 2017	- selfishness, third-party punishment game experiment - fairness concepts - <i>subjects</i>: 176 undergraduate students from a British university	- economists offered 23.6% on average, while non-economists offered 39% - economics students had a similar notion of fairness to others, but expected the most selfishness from their partners
Girardi et al., 2024	- altruism, dictator game experiment - test for learning hypothesis - <i>subjects</i>: 207 undergraduate students from the University of Massachusetts	- economists offered 59% on average, while non-economists offered 65% - subjects did not become more selfish after completing microeconomics courses

III. Experimental design

The goal of my experiment was to explore the differences in social preferences between economists and non-economists, and to directly test the selection hypothesis. To accomplish this, my subjects were final-year high school students. I received permission from 3 Hungarian high schools to conduct my experiment, and in total I collected the data of 243 individuals from 8 different classes.

The experiment consisted of subjects filling out a paper-based questionnaire, and after all have finished, 2 of them were randomly selected, and received a monetary incentive based on one of their also randomly chosen answer. The experiment was performed 8 times, separately for each class. Participation was voluntary and anonym, and the rules of the experiment, as well

as the chance to earn money, were clearly communicated to the students before the distribution of the questionnaires.

Since my variable of interest was the academic discipline students planned to continue their studies in after high school graduation, a question was included where they had to indicate their university applications. This question was included last to avoid priming effects (McFarland, 1981). In Hungary there is the central website – felvi.hu – that everyone has to use to submit their applications. On this site they also have to indicate a clear order in which they wish to apply based on their preferences for the different programs. To mimic this, they had to indicate all their applications in the survey, in the same order they applied to them. The application deadline was February 15, and the experimental sessions took place soon after this date, between February 14 and March 8, 2024 (the first experimental session was held one day prior to the deadline). This allowed me to clearly distinguish students who have self-selected themselves into the field of economics, before any indoctrination effect could have influenced them. This was also before the announcement of the application results, thus avoiding possible effects that adopting the social identity associated with people in different fields of study could have on the students.

Including high school students as subjects provided methodological advantages to test the selection hypothesis directly, but also raised some problems. The categorization of students was difficult for two reasons. First, more generally, countless university programs are available, and it is not clear what to include under the umbrella of economics and what not to. Secondly, since students can apply to multiple programs, there definitely would be many individuals who apply both to economics programs and non-economics programs. Previous studies that included university students or professors rarely go into detail who they consider as economists, and even then, distinctions are broad, such as business economists and political economists (Frey & Meier, 2003). It is never precisely described what specific programs are considered economics programs and what are not.

To tackle the first issue, I relied on the official classification system provided by the Educational Authority (2024). On the same website students have to use to submit their applications, all available university programs are listed under one of 15 different categories (e.g., humanities, law, economics). The list is comprehensive, however there are some programs which could be argued are miscategorized. To combat this, in addition to the official system, I also used a custom selection. The differences were the following: programs that are not labeled as economics programs officially, but will be here, are business informatics; philosophy, politics, economy; business and diplomacy; programs that are officially labeled as economics

but will not be here are human resource management; sustainable and circular economy-based tourism; tourism and catering. The custom selection is a subjective collection of study programs, but it will only be used as a complement to the official system.

As for the second problem, students were classified as economists or non-economists in four different ways. 1. If the first preference of the students was an economics program, they will be economists, if other, then not. 2. All students who applied for both economics and non-economics programs will be considered economists. 3. All students who applied for both economics and non-economics programs will be considered non-economists. 4. All students who applied for both economics and non-economics programs will be excluded from the analysis. This system, combined with 2 different classifications of university programs, resulted in 8 separate variables for students, that could have the economist or non-economist values. Possible effects were explored using all 8, however in the main tables, for clarity, only the 2 are presented which excluded students with mixed applications. These should give the most significant effects, since the comparison is between students surely becoming either economists or non-economists. The rest can be found in the Appendix. Additionally, to check if maybe differences depend on a more specific comparison of disciplines, all students were classified into one of the 15 categories, that the official site lists. Only 1 such variable was created, using the official classification system, and referring students to categories solely on their first preference.

To measure selfish behavior, 4 questions were included, utilizing 3 theoretical games. The dictator game (Forsythe, Horowitz, Savin & Sefton, 1994) was used to assess altruism. The game consists of a proposer and a receiver. The proposer makes an offer, regarding the allocation of their endowment, and then the money is distributed between the two of them according to this proposal. The receiver has no endowment and no role in the game. Students had to imagine that they were playing with one of their randomly chosen classmates in the role of proposer, with an endowment of 3000 HUF. They had to decide how much of that amount they would keep and how much they would offer to the other. Standard economic theory would predict zero giving. However, in most studies, many subjects give a non-zero amount to the receiver (Engel, 2011). Giving positive amounts is often considered as a sign of altruism.

The ultimatum game (Güth, Schmittberger & Schwarze, 1982; Kahneman, Knetsch & Thaler, 1986) is a simple extension of the dictator game that measures bargaining behavior. In this case the proposer also offers a specific allocation of their endowment, however now the receiver can accept, or refuse the offer. If they accept, the game plays out identical to the dictator game. If they refuse on the other hand, none of the two players receive any amount of money.

Students were asked two questions related to this game, both while again playing with a randomly chosen classmate. First, they had to answer how much of their endowment of 3000 HUF they would offer to keep and give to the other. Second, they had to indicate, what was the minimum amount offered to them they would still accept in the role of the receiver. Economic theory in this case predicts offers of minimal amounts, and the acceptance of all offers greater than zero. Instead, experiments show that offers are typically around 40% of the endowment, and receivers reject half of the offers less than 20% (Camerer, 2011).

Lastly a 2-player variant of the public goods game (Marwell & Ames, 1981; Horn, Kiss & Lénárd, 2022) was implemented to measure the student's cooperativeness. In this game the two players have an identical endowment amount, which they can split between a part they keep for themselves and a part they invest in a public fund. They automatically receive the amount they decided to keep, while also receiving 75% of the total investment by both of them. Students again imagined to play with a randomly chosen classmate, and started with an endowment of 1000 HUF. This was so that the maximum total payoff, by both of them investing everything, would be 3000 HUF, as in the case of the other two games. All answers had to be given rounded to a multiple of 100 HUF. Economic theory again predicts zero contribution from the players, however experiments often find that people generally invest 40-60% of their endowment (Bochet, Page & Putterman, 2006).

To incentivize subjects, I implemented the Between-Subjects Random Incentive System (BRIS) (Harrison, Lau & Williams, 2002). After every subject handed in the questionnaire, 2 of them were randomly chosen. It was then randomly decided which game was used for payment. If it was the public goods game, their payoffs were calculated based on the amounts they intended to keep and invest. If it was the ultimatum or dictator games, it was randomly chosen which of the students was going to be the proposer and the receiver. Then, the game was played out according to their answers. In the dictator game, they received the amounts allocated by the proposer, and this was also the case in the ultimatum game, but only if the minimum accepted amount of the receiver was lower than the offer of the proposer. The 4 questions measuring social preferences were always the first 4 questions in the survey, but their order was randomized to avoid priming effects (not completely, there were 8 orderings out of the possible total of 24, but chosen with care, so that every single game would precede and also follow every other game in one of the 8 orderings) (McFarland, 1981).

Three other non-social preferences were also measured. Competitiveness, risk taking, and time preferences. Students self-evaluated themselves on 1-5 scales each time. More competitive individuals tend to increase their preference for greater results in competitive

situations compared to non-competitive situations more than less competitive individuals. For their evaluation students were asked the following question: On a scale from 1 to 5, how accurately does the following statement describe you: Competition brings the best out of me. (Fallucchi, Nosenzo & Reuben, 2020). Students with higher indicated numbers are considered as being more competitive.

Risk aversion represents the concavity of individuals' utility functions. The more risk averse someone is, the more concave their utility function becomes, meaning they strongly prefer a certain amount over a risky bet with the same expected value. As a risk preference measure students answered the following question: On a scale from 1 to 5 how willing are you to take risks? (Dohmen, Falk, Huffman, Sunde, Schupp & Wagner, 2011; Falk, Becker, Dohmen, Huffman & Sunde, 2023). Students with higher indicated numbers are considered to be less risk averse.

Finally, time preferences were also assessed. Students were presented with the following question: On a scale from 1 to 5 how willing are you to give up something that benefits you in the present, to be even better off in the future? (Falk, Becker, Dohmen, Enke, Huffman & Sunde, 2018). This measures individuals' patience, or how much they value the future compared to the present. Students with higher indicated numbers are considered as being more future focused, or patient. The measurement of these preferences was not incentivized.

For additional control variables, the following information was also collected in the survey: sex, age, school, class, mother's highest education (elementary school, high school diploma, bachelor's degree, master's degree, PhD), father's highest education (same as mother's), and half-year GPA. The half-year GPA was collected to control for differences in study performance. Finally, since socio-economic background is also an important indicator of social and other preferences (Horn et al., 2022), it was measured as well. Students indicated on a 1-10 scale, where they would rank their family in terms of income, education, and labor market opportunities, 10 meaning being at the top of the social hierarchy, and 1 at the bottom (Präg, Mills & Wittek, 2016).

My experimental design allowed me overcome several shortcomings of previous literature. The comparison group for economists was incredibly diverse as I was not limited by subjects only coming from a specialized university, rather from high schools offering general education. This also allowed me to conduct a direct measurement of the selection hypothesis, in the complete absence of any indoctrination effect. Finally, since students had no previous exposure to economic education, it was very unlikely that they had seen these experimental games before, hence giving the mathematically "correct" answers, because of familiarity. The

method still might suffer from the issue of measuring individuals' preferences only, that are not necessarily highly correlated with their actual behavior in real-life (Kirchgässner, 2005). The reason for introducing a monetary incentive was to combat this effect and motivate subjects to give answers that are representative of their general behavior. The final version of the questionnaire can be found in the Appendix.

IV. Results

IV.1. Descriptive statistics

My experimental sample consists of 243 last year high school students. The schools are all located in Budapest, meaning subjects mostly come from urban areas. HVG, a Hungarian news agency, releases each year its ranking of the top 100 high schools in the country. In talking to school principals, they agreed that the list is mostly accurate and can be relied on when evaluating the institutions. Out of the around 1000 high schools in Hungary (European Commission, 2023) I visited 3, of which 2 made it in the list in 2023 (HVG, 2023), both above the position of 60. This all means that my sample is biased towards subjects from urban areas who have access to greater education than the average. Table 2 offers more detailed information on the distribution of students among the schools.

Table 2: Class characteristics

	Sex			Economists/ Total	Mother having higher education	Perceived social hierarchy	Half-year GPA
	Female	Male	N/A				
School #1							
Class #1.1	10	23	0	6-13/33	81.81%	6.65	4.2
Class #1.2	9	24	0	4-5/33	75.76%	6.82	4.42
School #2							
Class #2.1	7	23	1	6-13/31	96.77%	7.2	4.73
Class #2.2	7	24	0	7-11/31	87.1%	7.17	4.75
Class #2.3	12	17	1	6-10/30	83.33%	7.36	4.7
School #3							
Class #3.1	25	5	0	3-11/30	73.33%	6.75	4.28
Class #3.2	10	18	2	2-11/30	73.33%	7.03	4.28
Class #3.3	8	15	2	9-11/25	76%	6.65	4.25
Total	88	149	6	46-85/243	81.07%	6.96	4.45

There are much fewer females in the sample than males, the phenomenon however is generally consistent across all classes, with the notable exception of Class #3.1. The number of economists is indicated by a range, since this number depends on which of the 8 previously discussed methods I chose to determine who is an economist and who isn't. The lower number is the number of economists in a class when I chose the method that gives the fewest, and the

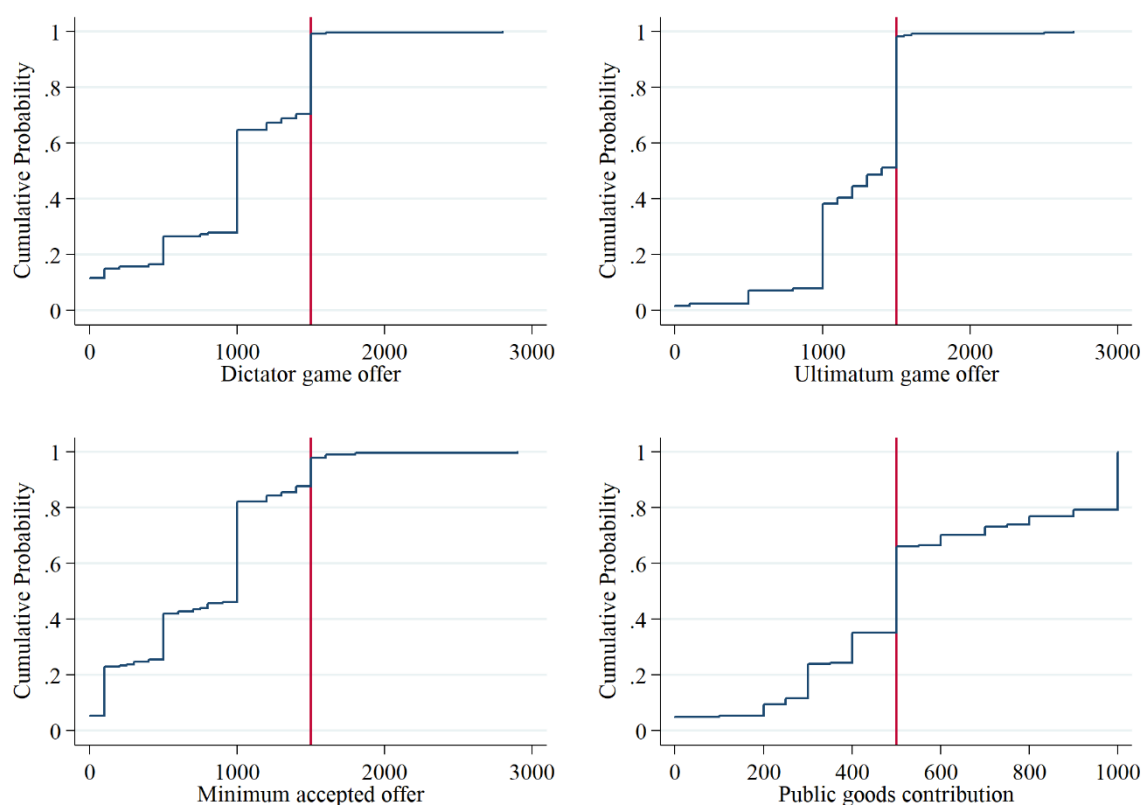
higher number is if I chose that gives the most (note that in each case the method that gives the lowest/highest number of economists can differ, hence the lowest/highest possible number of economists in the whole sample is not necessarily the sum of the bottom/upper ends of the ranges in the classes). All classes contribute a similar number of economists to the sample, and the total number of economists should be sufficient to obtain statistically significant results. School #1 and #3 appear very similar in terms of socioeconomic background of students and their study performance. Students from School #2 on the other hand are generally coming from wealthier backgrounds and showing greater excellence in their studies. This latter fact is backed up by the observation that mean GPAs are similar within schools across classes, meaning that it is probably not driven by the kind heartedness of specific teachers (it could be however the case, that the whole grading culture in School #2 is more forgiving). As a more detailed description of students' university program choices, Table 3 summarizes the frequency of applications into the 15 different official categories mentioned in Section 3.

Table 3: Application distribution

Category	Frequency	Percent	Cumulated
Agriculture	0	0%	0%
Political sciences	3	1.29%	1.29%
Humanities	16	6.9%	8.19%
Economics	63	27.16%	35.34%
Theology	0	0%	35.34%
IT	28	12.07%	47.41%
Law	14	6.03%	53.45%
Engineering	41	17.67%	71.12%
Art	10	4.31%	75.43%
Art mediation	2	0.86%	76.29%
Medical	20	8.62%	84.91%
Pedagogy	6	2.59%	87.5%
Sport	4	1.72%	89.22%
Social sciences	11	4.74%	93.97%
Natural Sciences	14	6.03%	100%
Total	232	100%	

Economics programs were by far the most popular, fortunately, providing a sufficient sample size to allow obtaining meaningful results. Information Technology and Engineering programs were also frequently chosen, indicating that the sample might be biased towards individuals interested in math related subjects. No subjects in the sample want to continue their studies in the field of agriculture or theology, but all other disciplines are represented, providing a diverse comparison group to economists. To now focus on the variables of interest, Figure 1 provides the cumulative distribution functions of the social preferences of students. Vertical lines indicate half of the endowment.

Figure 1: Cumulative distribution functions of social preferences



Note: Vertical lines indicate 50% of endowment.

In the dictator game, offering 1000 HUF was the most common option, followed by offers of 1500 HUF and 500 HUF. Almost no one made offers that were greater than 50% of the endowment, although there were some. More than 10% of students offered nothing. In the ultimatum game 1000 HUF and 1500 HUF were most often proposed, one of these being chosen by more than half of the subjects. Again, proposals greater than 50% were extremely rare, however, offers of 0 HUF also almost disappeared. As their minimum accepted amounts, almost everyone chose 100 HUF, 500 HUF, 1000 HUF or 1500 HUF. Very few people accepted only proposals exceeding 50%. Around 5% of respondents even would have accepted 0 HUF. Answers for the public goods game were more evenly distributed. While 50% was again the most common contribution ratio, a large portion of students invested either 0% or 100% into the public good as well. Table 4 provides descriptive information on the preferences of respondents by presenting a summary of the answers to the preference related questions of the survey.

Table 4: Summary of preferences

Variable	N	Mean	SD	Minimum	Maximum
Dictator game offer	241	959.34 (31.98%)	517.75	0	2800
Ultimatum game offer	240	1237.71 (41.26%)	361.61	0	2700
Minimum ultimatum accepted	243	763.37 (25.45%)	500.86	0	2900
Public goods contribution	242	553.51 (55.35%)	286.27	0	1000
Competitiveness	242	3.62	1.04	1	5
Risk taking	242	3.41	0.94	1	5
Time preference	242	3.59	0.98	1	5

Note: Game results are given in HUF.

The results of Horn et al. (2022) provide a natural comparison, since they also collected data from Hungarian high school students, but with a much greater sample of 1088 individuals. In their case, students offered on average 39.18% of their endowment in a dictator game when playing with a classmate. The mean contribution in the public goods game was 60.51%. These numbers roughly match my results, which serves as external validation for my data. Unfortunately, they tested other preferences by implementing different methods to mine, so direct comparison of numbers is not possible. However, they provide a correlation table for the measured preferences. A comparison of our results is presented in Table 5. Under my correlation coefficients are the matching results of Horn et al. (2022), where applicable.

Table 5: Preference correlations

	Risk	Competition	Time	Dictator offer	Ultimatum offer	Minimum ultimatum accepted
Competition	0.218*** (0.081**)	1				
Time	0.163** (0.156***)	0.101 (0.018)	1			
Dictator offer	-0.087 (0.130***)	-0.152** (0.028)	-0.058 (0.028)	1		
Ultimatum offer	0.007	-0.141**	-0.084	0.464***	1	
Minimum ultimatum accepted	-0.111*	0.083	-0.205***	0.052	0.179***	1
Public contribution	0.004 (0.149***)	-0.117* (0.033)	0.17*** (0.103***)	0.17*** (0.138***)	0.147**	-0.15**

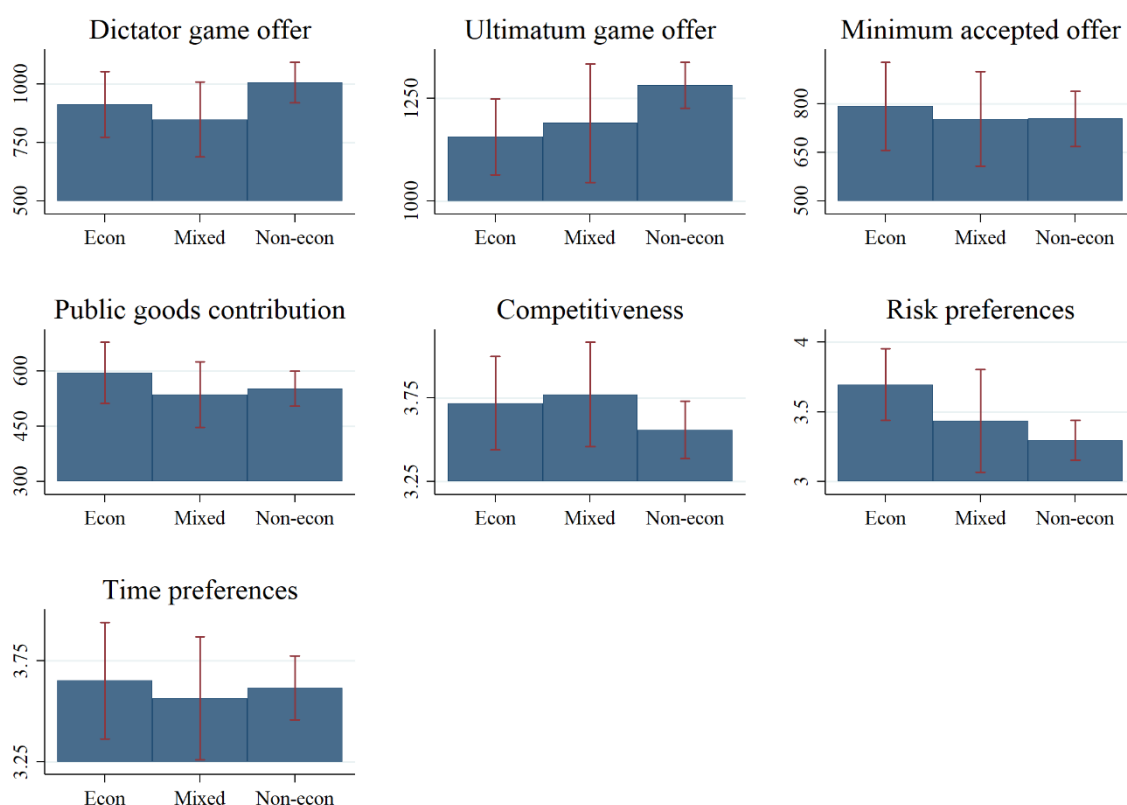
*Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.*

Reassuringly, significant coefficients are generally alike. We both find evidence for competitiveness, risk preferences, and time preferences being significantly and positively correlated to a similar magnitude. This suggests that risk seeking people are more competitive

and patient than risk averse individuals. We also both find that more cooperative people are more patient, and more altruistic as well. My data does not confirm their results of risk aversion being correlated with altruism and cooperation. Additionally, I find that ultimatum game offers are highly related to dictator game offers and public contribution, and that patient individuals are willing to accept lower amounts in the ultimatum game than others.

To explore the different preferences of future economists and non-economists, Figure 2 plots the average answers of the three groups of students. The three groups are subjects who applied only to economics programs (econs), who applied only to non-economics program (non-econs), and who applied to both (mixed). In this instance, students are sorted by the official classification system, not the custom selection.

Figure 2: Differences between economists and non-economists



Note: Bars indicate 95% confidence intervals.

Generally, differences appear insignificant, and often do not show a clear tendency for exclusive groups to indicate extreme values and the mixed group to lie in between them. Two notable exceptions are ultimatum game offers, and risk preferences. Economists seem to express more selfish behaviors in the ultimatum game, and tend to tolerate risk more.

IV.2. Confirmatory analysis

IV.2.1. Dictator game

Prior to the start of data collection, I have submitted an AsPredicted pre-registration for the study. In it, the main hypothesis is formulated as follows: Observed differences between economists and non-economists in selfishness are due to self-selection above all else, so these differences will be present between high school students who already finalized their applications for their further studies.¹ What this means in terms of the outcome variables is that I expect students who want to study economics to: 1. offer less than the average in the dictator game, 2. offer less than the average in the ultimatum game, 3. contribute less than the average in the public goods game. As for the minimum accepted amount in the ultimatum game, it is not clear what should be expected. Carter and Irons (1991) found that economists accepted less, and so behaved more in line with microeconomic theory. No one replicated (or refuted) this result since however, and if we expect economists to behave selfishly, we can just as well imagine them only accepting offers where they receive a larger portion of the endowment. In this case, economists would not follow economic theory, rather express above average envy. Table 6 shows regression results for the dictator game.

Table 6: Dictator game offer

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to custom classification (B4)			
Economist	-93.42 (87.92)	-93.2 (90.55)	-87.64 (97.01)	-82.06 (97.9)	-116.25 (87.86)	-106.73 (90.62)	-101.04 (96.34)	-99.35 (97.65)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	193	193	179	178	194	194	180	179
R-squared	0.006	0.033	0.106	0.15	0.009	0.038	0.112	0.143

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

“A” type classifications are based on the official categorization of university programs. “B” types are based on the custom selection described in Section 3. Number 1 indicates that students are sorted based on their first choices; 2, that all their choices are taken into account and those who applied to both types of programs are considered to be economists; 3, that they are considered to be non-economists; and 4, that they are left out of the analysis, just as

¹ available at: <https://aspredicted.org/vh9cb.pdf>

described in Section 3. This gives the 8 classification systems from A1 to B4. Throughout the main part of this study, I will present results based on classifications A4 and B4. This is because effects should be most significant if we include only people who are surely going to be either economists or non-economists, and also for clarity. Regression tables for the other classification systems are presented in the Appendix.

Including general controls in the regressions means including the variables for age, sex, highest educations of mother and father, social hierarchy and study performance. Including other preferences means controlling for competitiveness, risk aversion, and time preferences. Class fixed effects control for specific class characteristics, and the fact that these are never significant (shown in regression tables included in the Appendix), means that differences in behavior are never caused by social dynamics unique to classes, some providing a more altruistic environment, and some a more competitive one.

Overall, none of the specifications give significant results for dictator game offers. While the coefficients of the effects fail to be significant, their signs point in the expected direction. Economists on average offer around 100 HUF less than their non-economist counterparts. That is around 3.3% of their total endowment. Much greater differences were presented previously by both Girardi et al. (2024) and Hole (2013), who found the gap to be 6% and 15% respectively.

IV.2.2. Ultimatum game

Results for offers in the ultimatum game are shown in Table 7. Categorizing students according to system A4, yields significant differences. Adding controls do not change much, but the magnitude of the effect increases by a small amount. Economists tend to offer 130 HUF less to the receiver than non-economists, which is around 4.3% of their endowment. This is a little less than the 7.1% found by Carter and Irons (1991), while a little more than the 1% found by Kroncke and Mixon (1993). However, if we change to system B4, the coefficients lose their significance.

This highlights the importance of the specific method one uses to categorize people into economist and non-economist groups. As mentioned earlier, previous literature does not elaborate on this issue. Perhaps they do not need to, as universities clearly have economics departments and courses so by experimenting with university students and professors, it is clear who are economists are who aren't. For logical consistency, systems A4 and B4 are used in the main regression tables, as comparing exclusive groups should give the most significant results. In many cases this does not hold however, shown in the full regression tables in the Appendix.

Importantly, there is no single system which consistently yields the most significant coefficients, and could be accepted as the most accurate way of categorization.

Table 7: Ultimatum game offer

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to custom classification (B4)			
Economist	-125.33** (56.77)	-130.97** (58.44)	-128.64** (64.16)	-137.01** (64.34)	-83.98 (58.57)	-93.86 (60.25)	-88.40 (65.61)	-93.44 (65.97)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	192	192	178	177	193	193	179	178
R-squared	0.025	0.054	0.078	0.131	0.011	0.047	0.075	0.119

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

Carter and Irons (1991) found that economists indicate the minimum amount they would accept to be lower by 7.4% of the total endowment. Table 8 shows that, while the coefficients are not significant, economists actually indicated a greater amount as their accepted minimum offer.

Table 8: Minimum ultimatum accepted

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to official classification (B4)			
Economist	39.06 (85.74)	52.68 (88.47)	40.92 (95.49)	74.8 (95.11)	56.64 (84.89)	70.18 (87.74)	70.8 (94.13)	107.59 (93.95)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	193	193	179	178	194	194	180	179
R-squared	0.001	0.025	0.049	0.118	0.002	0.028	0.049	0.11

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

This goes against previous findings at first glance. Carter and Irons (1991) interpret their results as economists behaving more in line with microeconomic theory. The perfectly rational answer in this game is to offer slightly more than nothing, and also to accept slightly more than nothing. People can definitely be regarded as expressing such behavior if they both offer and accept less than others. However, what microeconomic theory, by induction, more generally predicts, is that the difference between the offer and the lowest accepted amount will be

minimal, in the case of perfect rationality, exactly zero. The differences in the gap between the offer and the accepted minimum are summarized in Table 9.

Table 9: Gap between ultimatum offer and minimum accepted amount

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to official classification (B4)			
Economist	-166.07* (96)	-185.12* (98.75)	-170.55 (107.14)	-211.88** (105.35)	-142.34 (96.29)	-165.66* (99.44)	-160.28 (106.9)	-201.21* (105.4)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	192	192	178	177	193	193	179	178
R-squared	0.016	0.046	0.075	0.163	0.011	0.04	0.073	0.152

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

Indeed, we see that this gap is significantly smaller for economists, by around 200 HUF or 6.7% of the endowment. Economists follow microeconomic assumptions more accurately, and make more selfish decisions. While in a strict sense this goes against theory, accepting higher minimums can be seen as selfish behavior, by trying to avoid situations in which other people receive much larger amounts than they do.

IV.2.3. Public goods game

Lastly, I briefly discuss results for the public goods game. Here the expectation is for economists to contribute significantly less than others (Marwell & Ames, 1981). Table 10 shows otherwise. Although never statistically significant, coefficients indicate that future economists are actually greater contributors to the public good than their counterparts. At the very least they are clearly not expressing less cooperative behavior than other students.

Table 10: Public goods contribution

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to official classification (B4)			
Economist	43.25 (48.52)	38.52 (49.86)	66.1 (52.84)	67.59 (53.29)	57.14 (48.98)	50.91 (50.57)	72.67 (53.6)	65.63 (53.86)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	192	192	178	177	193	193	179	178
R-squared	0.004	0.036	0.085	0.13	0.007	0.034	0.07	0.117

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

IV.3. Exploratory analysis

IV.3.1. Competitiveness

The same regression framework is used for evaluating the differences in non-social preferences as previously employed. Additionally, I also investigate the effect of non-social preferences on expressed behavior in the experimental games. In terms of competitiveness, there are no significant differences between economists and non-economists, regardless of specification. Even the signs of coefficients in Table 11 are not consistent, the groups appear to be very similar in this aspect.

Table 11: Competitiveness

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to official classification (B4)			
Economist	0.16 (0.17)	0.11 (0.17)	0.07 (0.18)	-0.01 (0.18)	0.17 (0.17)	0.11 (0.17)	0.03 (0.17)	-0.06 (0.17)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	193	193	179	178	194	194	180	179
R-squared	0.005	0.056	0.1	0.2	0.006	0.044	0.144	0.185

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: risk aversion, patience.

To test how competitiveness affects social preferences, a similar methodology is used. Regressions include class fixed effects, general controls, and controls for the other preferences, as previously, along with application category fixed effects. This latter, instead of differentiating between economists and non-economists, provides controls for all 15 categories of university programs students could apply to, as described in Section 3. Coefficients in Table

12 should be interpreted as the HUF change in answers, if students chose a higher number on the competitiveness scale by 1.

Table 12: Effects of competitiveness on social preferences

	Dictator offer	Ultimatum offer	Minimum accepted	Public contribution
Competition scale	-51.73 (39.7)	-39.47 (27.24)	81.04** (36.48)	-44.15** (20.57)
Class fixed effects	✓	✓	✓	✓
General controls	✓	✓	✓	✓
Other preferences	✓	✓	✓	✓
Category fixed effects	✓	✓	✓	✓
Observations	215	214	216	215
R-squared	0.155	0.132	0.19	0.214

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: risk aversion, patience.

While proposed amounts are not significantly affected in either the dictator nor the ultimatum games, there is a clear effect for the other two variables. More competitive students accept only much higher offers, and contribute much less to the public good. The latter especially seems a very plausible result, since the public goods game measures cooperation, which competition is the opposite of.

IV.3.2. Risk preferences

Economists appear to express much lower levels of risk aversion, than non-economists. As results presented in Table 13 show, the difference is highly significant across specifications and classification systems. The effect is also relatively large, with coefficients ranging between 0.35 and 0.41. With the mean value for risk preference of economists being 3.7, and for non-economists 3.3 (based on system A4), this indicates a 12% difference between the groups. Future economists are significantly more willing to take risks, and they are much more willing to do so as well.

Table 13: Risk preferences

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to official classification (B4)			
Economist	0.4*** (0.15)	0.4** (0.15)	0.41*** (0.16)	0.39** (0.15)	0.36** (0.15)	0.36** (0.15)	0.37** (0.15)	0.35** (0.15)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	193	193	179	178	194	194	180	179
R-squared	0.037	0.059	0.127	0.168	0.031	0.057	0.121	0.176

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, patience.

On the other hand, risk preferences do not seem to significantly impact the economic decision-making of individuals in mixed-motive games. Table 14 provides the corresponding regression results. Effects are only significant at 10% for the minimum accepted amount in the ultimatum game. Even that should be subject to skepticism, as in the ultimatum game the risky choice is to accept only higher amounts, since the less money someone accepts, the more probable it is that they receive some. It could then be theorized that risk averse individuals will offer more, and accept less, hence risk preferences explain some variation in behavior in bargaining situations. My data does not support this theory. Eckel and Wilson (2004) investigated if risk preferences affect the level of trust people express towards each other, influencing their behavior by the mechanism that trusting others is risky. They also found no strong effects. However logical it may seem that risk aversion should impact social preferences, there is no evidence to support this claim.

Table 14: Effects of risk preferences on social preferences

	Dictator offer	Ultimatum offer	Minimum accepted	Public contribution
Risk scale	1.88 (42.86)	34.01 (29.66)	-67.2* (39.72)	2.77 (22.44)
Class fixed effects	✓	✓	✓	✓
General controls	✓	✓	✓	✓
Other preferences	✓	✓	✓	✓
Category fixed effects	✓	✓	✓	✓
Observations	215	214	216	215
R-squared	0.155	0.132	0.19	0.214

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, patience.

IV.3.3. Time preferences

In terms of patience, economists and non-economists appear to be remarkably similar, as shown in Table 15. Time preferences of the two groups are almost identical. More interesting results are obtained, when analyzing its effects on social preferences. If we compare Table 16 to Table 12, we see that competitiveness and patience act in opposing directions. More competitive individuals accept more and contribute less, while more patient individuals accept less and contribute more. While intuitively not imagined as antagonistic attributes, it is an interesting finding that these two factors counteract each other. The two effects also seem to be distinct and not originating from a common cause, since the correlation coefficient between them in Table 5 was not significant on any meaningful level. In contrast to competitiveness, patience boosts cooperation, and allows individuals to be content with more uneven distributions of endowment.

Table 15: Time preferences

	Students with mixed choices excluded, according to official classification (A4)				Students with mixed choices excluded, according to official classification (B4)			
Economist	0.04 (0.17)	0.01 (0.17)	0.06 (0.17)	0 (0.18)	0.1 (0.16)	0.07 (0.16)	0.12 (0.17)	0.06 (0.17)
Class fixed effects		✓	✓	✓		✓	✓	✓
General controls			✓	✓			✓	✓
Other preferences				✓				✓
Observations	192	192	178	178	193	193	179	179
R-squared	0	0.04	0.104	0.121	0.002	0.034	0.104	0.033

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion.

Table 16: Effects of time preferences on social preferences

	Dictator offer	Ultimatum offer	Minimum accepted	Public contribution
Patience scale	-1.27 (40.38)	-22.71 (27.73)	-96.76** (37.37)	47.15** (21.1)
Class fixed effects	✓	✓	✓	✓
General controls	✓	✓	✓	✓
Other preferences	✓	✓	✓	✓
Category fixed effects	✓	✓	✓	✓
Observations	215	214	216	215
R-squared	0.155	0.132	0.19	0.214

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion.

IV.3.4. Gender differences

Selten and Ockenfels (1998) found in their study that while economists expressed more selfish behaviors than others, the effect was driven by the difference between male economists and non-economists, while females did not differ. To test this finding, I also investigated possible gender effects. Results are presented in Table 17 and Table 18 with an interaction term between males and economists (based on system A4).

Table 17: Gender effects on social preferences

	Dictator offer	Ultimatum offer	Minimum accepted	Public contribution
Male	146.79 (107.89)	54.65 (71.6)	-134.16 (105.26)	0.11 (58.93)
Economist	-229.24 (157.13)	-146.88 (103.77)	48.3 (153.3)	9.94 (85.93)
Male*Economist	236.25 (197.44)	15.86 (130.47)	42.53 (192.63)	92.03 (107.55)
Class fixed effects	✓	✓	✓	✓
General controls	✓	✓	✓	✓
Other preferences	✓	✓	✓	✓
Category fixed effects	✓	✓	✓	✓
Observations	178	177	178	177
R-squared	0.157	0.131	0.119	0.134

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

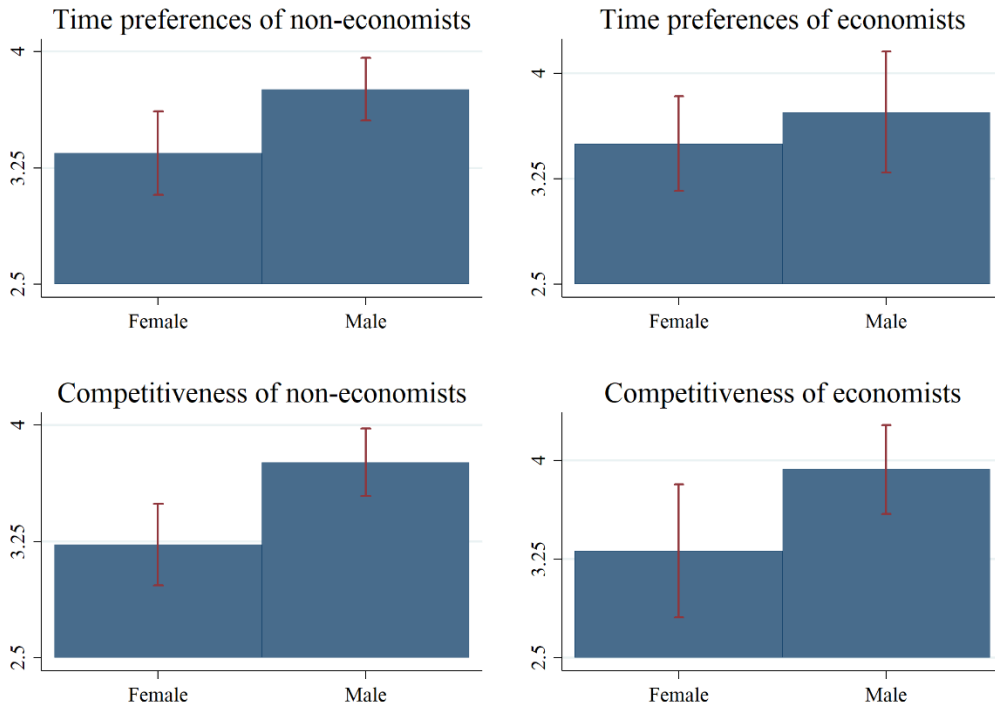
Table 18: Gender effects on other preferences

	Risk preferences	Time preferences	Competitiveness
Male	-0.01 (0.17)	0.39** (0.19)	0.46** (0.19)
Economist	0.23 (0.25)	0.08 (0.29)	-0.05 (0.29)
Male*Economist	0.08 (0.32)	-0.13 (0.36)	0.07 (0.36)
Class fixed effects	✓	✓	✓
General controls	✓	✓	✓
Other preferences	✓	✓	✓
Category fixed effects	✓	✓	✓
Observations	178	178	178
R-squared	0.169	0.121	0.196

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience (except the outcome variable in each case).

The only aspects male and female subjects differ in is patience and competitiveness. Males on average indicated a higher number on the time preference and competitiveness scales than females. Otherwise, the groups appear to be similar. Figure 3 demonstrates the gender differences between economists and non-economists (based on system A4).

Figure 3: Gender effect on time preferences and competitiveness



Note: Bars indicate 95% confidence intervals.

Interestingly, future economists do not significantly differ in either aspect. The difference is always driven by the non-economist groups. There, the effects are significant at the 5% level. Male non-economists are more patient, and more competitive than female non-economists, while economists are more similar. The general trend can be observed in that group as well, but it is not statistically significant. Having said that, contrary to previous findings (Selten & Ockenfels, 1998; Horn et al., 2022), gender differences in general do not seem to be very important.

IV.3.5. Study performance

A limited body of literature exists on the relation between cognitive ability and altruism. First, it was Millet and Dewitte (2007), who proposed the idea that more intelligent people might express more altruistic behaviors. To measure intelligence, their subjects completed the Raven Advanced Progressive Matrices IQ-test, after making decisions in a Social Value Orientation experiment and a public goods game. They found that altruistic and cooperative people on average achieved significantly higher scores on the IQ-test. Their proposed theory was that people with higher general intelligence might use altruistic behavior as a costly signal for their cognitive abilities. Their results were later confirmed by Chen, Chiu, Smith and Yamada (2013), who, in addition to the SVO measure, implemented a dictator game experiment

as well. As a proxy for cognitive ability, they used the GPAs and SAT scores of students. SAT scores positively and significantly correlated with altruism in both the SVO measure and the dictator game, while higher GPAs resulted in more altruistic behavior in the SVO, but more selfish behavior the dictator game. As of now, there is at least enough evidence for the effects of cognitive ability on generosity to make it worthwhile investigating the issue.

As this is not the main focus of my study, I only collected information on the half-year GPAs of students, which I can use to control for cognitive ability. Analyzing its effects gives the results presented in Table 19 and Table 20.

Table 19: Intelligence effects on social preferences

	Dictator offer	Ultimatum offer	Minimum accepted	Public contribution
Study performance	258.79*** (95.64)	99.83 (65.69)	-93.94 (88.75)	73.65 (50.09)
Class fixed effects	✓	✓	✓	✓
General controls	✓	✓	✓	✓
Other preferences	✓	✓	✓	✓
Category fixed effects	✓	✓	✓	✓
Observations	215	214	216	215
R-squared	0.155	0.132	0.19	0.214

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience.

Table 20: Intelligence effects on other preferences

	Risk preferences	Time preferences	Competitiveness
Study performance	-0.41** (0.16)	0.05 (0.17)	0.16 (0.18)
Class fixed effects	✓	✓	✓
General controls	✓	✓	✓
Other preferences	✓	✓	✓
Category fixed effects	✓	✓	✓
Observations	216	216	216
R-squared	0.208	0.154	0.187

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.; general controls: age, sex, mother schooling, father schooling, social hierarchy, study performance; other preferences: competitiveness, risk aversion, patience (except the outcome variable in each case).

If we accept the half-year GPA of students to be an accurate measure of their cognitive abilities, my findings confirm that more intelligent individuals express more altruistic behaviors. A 1 grade increase in GPA results in almost 10% more of the endowment being offered in the dictator game. Additionally, higher cognitive ability also brings a higher level of risk aversion, but is independent from patience and competitiveness. These latter relationships were the focus of no previous study to my knowledge, so there is unfortunately no literature to compare against.

V. Discussion

Before summarizing the main findings, three previously briefly mentioned issues deserve a more detailed discussion. These concerns pose certain limitations on any research that focuses on questions analyzed in the current study. The first one is more general, and is the relevancy of experimental results when predicting real-life behavior. The other two are specific for the phenomena at hand, and are the differentiation between economists and non-economists, and the selection of a proper comparison group.

In Section 2 I have concluded that findings in the literature do not match when researchers implement lab experiments compared to others using real-world data. On one hand, donation and membership fee contribution data of individuals should naturally be a much more accurate predictor of their behavior, since it is itself a manifestation of their altruism and cooperation. On the other hand, experimental settings are stripped from the convoluted and inter-connected effects and mechanisms of real-life decision-making situations, and so, should reveal much more clearly the distinct inner motivations of subjects. Which should we trust more when they give inconsistent results, and why do they not overlap in every case? As Kirchgässner (2005) pointed out, experiments reveal the preferences of people, and not their general behavior. They are actually designed for this purpose and work very well. The problem is, in many cases people's preferences are not necessarily correlated with their behavior in real-life (Kirchgässner, 2005). This raises some concerns about the external validity of experiments. It might just be the case, that experimental results are only a great predictor of future experimental results. In this case, economists are no more selfish than anyone else, they just have more selfish preferences. If that does not translate to the decisions they make outside of experiments, then this kind of research will only be useful for analyzing preferences: how they relate to each other, and what factors best predict them. A more theoretical direction, and less practical. Such results as competitiveness and patience having opposite effects, or male non-economists being more patient than female non-economists are examples from this study. If preferences are in fact of a more abstract nature, and are insufficient predictors of decision-making in the wider context, the usefulness of findings similar to what I have presented will only be a better understanding of how humans imagine themselves making decisions, rather how they actually make them. If this is so, the apparent selfishness of economists can occur because they imagine themselves making more selfish decisions compared to their own self, than they actually do. To test such hypotheses, one would need to monitor individuals' real-life decisions before also conducting

an experiment with them, and analyzing if economists' preferences correlate less with their behavior than others' preferences with their own behavior.

Even for such a study, researchers would need to categorize people into economists and non-economists. I argue that this group of people is one of the hardest to define. Law students can become lawyers and judges, medical students can become medical professionals at medical institutions, IT students software developers, and so on. Economists, however, do not work as “economists”, unless they pursue a carrier in academia. Are actuaries economists? Are business analysts economists? These are definitely career paths some people take after finishing economics programs. Even pointing out the hard skills economists have is difficult. Statistical analysis is maybe an important one of them, but there are IT programs in data science that put a much higher emphasis on it. In my opinion, giving a hard definition for who economists are, is very difficult. Hence the alternate classification system I used in my analysis by modifying the official one. I personally did not feel like students who want to learn human resource management for example, should be considered economists. Then again, I also could not have fit this specific program into any of the remaining 14 categories, so economics might actually be the best one for it. In the end, no consistently significant differences were uncovered between the two types of classifications. Previous studies glossed over the issue by categorizing people based on their university studies, and universities clearly have economics departments. This is a logical and valid method for differentiation, but my concern is that it might not be meaningful. If we investigate the aspects in which economists differ from the rest, it would be useful to have an exact definition of who they are. Using the way universities label their programs is not an adequate solution. My institution, Corvinus University of Budapest, before a recent restructuring, had 6 faculties, two of which were economics and business. The inclusion of students from business programs into the economist category seems reasonable, previous studies have also done so. However, one of the offered the programs on the Faculty of Business was Business Informatics, which on the official site, felvi.hu, is labeled as an IT program, not an economics one. This way of categorization is neither consistent nor sufficient. The seriousness of the issue lies in the fact that if the significance of results highly depends on the specific definition of the groups, in the absence of such a definition, decisive conclusions can never be reached.

The third problem also relates to previous experimental methodology. I already mentioned that many researchers, specifically the ones implementing lab experiments suffered from the homogeneity of their control group. Since they often recruited subjects from one or two universities, obviously ones that offer economics programs, economists were many times

compared to other social scientists, such as sociologists and political scientists. The composition of the sample is not discussed in every paper, and when it is the focus of interest, results are not always convincing (James et al., 2001). To draw definitive conclusions, economists must be compared to everyone else, not a select few, which many previous studies fell short of. This generally is not a problem, but it is very important to realize, and limit the scope of research to differences between certain types of people, instead of economists against the rest.

VI. Conclusions

In the current study, my goal was to test if observed differences between economists and non-economists in selfishness are due to self-selection or not. Marwell and Ames (1981) were the first to find that students of economics express more selfish behaviors than others, and to formulate the indoctrination and selections hypotheses, as possible explanations. Many later researchers confirmed their initial results (Carter & Irons, 1991; Frey & Meier, 2003; Gandal et al., 2005), and several tests of the learning hypothesis were executed (Bauman & Rose, 2009; Girardi et al., 2024), with the general consensus being that its effects are not significant. This led researchers to conclude that the selection effect must be more pronounced, but due to methodological limitations, direct tests for the selection hypothesis were never implemented. I overcame the issue by experimenting with high school students, who had no previous exposure to economics education, but who have already finalized their university applications, allowing me to differentiate economists from non-economists among them. As measures of social preferences, three experimental games were used, a dictator game, an ultimatum game and a public goods game, in incentivized setups.

In the dictator and public goods games, no significant differences were discovered, while in the ultimatum game economists behaved more in line with the predictions of microeconomic theory. This I interpret as weak evidence for the selection hypothesis, although it cannot explain all previously observed differences in behavior. There are probably other factors at play, I propagate the theory of Lanteri (2008), who proposed that economists might adopt a social identity that alters their behavior. This would explain how significant differences can be found between university students of economics and their peers, while neither the indoctrination nor the selection effect is strong enough to explain the variation. At the moment of acceptance of their application, students who are at that point surely going to become economists, might adopt a social identity they associate with economics, hence becoming more selfish.

The differences in competitiveness and risk and time preferences between economists and non-economists have not been a major focus of any previous study. My findings suggest that differences only exist in risk aversion, and that economists are significantly less risk averse than others. Additionally, I also found evidence for females being less patient and competitive than males, and people with higher cognitive ability expressing more altruistic behaviors compared to everyone else.

The main limitations of my work are the sample size and representativeness. My sample of 243 students was adequate, however all of my findings should be reinforced by further research before being accepted. The sample was also biased towards an urban population with better than average socioeconomic status, and slightly towards males, lowering the external validity of the results. Furthermore, only the social preference related questions were incentivized, decreasing the robustness of my findings in terms of differences in risk preferences.

Further research could expand on this paper in many ways. The social identity hypothesis could be tested, by experimenting with students before and after the date they receive feedback on their university applications. Risk aversion could be studied with monetary incentives in the context of the economist – non-economist dichotomy, to see if significant differences arise. Lastly, the part on the relation between intelligence and generosity could be expanded in a major way. Larger scale studies should be dedicated to explore what kind of cognitive abilities are linked to altruism, and what mechanisms drive the relationship.

Appendix

Questionnaire

This section presents the questionnaire that was used for the experiment. As described in Section 3, 8 versions were distributed, differing in the order of the first 4 questions. Relative to the version shown here, with ordering 1-2-3-4, the remaining 7 orderings were the following: 1-3-2-4; 4-2-3-1; 4-3-2-1; 1-4-2-3; 4-1-2-3; 2-3-4-1; 3-2-4-1.

Sorszám:

A feleletválasztós kérdéseknél karikázással, egyértelműen jelezd, melyik opciót választod, a többi kérdésre pedig olvashatóan, írásban válaszolj.

1. Van 3000 forintod. Véletlenszerűen össze leszel párosítva az egyik osztálytársaddal, akinek 0 forintja van. Te oszthatod fel a 3000 forintot magad és az osztálytársad között (a választ 100 forintra kerekítve add meg).

Mekkora összeget tartasz meg MAGADNAK: forint

Mekkora összeget ajánlasz fel a MÁSIKNAK: forint

2. Van 3000 forintod. Véletlenszerűen össze leszel párosítva az egyik osztálytársaddal, akinek 0 forintja van. Tehetsz egy javaslatot a másiknak, hogy hogyan szeretné szétosztani kettőtök között a 3000 forintot. Ha a másik elfogadja az ajánlatot, mindketten megkapjátok az aszerinti összeget, ha nem, egyikőtök sem kap semmit (a választ 100 forintra kerekítve add meg).

Mekkora összeget tartanál meg MAGADNAK: forint

Mekkora összeget ajánlasz fel a MÁSIKNAK: forint

3. Van 0 forintod. Véletlenszerűen össze leszel párosítva az egyik osztálytársaddal, akinek 3000 forintja van. A másik tesz egy javaslatot rá, hogy hogyan szeretné szétosztani kettőtök között a 3000 forintot. Ha elfogadod a javaslatot, mindketten megkapjátok az aszerinti összeget, ha nem, egyikőtök sem kap semmit (a választ 100 forintra kerekítve add meg).

Mi az a LEGKISEBB összeg, amit, ha a másik felajánlana neked, akkor már elfogadnád az ajánlatot: forint

4. Van 1000 forintod. Véletlenszerűen össze leszel párosítva az egyik osztálytársaddal, akinek szintén 1000 forintja van. Mind a ketten titokban dönthettek, hogy az 1000 forint mekkora részét tartjátok meg, és mekkora részét teszitek be egy közös alapba. Miután döntöttetek, azon az összegén kívül, amit megtartottatok magatoknak, mind a ketten külön-külön megkapjátok a közös alapban lévő teljes összeg 75%-át (a választ 100 forintra kerekítve add meg).

Mekkora összeget tartasz meg MAGADNAK: forint

Mekkora összeget teszel a KÖZÖS ALAPBA: forint

5. Kérlek mondd meg egy ötfokú skála segítségével, hogy az alábbi állítás mennyire igaz rád: A versengés a legjobbat hozza ki belőlem. Az 1 azt jelenti, hogy „egyáltalán nem jellemző rám”, az 5 pedig azt, hogy „teljes mértékben jellemző rám”.

1	2	3	4	5	Nem tudom/Nem kívánok válaszolni
---	---	---	---	---	---

6. Kérlek mondd meg egy ötfokú skála segítségével, hogy mennyire vagy hajlandó kockázatot vállalni, vagy elkerülni a kockázatot? Az 1 azt jelenti, hogy „egyáltalán nem vagyok hajlandó kockázatot vállalni”, az 5 pedig azt, hogy „nagyon hajlandó vagyok kockázatot vállalni”.

1	2	3	4	5	Nem tudom/Nem kívánok válaszolni
---	---	---	---	---	---

7. Kérlek mondd meg egy ötfokú skála segítségével, hogy mennyire vagy hajlandó feladni valamit, ami jelenleg előnyös a számodra, hogy még több hasznod származzon belőle a jövőben? Az 1 azt jelenti, hogy „egyáltalán nem vagyok hajlandó”, az 5 pedig azt, hogy „nagyon hajlandó vagyok”.

1	2	3	4	5	Nem tudom/Nem kívánok válaszolni
---	---	---	---	---	---

8. Nem:

Férfi	Nő	Egyéb/Nem kívánok válaszolni
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9. Életkor: év

10. Melyik iskolába jársz:

11. Melyik osztályba jársz:

12. Édesanyád legmagasabb iskolai végzettsége:

Általános iskola	Érettségi	Egyetemi/főiskolai alapképzési diploma	Egyetemi/főiskolai mesterképzési diploma	Doktori diploma
---------------------	-----------	--	--	--------------------

13. Édesapád legmagasabb iskolai végzettsége:

Általános iskola	Érettségi	Egyetemi/főiskolai alapképzési diploma	Egyetemi/főiskolai mesterképzési diploma	Doktori diploma
---------------------	-----------	--	--	--------------------

14. Mi volt a féléves tanulmányi átlagod:

15. Kérlek helyezd el a családot egy 1-10 fokú társadalmi ranglétrán, ahol a létra tetején azok állnak, akik a legjobb helyzetben vannak jövedelem, végzettség és munkaerőpiaci helyzet alapján, az alján pedig azok, akik a legrosszabb helyzetben vannak. A 10 jelenti a létra tetejét, az 1 pedig a létra alját.

1	2	3	4	5	6	7	8	9	10	Nem tudom/Nem kívánok válaszolni
---	---	---	---	---	---	---	---	---	----	---

16. Mely egyetemek mely szakjaira adtad le a jelentkezésedet továbbtanulni? (amennyiben nem jelentkezted felsőoktatási képzésre, hagyd figyelmen kívül ezt a kérdést; a felsorolásban nem kell különbséget tenned a szakok fizetős és ösztöndíjas formája között, csak magukra a szakokra vagyok kíváncsi; a képzések nevét azon a nyelven írd le, amelyiken jelentkezted rájuk)

1.
2.
3.
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7.
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9.

Köszönöm szépen, hogy kitöltötte a kérdőívet!

Regression tables

This section contains all supplementary regression tables for the analyses that in the main text were only shown using classification systems A4 and B4. All available controls are included.

Table 21: Dictator game offer								
VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	-62.49 (38.57)	-61.26 (38.56)	-63.41 (38.55)	-117.5*** (43.35)	-62.71 (38.47)	-61.78 (38.54)	-63.81* (38.54)	-101.8** (44.21)
risk	5.427 (41.07)	7.062 (40.92)	6.457 (41.15)	14.69 (48.93)	7.663 (40.83)	6.155 (40.82)	6.823 (40.97)	16.74 (50.13)
time	-20.29 (38.75)	-20.35 (38.70)	-19.10 (38.76)	-34.75 (43.51)	-19.46 (38.66)	-20.69 (38.71)	-18.09 (38.79)	-29.46 (45.07)
male	94.34 (84.14)	91.87 (84.11)	94.79 (84.10)	204.0** (96.86)	94.51 (83.94)	92.39 (84.10)	96.10 (84.06)	184.8* (96.87)
age	108.2 (80.14)	107.0 (80.06)	111.7 (80.28)	72.52 (86.59)	108.2 (79.96)	109.6 (80.05)	109.6 (80.07)	80.29 (85.26)
msch	33.83 (46.98)	33.58 (46.88)	32.34 (47.12)	34.03 (51.81)	32.62 (46.86)	33.61 (46.89)	33.09 (46.94)	35.22 (52.72)
fsch	-77.04* (43.85)	-77.20* (43.80)	-78.36* (43.89)	-124.8** (48.28)	-77.08* (43.76)	-77.59* (43.80)	-78.53* (43.85)	-119.7** (48.88)
stperf	214.1** (90.92)	208.6** (91.09)	216.3** (90.55)	276.2*** (102.3)	213.5** (90.43)	209.8** (90.97)	217.7** (90.45)	273.4*** (103.8)
hier	-22.03 (31.45)	-20.37 (31.41)	-21.57 (31.43)	1.356 (35.04)	-19.54 (31.38)	-19.85 (31.54)	-21.14 (31.35)	-5.206 (34.92)
class = 2	5.986 (162.7)	-4.960 (162.7)	13.00 (160.9)	-128.2 (178.7)	-7.139 (162.1)	0.751 (161.9)	6.174 (161.3)	-99.10 (178.7)
class = 3	-72.09 (169.5)	-69.21 (169.0)	-65.80 (169.2)	-118.2 (197.0)	-78.83 (169.2)	-64.20 (169.1)	-70.89 (169.1)	-128.8 (196.6)
class = 4	-101.8 (164.9)	-102.5 (164.7)	-95.59 (165.1)	-209.4 (185.1)	-101.2 (164.6)	-97.94 (164.7)	-97.67 (164.8)	-178.8 (183.1)
class = 5	172.8 (162.5)	169.8 (162.3)	180.1 (162.4)	55.62 (179.4)	169.9 (162.1)	174.3 (162.2)	172.6 (162.3)	113.4 (182.3)
class = 6	143.5 (146.5)	139.6 (146.4)	144.3 (146.3)	50.85 (167.9)	139.3 (146.2)	140.0 (146.4)	137.0 (146.8)	101.4 (168.8)
class = 7	117.0 (142.8)	117.8 (141.7)	115.4 (142.6)	-85.99 (167.4)	106.5 (142.4)	122.7 (141.4)	112.7 (142.5)	-46.55 (168.3)
class = 8	117.7 (168.2)	115.1 (168.1)	123.9 (168.6)	-1.333 (188.2)	119.3 (167.9)	120.3 (168.1)	121.0 (168.2)	26.89 (188.0)
economist	-37.37 (83.19)	-64.22 (76.86)	-52.52 (93.30)	-82.06 (97.90)	-83.99 (81.48)	-61.82 (76.88)	-68.42 (91.68)	-99.35 (97.65)
Constant	-1,494 (1,701)	-1,452 (1,699)	-1,570 (1,702)	-855.9 (1,856)	-1,497 (1,696)	-1,506 (1,698)	-1,541 (1,699)	-1,056 (1,837)
Observations	215	215	215	178	215	215	215	179
R-squared	0.110	0.113	0.111	0.150	0.114	0.112	0.112	0.143

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 22: Ultimatum game offer

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	-47.35* (26.59)	-45.37* (26.45)	-48.67* (26.37)	-79.47*** (28.51)	-47.50* (26.54)	-46.11* (26.45)	-48.40* (26.55)	-77.50** (29.88)
risk	25.03 (28.40)	29.13 (28.15)	31.71 (28.24)	43.02 (32.31)	26.29 (28.26)	27.78 (28.11)	26.99 (28.31)	35.63 (34.01)
time	-26.47 (26.74)	-26.87 (26.57)	-24.38 (26.53)	-34.60 (28.63)	-25.99 (26.70)	-27.28 (26.60)	-24.63 (26.74)	-33.58 (30.47)
male	10.79 (58.18)	7.031 (57.85)	10.53 (57.69)	58.53 (63.92)	10.96 (58.08)	7.804 (57.89)	12.17 (58.07)	77.10 (65.67)
age	6.281 (55.26)	4.251 (54.91)	13.24 (54.90)	-6.729 (56.94)	6.304 (55.16)	7.731 (54.94)	7.402 (55.15)	-25.57 (57.62)
msch	37.71 (32.39)	36.61 (32.16)	32.60 (32.23)	38.56 (34.08)	37.02 (32.33)	36.70 (32.19)	36.77 (32.33)	43.52 (35.64)
fsch	-17.56 (30.28)	-17.76 (30.08)	-20.33 (30.06)	-37.10 (31.80)	-17.61 (30.23)	-18.25 (30.11)	-18.86 (30.25)	-37.77 (33.08)
stperf	79.65 (62.71)	69.35 (62.50)	78.32 (61.94)	76.30 (67.29)	79.31 (62.41)	71.35 (62.47)	81.82 (62.31)	83.51 (70.15)
hier	-30.62 (21.83)	-27.02 (21.69)	-26.38 (21.65)	-27.70 (23.23)	-29.20 (21.80)	-26.45 (21.79)	-29.31 (21.75)	-31.99 (23.78)
class = 2	-140.8 (113.0)	-164.6 (112.5)	-143.5 (110.9)	-148.9 (118.7)	-148.6 (112.7)	-156.0 (112.0)	-143.9 (111.9)	-221.4* (121.9)
class = 3	-195.8* (117.5)	-195.8* (116.5)	-189.1 (116.3)	-145.0 (130.3)	-199.9* (117.3)	-189.0 (116.6)	-196.1* (117.1)	-220.5 (133.6)
class = 4	-186.6 (114.3)	-189.2* (113.5)	-175.2 (113.4)	-94.11 (122.5)	-186.3 (114.1)	-183.0 (113.6)	-183.4 (114.0)	-169.2 (124.5)
class = 5	-50.01 (112.6)	-57.43 (111.9)	-40.04 (111.6)	-18.25 (118.7)	-51.83 (112.4)	-51.17 (111.8)	-51.42 (112.3)	-94.22 (123.9)
class = 6	-177.0* (101.7)	-185.9* (101.0)	-182.1* (100.7)	-176.8 (111.1)	-179.6* (101.5)	-184.8* (101.1)	-184.0* (101.7)	-223.0* (114.8)
class = 7	-87.13 (99.13)	-92.97 (97.82)	-105.1 (98.20)	-148.0 (111.1)	-93.43 (98.94)	-86.07 (97.72)	-93.48 (98.78)	-192.7* (114.6)
class = 8	-138.0 (116.8)	-141.9 (116.1)	-123.6 (116.1)	-129.8 (124.8)	-137.3 (116.6)	-134.9 (116.2)	-135.1 (116.6)	-209.3 (128.0)
economist	-22.49 (57.36)	-87.06 (52.73)	-118.9* (63.80)	-137.0** (64.34)	-49.67 (56.22)	-81.17 (52.78)	-60.54 (63.14)	-93.44 (65.97)
Constant	1,221 (1,175)	1,299 (1,168)	1,087 (1,166)	1,583 (1,224)	1,220 (1,172)	1,224 (1,168)	1,187 (1,172)	1,971 (1,245)
Observations	214	214	214	177	214	214	214	178
R-squared	0.078	0.089	0.093	0.130	0.080	0.088	0.081	0.119

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 23: Minimum ultimatum accepted

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	74.24** (36.29)	75.35** (36.47)	76.36** (36.41)	70.18* (42.11)	74.88** (35.98)	74.71** (36.44)	76.90** (36.36)	79.80* (42.53)
risk	-47.21 (38.99)	-40.97 (39.02)	-43.63 (39.23)	-75.48 (47.53)	-49.57 (38.54)	-42.12 (38.93)	-44.74 (39.01)	-71.20 (48.22)
time	-84.07** (36.80)	-85.18** (36.97)	-86.26** (36.96)	-110.8*** (42.26)	-86.06** (36.50)	-84.53** (36.95)	-87.76** (36.95)	-101.9** (43.36)
male	-149.8* (79.84)	-150.1* (80.32)	-151.7* (80.14)	-123.9 (94.09)	-151.2* (79.19)	-149.7* (80.18)	-153.6* (80.02)	-106.3 (93.20)
age	47.96 (76.25)	46.92 (76.63)	42.51 (76.69)	51.53 (84.12)	47.32 (75.64)	45.36 (76.54)	44.93 (76.42)	43.95 (82.03)
msch	-8.773 (44.65)	-11.19 (44.84)	-8.810 (44.97)	-10.28 (50.33)	-7.327 (44.29)	-10.83 (44.79)	-9.500 (44.75)	-10.28 (50.72)
fsch	4.041 (41.67)	4.725 (41.87)	6.019 (41.88)	-16.18 (46.90)	4.178 (41.34)	4.923 (41.83)	6.400 (41.80)	-14.09 (47.02)
stperf	-46.67 (86.48)	-53.56 (87.19)	-56.25 (86.49)	-92.73 (99.41)	-49.06 (85.52)	-51.01 (86.96)	-58.10 (86.31)	-91.34 (99.87)
hier	-14.67 (29.90)	-10.59 (30.06)	-11.74 (30.01)	-8.778 (34.04)	-18.07 (29.67)	-12.47 (30.13)	-12.69 (29.91)	-10.77 (33.60)
class = 2	76.46 (154.0)	54.77 (155.3)	48.00 (153.0)	55.64 (173.6)	93.05 (152.6)	57.57 (154.0)	57.88 (153.2)	48.29 (171.9)
class = 3	121.7 (160.8)	110.1 (161.3)	106.2 (161.2)	189.9 (191.4)	131.2 (159.5)	105.3 (161.2)	112.8 (160.9)	155.8 (189.1)
class = 4	25.58 (156.6)	22.84 (157.3)	15.19 (157.4)	-2.757 (179.8)	22.23 (155.3)	18.83 (157.2)	17.21 (156.9)	-33.62 (176.2)
class = 5	-68.04 (153.7)	-74.80 (154.5)	-83.65 (154.2)	-54.06 (174.3)	-66.38 (152.4)	-77.31 (154.1)	-73.96 (153.9)	-77.05 (175.3)
class = 6	-58.68 (137.6)	-64.86 (138.5)	-66.31 (138.0)	-95.24 (163.1)	-54.55 (136.4)	-63.68 (138.1)	-56.02 (138.3)	-52.33 (162.4)
class = 7	-77.80 (134.6)	-98.25 (134.5)	-90.72 (135.0)	-105.5 (162.6)	-64.39 (133.4)	-100.9 (134.0)	-85.75 (134.7)	-77.42 (161.9)
class = 8	-160.1 (159.4)	-156.4 (160.2)	-166.7 (160.4)	-164.8 (182.8)	-163.9 (158.1)	-161.3 (160.0)	-164.0 (159.8)	-180.8 (180.8)
economist	114.3 (79.09)	31.54 (73.24)	65.22 (89.07)	74.80 (95.11)	177.4** (77.00)	55.66 (73.44)	95.27 (87.43)	107.6 (93.95)
Constant	484.1 (1,617)	518.0 (1,626)	619.3 (1,626)	869.6 (1,803)	514.7 (1,604)	543.4 (1,623)	587.4 (1,621)	912.7 (1,767)
Observations	216	216	216	178	216	216	216	179
R-squared	0.103	0.095	0.096	0.118	0.118	0.097	0.099	0.110

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 24: Gap between ultimatum offer and minimum accepted amount

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	-119.0*** (41.78)	-117.4*** (41.83)	-122.2*** (41.67)	-149.8*** (46.68)	-120.0*** (41.31)	-118.1*** (41.75)	-122.6*** (41.77)	-157.5*** (47.74)
risk	72.68 (44.63)	71.31 (44.52)	75.91* (44.62)	118.2** (52.90)	76.11* (43.98)	70.48 (44.36)	72.24 (44.55)	106.3* (54.34)
time	55.88 (42.02)	56.35 (42.02)	60.10 (41.93)	76.02 (46.87)	58.39 (41.55)	55.51 (41.98)	61.35 (42.08)	68.07 (48.69)
male	165.7* (91.41)	162.3* (91.50)	167.2* (91.17)	183.0* (104.7)	167.1* (90.40)	162.6* (91.38)	170.7* (91.38)	184.3* (104.9)
age	-42.59 (86.81)	-43.79 (86.84)	-30.28 (86.76)	-58.48 (93.23)	-41.95 (85.85)	-38.58 (86.72)	-38.47 (86.78)	-69.85 (92.07)
msch	47.89 (50.89)	49.25 (50.86)	42.89 (50.93)	49.00 (55.80)	45.70 (50.32)	48.96 (50.80)	47.69 (50.87)	54.04 (56.94)
fsch	-21.23 (47.57)	-21.84 (47.58)	-25.80 (47.51)	-21.15 (52.06)	-21.57 (47.05)	-22.69 (47.53)	-24.79 (47.60)	-24.00 (52.85)
stperf	126.6 (98.52)	122.6 (98.85)	134.9 (97.89)	168.8 (110.2)	128.4 (97.13)	122.8 (98.60)	140.1 (98.05)	174.5 (112.1)
hier	-17.58 (34.30)	-17.73 (34.31)	-16.21 (34.22)	-19.26 (38.03)	-12.80 (33.93)	-15.59 (34.40)	-18.20 (34.22)	-21.69 (38.00)
class = 2	-215.2 (177.6)	-217.5 (177.9)	-188.7 (175.2)	-206.4 (194.3)	-240.7 (175.4)	-210.8 (176.7)	-199.3 (176.1)	-272.4 (194.7)
class = 3	-315.6* (184.6)	-302.7 (184.3)	-292.8 (183.8)	-336.4 (213.3)	-330.2* (182.6)	-292.1 (184.1)	-306.7* (184.2)	-378.6* (213.4)
class = 4	-211.1 (179.5)	-209.8 (179.6)	-188.8 (179.3)	-92.97 (200.6)	-208.4 (177.5)	-200.3 (179.3)	-199.3 (179.5)	-137.9 (199.0)
class = 5	22.51 (176.9)	23.21 (176.9)	48.76 (176.3)	34.26 (194.4)	17.86 (174.9)	31.20 (176.5)	27.42 (176.7)	-19.35 (198.0)
class = 6	-111.2 (159.7)	-112.1 (159.8)	-107.6 (159.1)	-83.05 (181.9)	-119.4 (157.9)	-113.2 (159.6)	-120.3 (160.1)	-172.9 (183.5)
class = 7	-4.212 (155.7)	11.65 (154.7)	-8.277 (155.2)	-44.14 (181.9)	-25.14 (154.0)	20.41 (154.2)	-2.147 (155.4)	-117.6 (183.2)
class = 8	24.29 (183.5)	18.53 (183.6)	46.15 (183.5)	33.23 (204.3)	27.74 (181.5)	29.31 (183.4)	31.49 (183.5)	-31.11 (204.5)
economist	-135.6 (90.12)	-123.6 (83.40)	-182.4* (100.8)	-211.9** (105.3)	-226.0** (87.49)	-135.6 (83.30)	-154.3 (99.36)	-201.2* (105.4)
Constant	746.4 (1,846)	789.2 (1,847)	475.2 (1,843)	724.2 (2,003)	719.6 (1,825)	687.5 (1,843)	607.7 (1,844)	1,074 (1,989)
Observations	214	214	214	177	214	214	214	178
R-squared	0.124	0.123	0.128	0.163	0.143	0.125	0.124	0.152

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 25: Public goods contribution

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	-41.75** (20.70)	-41.31** (20.81)	-40.14* (20.72)	-52.53** (23.50)	-40.85* (20.80)	-41.63** (20.80)	-39.83* (20.71)	-55.09** (24.33)
risk	-9.789 (22.28)	-6.575 (22.31)	-9.901 (22.36)	3.895 (26.57)	-6.535 (22.31)	-6.875 (22.26)	-9.106 (22.25)	15.49 (27.63)
time	43.03** (21.07)	42.45** (21.17)	41.11* (21.10)	39.12 (23.70)	42.18** (21.18)	42.91** (21.15)	40.27* (21.12)	43.89* (24.91)
male	37.51 (45.67)	38.05 (45.97)	36.35 (45.70)	22.66 (52.67)	36.05 (45.89)	37.84 (45.88)	34.56 (45.69)	22.31 (53.49)
age	-56.27 (44.19)	-56.08 (44.42)	-61.61 (44.37)	-77.37 (47.83)	-56.67 (44.42)	-57.77 (44.39)	-57.97 (44.23)	-48.48 (47.75)
msch	5.931 (25.63)	4.529 (25.74)	7.514 (25.74)	16.13 (28.27)	4.638 (25.75)	4.634 (25.71)	5.703 (25.63)	14.64 (29.20)
fsch	8.303 (23.95)	8.975 (24.07)	10.42 (23.99)	5.728 (26.42)	8.799 (24.07)	9.046 (24.04)	10.35 (23.97)	3.227 (27.16)
stperf	38.19 (49.38)	35.78 (49.81)	32.87 (49.24)	19.11 (55.57)	32.42 (49.48)	36.36 (49.67)	30.57 (49.19)	37.65 (57.21)
hier	-7.715 (17.19)	-5.788 (17.29)	-7.333 (17.20)	-4.693 (19.17)	-5.659 (17.28)	-6.755 (17.34)	-6.975 (17.15)	-2.954 (19.40)
class = 2	-104.5 (88.17)	-112.8 (88.91)	-120.5 (87.43)	-143.0 (97.23)	-115.2 (88.54)	-114.4 (88.21)	-113.6 (87.63)	-114.4 (98.66)
class = 3	24.24 (92.13)	17.78 (92.50)	12.81 (92.16)	4.733 (107.2)	21.10 (92.63)	13.27 (92.46)	19.64 (92.09)	-3.941 (108.5)
class = 4	-66.65 (89.55)	-67.29 (90.01)	-76.60 (89.78)	-71.65 (100.7)	-68.82 (90.01)	-71.19 (89.94)	-72.45 (89.62)	-32.40 (101.1)
class = 5	-2.786 (87.87)	-4.894 (88.37)	-15.48 (87.98)	-9.635 (97.47)	-6.847 (88.29)	-8.391 (88.15)	-5.411 (87.87)	16.09 (100.5)
class = 6	-37.25 (78.99)	-38.42 (79.51)	-40.23 (79.01)	-63.58 (91.63)	-40.66 (79.38)	-39.25 (79.32)	-32.49 (79.24)	-48.24 (93.64)
class = 7	59.64 (76.81)	48.29 (76.79)	57.60 (76.82)	42.81 (90.75)	51.16 (77.17)	44.68 (76.48)	57.32 (76.72)	54.03 (92.63)
class = 8	7.454 (91.26)	11.16 (91.73)	-1.361 (91.63)	-14.69 (102.4)	8.050 (91.75)	6.482 (91.67)	4.361 (91.36)	10.64 (103.8)
economist	75.23* (45.28)	36.02 (41.97)	78.05 (50.81)	67.59 (53.29)	37.34 (44.65)	45.16 (42.08)	79.51 (49.85)	65.63 (53.86)
Constant	1,418 (936.4)	1,414 (941.6)	1,540 (939.5)	1,883* (1,023)	1,443 (941.2)	1,449 (940.2)	1,482 (937.2)	1,210 (1,027)
Observations	215	215	215	177	215	215	215	178
R-squared	0.109	0.100	0.107	0.130	0.100	0.102	0.108	0.117

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 26: Competitiveness

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
risk	0.168** (0.0752)	0.168** (0.0749)	0.176** (0.0754)	0.197** (0.0876)	0.171** (0.0749)	0.167** (0.0748)	0.176** (0.0750)	0.245*** (0.0870)
time	0.0202 (0.0719)	0.0197 (0.0719)	0.0200 (0.0719)	-0.0102 (0.0791)	0.0194 (0.0719)	0.0207 (0.0719)	0.0210 (0.0720)	-0.000906 (0.0801)
class = 2	0.0636 (0.301)	0.0707 (0.302)	0.0403 (0.298)	-0.0608 (0.325)	0.0507 (0.301)	0.0660 (0.300)	0.0342 (0.299)	-0.0543 (0.318)
class = 3	0.00856 (0.314)	0.00368 (0.314)	0.00202 (0.314)	-0.226 (0.358)	0.00401 (0.314)	-0.00520 (0.314)	-0.00188 (0.314)	-0.263 (0.349)
class = 4	0.327 (0.305)	0.328 (0.305)	0.328 (0.305)	0.282 (0.336)	0.325 (0.305)	0.320 (0.305)	0.327 (0.305)	0.252 (0.325)
class = 5	-0.194 (0.300)	-0.190 (0.300)	-0.198 (0.300)	-0.325 (0.325)	-0.199 (0.300)	-0.198 (0.299)	-0.203 (0.300)	-0.164 (0.324)
class = 6	0.00908 (0.269)	0.0140 (0.269)	0.000293 (0.269)	0.000647 (0.305)	0.00458 (0.269)	0.0120 (0.269)	-0.00604 (0.270)	-0.0248 (0.300)
class = 7	0.0788 (0.263)	0.0743 (0.261)	0.0564 (0.263)	-0.254 (0.304)	0.0692 (0.263)	0.0663 (0.261)	0.0529 (0.263)	-0.314 (0.298)
class = 8	0.219 (0.311)	0.224 (0.311)	0.225 (0.312)	0.110 (0.342)	0.220 (0.311)	0.215 (0.311)	0.224 (0.311)	0.104 (0.334)
male	0.302* (0.154)	0.305** (0.155)	0.301* (0.155)	0.477*** (0.172)	0.301* (0.155)	0.304* (0.154)	0.302* (0.155)	0.432** (0.169)
age	-0.103 (0.149)	-0.103 (0.149)	-0.103 (0.149)	-0.131 (0.157)	-0.104 (0.149)	-0.106 (0.149)	-0.104 (0.149)	-0.100 (0.151)
msch	0.152* (0.0866)	0.152* (0.0865)	0.149* (0.0869)	0.178* (0.0931)	0.151* (0.0866)	0.152* (0.0865)	0.149* (0.0866)	0.151 (0.0929)
fsch	-0.140* (0.0808)	-0.139* (0.0808)	-0.140* (0.0809)	-0.198** (0.0864)	-0.140* (0.0808)	-0.139* (0.0808)	-0.141* (0.0809)	-0.199** (0.0855)
stperf	0.203 (0.168)	0.207 (0.169)	0.195 (0.168)	0.339* (0.184)	0.197 (0.168)	0.207 (0.169)	0.196 (0.168)	0.332* (0.183)
hier	0.0719 (0.0582)	0.0712 (0.0582)	0.0774 (0.0582)	0.0546 (0.0636)	0.0742 (0.0582)	0.0695 (0.0584)	0.0780 (0.0580)	0.0517 (0.0619)
economist	0.0713 (0.154)	0.0768 (0.142)	-0.0371 (0.173)	-0.0114 (0.178)	0.0277 (0.152)	0.0905 (0.143)	-0.0576 (0.170)	-0.0605 (0.173)
Constant	3.178 (3.152)	3.137 (3.153)	3.184 (3.157)	3.307 (3.364)	3.217 (3.152)	3.203 (3.149)	3.200 (3.152)	2.738 (3.258)
Observations	216	216	216	178	216	216	216	179
R-squared	0.142	0.142	0.141	0.196	0.141	0.143	0.142	0.185

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 27: Risk preferences

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	0.145** (0.0652)	0.147** (0.0654)	0.151** (0.0649)	0.154** (0.0688)	0.149** (0.0653)	0.147** (0.0655)	0.153** (0.0652)	0.190*** (0.0677)
time	0.100 (0.0665)	0.0988 (0.0668)	0.0914 (0.0665)	0.119* (0.0694)	0.0969 (0.0668)	0.101 (0.0669)	0.0897 (0.0668)	0.118* (0.0700)
class = 2	0.136 (0.280)	0.130 (0.282)	0.0762 (0.276)	0.0746 (0.288)	0.117 (0.281)	0.102 (0.280)	0.0966 (0.278)	0.113 (0.280)
class = 3	-0.0178 (0.292)	-0.0424 (0.293)	-0.0657 (0.291)	0.0268 (0.317)	-0.0215 (0.293)	-0.0643 (0.293)	-0.0387 (0.292)	0.0396 (0.308)
class = 4	0.0940 (0.285)	0.0945 (0.286)	0.0483 (0.284)	-0.0938 (0.298)	0.0847 (0.286)	0.0750 (0.286)	0.0702 (0.285)	-0.0738 (0.287)
class = 5	-0.0715 (0.279)	-0.0719 (0.281)	-0.126 (0.279)	-0.0800 (0.289)	-0.0835 (0.280)	-0.0950 (0.280)	-0.0842 (0.280)	-0.108 (0.286)
class = 6	0.151 (0.250)	0.157 (0.251)	0.141 (0.249)	0.0769 (0.270)	0.143 (0.251)	0.145 (0.251)	0.166 (0.251)	0.149 (0.264)
class = 7	0.260 (0.244)	0.229 (0.244)	0.262 (0.243)	0.238 (0.269)	0.248 (0.245)	0.204 (0.244)	0.250 (0.244)	0.323 (0.263)
class = 8	0.0656 (0.290)	0.0832 (0.291)	0.0221 (0.290)	0.0554 (0.303)	0.0634 (0.291)	0.0600 (0.291)	0.0523 (0.290)	0.108 (0.295)
male	0.0803 (0.145)	0.0884 (0.146)	0.0760 (0.145)	0.00963 (0.156)	0.0764 (0.146)	0.0838 (0.146)	0.0700 (0.145)	0.0306 (0.152)
age	-0.264* (0.137)	-0.265* (0.138)	-0.287** (0.137)	-0.248* (0.138)	-0.269* (0.138)	-0.274** (0.138)	-0.273** (0.138)	-0.214 (0.133)
msch	-0.0726 (0.0810)	-0.0763 (0.0813)	-0.0629 (0.0811)	-0.0545 (0.0833)	-0.0752 (0.0813)	-0.0777 (0.0814)	-0.0733 (0.0812)	-0.0431 (0.0826)
fsch	0.0381 (0.0757)	0.0406 (0.0760)	0.0472 (0.0756)	0.106 (0.0773)	0.0393 (0.0760)	0.0411 (0.0761)	0.0454 (0.0759)	0.106 (0.0762)
stperf	-0.416*** (0.154)	-0.417*** (0.156)	-0.433*** (0.153)	-0.459*** (0.161)	-0.436*** (0.154)	-0.424*** (0.155)	-0.447*** (0.154)	-0.445*** (0.159)
hier	0.0301 (0.0543)	0.0330 (0.0546)	0.0285 (0.0542)	-0.00514 (0.0564)	0.0332 (0.0545)	0.0325 (0.0548)	0.0330 (0.0543)	-0.00805 (0.0547)
economist	0.296** (0.142)	0.220* (0.132)	0.366** (0.159)	0.393** (0.155)	0.238* (0.141)	0.200 (0.133)	0.303* (0.157)	0.347** (0.151)
Constant	8.913*** (2.872)	8.922*** (2.886)	9.423*** (2.860)	8.752*** (2.908)	9.103*** (2.879)	9.151*** (2.883)	9.229*** (2.871)	7.885*** (2.812)
Observations	216	216	216	178	216	216	216	179
R-squared	0.141	0.135	0.145	0.168	0.135	0.132	0.139	0.176

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 28: Time preferences

VARIABLES	A1	A2	A3	A4	B1	B2	B3	B4
comp	0.0197 (0.0699)	0.0192 (0.0699)	0.0194 (0.0698)	-0.0101 (0.0785)	0.0188 (0.0699)	0.0201 (0.0699)	0.0203 (0.0697)	-0.000872 (0.0771)
risk	0.113 (0.0747)	0.110 (0.0744)	0.103 (0.0749)	0.150* (0.0878)	0.108 (0.0744)	0.112 (0.0743)	0.100 (0.0745)	0.146* (0.0866)
class = 2	-0.388 (0.295)	-0.379 (0.297)	-0.367 (0.292)	-0.257 (0.323)	-0.368 (0.295)	-0.387 (0.294)	-0.350 (0.293)	-0.222 (0.311)
class = 3	0.0338 (0.310)	0.0388 (0.309)	0.0359 (0.309)	0.297 (0.356)	0.0418 (0.310)	0.0428 (0.309)	0.0453 (0.309)	0.254 (0.342)
class = 4	-0.342 (0.301)	-0.341 (0.301)	-0.348 (0.301)	-0.122 (0.335)	-0.340 (0.301)	-0.338 (0.301)	-0.345 (0.300)	-0.151 (0.319)
class = 5	-0.173 (0.296)	-0.170 (0.296)	-0.174 (0.296)	-0.0126 (0.325)	-0.167 (0.296)	-0.169 (0.295)	-0.160 (0.295)	0.0512 (0.318)
class = 6	0.000748 (0.265)	0.00344 (0.266)	0.00997 (0.265)	-0.0246 (0.304)	0.00716 (0.265)	-0.000280 (0.265)	0.0263 (0.265)	0.118 (0.294)
class = 7	0.149 (0.259)	0.158 (0.258)	0.176 (0.259)	0.0104 (0.303)	0.164 (0.259)	0.158 (0.257)	0.185 (0.258)	0.180 (0.293)
class = 8	-0.129 (0.307)	-0.130 (0.307)	-0.141 (0.308)	-0.0337 (0.341)	-0.130 (0.307)	-0.126 (0.307)	-0.138 (0.306)	0.000279 (0.328)
male	0.366** (0.152)	0.366** (0.152)	0.367** (0.151)	0.362** (0.173)	0.367** (0.152)	0.365** (0.152)	0.363** (0.151)	0.398** (0.166)
age	-0.221 (0.146)	-0.221 (0.146)	-0.225 (0.146)	-0.223 (0.156)	-0.221 (0.146)	-0.220 (0.146)	-0.222 (0.146)	-0.222 (0.148)
msch	-0.0280 (0.0860)	-0.0270 (0.0860)	-0.0225 (0.0862)	-0.0438 (0.0938)	-0.0261 (0.0860)	-0.0277 (0.0859)	-0.0229 (0.0858)	-0.0584 (0.0918)
fsch	-0.0302 (0.0802)	-0.0305 (0.0803)	-0.0286 (0.0803)	-0.0863 (0.0872)	-0.0305 (0.0802)	-0.0307 (0.0802)	-0.0277 (0.0802)	-0.0624 (0.0851)
stperf	0.142 (0.166)	0.145 (0.167)	0.149 (0.166)	0.114 (0.185)	0.148 (0.166)	0.140 (0.167)	0.146 (0.165)	0.128 (0.181)
hier	-0.0350 (0.0575)	-0.0368 (0.0576)	-0.0414 (0.0575)	-0.0161 (0.0635)	-0.0386 (0.0575)	-0.0340 (0.0578)	-0.0434 (0.0573)	-0.00784 (0.0609)
economist	-0.0493 (0.152)	-0.0135 (0.140)	0.0862 (0.171)	0.000956 (0.177)	0.0194 (0.150)	-0.0535 (0.141)	0.145 (0.167)	0.0632 (0.170)
Constant	6.916** (3.077)	6.904** (3.080)	6.971** (3.079)	7.076** (3.315)	6.886** (3.076)	6.893** (3.075)	6.919** (3.071)	6.805** (3.157)
Observations	216	216	216	178	216	216	216	179
R-squared	0.089	0.088	0.090	0.121	0.088	0.089	0.092	0.120

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

References

- Bauman, Y., & Rose, E. (2009). Why Are Economics Students More Selfish than the Rest? *IZA Discussion Paper*, (4625).
- Bochet, O., Page, T., & Putterman, L. (2006). Communication and punishment in voluntary contribution experiments. *Journal of Economic Behavior & Organization*, 60(1), 11-26.
- Camerer, C. F. (2011). *Behavioral game theory: Experiments in strategic interaction*. Princeton, United States: Princeton University Press.
- Carter, J. R., & Irons, M. D. (1991). Are Economists Different, and If So, Why? *Journal of Economic Perspectives*, 5(2), 171-177.
- Caudill, S. B., & Gropper, D. M. (1991). Test Structure, Human Capital, and Student Performance on Economics Exams. *The Journal of Economic Education*, 22(4), 303-306.
- Chen, C.-C., Chiu, I.-M., Smith, J., & Yamada, T. (2013). Too smart to be selfish? Measures of cognitive ability, social preferences, and consistency. *Journal of Economic Behavior & Organization*, 90, 112-122.
- DellaVigna, S. (2009). Psychology and Economics: Evidence from the Field. *Journal of Economic Literature*, 42(7), 315-372.
- Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J., & Wagner, G. G. (2011). Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences. *Journal of the European Economic Association*, 9(3), 522-550.
- Eckel, C.C., & Wilson, R. K. (2004). Is trust a risky decision? *Journal of Economic Behavior & Organization*, 55, 447-465.
- Educational Authority. (2024). *Szakeírások A-Z*. Retrieved from <https://www.felvi.hu/felveteli/szakok/kepzesek/szakleirasok/Szakleirasok/index.php/szakterulet>
- Engel, C. (2011). Dictator games: A meta study. *Experimental Economics*, 14(4), 583-610.
- European Commission. (2023). *Hungary: Basic statistics of the education system*. Retrieved from <https://eurydice.eacea.ec.europa.eu/hu/national-education-systems/hungary/magyarorszag-az-oktatasi-rendszer-alapveto-statisztikai-adatai?etans=en>
- Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., & Sunde, U. (2018). Global Evidence on Economic Preferences. *Quarterly Journal of Economics*, 133(4), 1645-1692.
- Falk, A., Becker, A., Dohmen, T., Huffman, D., & Sunde, U. (2023). The Preference Survey Module: A Validated Instrument for Measuring Risk, Time, and Social Preferences. *Management Science* 69(4), 1935-1950.
- Fallucchi, F., Nosenzo, D., & Reuben, E. (2020). Measuring preferences for competition with experimentally-validated survey questions. *Journal of Economic Behavior and Organization*, 178, 402-423.
- Frank, R. H., Gilovich, T., & Regan, D. T. (1993). Does Studying Economics Inhibit Cooperation? *Journal of Economic Perspectives*, 7(2), 159-171.
- Frank, R. H., Gilovich, T., & Regan, D. T. (1996). Do Economists Make Bad Citizens? *Journal of Economic Perspectives*, 10(1), 187-192.

- Forsythe, R., Horowitz, J. L., Savin, N. E., & Sefton, M. (1994). Fairness in Simple Bargaining Experiments. *Games and Economic Behavior*, 6, 347-369.
- Frey, B. S., & Meier, S. (2003). Are Political Economists Selfish and Indoctrinated? Evidence from a Natural Experiment. *Economic Inquiry*, 41(3), 448-462.
- Gandal, N., Roccas, S., Sagiv, L., & Wrzesniewski, A. (2005). Personal value priorities of economists. *Human Relations*, 58(10), 1227-1252.
- Gerlach, P. (2017). The games economists play: Why economics students behave more selfishly than other students. *PLoS ONE*, 12(9): e0183814.
- Girardi, D., Mamunuru, S. M., Halliday, S. D., & Bowles, S. (2024). Does studying economics make you selfish? *Southern Economic Journal*, 90, 792-814.
- Güth, W., Schmittberger, R., & Schwarze, B. (1982). An Experimental Analysis of Ultimatum Bargaining. *Journal of Economic Behavior and Organization*, 3, 367-388.
- Harrison, G. W., Lau, M. I., & Williams, M. B. (2002). Estimating individual discount rates in Denmark: A field experiment. *American Economic Review*, 92(5), 1606-1617.
- Hole, A. D. (2013). How do economists differ from others in distributive situations? *Nordic Journal of Political Economy*, 38(4).
- Horn, D., Kiss, H. J., & Lénárd, T. (2022). Gender differences in preferences of adolescents: Evidence from a large-scale classroom experiment. *Journal of Economic Behavior and Organization*, 194, 478-522.
- István, B. (2023, November 30). Íme, az ország legjobb középiskolái – mutatjuk a HVG teljes Top 100-as listáját. *HVG*. Retrieved from https://hvg.hu/360/20231130_kozepiskolai_rangsor_HVG_TOP100_lista
- James, T., Soroka, L., & Benjafield, J. G. (2001). Are Economists Rational, or Just Different? *Social Behavior and Personality*, 29(4), 359-364.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1986). Fairness and the Assumptions of Economics. *The Journal of Business*, 59(4), 285-300.
- Kirchgässner, G. (2005). (Why) are economists different? *European Journal of Political Economy*, 21, 543-562.
- Kroncke, C. O. Jr., & Mixon F. G., Jr. (1993). Are Economists Different? An Empirical Note. *The Social Science Journal*, 30(4), 341-345.
- Laband, D. N., & Beil, R. O. (1999). Are economists more selfish than other ‘social’ scientists? *Public Choice*, 100, 85-101.
- Lanteri, A. (2008). (Why) do selfish people self-select in economics? *Erasmus Journal for Philosophy and Economics*, 1(1), 1-23.
- Marwell, G., & Ames, A. (1981). Economists Free Ride, Does Anyone Else? Experiments on the provision of public goods, IV. *Journal of Public Economics*, 15, 295-310.
- McFarland, S. G. (1981). Effects of Question Order on Survey Responses. *Public Opinion Quarterly*, 45, 208-215.

- Mill, J. S. (1844). *Essays on Some Unsettled Questions of Political Economy*. London, United Kingdom: John W. Parker.
- Millet, K., & Dewitte, S. (2007). Altruistic behavior as a costly signal of general intelligence. *Journal of Research in Personality*, 41, 316-326.
- Präg, P., Mills, M. C., & Wittek, R. (2016). Subjective socioeconomic status and health in cross-national comparison. *Social Science & Medicine*, 149, 84-92.
- Selten, R., & Ockenfels, A. (1998). An experimental solidarity game. *Journal of Economic Behavior & Organization*, 34, 517-539.
- Yezer, A. M., Goldfarb, R. S., & Poppen, P. J. (1996). Does Studying Economics Discourage Cooperation? Watch What We Do, Not What We Say or How We Play. *Journal of Economic Perspectives*, 10(1), 177-186.