

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

International Review of Economics Education

journal homepage: www.elsevier.com/locate/iree

Economics students: Self-selected in preferences and indoctrinated in beliefs

Antonio M. Espín^a, Manuel Correa^{b,*}, Alberto Ruiz-Villaverde^b

^a Department of Social Anthropology, University of Granada, Campus de Cartuja, s/n, 18071 Granada, Spain

^b Department of Applied Economics, University of Granada, Campus de Cartuja, s/n, 18071 Granada, Spain

ARTICLE INFO

Classification codes:

A11
A13
A22
D31
D63
D9
I22

Keywords:

Self-selection
Indoctrination
Self-interest
Inequality aversion
Beliefs

ABSTRACT

There is much debate as to why economics students display more self-interested behavior than other students: whether *homo economicus* self-select into economics or students are instead “indoctrinated” by economics learning, and whether these effects impact on preferences or beliefs about others’ behavior. Using a classroom survey ($n > 500$) with novel behavioral questions we show that, compared to students in other majors, econ students report being: (i) more self-interested (in particular, less compassionate or averse to advantageous inequality) already in the first year and the difference remains among more senior students; (ii) more likely to think that people will be unwilling to work if unemployment benefits increase (thus, endorsing the standard neoclassical view about others and the market), but only among senior students. These results suggest self-selection in preferences and indoctrination in beliefs.

1. Introduction

The conventional economics paradigm, which is taught in most universities and business schools, models economic activity as an interaction between individual economic agents pursuing exclusively their self-interest. As a branch of rational choice theory, standard microeconomics may be described from three dominant principles, namely: methodological individualism, a certain view of rationality linked to mathematical optimization, and a role for equilibrium as a descriptive and explanatory mechanism (Ruiz-Villaverde, 2019).

The elaboration of neoclassical economic models starts with a representative individual, the *homo economicus*, which is assumed to be a self-interested rational optimizer. That is, s/he is capable of ordering preferences in a completely consistent manner and choose the best alternative to maximize her own outcomes, such as consumption, profit, or production, thus disregarding other agents’ outcomes (Frank, 1987; Thaler, 2000; Urbina and Ruiz-Villaverde, 2019). That is why many researchers (e.g., Carter and Irons, 1991; Frank et al. 1993; Cappelen et al. 2015; Bauman and Rose, 2011; Frey and Meier, 2005) have wondered if the study of these economic models, based on the rational pursuit of the own interest, promotes a type of related behavior in students.

Yet, behavioral differences between students with economic training (such as economics, business administration, finance, and accounting; for simplicity, we label all these majors as “Econ”) and students of other disciplines could be attributed to two possible effects (Carter and Irons, 1991):

* Corresponding author.

E-mail address: manuelcorrea@ugr.es (M. Correa).

<https://doi.org/10.1016/j.iree.2021.100231>

Received 31 March 2021; Received in revised form 26 September 2021; Accepted 13 December 2021

Available online 16 December 2021

1477-3880/© 2021 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

- a) **An indoctrination effect.** Econ students are shaped by economic training. Behavioral differences between Econ and non-Econ students are thus expected to increase during their studies. This stems from the fact that standard economics is based on a mathematical language devoid of ethical symbols, the acceptance of an economic/rational view of the world, and a set of simplified assumptions about how the real world works (Daboub et al. 1995). In other words, the argument goes that Econ students are trained to see the world through the lens of the homo economicus which is axiomatically assumed in economic theory.
- b) **A self-selection effect.** A particular type of individuals, i.e., homo economicus, chooses to study degrees with a strong economic component. This effect entails that Econ and non-Econ students differ already at the start of their studies. Therefore, behavioral differences may be due to this selection process rather than any effect of economic education.

A large literature is devoted to analyzing these effects, but many questions remain. The general pattern is that Econ students are more self-interested than non-Econ students, and recent evidence suggests that beliefs about others' behavior explains part of such difference since Econ students are more likely to think others will behave in a self-interested manner (Gerlach, 2017). However, some studies suggest that Econ students are less prosocial due to an indoctrination effect (e.g., Frank et al., 1993; Haucap and Müller, 2014; Ifcher and Zarghamee, 2018), while others find that this is due to self-selection (e.g., Meier and Frey, 2004; Frey and Meier, 2005; Mertins and Warning, 2014; Frank and Schulze, 2000). Interestingly, O'Roark and Wood (2011) found that members of the USA Congress who majored in economics as undergraduates were less likely to vote in favor of a minimum wage increase than their colleagues. Finally, contrary to expectations, a few studies find evidence that Econ students are more willing to cooperate (e.g., Hu and Liu, 2003; Yezer et al. 1996).

In behavioral and experimental economics, self-interested behavior is typically studied within the framework of social (or other-regarding) preferences. It is an stylized fact that individuals do not always behave as selfish maximizers. Individuals often take into consideration the welfare of others and are willing to sacrifice part of their income to favor them. Formally, behavioral deviations from the prescriptions of the (narrow) self-interest paradigm have been modeled through different approaches, including inequality aversion (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000), social welfare maximization (Charness and Rabin, 2002; Engelman and Strobel, 2004), and reciprocity (Rabin, 1993; Falk and Fischbacher, 2006).

Among these different approaches, in this study we focus on distributional preferences. Specifically, we build on the inequality aversion model of Fehr and Schmidt (1999) which allows for a key asymmetry between advantageous and disadvantageous social comparisons Charness and Rabin (2002) did similarly through a generalized model incorporating social welfare maximizing and competitive/spiteful preferences; see, e.g., Corngnet et al., 2015). In a classroom survey, we use two recently created behavioral survey items to explore individual differences in disadvantageous and advantageous inequality aversion, that is, "envy" and "compassion", respectively (Espín et al., 2018). To study how Econ and non-Econ students differ in their views or beliefs about other people (Frank et al., 1993; Gerlach, 2017), we use another novel survey question inquiring whether the respondent thinks that people behave as the standard *homo economicus* model predicts.

2. Materials and methods

At the beginning of 2010, we conducted a classroom survey among 600 students from a total of 19 different Econ (economics [n = 137] and business administration [n = 67]) and non-Econ majors (most populated: medicine [n = 89], civil engineering [n = 85], law [n = 70], anthropology [n = 40], and psychology [n = 36]) at the University of Granada, Spain. 29% of the 204 Econ students and 47% of the 396 non-Econ students were first-year students.

The survey intended to calibrate a set of questions to be used in a subsequent survey/experiment, which was conducted with a representative sample of the city of Granada in November 2010 (for more details of the city-representative survey/experiment, see Exadaktylos et al., 2013). As mentioned, here we are interested in three items included in the questionnaire.

2.1. Distributional preferences

The first two items measure the subjects' self-reported aversion to unequal economic outcomes (Espín et al., 2018), following the framework of Fehr and Schmidt (1999). We obtained measures for envy and compassion, as follows:

Envy: "I am not worried about how much money I have, what worries me is that there are people that have more money than I have."

Compassion: "I am not worried about how much money I have, what worries me is that there are people that have less money than I have."

Students answered using a Likert scale from 1 ("totally disagree") to 7 ("totally agree"). Therefore, individuals scoring high on the *envy* (*compassion*) item report a strong aversion to disadvantageous (advantageous) inequality; scoring high in both items implies strong inequality aversion. Importantly, we proxy the weight on utility of income comparisons relative to the weight of personal income by using a starting sentence common to both items: "I am not worried about how much money I have, (...)". This feature allows attaining the importance a respondent gives to disadvantageous and advantageous comparisons compared to the importance given to his/her own income, in the spirit of Fehr and Schmidt (1999). Therefore, individuals who score low in these measures report being mostly concerned about their own income, i.e., self-interested. It is important to note here that the wording of this starting sentence is typically used in Spanish to refer to how much an individual cares about one thing *compared* to another. That is, "I am not worried" in this context does not mean that the individual is not concerned at all about her income, just that s/he is more concerned about the issue in the final part of the statement (i.e., dis/advantageous income comparisons).

These measures have shown good predictive power in explaining monetarily incentivized distributional decisions (dictator game) in two independent large samples (Espín et al. 2018; Brañas-Garza et al., 2020). This suggests that the items are externally valid.

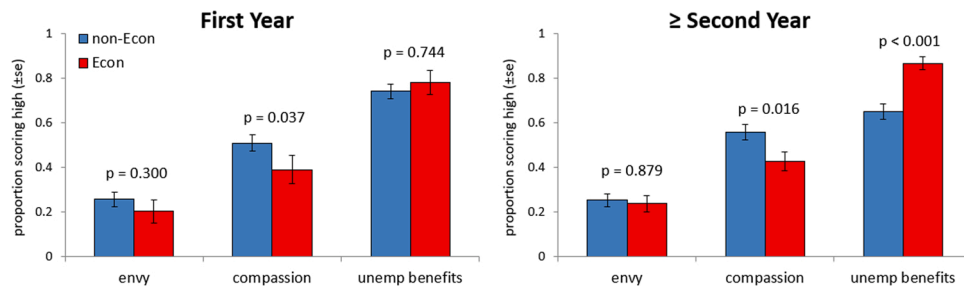


Fig. 1. Mean proportion of high scorers in each of the three measures for non-Econ (in blue) and Econ students (in red). Left panel refers to first-year students while right panel refers to senior students (2nd year or higher). P-values are obtained from Wald tests on the interaction coefficients in the regressions with controls in Table 1, that is, columns 4, 8, and 12, for *envy*, *compassion*, and *unemp benefits*, respectively. Error bars represent robust standard errors. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

However, in new ongoing research, we are testing in a large-scale survey whether modifying the survey items (for example, separating the importance of own income from the importance of income comparisons) can yield even more external validity.

2.2. Beliefs about others' (self-interested) motivations

The third item refers to the students' beliefs about the effect of economic policy on people's behavior. If unemployment benefits increase, how would people respond? We are not aware of previous studies using this item, labeled as "*unemp benefits*". It elicits the students' views about the representative individual's primary motivation:

Unemp benefits: "If unemployment benefits increase, less people will be willing to work."

Students reported their agreement with the statement using the same 1-to-7 Likert scale. A high score on *unemp benefits* indicates that the respondent believes other people are *homo economicus*, i.e., primarily motivated by their self-interest: if people are self-interested and no other social, moral, or psychological motives underlie their employment decisions, they will respond uniquely to extrinsic monetary incentives and will, consequently, reduce their willingness to work as unemployment benefits increase. Note that this is a textbook explanation of the (allegedly) negative effect of unemployment benefits on employment in most introductory and intermediate microeconomics and macroeconomics courses, also in the University of Granada. However, more advanced research demonstrates that the answer to this question is much more complex, as many factors need to be considered, including the size of the fiscal multiplier, human capital accumulation, long-term effects and discounting, reservation wage adjustments, reference-dependent preferences, and psychological wellbeing (Clark, 2003; Howell and Azizoglu, 2011; Schmieder and Von Wachter, 2016; DellaVigna et al. 2017, 2020; Marinescu and Skandalis, 2019; Boone et al. 2021). As noted by a reviewer, there exist alternative interpretations for the answers to this item. In fact, independently of whether other people are considered to be self-interested, high scores on this item might also reflect a conventional neoclassical view of the labor market, and/or a preference for conservative/neoliberal/free-market-oriented labor market policy.

3. Results and discussion

Due to the categorical nature of the scales, we transform them into binary variables for the analyses: individuals are labeled as scoring "high" in an item if their answer is 4 or more. This allows us to treat all variables in the study as binary outcomes (the results are qualitatively similar if we consider the complete scales of the items; available in Table A1 in the Appendix). We will say that there is a self-selection effect if Econ and non-Econ students differ in the first year. We will infer a training or indoctrination effect if the two groups differ more after the first year than in the first year.

Fig. 1 displays the mean proportion of high scorers in each measure broken down into non-Econ (blue bars) and Econ majors (red bars). The left panel refers to "junior", first-year students while the right panel refers to students in second year or higher, i.e., "senior" students. Note that we cannot disaggregate the latter group into different courses because the sample size is limited and there are 3-, 4-, and 5-year majors included, with students in all years from 2nd to 5th in the sample (this also means that any indoctrination effect observed might represent a lower bound of the true effect).

Table 1 shows the results of a series of probit regressions where the dependent variable is whether the student scores high on a particular item. Explanatory variables are whether the individual is an Econ student (vs. non-Econ) and whether s/he is a senior student (vs. first year). In each model, we also include the interaction between Econ and senior to test if the differences between Econ and non-Econ students are moderated by seniority. All models are repeated with gender (*male*), age, and household income as control variables. These are key controls because all have been found to correlate with responses to the distributional preferences items (Espin et al. 2018, Brañas-Garza et al., 2020). Also, controlling for age is essential to avoid confounding the effect of seniority (i.e., exposure to economics training) with that of age (Bauman and Rose, 2011). Significance levels in Fig. 1 are obtained from Wald tests on the interaction coefficients in the models with controls.

Fig. 1 shows that Econ and non-Econ do not differ in their self-reported level of *envy*, neither among junior nor among senior students (both $p > 0.3$; column 4 in Table 1). However, Econ are less likely to score high on *compassion* than non-Econ, both among

Table 1
Self-selection and indoctrination effects on *envy*, *compassion*, and *unemp benefits*.

	envy	envy	envy	envy	compassion	compassion	compassion	compassion	unemp ben	unemp ben	unemp ben	unemp ben
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Econ</i>	-0.090 (0.121)	-0.176 (0.211)	-0.093 (0.127)	-0.230 (0.222)	-0.319 * ** (0.111)	-0.301 (0.190)	-0.375 * ** (0.117)	-0.422 * ** (0.202)	0.510 * ** (0.129)	0.127 (0.208)	0.439 * ** (0.133)	0.072 (0.219)
<i>senior</i>	0.023 (0.116)	-0.014 (0.137)	0.026 (0.137)	-0.046 (0.168)	0.115 (0.107)	0.123 (0.127)	0.066 (0.125)	0.041 (0.154)	-0.109 (0.118)	-0.262 * (0.135)	-0.003 (0.140)	-0.190 (0.165)
<i>Econ X senior</i>		0.130 (0.258)		0.206 (0.274)		-0.028 (0.234)		0.071 (0.252)		0.595 * ** (0.263)		0.571 * ** (0.278)
<i>age</i>			0.014 (0.017)	0.015 (0.017)			0.023 (0.015)	0.024 (0.015)			-0.038 * ** (0.016)	-0.034 * ** (0.016)
<i>male</i>			0.166 (0.124)	0.152 (0.125)			-0.325 * ** (0.116)	-0.330 * ** (0.118)			-0.025 (0.127)	-0.065 (0.129)
<i>income</i>			-0.102 (0.063)	-0.106 * (0.063)			-0.033 (0.058)	-0.035 (0.058)			-0.087 (0.063)	0.077 (0.064)
constant	-0.673 * ** (0.093)	-0.653 * ** (0.100)	-0.779 * ** (0.395)	-0.764 * (0.396)	0.025 (0.086)	0.021 (0.093)	-0.224 (0.363)	-0.218 (0.364)	0.560 * ** (0.092)	0.644 * ** (0.101)	1.164 * ** (0.388)	1.217 * ** (0.392)
chi ²	0.563	0.802	6.001	6.799	8.611 * *	8.636 * *	20.825 * **	20.896 * **	15.617 * **	21.039 * **	20.582 * **	24.662 * **
log-likelihood	-331.255	-331.127	-288.234	-287.959	-406.653	-406.645	-351.202	-351.162	-327.848	-325.306	-281.012	-278.930
pseudo-R ²	0.001	0.001	0.011	0.012	0.011	0.011	0.029	0.029	0.025	0.033	0.034	0.042
obs	595	595	524	524	593	593	522	522	589	589	519	519

Notes: Probit estimates. Robust standard errors in parentheses. Dependent variables are displayed on top of the columns. Models with controls include age, gender, and income level (=1 if “low”, 2 if “medium-low”, 3 if “medium”, 4 if “medium-high”, 5 if “high”). Due to the potentially problematic interpretation of non-linear interaction effects (Ai and Norton, 2003), we checked the interactions using linear probability models and the `inteff` command in Stata: the results are nearly identical in all cases (upon request). * ** p < 0.01, * * p < 0.05, * p < 0.10.

junior and senior students ($p = 0.037$ and $p = 0.016$, resp.; column 8). Thus, we find evidence of self-selection for *compassion*, but not *envy*: less compassionate students are more likely to start Econ studies. Interestingly, Molinsky et al. (2012) found that priming an economic schema (understood as a “knowledge structure that prioritizes rationality, efficiency and self-interest”, p. 28) decreases the level of compassionate treatment displayed by subjects when delivering bad news to others. The interaction between *Econ* and *senior* is non-significant for either *envy* or *compassion* (both $p > 0.40$), indicating that indoctrination does not play a role for distributional preferences and, consequently, for self-interest.

Regarding *unemp benefits*, we observe a different pattern. Econ and non-Econ students do not differ in the first year ($p = 0.744$) but they strongly differ after the first year: compared to senior non-Econ, senior Econ students are more likely to agree that increasing unemployment benefits discourages people to work ($p < 0.001$; column 12). The interaction between *Econ* and *senior* is indeed significant ($p = 0.040$ with controls, $p = 0.023$ without controls; columns 12 and 10, resp.), which suggests an indoctrination effect on beliefs. Interestingly, when controls are accounted for, this effect is due to the combination of a marginally significant increase, from the first year on, for Econ ($p = 0.097$) and a non-significant decrease for non-Econ in *unemp benefits* ($p = 0.250$).

4. Conclusion

Our results suggest that economic training shapes the psychology of students. However, we find no evidence of an indoctrination effect on the students’ distributional preferences and, consequently, on self-interest, but only on their expectations about others: economic training seems to induce students to think that people are primarily driven by their self-interest. Consistent with our findings, Frank and Schulze (2000) and Frey and Meier (2005), among others, find self-selection effects on decisions where expectations about others should not influence behavior, whereas indoctrination effects have been typically found in more complex games in which strategic considerations do play a role (e.g., Frank et al. 1993; Ifcher and Zarghamee, 2018). Interestingly, as Frank et al. (1996: 187) indicated, the argument that “training in economics encourages the belief that people are self-interested” seems to be not contended. However, to our best knowledge, this is the first study clearly showing *both* a self-selection effect on preferences and an indoctrination effect on expectations about others’ behavior.

Even though this is our preferred interpretation because it provides a rationale for previous findings, as mentioned, the indoctrination effect observed might be (also) related to conservative/neoclassical pro-market values, rather than to beliefs about others’ preferences. We cannot exclude this alternative. For example, Girardi et al. (2021) observe self-selection effects on prosocial behavior and indoctrination effects on beliefs about others’ prosociality using economic games, albeit the effects are weak and not significant (probably due to lack of power), while they find a significant indoctrination effect on enhancing a conservative view of immigration policy. In addition, Paredes et al. (2020) find that bias against women is more prominent in economics students already in the first year and that it increases further after the second year, thus suggesting both self-selection and indoctrination effects in this regard. Future research should explore in detail which of the interpretations of our survey item is more valid.

CRedit authorship contribution statement

Term: AME; MC; AR-V. Conceptualization: AME; MC; AR-V. Methodology: AME; AR-V. Validation: AME. Formal analysis: AME; MC. Investigation: AME; MC; AR-V. Resources: AME; MC; AR-V. Data curation: AME. Writing – original draft: AME; MC; AR-V. Writing – review & editing: AME; MC; AR-V. Supervision: AME. Project administration: AME. Funding acquisition: None.

Acknowledgements

Antonio M. Espín acknowledges funding by the European Union’s Horizon 2020 research and innovation program and UGR Research and Knowledge Transfer Fund – Athenea3i [Marie Skłodowska-Curie grant agreement No. 754446]. The authors acknowledge the financial support received from Universidad de Granada / CBUA for open access charge.

Appendix A

see Table A1.

Table A1Self-selection and indoctrination effects on *envy*, *compassion*, and *unemp benefits* (non-dichotomized dependent variables).

	<u>envy</u>	<u>envy</u>	<u>envy</u>	<u>envy</u>	<u>compassion</u>	<u>compassion</u>	<u>compassion</u>	<u>compassion</u>	<u>unemp ben</u>	<u>unemp ben</u>	<u>unemp ben</u>	<u>unemp ben</u>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Econ</i>	-0.042 (0.092)	-0.179 (0.158)	-0.072 (0.097)	-0.243 (0.169)	-0.312 * ** (0.091)	-0.472 * ** (0.169)	-0.353 * ** (0.096)	-0.598 * ** (0.182)	0.418 * ** (0.092)	0.094 (0.160)	0.408 * ** (0.096)	0.116 (0.168)
<i>senior</i>	0.063 (0.091)	0.002 (0.111)	0.057 (0.107)	-0.037 (0.135)	0.092 (0.090)	0.023 (0.107)	0.021 (0.105)	-0.110 (0.130)	-0.170 * (0.090)	-0.318 * ** (0.107)	-0.102 (0.106)	-0.267 * ** (0.131)
<i>Econ X senior</i>		0.206 (0.194)		0.258 (0.209)		0.239 (0.200)		0.369 * (0.217)		0.497 * ** (0.194)		0.449 * ** (0.207)
<i>age</i>			0.009 (0.012)	0.012 (0.012)			0.018 * (0.010)	0.021 * ** (0.010)			-0.012 (0.013)	-0.008 (0.013)
<i>male</i>			0.088 (0.098)	0.070 (0.100)			-0.295 * ** (0.096)	-0.319 * ** (0.097)			0.112 (0.099)	0.082 (0.100)
<i>income</i>			-0.091 * (0.053)	-0.097 * (0.053)			-0.048 (0.049)	-0.056 (0.049)			0.115 * ** (0.046)	0.106 * ** (0.047)
chi ²	0.629	1.837	5.743	7.487	12.092 * **	12.722 * **	28.122 * **	29.813 * **	21.942 * **	30.373 * **	28.176 * **	34.086 * **
log-likelihood	-970.257	-969.721	-853.640	-852.908	-1089.953	-1089.205	-952.168	-950.598	-1095.979	-1092.652	-958.102	-955.705
pseudo-R ²	0.000	0.001	0.004	0.004	0.005	0.006	0.013	0.015	0.010	0.013	0.014	0.016
obs	595	595	524	524	593	593	522	522	589	589	519	519

Notes: Ordered probit estimates. Robust standard errors in parentheses. Dependent variables are displayed on top of the columns. Models with controls include age, gender, and income level (=1 if “low”, 2 if “medium-low”, 3 if “medium”, 4 if “medium-high”, 5 if “high”). Due to the potentially problematic interpretation of non-linear interaction effects (Ai and Norton, 2003), we checked the interactions using OLS models: the results are nearly identical (upon request). * ** $p < 0.01$, * * $p < 0.05$, * $p < 0.10$.

References

- Ai, C., Norton, E.C., 2003. Interaction terms in logit and probit models. *Econ. Lett.* 80 (1), 123–129.
- Bauman, Y., Rose, E., 2011. Selection or indoctrination: Why do economics students donate less than the rest? *J. Econ. Behav. Org.* 79 (3), 318–327.
- Bolton, G.E., Ockenfels, A., 2000. ERC: a theory of equity, reciprocity, and competition. *Am. Econ. Rev.* 90 (1), 166–193.
- Boone, C., Dube, A., Goodman, L., Kaplan, E., 2021. Unemployment insurance generosity and aggregate employment. *Am. Econ. J. Econ. Policy* 13 (2), 58–99.
- Branas-Garza, P., Jorrat, D., Alfonso-Costillo, A., Espín, A.M., García, T., Kovářík, J., 2020. Exposure to the Covid-19 pandemic and generosity. *PsyArXiv*. (<https://psyarxiv.com/6ktuz>).
- Cappelen, A.W., Nygaard, K., Sørensen, E.Ø., Tungodden, B., 2015. Social preferences in the lab: a comparison of students and a representative population. *Scand. J. Econ.* 117 (4), 1306–1326.
- Carter, J.R., Irons, M.D., 1991. Are economists different, and if so, why? *J. Econ. Perspect.* 5 (2), 171–177.
- Charness, G., Rabin, M., 2002. Understanding social preferences with simple tests. *Quart. J. Econ.* 117 (3), 817–869.
- Clark, A.E., 2003. Unemployment as a social norm: psychological evidence from panel data. *J. Labor Econ.* 21 (2), 323–351.
- Corgnet, B., Espín, A.M., Hernán-González, R., 2015. The cognitive basis of social behavior: cognitive reflection overrides antisocial but not always prosocial motives. *Front. Behav. Neurosci.* 9, 287.
- Daboub, A.J., Rasheed, A.M.A., Priem, R.L., Gray, D.A., 1995. Top management team characteristics and corporate illegal activities. *Acad. Manag. Rev.* 20 (1), 138–170.
- DellaVigna, S., Heining, J., Schmieder, J.F., Trenkle, S., 2020. Evidence on Job Search Models From A Survey Of Unemployed Workers In Germany. National Bureau of Economic Research. No. w27037.
- DellaVigna, S., Lindner, A., Reizer, B., Schmieder, J.F., 2017. Reference-dependent job search: evidence from Hungary. *Q. J. Econ.* 132 (4), 1969–2018.
- Engelmann, D., Strobel, M., 2004. Inequality aversion, efficiency, and maximin preferences in simple distribution experiments. *Am. Econ. Rev.* 94 (4), 857–869.
- Espín, A.M., Moreno-Herrero, D., Sánchez-Campillo, J., Martín, J.A.R., 2018. Do envy and compassion pave the way to unhappiness? Social preferences and life satisfaction in a Spanish city. *J. Happiness Stud.* 19 (2), 443–469.
- Exadaktylos, F., Espín, A.M., Branas-Garza, P., 2013. Experimental subjects are not different. *Scientific Rep.* 3, 1213.
- Falk, A., Fischbacher, U., 2006. A theory of reciprocity. *Games Econ. Behav.* 54 (2), 293–315.
- Fehr, E., Schmidt, K.M., 1999. A theory of fairness, competition, and cooperation. *Q. J. Econ.* 114 (3), 817–868.
- Frank, R.H., 1987. If homo economicus could choose his own utility function, would he want one with a conscience? *Am. Econ. Rev.* 77 (4), 593–604.
- Frank, R., Gilovich, T., Regan, D.T., 1993. Does studying economics inhibit cooperation? *J. Econ. Perspect.* 7 (2), 159–171.
- Frank, R.H., Gilovich, T.D., Regan, D.T., 1996. Do economists make bad citizens? *J. Econ. Perspect.* 10 (1), 187–192.
- Frank, B., Schulze, G.G., 2000. Does economics make citizens corrupt? *J. Econ. Behav. Org.* 43 (1), 101–113.
- Frey, B.S., Meier, S., 2005. Selfish and indoctrinated economists? *Eur. J. Law Econ.* 19 (2), 165–171.
- Gerlach, P., 2017. The games economists play: Why economics students behave more selfishly than other students. *PLoS ONE* 12 (9), e0183814.
- Girardi, D., Madhurika Mamunuru, S., Halliday, S.D., Bowles, S., 2021. Does economics make you selfish? UMassAmherst Econ. Dept. Work. Paper Ser. 304.
- Haucap, J., Müller, A., 2014. Why are economists so different? Nature, nurture and gender effects in a simple trust game. DICE Discuss. Paper 136 (No).
- Howell, D.R., Azizoglu, B.M., 2011. Unemployment benefits and work incentives: the US labour market in the Great Recession. *Oxf. Rev. Econ. Policy* 27 (2), 221–240.
- Hu, Y.A., Liu, D.Y., 2003. Altruism versus egoism in human behavior of mixed motives: an experimental study. *Am. J. Econ. Sociol.* 62 (4), 677–705.
- Ifcher, J., Zarghamee, H., 2018. The rapid evolution of homo economicus: brief exposure to neoclassical assumptions increases self-interested behavior. *J. Behav. Exp. Econ.* 75, 55–65.
- Marinescu, I.E., and Skandalis, D. (2019). Unemployment insurance and job search behavior. Available at SSRN 3303367.
- Meier, S., Frey, B.S., 2004. Do business students make good citizens? *Int. J. Econ. Bus.* 11 (2), 141–163.
- Mertins, V., Warning, S., 2014. Greedy and selfish? Differences in fairness preferences of prospective lawyers and managers. *German J. Hum. Resour. Manag.* 28 (4), 410–431.
- Molinsky, A.L., Grant, A.M., Margolis, J.D., 2012. The bedside manner of homo economicus: How and why priming an economic schema reduces compassion. *Org. Behav. Human Decis. Process.* 119 (1), 27–37.
- Paredes, V.A., Paserman, M.D., Pino, F., 2020. Does Economics Make You Sexist? National Bureau of Economic Research.
- O’Roark, J.B., Wood, W.C., 2011. Determinants of congressional minimum wage support: the role of economic education. *Public Choice* 147 (1–2), 209–225.
- Rabin, M., 1993. Incorporating fairness into game theory and economics. *Am. Econ. Rev.* 83 (5), 1281–1302.
- , 2019 Ruiz-Villaverde, A. (2019). Editor’s introduction: The growing failure of the neoclassical paradigm in economics. *American Journal of Economics and Sociology*, 78(1), 13–34.
- Schmieder, J.F., Von Wachter, T., 2016. The effects of unemployment insurance benefits: new evidence and interpretation. *Annu. Rev. Econ.* 8, 547–581.
- Thaler, R.H., 2000. From homo economicus to Homo sapiens. *J. Econ. Perspect.* 14 (1), 133–141.
- Urbina, D.A., Ruiz-Villaverde, A., 2019. A critical review of homo economicus from five approaches. *Am. J. Econ. Sociol.* 78 (1), 63–93.
- 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. *J. Econ. Perspect.* 10 (1), 177–186.