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Economic Beliefs and Party Preference

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Michael W.M. Roos and Andreas Orland[1]

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Abstract

This paper reports the results of a questionnaire study used to explore the economic understanding, normative positions along the egalitarian-libertarian spectrum, and the party preferences of a large student sample. The aim of the study is both to find socio-economic determinants of normative and positive beliefs and to explore how beliefs about the economy influence party support. We find that positive beliefs of lay people differ systematically from those of economic experts. Positive beliefs can be explained by high school grades, field of study, reasons for the choice of subject, personality traits, and – in part – by gender. Normative beliefs are self-serving in the sense that students whose father have high-status jobs and who seek high incomes are more libertarian than others. Party preferences are explained by the professional status of the father, religion, gender, and economic beliefs. Normative beliefs are more important for party support than positive beliefs. While there is a clear positive relation between libertarianism and support for right-leaning parties, positive beliefs only matter for some parties. A parochialism bias in positive beliefs seems to reinforce libertarian views favoring the most conservative party.

JEL Classification: D83, D72, Z13

Keywords: Economic beliefs; party preference; sociotropic voting; pocketbook voting; survey; personality traits

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1 Introduction

A standard economic approach to explain how voters get to support a political party would be to assume rational self-interested voting. This means that voters fully understand the consequences of proposed policies and vote for that party whose policy would maximize their expected utility. Both pure self-interest and rationality can be challenged as good descriptions of voter behavior.

Political scientists favor the theory of sociotropic voting (see Kinder and Kiewiet 1979, 1981; Lewis-Beck 1988) which assumes that voters base their voting decision on national well-being rather than their personal one, as in what is called pocketbook voting. The voting decision then depends on the perceived or expected consequence of a party's program on the wellbeing of the national economy. It is obvious that sociotropic voting can imply acting against one's self-interest, if a policy would harm the voter and benefit others. In this case, normative beliefs about the desirable state of society must override personal self-interest and are hence very important for the voting decision.

The standard assumption in economics is that agents are perfectly rational and informed implying that they perceive economic relationships and causalities between variables in the same way as trained economists do. Economic psychologists, however, argue that lay people have lay or folk theories about the working of the economy that are systematically different from the theories of trained economists[1]. In this case voters may mispredict the consequence of economic policies from an economic point of view.

This paper reports the results of a questionnaire study used to explore the economic understanding, some normative positions, and the party preferences of a large student sample. We use questions from the Survey of Americans and Economists on the Economy (SAEE) to measure to which extent subjects engage in lay thinking about the economy. The normative positions vary along an egalitarian-libertarian spectrum and are measured with questions from the SAEE, the World Value Survey (WVS) and three own questions. In addition to the party preference the questionnaire also contains a host of questions about the socioeconomic background of the participants which serve as control variables.

We hypothesize that both subjects' economic theories and their normative convictions influence their party preference. Since our sample of respondents contains students from different fields and from different years in the undergraduate programs, we can analyze how economic training and higher education in general affect positive and normative views and party preference. Observing the effects of higher education on both the party preference and its potential determinants allows us to gauge the relative importance of positive and normative economic thinking for the political inclinations.

In the literature on economic voting, income is seen as an important determinant of voting behavior and a proxy for self-interest (van der Waal et al. 2007). In our sample, income is not important, because all respondents are students with relatively similar current and expected future living conditions. But since the effect of income on party preference is not straightforward (see Morton et al. 2011) and self-interest is not always clearly defined in heterogeneous populations, we consider it an advantage that our sample is quite homogeneous in the income dimension.

[1] Caplan and Miller (2012) call the theories of lay people positive beliefs.

Normative beliefs can also be a proxy for self-interest, if they are self-serving. Libertarian positions typically stress individual performance and achievements and reject redistribution (Nozick 1974). In contrast, egalitarianism maintains that personal success or failure is the determined by personal and societal circumstances and aims at improving the lot of disadvantaged members of society by means of redistribution (Rawls 1999 and Nielsen 1985). This implies that if voters are driven by self-interest, privileged groups should hold libertarian views and vote for parties with a more libertarian ideology. People who are disadvantaged, such as minorities or members of lower classes are more likely to benefit from egalitarian policies and vote accordingly. In general, left-wing parties are more egalitarian while right-wing parties stand for libertarian positions.

Normative beliefs might interact with positive beliefs about how the economy works when voters evaluate economic policies proposed by political parties. If voters have false beliefs about the causes of economic problems and the likely effects of economic policies they may support political programs that are against their interest, no matter whether these interests are egocentric or sociotropic. The implemented policies resulting from such voting behavior could be far from optimal (see Caplan 2002). On this background we analyze whether people whose positive economic beliefs are similar to those of trained economists favor certain parties (and vice versa). The answer to this question will provide insights in the perceived economic competencies of political parties.

Our paper is related to Allen and Ng (2000) who analyze how self-interest and economic beliefs affected party support in New Zealand in 1997. Self-interested behavior is inferred from income, because New Zealand underwent drastic neoliberal reforms in the 1980s which increased income inequality. Our study differs from theirs in that we have a student population rather than the general electorate. This allows us to focus on the effect of higher education on economic beliefs and to abstract from income considerations which are not in the center of our research interest. Another related paper is Caplan and Miller (2012) who argue that positive and normative views have the same underlying determinants and are hence connected. In particular education has a strong influence on both kinds of beliefs and makes people think more like trained economists. In contrast to Caplan and Miller (2012) we do not consider ideology measured by party preference as a determinant of economic beliefs, but, on the contrary, argue that economic beliefs determine which party voters prefer. Furthermore, we have a more detailed set of potential determinants of economic beliefs including family background and personality traits. Unlike income these variables are really exogenous.

2 Theoretical considerations and hypotheses

This paper has four research questions: 1) Is it possible to explain positive beliefs by observable characteristics of the students? 2) Can we explain what determines normative economic beliefs in the egalitarian-libertarian dimension? 3) Do party preferences correlate with personal and social characteristics of the students? 4) Do positive and normative beliefs help to explain party preferences?

Before we present the details of the survey we conducted and how we analyzed the collected data, we discuss some theoretical thoughts that organize the research design.

In general, a belief is the acceptance that some statement is true. In our terminology, positive economic beliefs refer to statements about causalities between economic variables. Economic

science provides many theories about how economic variables are linked to each other, such as technological progress as a source of economic growth or the real wage as a determinant of labor demand. Voters might share the beliefs of economists that are based on economic theory and statistical evidence or hold different views. Caplan (2002) shows that the economic beliefs of lay people differ systematically from those of economists. Rather than being based on scientific economic theories lay beliefs might be derived from lay theories or folk economics (Rubin 2003).

Previous research (Caplan 2001) has shown that *males* and people with *above average education and income* think more like professional economists. Since we conduct a survey study among university students, income and the level of education cannot contribute much to the explanation of positive beliefs as they are very similar among all participants. But while the level may not be important, we hypothesize that the *source of income* plays a role. Students who must work for their income might think more like economists about economic issues than students who receive most of their income from their parents or public student loans, because they are more directly exposed to economic affairs. Furthermore, young people with little own working experience may share the economic views of their parents so that students whose *parents have a high professional status* might think more like economists than those from lower class families. The underlying reason for the documented effects of education might be cognitive skills, since economic reasoning is often abstract and complicated, findings by Caplan and Miller (2010) confirm this. Assuming that *high school final grades* are a proxy for cognitive skills, students with good grades should have more expert-like economic beliefs. We also expect that the *field of study* matters for positive economic beliefs. Students of management and economics are likely to think more like economists at the beginning of their studies, if their choice of field demonstrates a higher interest in economic issues. Over the *semesters of study*, the difference between students of economics and those in other fields should become more pronounced, as the former learn more and more about scientific economic theories. We see a final potential determinant of positive beliefs in the frequency with which students read the newspaper, because Roos (2007) shows that people who read newspapers frequently think more like trained economists. Similarly, Blinder and Krueger (2004) show that people who cite newspapers as their primary source of information have an above average knowledge of the economy.

Normative economic beliefs often refer to distributive justice or fairness. While distributive justice is a difficult and multi-dimensional concept (see Konow 2003), it is often possible to classify such normative judgments along a dimension with egalitarianism at one end and libertarianism at the other. The main difference between these opposite views is how they weigh individual responsibility for distributive outcomes. While egalitarians hold individuals responsible for very little and hence advocate equal distributions of income or wealth, libertarians strongly emphasize individual performance and hence see a very close correspondence between economic outcomes and individuals merits (see Cappelen et al. 2007, 2010). It is obvious that normative beliefs about distributive justice can be self-serving (see Luhan et al. 2013). People who earn a high income or expect to do so in the future might also like to believe that they deserve high incomes because of their personal merits, and hence be libertarians. Similarly, people with income below the average might attribute the responsibility for the low income to external factors and therefore prefer egalitarianism. In contrast, if high-income individuals have egalitarian beliefs and poor people consider libertarian views fair their normative beliefs contradict the material self-interest which might be interpreted as altruism.

If normative beliefs are self-serving, the motivation for choosing the field of study should be correlated with the degree of libertarianism-egalitarianism. Students who want to earn a high income are likely to be more libertarian than those whose main motivation is to help other people. Likewise the field of study itself may explain normative beliefs. In particular students of economics and management are likely to be more libertarian than other students because of the utilitarian fundament of economics. Economics might attract libertarians in the first place who find economic reasoning attractive, but it might also change students' views during the course of their studies. As with positive beliefs the family background of a student is a likely determinant of normative beliefs, both due to socialization and potential material self-interest. Students raised by parents with high professional status may share the self-serving normative beliefs of their parents. In addition, since family background is often also a determinant of professional achievement, students with high-status parents might be libertarians, if they expect to become high-income earners as well. Finally, personality traits might determine normative beliefs.

Party preferences are our last dependent variable. Our main aim is to see whether positive and normative beliefs are determinants of students' preference for one of the main political parties. Typically, center to right-wing parties are more libertarian than left-wing parties. Germany has five major political parties: The Left, the Social Democratic Party (SPD), the Green Party, the Free Democratic Party (FDP), and the Christian Democratic Union (CDU). The aforementioned ordering corresponds to the ordering of the parties in the left-right spectrum with the Left being the successor of the former East-German communist party and the CDU as the most conservative party. We expect that family background is a fairly strong determinant of students' party preference. Traditionally, the Left and the SPD are the parties of the working class, while both the Greens and the FDP have voters with higher professional status. The CDU explicitly endorses Christian values and is therefore especially attractive for religious Christians and less so for other confessions. In particular, many Muslim migrants from Turkey, which form the largest group of immigrants in Germany, feel less attracted by the CDU. Vecchione et al. (2011) examine the correlation between personality traits and party preference in five European countries. They use the Big Five inventory to measure personality traits. For Germany and the other countries in their sample, they find that a higher degree of Openness is associated with a higher preference for left-wing parties. More conscientious survey respondents had a higher preference for right-wing parties. Morton et al. (2011) also argue that personality traits have an effect on party preference, both directly and indirectly through their effect on income. They find that high values of Openness and Agreeableness and low values of Conscientiousness and Emotional Stability (low Neuroticism) lead to higher levels of leftist preferences. They only find weak evidence of a negative direct effect of Extraversion on leftwing ideology. As a last potential determinant of party preferences, we consider the field of study. Especially the FDP is a strong advocate of free market policies which may make it very attractive for students of management and economics.

3 Data and method

In the fall of 2011, we conducted a survey study with a questionnaire among 1,578 undergraduate students of which 294 were from engineering, 298 from the school of medicine, 569 were studying management and economics, and 426 were from the humanities. Students of all four disciplines were asked at different stages of their academic career: We asked beginners who just started their studies before their first lectures and more advanced students who studied different number of

semesters in university. As a control group, we also asked 41 Ph.D. students and post-docs in management and economics to have an objective measure of positive beliefs of experts about the economy.

Table 1 supplies summary statistics for our sample. We observe a balanced gender ratio and a mean age typical for students in an undergraduate program. As a proxy for cognitive skills we asked for the final school grade. Note that the final school grade in Germany attributes a lower number to a better grade (and 4 is needed to pass).

Table 1: Descriptive statistics of socio-economic variables

Variable	**Absolute**	**Percent**
Female | Male	832 | 744	52.8 | 47.2
Avg. age	21 yrs.	
Final school grade (1 | 2 | 3)	523 | 814 | 14	33.7 | 52.5 | 13.8
Field of study (Engineering | Medicine |Management & Economics | Humanities)	294 | 285 | 569 | 426	18.7 | 18.11 | 36.2 | 27.1
# of semesters (0 | 1-2 | 3-4 |>4)	811 | 108 | 426 | 221	51.8 | 6.9 | 27.2 | 14.1
Status father (high | middle | low)	607 | 830 | 141	38.5 | 52.6 | 8.9
Status mother (high | middle | low)	209 | 826 | 543	13.2 | 52.3 | 34.4
Born abroad (father | mother | one of parents)	358 | 359 | 406	22.9 | 22.9 | 25.7
Avg. share of expenses covered		
by parents		53.48
by Federal Training Assistance Act (BAföG)		13.50
by own job		20.56
Newspaper consumption (daily | 2-3/week | 1/week | 1-3/month | less | never)	578 | 443 | 255 | 80 | 127 | 90; avg. probability to read the newspaper .55	36.7 | 28.2 | 16.2 | 5.1 | 8.1 | 5.7
Stated reason for choosing field of study:		
Save job	879	55.7
High income	594	37.6
Parents same job	54	3.4
Help people	325	20.6
Parents proud	85	5.4
Important job	405	25.6
Personality traits		
Neuroticism (<3 | 3-4| 4-5 | 5-7)	(255 | 364| 430 | 499), avg. 4.17	(16.5 | 23.5| 27.8 | 32.2)
Extraversion (<3 | 3-4| 4-5 | 5-7)	(101 | 199| 394 | 854), avg 4.93	(6.5 | 12.9| 25.5 | 55.2)
Openness Avg. (<3 | 3-4| 4-5 | 5-7)	(106 | 267| 455 | 720), avg. 4.70	(6.8 | 17.2| 29.3 | 46.5)
Agreeableness (<3 | 3-4| 4-5 | 5-7)	(47 | 125| 320 | 1,056), avg. 5.23	(3.0 | 8.1| 20.7 | 68.2)
Conscientiousness (<3 | 3-4| 4-5 | 5-7)	(47 | 125| 348 | 1,028), avg. 5.25	(3.0 | 8.1| 22.5 | 66.4)

We asked the participants for the employment relationship of both their mother and father to separately determine proxies of their socioeconomic status. The students' parents are classified as high status when they are either employers, senior executives or occupy one of the liberal professions. They are classified as low status with the following employment relationships: homemaker, blue-collar worker, farmer, unemployed or moonlighting. Otherwise we classified them as middle status.

Two items in the questionnaire asked whether father or mother were born abroad. About a quarter of the students in our sample are descendants of immigrants. This is twice as much as the average in German universities, which is 11% (Middendorf et al. 2013, p. 520), but is in line with the composition of the population in the Ruhr area (e.g. Bochum 16.7% of the population has a migration background). In our analysis we will follow a definition of the Federal Statistical Office of Germany, "migration background", which defines persons with at least one of the parents born abroad.

Though we assume that the total income of the participants is very similar, we capture differences of the income sources. In the survey we asked the participants how much different possible income sources contribute to their expenses for their study. Here we report the share of total expenses covered by parents, by the Federal Training Assistance Act (which is a student loan program by the federal government that takes the students' parents income into account) and by the students' own job.

We also asked for media consumption habits and asked the participants for how often they read the newspaper. Answers were given on a six-item scale ranging from daily/almost daily to never/almost never. To get a linear measure, we transformed the answers into the probability that the participant reads on a given day reads the newspaper.[2] A higher number indicates more frequent newspaper reading.

Participants were asked to mark up to three reasons for choosing their field of study from a given list. We observe that a safe job and a high income are the most frequently chosen reasons.

Finally, we asked the participants for a self-evaluation of their personality using the questions of the BFI-S (Gerlitz and Schupp 2005). The BFI-S consists of 15 items, three for each of the five personality traits as introduced by McCrae and Costa (1985, 1992). Neuroticism refers to the degree of emotional stability, impulse control, and anxiety. Extraversion is displayed through a higher degree of sociability, assertiveness, and talkativeness. Openness is reflected in a strong intellectual curiosity and a preference for novelty and variety. Agreeableness refers to being helpful, cooperative, and sympathetic towards others. Finally, Conscientiousness is exemplified by being disciplined, organized, and achievement-oriented.

In each item participants were asked to rate their personality by attributing one to seven points on a Likert scale to a statement. We calculated the sum of the three items of each personality trait (taking

[2] We used the following probabilities for the answers: (1) Daily/Almost daily [probability 1], (2) Two to three times a week [probability .5], (3) Once a week [probability .2], (4) One to three times a month [probability .1], (5) Less often [probability .05], (6) Never/Almost never [probability 0].

account of some inverted items) and calculated the means for each participant. Our measures for the personality traits hence range between 1 and 7.[3]

The questionnaire had a broad scope and we asked more questions than we will use in the following analysis. To have a set of questions that has high discriminatory power, we only use those questions, for which the mean answers of undergraduate M&E students differ significantly from those of the Ph.D. students and post-docs at $p<0.1$. See Table A1 in the appendix for the whole set of questions and the differences between the two groups.[4] Table 2 reports the questions we consider in our analysis, the coding of each survey item, the source of the questions and the mean answer of the undergraduate students. Note that we left out the second question on tuition fees as we imagine that students have a self-serving opinion about it.

The questions about positive economic beliefs can be grouped into two categories. The first six questions (*deficit, development aid, immigrants, welfare, women & minorities, savings*) refer to general reasons for a weak performance of the economy. Most of them are directly related to government policies. The second group consists of five questions (*company profits, executive remuneration, technology, jobs abroad, downsizing*) that concern company-related issues. In all cases it is suggested that some behavior of private companies has negative effects on the performance of the economy. We summarize the answers to the two sets of questions by defining two variables *theory* and *company_theory* that sum up the answers to the respective questions. High values indicate agreement and low values indicate disagreement with the proposed statements. The normative questions (*income inequality, education public, tuition fees, house, unconditional basic income*) form the variable *libertarianism*, since high values indicate agreement with libertarian statements while low values stand for egalitarian positions.[5] Because the coding of the answers to the normative questions are on a different scale than the answers to the positive beliefs questions we normalized them. The highest (libertarian) answers received two points and the lowest (egalitarian) answer zero points. Answers in between were transformed linearly. Table 3 supplies the possible minimum/maximum range of the three belief variables.

[3] Scale reliability for all five personality traits is acceptable and comparable to Gerlitz and Schupp (2005): Neuroticism (Cronbach's α 0.63), Extraversion (0.75), Openness (0.61), Agreeableness (0.53) and Conscientiousness (0.66).

[4] The positive questions were taken from the Survey of Americans and Economists on the Economy (SAEE), while the normative questions stem from the World Values Survey (WVS), extended by own questions and one proposed by the Allensbach Institute, a German polling institute (Noelle-Neumann and Petersen 1998, p. 144). Note that we changed the wording of some of the WVS and SAEE questions and answers slightly to adjust to the German context (details in Table A1 in the appendix).

[5] A factor analysis broadly leads to the same grouping of the 18 questions into 3 factors. The correlation of factor 1 with *libertarianism* is 0.89, factor 3 has a correlation of 0.89 with *theory*, and the correlation of factor 2 with *company_theory* is 0.86. All results are very similar if we use the factors as dependent variables instead of the defined variables.

Table 2: Variable description and mean answers of the undergraduate students

Belief type	Category	Variable name	Question	Source	Coding	Mean
positive economic beliefs	*theory*	*deficit*	The deficit is too high	SAEE	R3	1.51
		development aid	Foreign aid spending is too high	SAEE	R3	.54
		immigrants	There are too many immigrants	SAEE	R3	.56
		welfare	Too many people are on welfare	SAEE	R3	1.49
		women & minorities	Women and minorities get too many advantages	SAEE	R3	.38
		savings	People are not saving enough	SAEE	R3	.49
	Company_theory	*company profits*	Business profits are too high	SAEE	R3	.88
		executive remuneration	Executives are paid too much	SAEE	R3	1.52
		technology	Technology is replacing workers	SAEE	R3	1.27
		jobs abroad	Companies are sending jobs overseas	SAEE	R3	1.42
		downsizing	Companies are downsizing	SAEE	R3	1.63
normative economic beliefs	*libertarianism*	*income inequality*	Incomes should be made more equal/ Larger income differences are needed as incentives for individual effort	WVS	L10	.76
		education public	Education is a public good that should be attainable for everyone/ Education is a private good. Everybody is responsible for himself to get access to education	SAEE	L10	.27
		tuition fees	Tuition fees are a form of discrimination/ Tuition fees are fair because of the future advantages of having studied	own question	L10	.80
		house	It should be made easier for citizens to own a house/ Houses are an exclusive good that not everyone can own	own question	L10	1.01
		unconditional basic income	[Unconditional basic income is a sociopolitical transfer model. Each citizen receives unconditionally from his or her economic situation a statutory and for all equally high allowance without consideration. It is mostly discussed as a benefit that would secure living without further incomes or conditional social support.] Are you in favor or against the introduction of the unconditional basic income?	own question	Pro/Con	28.7% con

Notes: Answers to the questions coded with R3 were "strong reason", "weak reason" and "no reason". We attributed 2, 1, and 0 points, respectively, to these answers. Answers to the questions coded with L10 were coded on a 11-item Likert scale that ranged from -5 points (left statement) to 5 points (right statement) with a middle point marked with zero points. The Pro/Con answer was coded as dummy variable with 0/1.

Table 3: Summary of the belief variables

	theory	*company_theory*	*libertarianism*
# items summarized	6	5	5
Minimum possible value	0	0	0
Maximum possible value	12	10	10

Table 4 shows the mean values of the three variables measuring the beliefs of undergraduate students in management and economics and Ph.D. students and post-docs in the same fields. All three belief categories are significantly different between the two groups of students. Ph.D. students and post-docs have lower scores than undergraduates in the categories *theory* and *company_theory*. This means that Ph.D. students and post-docs disagree more with the proposed reasons for the poor economic performance of the economy than the undergraduates. Ph.D. students and post-docs are more libertarian than the undergraduates as their *libertarianism* score is higher. The findings are totally in line with our expectations.

Table 4: Difference in beliefs between M&E undergraduates and Ph.D. students

	theory	*company_theory*	*libertarianism*
Undergraduates	5.05	6.48	4.40
Ph.D.	3.00	3.68	5.42
P	0.0000	0.0000	0.0004

Note: t-tests on equality of means.

We shortly examine the linear dependence of the three belief variables by calculating their pairwise correlation coefficients, presented in Table 5. All three correlation coefficients are significantly different from zero. More libertarian students tend agree more with the reasons for the economy's bad performance that are due to the government (stated in the *theory* category). They agree less with the reasons that attribute the economy's bad performance to firm behavior in the *company_theory* category. Students who agree with the reasons in one positive belief category also agree more with the reasons in the other positive belief category. We observe a similar pattern when we repeat this only for the Ph.D. students and post-docs and for the different fields of study of the undergraduates (not shown here).

Table 5: Correlation coefficients of undergraduates' belief variables

	theory	*company_theory*	*libertarianism*
theory	1.00		
	[1,354]		
company_theory	.262	1.00	
	(.0000)		
	[1,227]	[1,376]	
libertarianism	.171	-.262	1.00
	(.0000)	(.0000)	
	[1,019]	[1,046]	[1,151]

Note: Significance level in brackets. Number of observations in squared brackets.

We finally turn to the party preference of the participants and compare their percentages of preference with the percentages of votes in the federal state elections of North Rhine-Westphalia before and after we conducted the survey (Table 6). First of all, we observe that about 30% of the students do not state a preference for any party. This is slightly lower than the share of non-voters in

the elections. The election results and the stated preferences in our sample are very similar, though the Greens have relatively more supporters in our student sample. Kroh and Schupp (2011) report that voters of the Greens almost exclusively have a high school degree, hence this finding is not surprising. The ordering of the parties is the same as in the general electorate in May 2012.

Table 6: Results in federal state elections and party preference of undergraduate student respondents

		NRW May 2010	Undergraduate students fall 2011	NRW May 2012
No vote / no opinion		40.7%	30.9%	40.4%
Share of votes	CDU	34.6%	25.6%	26.3%
	SPD	34.5%	31.5%	39.1%
	Greens	12.1%	27%	11.3%
	FDP	6.7%	5.4%	8.6%
	Left	5.6%	5.4%	2.5%
	other	6.5%	5.2%	12.1%

4 Results

4.1 Determinants of beliefs

We first analyze whether the beliefs of the undergraduate students can be explained by the socio-demographic factors by regressing them on the respective variables from the survey. Table 7 contains the results of these OLS regressions. The table shows that all three belief variables correlate with some of the variables, which differ from variable to variable.

The results for the positive beliefs about general reasons for poor economic performance are presented in column (1). Notice that overall the explained variance in this regression is rather low with an adjusted R^2 of 0.065. Neither the professional status of the parents nor being the child of migrants nor gender explain these beliefs. Having to work for one's student income has a weakly significant negative effect[1], which corresponds to our theoretical considerations in section 2. The dummy variable for students of management and economics[2] has a significantly negative coefficient, too, implying that those students have more expert-like beliefs about the economy. Somewhat surprisingly, the coefficient for students of medicine is also negative and even larger than the one of M&E students. The effects of studying the respective fields are captured by the interaction terms (field * semesters). While engineering students over time think more like economists, the effect is insignificant for students of medicine and positive for students of M&E and the humanities. The latter finding suggests that studying management and economics does not change the positive beliefs of students about the economy. Some of the elicited reasons for choosing the field of study contribute negatively to the explanation of positive beliefs (*high income*, *parents proud*, *important job*). Finally, higher values of Openness increase and higher values of Conscientiousness decrease the similarity with economists' beliefs. The statements by which the positive beliefs are measured can roughly be categorized in two groups: public and private expenditure is too high and there too many benefits for others. Given this the negative coefficient on Openness and the positive one on Conscientiousness are very plausible. Open people value novelty and diversity which seems to make

[1] Negative coefficients in this category mean that this factor makes students think more like the Ph.D. students.
[2] Engineering is the baseline category.

them more generous towards others. Conscientious people value discipline and achievement both of which are necessary to restrict current spending and to save.

The fit of the regression in column (2) is higher (adj. R^2=0.15). Again, the family background variables do not matter, but now we find the positive female effects also reported in the literature[3]. Being a recipient of a public student loan makes people think more like economists about companies. High school grades are significant and imply that better students think more like economists[4]. The pattern for the fields of study is exactly as in the case of general economic beliefs showing higher scores for the students of medicine and M&E than for the others, and no increase during the study of M&E. Students who stated that the motive of helping people was important for choosing the field of study think less than economists. The personality traits Neuroticism and Extraversion matter for beliefs about companies and correlate negatively with economic thinking.

The determinants of the normative beliefs are quite different from those of the positive beliefs. One of the most important factors of libertarian beliefs is whether the father has a high professional status with the second largest beta coefficient of 0.12, though also children of low status fathers are more libertarian. Coming from a migrant family makes students' views more egalitarian. Being enrolled in M&E is positively correlated with libertarian beliefs, while studying in the humanities has a negative effect. Students who aim for a high income or important jobs are also more libertarian. High values of Openness lead to more egalitarian views. All in all, we interpret these findings as evidence for self-serving normative views with students from privileged families and high income expectations being more libertarian than students in less favored living conditions.

[3] As in the theory category negative coefficients indicate beliefs closer to Ph.D. students.
[4] In Germany, high grades indicate poor performance.

Table 7: Determinants of undergraduate students' beliefs (OLS)

	(1)	(2)	(3)
	theory	*company_theory*	*libertarianism*
Constant	4.42*** (0.57)	5.29*** (0.49)	4.96*** (0.54)
Status Father = high	0.06 | 0.01 (0.12)	-0.12 | -0.03 (0.11)	0.44*** | 0.12 (0.11)
Status Father = low	-0.09 | -0.01 (0.22)	-0.03 | -0.00 (0.19)	0.40* | 0.06 (0.21)
Status Mother = high	-0.04 | -0.01 (0.18)	0.11 | 0.02 (0.15)	-0.07 | -0.03 (0.17)
Status Father = low	0.05 | 0.01 (0.13)	0.02 | 0.00 (0.11)	0.10 | 0.03 (0.12)
Migration background	0.19 | 0.04 (0.15)	0.02 | 0.00 (0.13)	-0.40*** | -0.09 (0.14)
Female	0.15 | 0.04 (0.13)	0.65*** | 0.17 (0.11)	-0.08 | -0.02 (0.12)
Share of expenses covered			
by parents	-0.00 | -0.08 (0.00)	0.00 | 0.00 (0.00)	0.00 | 0.02 (0.00)
by Federal Training Ass. Act	-0.00 | -0.04 (0.00)	-0.01* | -0.07 (0.003)	-0.03 | -0.04 (0.00)
by own job	-0.01* | -0.07 (0.00)	0.00 | 0.01 (0.00)	-0.00 | -0.06 (0.03)
Schoolgrade	0.30*** | 0.09 (0.10)	0.23** | 0.08 (0.09)	-0.21 | -0.07 (0.09)
Field of study			
Medicine	-1.00*** | -0.18 (0.28)	-0.65*** | -0.13 (0.23)	-0.05 | 0.01 (0.26)
Management & Economics	-0.51** | -0.11 (0.23)	-0.62*** | -0.16 (0.20)	0.37* | 0.09 (0.22)
Humanities	0.01 | 0.00 (0.25)	0.03 | 0.01 (0.21)	-0.50** | -0.12 (0.24)
No. semesters	-0.16*** | -0.19 (0.05)	-0.16*** | -0.20 (0.04)	0.02 | 0.03 (0.05)
Medicine * semesters	0.08 | 0.03 (0.09)	0.24*** | 0.12 (0.07)	-0.11 | -0.05 (0.08)
Management & Economics * semesters	0.15** | 0.13 (0.06)	-0.01 | -0.01 (0.05)	-0.03 | -0.01 (0.18)
Humanities * semesters	0.17*** | 0.12 (0.07)	0.12** | 0.09 (0.06)	0.07 | 0.05 (0.07)
Newspaper consumption	-0.17 | -0.03 (0.16)	-0.07 | -0.01 (0.13)	-0.02 | -0.00 (0.14)
Stated reason for choosing field of study			
Save job	0.09 | 0.02 (0.12)	0.04 | 0.01 (0.10)	0.05 | 0.01 (0.11)
High income	0.63*** | 0.14 (0.13)	-0.12 | -0.03 (0.11)	0.60*** | 0.16 (0.12)
Parents same job	0.50 | 0.04 (0.32)	0.02 | 0.00 (0.11)	0.52*** | 0.05 (0.30)
Help people	0.23 | 0.05 (0.17)	0.33** | 0.07 (0.14)	-0.26 | -0.06 (0.16)
Parents proud	0.62** | 0.06 (0.27)	0.12 | 0.01 (0.23)	-0.29 | -0.03 (0.25)
Important job	0.40* | 0.08 (0.14)	0.10 | 0.02 (0.12)	0.89** | 0.06 (0.39)
Personality Traits			
Neuroticism	0.05 | 0.03 (0.05)	0.16*** | 0.11 (0.04)	-0.03 | -0.02 (0.04)
Extraversion	0.05 | 0.03 (0.05)	0.09** | 0.06 (0.04)	0.06 | 0.04 (0.04)
Openness	-0.11** | -0.06 (0.05)	-0.03 | -0.02 (0.04)	-0.10** | -0.06 (0.05)
Agreeableness	-0.09 | -0.05 (0.06)	0.04 | 0.03 (0.05)	-0.05 | -0.03 (0.05)
Conscientiousness	0.13** | 0.07 (0.06)	0.01 | 0.01 (0.05)	0.06 | 0.04 (0.05)
Adj. R^2	0.065	0.150	0.137
# obs.	1,296	1,317	1,104

Note: First entry is regression coefficient, second is beta coefficient, standard error in parentheses. Significance level: *** 1%, ** 5%, * 10%

4.2. Determinants of party preference

In this subsection, we explain the party preference by socio-demographic variables alone which serves as a benchmark for the effects of positive and normative beliefs on party preferences which are discussed in the next subsection. We estimated logit models for each party preference individually[5] and present the odd ratios in Table 8.

The results show that the family background, religion, and some of the personality traits are the most important factors of party preference. Students whose father has a high professional status are more likely to support the center-rightist parties FDP and CDU and less likely to favor the social democrats than those from the middle class. Having a father with low professional status does not increase the likelihood of supporting the leftist parties, but if the mother has a low-status job, students are less likely to support the Green Party. Females have a particular preference for the Greens and are less likely to be supporters of the FDP. Belonging to the Christian confession increases the odds of supporting CDU and FDP and decreases the preference for the Greens and the Left. Muslims strongly support the SPD, and dislike the CDU. A better school grade is associated with a preference for the Green and descendants of migrants have a higher preference for the FDP.

The results for the Big Five broadly confirm the finding in Morton et al. (2011) and Vecchione et al. (2011). Conscientious people are more conservative as reflected in a high odds ratio for the CDU and the low value for the Greens. Openness increases the support for the Greens and Neuroticism has a weakly significant positive effect on preference of the Green Party, but a negative one for the Left. There is no clear pattern of the field of study. The only significant effect is a negative effect of studying M&E on the likelihood of supporting the Green party.

An interesting finding is that the socio-demographic characteristics explain the preference for the FDP much better than for the other parties. The Pseudo R^2 of the regression for the FDP is up three times as high as the coefficient of determination of the other parties.

[5] Alternatively, we could also have estimated a multinomial logit model for all parties together. We did not do this because it is easier to interpret the coefficients (or odd ratios) of binary decisions whether a person supports an individual party or not compared to the coefficients of the multinomial logit which refer to a baseline category.

Table 8: Determinants of undergraduate students' party support (logit)

	Left	SPD	Greens	FDP	CDU
Status Father = high	0.71	0.67***	1.11	3.02***	1.46***
	(0.297)	(0.006)	(0.494)	(0.001)	(0.010)
Status Father = low	1.31	1.18	0.82	1.90	0.97
	(0.531)	(0.459)	(0.455)	(0.216)	(0.930)
Status Mother = high	1.73	0.75	0.78	0.62	0.93
	(0.195)	(0.198)	(0.248)	(0.303)	(0.739)
Status Father = low	1.27	0.88	0.70**	0.92	1.24
	(0.450)	(0.390)	(0.024)	(0.799)	(0.163)
Female	0.99	1.01	1.39**	0.47**	0.84
	(0.984)	(0.931)	(0.034)	(0.017)	(0.265)
Christian	0.58*	1.33	0.56***	2.18*	2.27***
	(0.088)	(0.122)	(0.001)	(0.086)	(0.000)
Muslim	0.91	3.81***	0.87	1.06	0.39*
	(0.867)	(0.000)	(0.661)	(0.929)	(0.072)
School grade	1.02	1.08	0.76**	0.90	0.99
	(0.938)	(0.492)	(0.027)	(0.669)	(0.939)
Migration background	1.20	1.05	0.87	2.08**	0.90
	(0.612)	(0.791)	(0.475)	(0.029)	(0.594)
Personality Traits					
Neuroticism	0.82*	0.99	1.10*	1.00	0.98
	(0.083)	(0.836)	(0.099)	(0.977)	(0.717)
Extraversion	0.76**	1.06	0.95	1.03	1.07
	(0.012)	(0.301)	(0.355)	(0.820)	(0.266)
Openness	1.12	0.95	1.18***	0.98	0.91
	(0.339)	(0.341)	(0.007)	(0.852)	(0.114)
Agreeableness	0.98	1.06	1.02	0.92	0.93
	(0.865)	(0.401)	(0.742)	(0.551)	(0.307)
Conscientiousness	0.95	1.05	0.83***	1.09	1.19**
	(0.667)	(0.406)	(0.004)	(0.552)	(0.015)
Field of study					
Medicine	0.74	0.91	1.11	2.91	0.73
	(0.628)	(0.765)	(0.738)	(0.108)	(0.322)
M&E	0.48	1.15	0.48**	2.27	1.50
	(0.196)	(0.596)	(0.015)	(0.170)	(0.132)
Humanities	1.03	1.08	1.00	0.47	0.75
	(0.957)	(0.763)	(0.994)	(0.404)	(0.350)
Semesters	0.62**	1.01	0.91	1.02	0.99
	(0.050)	(0.843)	(0.206)	(0.893)	(0.851)
Med * Sem	1.05	0.81*	1.06	0.55	1.00
	(0.906)	(0.094)	(0.587)	(0.114)	(0.972)
M&E * Sem	1.56*	0.91	1.10	1.08	0.96
	(0.085)	(0.212)	(0.299)	(0.615)	(0.571)
Hum* Sem	1.54*	0.98	1.17*	0.00	1.05
	(0.091)	(0.752)	(0.083)	(0.065)	(0.613)
Pseudo R^2	0.065	0.044	0.064	0.135	0.058
# obs	1,512	1,512	1,512	1,512	1,512

Note: Odds ratios with p-values in parentheses. Significance level: *** 1%, ** 5%, * 10%

4.3 Party preference and economic beliefs

The effects of beliefs on party preferences are shown in Table 9. We estimated logit models for each party again, one with only the beliefs as explanatory variable and a second model with the same controls as used in Table 8. As the focus of this section is on the effect of beliefs we do not report the odd ratios of the controls in Table 9 in order to keep it clear.

All party preferences are clearly related to the normative beliefs. More libertarian students are less likely to support the leftist parties the Left and the Greens, and more likely to support the rightist ones FDP and CDU. The coefficients for *libertarianism* increase monotonically from the left to the right across the political spectrum. These effects are pretty clear and hardly affected by the inclusion of the socio-demographic controls. The effects of the positive beliefs are less strong. Thinking more like an economist about general reasons is especially relevant for the Greens and makes support more likely[6]. On the other hand, thinking like an economist lowers the preference for the CDU. Company-related beliefs are also relevant. They are significant determinants of the preferences for the SPD and the FDP unless socio-demographics are included. Students with beliefs that are similar to those of experts are more likely to support the FDP and less likely to prefer the SPD. We conclude that students' normative and positive economic beliefs help to explain their party preference, but the explanatory power measured by the increases in R^2 relative to the baseline model with the socio-demographic variables as the only regressors varies a lot between the parties. The additionally explained variation due to including the beliefs ranges from 0.010 and 0.046 in the case of the Greens and the SPD respectively to about 0.09 (Left and CDU) and 0.071 for the FDP. The increase of explanatory power is much higher at the two extremes of the spectrum in contrast to the middle.

A different way to assess the relevance of economic beliefs for party preference is to conduct a linear discriminant analysis which uses the characteristics of the subjects to classify them into groups. Table 10 presents the results. If we use only students' socio-demographic characteristics, the percentage of correct classifications ranges from 25.9% for the SPD to 54.5% for the FDP. While the SPD result is only slightly larger than a random classification into 5 groups, FDP supporters can be identified comparatively well by their personal background. Adding the beliefs improves the classification performance in all cases but the FDP. The changes at the margins are impressive, as the classification performance for the CDU improves by 17.1 percentage points and for the Left improves by 21.3 percentage points. If we repeat the same exercise for the left-wing camp (Left, SPD and the Greens) and the right-wing camp (FDP and CDU) we get 60.9% and 67.8% correct classifications, respectively, if we use only the personal background. Here the classification performance also improves if we include beliefs by 12.4 percentage points (left) and 5.8 percentage points (right).

Economic beliefs, predominantly about normative issues, but to a lesser extent also positive beliefs about companies, help to explain students' party preference in our sample. Consistent with our expectations, students with egalitarian beliefs support left-wing parties and libertarians prefer parties from the right-wing camp. Beliefs are most important for the Left and the CDU. This finding is very plausible, because both parties are on opposite sides of the German political party spectrum. Surprisingly, beliefs are less important for the FDP: the support of this party is mostly determined by socio-demographic characteristics.

[6] Remember that people with higher values of *theory* and *company_theory* think less like economists.

Table 9: Determinants of undergraduate students' party preference and beliefs (logit)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Left		SPD		Greens		FDP		CDU	
theory	0.963	0.958	0.940	0.944	0.838***	0.853***	0.99	0.90	1.10**	1.11**
	(0.667)	(0.650)	(0.110)	(0.180)	(0.000)	(0.001)	(0.880)	(0.216)	(0.013)	(0.023)
company_theory	1.104	1.084	1.113**	1.053	0.92**	1.18***	0.816***	0.874	0.947	0.938
	(0.318)	(0.467)	(0.012)	(0.300)	(0.019)	(0.004)	(0.003)	(0.145)	(0.174)	(0.236)
libertarianism	0.684***	0.679***	0.875***	0.902**	0.96***	0.955	1.265**	1.310**	1.504***	1.443***
	(0.000)	(0.000)	(0.002)	(0.038)	(0.000)	(0.397)	(0.010)	(0.013)	(0.000)	(0.000)
Socio-demographic Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Pseudo R^2	0.075	0.151	0.064	0.054	0.055	0.110	0.064	0.178	0.097	0.148
ΔR^2 (compared with Table 8)	0.010	0.086	0.020	0.010	0.009	0.046	-0.043	0.071	0.039	0.090
# obs	1,061	919	1,061	919	1,061	919	1,061	919	1,061	919

Note: Odds ratios with p-values in parentheses. Significance level: *** 1%, ** 5%, * 10%. Socio-demographic controls as in Table 8.

Table 10: Linear discriminant analysis to explain party preference by socio-demographics and beliefs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Left		SPD		Greens		FDP		CDU	
Correctly Classified	31.6%	52.9%	25.9%	26.6%	37.1%	38.3%	54.4%	50.0%	29.4%	46.5%
Beliefs	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
# obs.	57	34	332	203	286	167	57	42	269	185

Table 11: Linear discriminant analysis to explain camp preference by socio-demographics and beliefs

	(1)	(2)	(3)	(4)
	Left-wing		Right-wing	
Correctly Classified	60.9%	73.3%	67.8%	73.6%
Beliefs	No	Yes	No	Yes
# obs.	675	404	326	227

5 Conclusions

We use data from a questionnaire study among students to explore the relationship of positive and normative economic beliefs with socio-economic characteristics and party preferences. Our main research question is whether voting behavior is driven by sociotropic or pocketbook motives. In contrast to previous work, we hypothesize that positive and normative beliefs influence party preferences (and not vice versa).

In line with previous research, we find that people who are not trained economists have systematically different beliefs about the economic than economic experts. We find that the Ph.D. students and post-docs in economics and management are more libertarian and agree less with the proposed reasons for the economy's bad performance than undergraduate students. Undergraduate students typically believe more than PhD students that low private and public saving and high material and immaterial benefits for foreigners and minorities are reasons for poor performance of the national economy. These findings correspond to some typical findings of research on economic lay beliefs (see Kemp 2007; Enste et al. 2009). The dislike of aggregate spending is an example of equating micro and macro level effects and the belief in excessive support of others is a sign of parochialism.

We find that socio-economic characteristics influence the positive and normative beliefs. Educational career and personality traits are more important for the positive beliefs than for the normative beliefs. They are rather influenced by the respondents' family background. We assess the normative beliefs as self-serving views, because the high social status of the father and expectations of a high future income make participants more libertarian.

Using logistic regressions, we examine the determinants of preference for the five major political parties in Germany. As a baseline model we only use socio-economic characteristics and add the belief variables to extended models. We find that normative beliefs explain party preference best. Egalitarians support left-wing parties and libertarians support right-wing parties. The effect of positive beliefs is less clear. Students who think more like economists with respect to policy-related reasons for poor performance of the economy are more likely to support the Green Party and less likely to be CDU supporters. Concerning company-related reasons, expert-like thinking makes support for the SPD less likely and support for the Greens and the FDP more likely. However, this effect vanishes for the SPD and the FDP if we control for socio-economic characteristics and changes sign for the Greens.

Since the normative beliefs are self-serving we interpret the positive relation between support for right-leaning parties and libertarianism as an indication for pocketbook voting and against sociotropic voting. If self-serving libertarian beliefs are reinforced by parochial positive beliefs, the respondents in our survey support the most conservative party, CDU, rather than the more liberal FDP.

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Appendix

Table A1: Variable description and mean answers for the econ undergraduates and econ Ph.D. students

Variable	Question	Source	Coding	Mean		P Chi^2
				Undergrad	PhD/Post-doc	
taxes	Taxes are too high	SAEE	R3	1.16	.97	0.218
deficit	The deficit is too high *	SAEE	R3	1.49	1.10	0.000
development aid	Foreign aid spending is too high	SAEE	R3	.54	.23	0.002
immigrants	There are too many immigrants	SAEE	R3	.58	.12	0.000
tax breaks	Too many tax breaks for business	SAEE	R3	1.48	1.44	0.112
inadeduc	Education and job training are inadequate	SAEE	R3	1.35	1.49	0.104
welfare	Too many people are on welfare	SAEE	R3	1.46	1.13	0.011
women & minorities	Women and minorities get too many advantages **	SAEE	R3	.43	.12	0.003
hard work	People place too little value on hard work	SAEE	R3	.99	.88	0.104
regulation	The government regulates business too much	SAEE	R3	.92	.79	0.572
savings	People are not saving enough	SAEE	R3	.52	.3	0.068
fairness	Most people would try to take advantage of me if they got a chance/ Most people try to be fair	WVS	L10	-.71	.54	0.158
income inequality	Incomes should be made more equal/ Larger income differences are needed as incentives for individual effort ***	WVS	L10	.99	.53	0.055
privatization	Public companies should be privatized/ Companies should be in public hand ****	WVS	L10	-.72	-1.73	0.274
support for all	Government should take more responsibility to ensure that everyone is provided for/ People should take more responsibility to provide for themselves	WVS	L10	.94	1.07	0.450
competition	Competition is good. It stimulates people to work hard and develop new ideas/ Competition is harmful. It brings out the worst in people	WVS	L10	-2.86	-3.27	0.934
work	In the long run, hard work usually brings a better life/ Hard work doesn't generally bring success. Success is a matter of luck and connections	WVS	L10	-1.32	-1.85	0.618
wealth	People can only get rich at the expense of others/ Wealth can grow so there's enough for everyone	WVS	L10	.44	1.68	0.242
education public	Education is a public good that should be attainable for everyone/ Education is a private good. Everybody is responsible for himself to get access to education	own question	L10	-3.29	-2.10	0.001
tuition fees 1	Tuition fees are a form of discrimination/ Tuition fees are fair because of the future advantages of having studied	own question	L10	-.04	1.90	0.013
tuition fees 2	Studies should be financed by tuition fees/ Studies should be financed by a tax on the alumnus' income	own question	L10	.13	-.59	0.068
minimum wage	A minimum wage adjusts social differences/ A minimum wage increases unemployment	own question	L10	-.33	-.03	0.643
health	The current health insurance system is maintainable in the long run/ The current health insurance system needs a reform	own question	L10	1.12	2.36	0.217
car scrap bonus	A policy measure like the car scrap bonus cannot stimulate the economy at all/ A policy measure like the car scrap bonus stimulates only in the short run	own question	L10	2.06	2.58	0.257
house	It should be made easier for citizens to own a house/ Houses are an exclusive good that not everyone can own	own question	L10	.36	.536	0.010
lay off	Companies should have the opportunity to lay off employees with below average performance as they reduce the companies' success/Employees need special protection	own question	L10	-.52	-1.02	0.227

Table A1 (continued): Variable description and mean answers for the econ undergraduates and econ Ph.D. students

own money	When I deal with other peoples' money, I am more willing to take risks than with my own money/I do not distinguish in money matters not between own and other peoples' money	own question	L10	.55	.30	0.114
business profits	Business profits are too high	SAEE	R3	.78	.5	0.031
executive remuneration	Executives are paid too much ****	SAEE	R3	1.29	.88	0.001
technology	Technology is replacing workers	SAEE	R3	1.17	.43	0.000
jobs abroad	Companies are sending jobs overseas	SAEE	R3	1.69	1.08	0.000
downsizing	Companies are downsizing	SAEE	R3	1.54	.82	0.000
company education	Companies are not investing enough money in education and job training	SAEE	R3	1.43	1.26	0.118
unconditional basic income	[Unconditional basic income is a sociopolitical transfer model. Each citizen receives unconditionally from his or her economic situation a statutory and for all equally high allowance without consideration. It is mostly discussed as a benefit that would secure living without further incomes or conditional social support.] Are you in favor or against the introduction of the unconditional basic income?	own question	Pro/ Con	.76	.97	0.004
unequal income	[Consider the following situation: Two employees of the same age do practically the same job. One employee receives 200 euros more than the other. The better paid employee is more diligent and reliable and works more efficiently.] Do you think it is fair that one earns more than the other?	Noelle-Neumann and Petersen 1998, p. 144	not fair/ fair	.83	.90	0.273

Note: Some of the questions' wording was changed slightly. Here we supply the wording as used in the source survey. * "The federal deficit is too high"; ** "Women and minorities get too many advantages under affirmative action"; *** "We need larger income differences as incentives for individual effort" ; ***** "Private ownership of business and industry should be increased/Government ownership of business and industry should be increased"; ***** "Top executives are paid too much". Answers to the questions coded with R3 were "strong reason", "weak reason" and "no reason". We attributed 2, 1, and 0 points, respectively, to these answers. Answers to the questions coded with L10 were coded on a 11-item Likert scale that ranged from -5 points (left statement) to 5 points (right statement) with a middle point marked with zero points. The Pro/Con (not fair/ fair) answer was coded as dummy variable with 0/1.