Groupy vs. Non-Groupy Social Preferences: Personality, Region, and Political Party

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On the sandlot and on the battlefield, people divide into groups and fight, for bragging rights and for resources. Disputes are often between groups explicitly defined as different in terms of characteristics, values, and principles. A long social psychology tradition emphasizes such group differences as the source of conflict and bias.[1] Yet, new experimental research indicates that a key explanatory for group-based bias could be individual propensities, rather than the history or nature of the social division per se. In Kranton, Pease, Sanders, and Huettel (2016), participants in a university subject pool are divided into groups and allocate income to themselves and to others. The main finding is that across group treatments, some people are "groupy," adopting different social preferences towards those who are not in their group, but many participants are "non-groupy," showing no such bias.[2] Moreover, there is a correlation with behavior outside the lab: participants who are not in a political party are also more likely to be "non-groupy."

The present paper asks whether this heterogeneity is robust and tests for psychometric, demographic, and economic correlates of "groupy" vs. "non-groupy" social preferences. The experiment, conducted on MTurk,[3] involves about 1300 participants who each allocate income in a control and in a minimal group setting. The participants then complete a survey on demographics, political party, and related practices such as attending religious services.[4] Participants also complete a common Big-Five personality survey

[1] See texts such as

[2] The experiment is with-in subject and participants allocate income in a control, minimal group, and political group setting. "Non-groupy" subjects' estimated social preferences do not change whether they are allocating income to participants in their group or not in their group, in both group treatments.

[3] MTurk participants, of course, are self-selected subject pool with particular characteristics. The analysis below compares behavior across demographics within this special sample.

[4] In particular, we study the full range of political parties—Republican, Democrat, and Independent—which was not possible in Kranton, Pease, Sanders, and Huettel (2016) due to small numbers of Republicans in the university sample.

(Donnellan et. al. 2006).[5] We identify participants' locations from their IP addresses.

We find almost all subjects are confidently (in a statistical sense) characterized either as "groupy" or as "non-groupy;" groupy participants change social preferences for subjects who are not in their group.

We find that non-groupy participants are not distinguished by any basic demographic nor by any of the Big Five personality factors, but are distinguished by lack of political affiliation. Independents are least likely to be groupy, and this difference is significant nation-wide. While the percentage of Republicans who are groupy is higher than that of Democrats, we cannot reject that the proportions are the same, except in the Deep South which shows the widest divergence between Independents, Democrats, and Republicans. Finally, given the recent focus on the social consequences of deindustrialization[6] as well as the voting patterns in the 2016 Presidential election, we ask whether groupiness relates to economic transition and job dislocation. We find that participants in counties with the largest drops in shares of employment from manufacturing are significantly more likely to be groupy than participants in other counties.

I. Contribution to the Literature

Starting with Tajfel and Turner (1979), many experimenters in social psychology have studied group bias by dividing subjects into two groups based on arbitrary criteria such as tastes for different paintings; i.e. the group division is "minimal." In economics, Chen and Li's (2009) seminal paper marries these psychology methods with the experimental economics of social preferences. They find evidence of bias in that subjects are, on average, inequity averse and more inequity averse towards in-group participants. In Chen & Li (2009) and in most economic experiments with group conditions (minimal or "real-world" groups), researchers estimate average behavior, with only a few notable exceptions such as Flor and Shayo (2010).

The experiment in this paper, following Kranton, Pease, Sanders, and Huettel (2016), studies individual behavior.[7] We say individuals are "groupy" ("non-groupy") when their estimated utility-type is different (not different) when allocating income to someone in their group than when allocating income to someone out of their group. We

[5] Since this distinction is new to the literature, current psychology provides little guidance as to which measures, if any, capture this distinction. For review and discussion of the recent related work in psychology and neuroscience see Cikara and Van Bavel (2014).

[6] See, for example, Cramer (2016) and Tan Chen (2016).

then use subject-specific data to study the correlates of this groupy vs. non-groupy distinction.

II. The Experiment

The experiment recruited M-Turk participants from across the United States, with an oversampling from Alabama, Georgia, Louisiana, Mississippi, South Carolina, and Texas.[8] In the control, participants were asked to allocate income to themselves and to randomly selected other participants. The minimal group condition placed participants into one of two groups based on a questionnaire on preferences for displayed paintings and other images. Participants were then asked (a) to allocate income to self and to a participant in their group—labeled an "Own" group match—and (b) to allocate income to self and to a participant in the other group—labeled an "Other" group match.[9] After making these choices, participants completed the aforementioned surveys and personality questions.[10]

The income allocation tasks consisted of 26 different 2x2 matrices with income to self and to another participant. All 26 matrices were (randomly) presented to subjects in each of the matches: control, Own-group, and Other-group. Following Fehr & Schmidt (1999), Charness & Rabin (2002), and Chen & Li (2009), these matrices, the collection of which is provided in Kranton, Pease, Sanders, and Huettel (2016), were designed to capture four different kinds of social preferences. Consider i's choice in a normalized matrix $\begin{bmatrix} \pi_i & \pi_j \\ \pi_i' & \pi_j' \end{bmatrix}$, where $\pi_i \geq \pi_i'$. The choice of the top row is consistent with being "selfish." Choosing the bottom row, the subject sacrifices own income and we say the subject (1) is "inequity averse" if $|\pi_i' - \pi_j'| < |\pi_i - \pi_j|$, (2) "maximizes total income" if $\pi_i' + \pi_j' > \pi_i + \pi_j$, (3) is "dominance-seeking" if $\pi_i' - \pi_j' > \pi_i - \pi_j$.

Subjects received a $2 participation wage and received bonus payments for three different choices, selected at random from the three matches—control, Own-group, and Other-group. Payment was made to both the decision maker and to the recipient using standard MTurk methods.

II. Social Preference Estimation

For continuity with previous studies, we adapt the utility specification of Fehr & Schmidt (1999), Charness & Rabin (2002) and Chen & Li (2009). Utility derives from π_i and

[8] The experiment ran intermittently from February to May 2015.

[9] Participants were told (truthfully) that Own group participants had the same preferences for 4 out of the 4 lines of poetry and at least 3 out of 4 paintings. The Other group participant preferred none of the same lines of poetry and at most 1 out of the 4 paintings.

[10] There are four questions, e..g, "I get upset easily," for each trait. Answers range from "strongly disagree" to "strongly agree" on a five-point scale.

the divergence between own and other's income, $(\pi_i - \pi_j)$, depending on whether $\pi_i \geq \pi_j$ or the reverse. Let

$$U_i(\pi_i, \pi_j) = \beta_i \pi_i + \rho_i(\pi_i - \pi_j)r + \sigma_i(\pi_j - \pi_i)s \ ,$$

where β_i is the weight on own income, ρ_i is the weight on income difference when $\pi_i \geq \pi_j$, r is an indicator variable for $\pi_i \geq \pi_j$, σ_i is the weight on income difference when $\pi_i < \pi_j$, and s is an indicator variable for $\pi_i < \pi_j$. Combinations of utility function parameters yield the four motives discussed above.[11]

The experimental design generates panel data, and thus it is possible to estimate a finite mixture model. It is assumed there is a finite number of types in the population, and each type t is characterized by utility parameters $(\beta_t, \rho_t, \sigma_t)$, and each type t is a proportion of the population p_t, where $\sum_t p_t = 1$. We estimate four types because it is the minimum number that could capture four distinct motives, and estimation of five or more types does not yield qualitatively more information for the purposes of our analysis. There is no presumption, a priori, that the types map into the four motives outlined above; rather the data yields the utility parameters and proportions of each type. As is standard, we estimate a binary choice model, assuming an extreme value distribution for the error terms (details on-line Appendix).

While the methodology is different, the results confirm the findings of previous studies (e.g., Andreoni & Miller (2002) and Fisman, Kariv & Markovits (2007)) that most individuals are well described by a small set of distinct utility types: about 30% of subjects are selfish, 40% inequity averse, 25% total income maximizers, and 6% dominance seekers.[12] Using each individual's choices, we construct posterior probabilities that each individual is of a particular type, and categorize individuals accordingly. The on-line Appendix provides the utility function parameter estimates and the precision with which subjects are categorized.

III. Groupy vs. Non-Groupy Subjects

We identify the set of participants located in the United States according to their IP addresses,[13] can label them as follows: "groupy" participants are those who, with 80% confidence, have a different type for

[11] Given $\beta_i > 0$, if $\rho_i = \sigma_i = 0$ then an individual places no weight on π_j; he is then *(purely) selfish*. If $\rho_i < 0$ and $\sigma_i > 0$ and $\beta_i + \rho_i - \sigma_i > 0$, utility is always increasing in both π_i and π_j, which corresponds to *total income maximizing*. The weights on π_i and π_j are not necessarily the same, but a person with such parameters would opt for an allocation that is higher in either or both. If $\rho_i < 0$ and $\sigma_i < 0$, an individual is *inequity averse*, since utility is always increasing when π_i and π_j are closer together. If $\rho_i > 0$ and $\sigma_i < 0$, then utility always increases when i's income rises relative to j's income, which corresponds to *dominance seeking*.

[12] These proportions largely replicate Kranton, Pease, Sanders, and Huettel (2016).

[13] Participants' qualifications for participation derive from the location listed on their MTurk account, which can be different than their location upon the participation.

Own and Other matches in the group condition, and "non-groupy" have the same type with 80% confidence.

[Insert Table 1 Here]

Table 1 cross-tabulates the 1102 subjects satisfying one of these criteria. The 981 subjects on the diagonal are "non-groupy;" the 121 subjects off the diagonal are "groupy."

[Insert Table 2 Here]

We tabulate and compare the characteristics of these subjects, reported in Table 2. The two sets have virtually identical age, gender, and ethnicity demographics. They are also identical in education levels and frequency of attendance in religious services. There is no difference in the Big 5 personality measures.

The analysis shows, however, that political affiliations differ between the two sets of participants. Groupy participants are significantly more likely to be Republican and significantly less likely to be Independent.

[Insert Table 3 Here]

Table 3 delves into the political landscape and provides the fraction of non-groupy subjects for political affiliations across the United States and within the Deep South[14] and compares regions with greater declines in employment in manufacturing.[15]

The Deep South shows the greatest political divergence in groupy vs. non-groupy subjects. Independents are significantly more likely to be non-groupy (93.5%) than both Democrats and Republicans, and Republicans are significantly less likely to be non-groupy (76.2%) than Democrats. Indeed, Republicans in the Deep South are the most likely of all such subsets to be groupy. As for manufacturing, we find that participants in counties with the largest decline in fraction of jobs in manufacturing (1969-2000) are the most likely to groupy.[16]

IV. Conclusion and Future Research

This paper indicates that groupy vs. non-groupy individual behavior is a robust finding. This individual heterogeneity is correlated

[14] Using participants' IP addresses, we identify the longitude and latitude for each subject and query (http://www.datasciencetoolkit.org/developerdocs#coordinates2politics) to find the corresponding state and county. We adopted the following regional designations: Deep South states are TX, LA, MS, AL, GA, and SC; Northeast states are ME, NH, VT, MA, RI, CT, NY, NJ, and PA. Pacific coast states are CA, OR, and WA.

[15] We considered fraction of employment in manufacturing by county in US Department of Commerce Bureau of Economic Analysis (BEA) data in 1969 and in 2000 (industry codes changed in 2001). Since BEA suppresses country manufacturing employment if it identifies a single firm, 65 out of 1102 have missing observations. We divided counties into: counties with a decline of more than 50%, between 50% and 5%, and less than 5% decline. The average declines were 60.1% (s.d. 8.1) and 33.3% (s.d. 12.4) for the first two sets, and an average increase of 3% (s.d. 32%) for the third..

[16] The relationship does not hold when just considering the fraction manufacturing employment either in 1969 or in 2000.

with arguably group-oriented behavior outside the laboratory. Participants who are groupy are less likely to politically independent than participants who are non-groupy. This pattern is most apparent for participants in the Deep South. Participants in counties with large drops in the share of employment in manufacturing also are more likely to groupy.

The findings raise a series of future research questions: Is groupy behavior more prevalent in regions with political contestation or social displacement. If so, does the region of origin pertain to groupy vs. non-groupy behavior or does self-selection into or out of regions explain divergence. Finally, given the lack of correlation with personality measures, is it possible to develop an independent measure of groupy individual tendencies that is predictive of behavior, not only for the allocation of income but also for public good provision, bargaining, and other economic arenas.

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TABLE 1— CROSS TABULATION OF SUBJECTS' SOCIAL PREFERENCES TOWARDS PARTICIPANT IN OWN GROUP VS. OTHER GROUP

	Other Group				
Own Group	SELF	T.I.M.	INEQ. A.	DOM.	Total
SELFISH	359	16	2	6	383
TOTAL INC MAX	21	25	5	1	52
INEQ AVERSE	23	27	576	19	645
DOMINANCE	1	0	0	21	22
Total	404	68	583	47	1102

TABLE 2— CHARACTERISTICS OF GROUPY VS. NON-GROUPY SUBJECTS

	Non-Groupy	Groupy
Big Five Personality – avg. additive		
Extraversion	13.27	12.89
	(0.13)	(0.32)
Agreeableness	9.12	9.51
	(0.10)	(0.23)
Conscientious	9.88	9.99
	(0.10)	(0.27)
Neuroticism	13.54	13.31
	(0.11)	(0.31)
Imagination	8.62	9.02
	(0.10)	(0.28)
Demographics		
Percent Female	44	37
	(0.016)	(0.044)
Average Age – years	32.06	32.56
	(0.33))	(0.93)
Ethnicity - percent		
White	75.92	75.21
African American	6.43	7.44
Asian	8.06	7.44
Other	9.59	9.92
Geographic Region – percent		
Deep South	27.93	29.75
Northeast	17.84	19.01
Pacific Coast	9.48	7.44
Rest of US	44.75	43.80
Education Level – percent		
Less than Bachelors	52.60	50.41
Bachelors	36.39	37.19
More than Bachelors	11.01	12.40
Religious service attendance –		
Never	63.00	59.50
Less than Once a Month	20.39	20.66
Once a Month or More	16.62	19.83
Political Affiliation – percent***a		
Republican	12.74	20.66**
Democrat	41.69	47.93
Independent	45.57	31.40***
	N=992	N=125

Notes: Standard errors in parentheses. t-tests: ** Significantly different at the 5% level ***Significantly different at 1% level.

***a Chi square test p-value 0.004.

TABLE 3—FRACTION NON-GROUPY:
REGION AND POLITICAL AFFILIATION

	Percent Non Groupy	Observations
Entire U.S.		
Republicans	83.3%	150
Democrats	87.6%	467
Independents	92.2%**d***r	485
Not Deep South		
Republicans	86.0%	107
Democrats	87.7%	341
Independents	91.9%*d*r	344@
Deep South		
Republicans	76.7%*a	43
Democrats	87.3%	126
Independents	92.9%***r	141@
County Change in Share of Jobs from Manufacturing (1969-2000)		
Avg. 61% decline	86.77%**m	567
Avg. 33% decline	91.20%	443
Avg. no decline	92.59%	27

Notes: a is the test for equality between Democrats and Republicans within region; d is the test for equality between Independents and Democrats within difference; r is a test for equality between Independents and Republicans within region; m is the test for equality between 61% decline and 33% decline counties. * Significant at the 10% level. **significant at 5% level; *** significant at the 1% level.