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Democratic values transmission

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Abstract

This study addresses the issue of intergenerational transmission of democratic values embedded in social choice rules. We focus on a few rules which have been the focus of social choice theory: plurality, plurality with a runoff, majoritarian compromise, social compromise and Borda rule. We confront subjects with preferences profiles of a hypothetical electorate over a set of four alternatives. Different rules produce different outcomes and subjects decide which alternative should be chosen for the society whose preference profile is shown. We elicit each subject's preferences over rules and his/her parents' and check whether there is any relationship; 186 students and their parents attended the sessions at Istanbul Bilgi University. Overall, we find support for the hypothesis of parental transmission of democratic values and gender differences in the transmitted rule.

Keywords: Social Choice, Experiments, Political Transmission, Democratic Values

JEL codes: D71, D72, C90.

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1 Introduction

The family is considered an important institution for political socialization, and thus we would expect transmission of political values from parents to children. Our paper addresses empirically the issue of intergenerational transmission of the political values or democratic principles embedded in different social choice functions.[1]

The literature on cultural transmission has focused on the transmission of preferences, social norms, and ideological attitudes, with special attention to ethnic and religious traits, which have been shown to be resilient across generations (Bisin and Verdier, 2010; Branas-Garza and Neuman, 2007, 2011).[2] Transmission is important because it affects the long run population dynamics of specific traits. The socialization literature concerning value transmission has produced mixed results in terms of parent-child transmission (Bengtson, 1975; Tedin, 1974).

This problem has also attracted the attention of political scientists. The empirical results indicate a high variability in the success of parental transmission (Jennings and Niemi, 1968) and the rate of intergenerational transmission is dependent on how concrete, salient, long-lived, and affect-laden is the political trait; abstract, ephemeral, and historically conditioned attributes are much less successfully transmitted (Jennings, Stoker and Bowers, 2009). There is evidence of transmission of preferences over political parties (Nieuwbeerta and Wittebrood, 1995; Grob, 2008) and in general, political transmission has been mainly concerned with specific and relevant political issues: civil liberties and civil rights, political trust, political engagement, attachment to social groups or parties (Jennings, Stoker and Bowers, 2009), individualism, collectivism (Schönpflug, 2001), and family values (Sabatier & Lannegrand-Willems, 2005).

Our contribution to this literature is to look at the transmission from parents to offspring of political preferences over *democratic rules* or *principles* which govern the functioning of the political institutions and processes. In particular, we look at preferences for social choice rules, that is, the rules or principles that lead to a social decision when the social groups involved have conflicting interests. These rules or principles are behind the political process that aggregates individual preferences and produces a collective decision using, for example, the majority rule or some other principle. How individual preferences should be aggregated is an important political decision and political institutions are shaped by the way these aggregation rules have been established within the political system. Thus, the object of our study are individual preferences over political institutions, not over specific political issues; we deal with preferences defined over the democratic rules that help reaching a decision when there is conflict.

Bisin and Verdier (2010) consider that the transmission of values is the result of socialization inside the family (direct *vertical socialization*) and other

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[1] See Arrow (1951).

[2] There is evidence that genetics may play a role in the formation of political views; see Hatemi et al (2010) and Smith et al (2012).

socialization processes like social imitation and learning which govern identity formation (*oblique* and *horizontal socialization*).[3] We study vertical transmission of political values through the decision rules that have been the main focus of attention in social choice theory: *plurality, plurality with a runoff, majoritarian compromise, social compromise* and *Borda rule*.

Each of these social choice rules represents different principles or values to decide on in cases of conflict. In particular, these rules reflect how individual opinions should be aggregated to take collective decisions. For example, the use of the rule *plurality* means that social decisions should be taken by majority, which would be widely supported as a rule; however, there are occasions when this rule is in conflict with another principle, the respect for the rights of minorities, which would require the use of a different rule (*social compromise*).

In many situations several democratic rules or principles are in conflict and they would lead to different social decisions. In that case, individual political values can be elicited from the choice made between alternatives. In our study, we follow this strategy and confront subjects with preferences profiles of hypothetical social groups within a society. The social groups preferences are defined over a set of four "neutral" alternatives, without framing. Different rules produce different outcomes and we ask which alternative should be chosen for the society whose preference profile is shown.

Giritligil and Sertel (2003, 2005) studied which of these rules or political principles were more prevalent among university students in Turkey. Our interest in this paper is in the transmission of these rules from parents to offspring. In a sample of 186 students at Istanbul Bilgi University we elicit each subject's preferences over rules and his/her parents' and check whether there is any relationship.

Our results show the pattern of intergenerational transmission and the fact that the rate of vertical transmission is not uniform across rules. We also present results on gender differences. The paper is organized as follows. Section 2 presents the experimental design and procedures and in Section 3 we describe the data and some preliminary results. Section 4 shows that there is vertical transmission while Section 5 analyzes which rules are more easily passed on. In Section 6 we show gender differences in the democratic values that are transmitted and Section 7 concludes with a discussion of the main results.

2   Experimental design and procedures

2.1   Experimental design

Different social choice rules embed different values, or views on how the opinion of individuals should be taken into account when making a social decision. One (democratic) view would defend that social decisions should be taken by majority but this may be in conflict with the respect of the rights of minorities, which would require a different social choice rule. The majority rule is probably

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[3]See also Jennings and Niemi (1974) and Pacheco (2008)

the most often cited characteristic of democracy, but it is also considered a democratic value the constitutional protection of individual and/or group rights (for example, the right to freedom of religion may not be subject to a majority vote). In our design basic democratic principles are in conflict even though no political framing was given to the choice.

Following Giritligil and Sertel (2003, 2005), we elicit preferences on social choice rules

or democratic values in a neutral context.[4] We use conflicting preference profiles for the members of a society or group so that different social choice rules would produce different outcomes.[5] In particular, subjects are confronted with a hypothetical social decision between four alternatives. No framing of the alternatives was provided, they were named as a, b, c and d. Subjects were informed that seven people or social groups have different preference orderings for the four alternatives and the orderings were presented to them.

Box 1 provides an example of a preference profile presented to the subjects.

person 1	person 2	person 3	person 4	person 5	person 6	person 7
c	a	a	d	b	c	a
d	b	b	b	d	d	b
a	d	d	c	c	a	d
b	c	c	a	a	b	c

Subjects faced three different profiles in a randomized order. These three profiles are independent in the sense that from one profile it is not possible to generate another one by permuting the columns or renaming alternatives. They are the least clustered (i.e., of smallest dimension possible) matrices which can be generated under the restriction that each alternative is selected as winner by a different rule (see Giritligil and Murat, 2005). They are called "root profiles" since the profiles that can be generated given the constraints above must have one of these three "preference structures". Different subjects faced permutations of the same three profiles (permuting the order of the social groups and the names of the alternatives).

The preference profile was the only information that the subjects had available and they were not given any indication as to the possible choice rules or criteria that they could use. They had to decide which alternative was best for the society or group. The elicited social choice rules are[6]

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[4]Democratic values may also include political pluralism, equality before the law, due process, civil liberties and human rights, among others, but we restrict ourselves to those values that can be captured by simple social choice rules.

[5]The profiles are the same as those used in the experiment of Giritligil and Sertel (2003).

[6]See Young (1975), Smith (1973) and Giritligil and Sertel (2003). These social

- Social Compromise (SC)

- Majoritarian Compromise (MC)

- Plurality (PLU)

- Plurality with a runoff (RO)

- Borda rule (BD)

In Box 2 we show how each rule would select an alternative and therefore the rule that we infer from each choice. Concerning the values embedded in these rules, MC and PLU apply a majority principle. PLU looks only at the top row and the alternative with the highest number of votes is selected; when this alternative does not reach half of the votes, MC looks also at the second row and selects the alternative with the highest number of votes in those two rows. Note that MC and PLU look only at the **top rows** of the profiles.

A subject using the plurality rule (PLU) will select *a* since this is the alternative with more votes in the first row. A subject using majoritarian compromise (MC) will select *b*, the alternative with more votes in the first two rows.

On the contrary, SC focuses on the **last row**; it chooses something that is not the worst for anyone, whether or not the alternative has the majority of votes. In terms of our interpretation, SC would be more respectful to minorities' preferences, while PLU and MC would focus on the preferences of majorities.

BD rule computes the score of each alternative, assigning 4, 3, 2 and 1 points at the $1st$, $2nd$, $3rd$ and $4th$ positions, respectively.

Finally, RO selects the two most voted alternatives in the first round (top row) and then it runs a majority vote between the two.

Since only four alternatives were chosen, necessarily two of the five social choice rules should produce the same outcome; in particular, BD and SC always produced the same outcome with our profiles and we were able to distinguish

choice rules are also electoral systems or voting rules; voting theory has studied whether they give rise to strategic voting or how they behave in small and large electorates (Nuñez and Laslier, 2013).

between them by reading the subjects' comments (see the questionnaire in the appendix).[7]

2.2 Implementation

The sessions were held at Istanbul Bilgi University; 186 students entering the university in the fall of 2010 and 2011 and their parents were interviewed at registration.[8] We elicited the social choice rule used in their decisions and also information on parental education, gender, number of kids in the family, profession of the parent, whether the student has a scholarship and the percentage of tuition covered, the department of the university in which they were registered and the type of high school the students came from (see the description of variables in the appendix).

Subjects were given different permutations of the three root profiles and each pair (student-parent) was confronted with identical preference profiles (a copy of the instructions may be found in the appendix) and asked which alternative should be chosen for the society whose preference profile was shown.

2.3 Description of the sample

First, we briefly describe our data. Table 1 shows the main characteristics of our experimental sample. We collected the following information about the parents who attended registration (see the appendix):[9] *education* level (four categories: 1 Primary School, 2 Junior High, 3 Senior High, 4 University); *profession* (dummy variable which takes value 1 if the parent is an employer or self-employed); number of *kids* in the family (1, 2, 3, 4 and above) and *gender* (with mother=1).

Table 1: **Descriptive statistics**

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Regarding the students, we collected the following Information: *gender* (daughter=1); the type of $high-school$ (we observe whether the student comes from a high academic level high-school and also whether she comes from a private school); whether the subject was a *boarding* student during the high-school

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[7]Previous laboratory experiments have used different voting rules to determine whether voters behave strategically; for example, Van der Straeten, Laslier, Sauger and Blais (2009) used plurality and plurality with a runoff, among other rules. Van der Straeten, Laslier and Blais (2013) run an internet experiment, based on the French presidential election, using different voting rules.

[8]In the case of 4 families, the parents did not attend the session and other relatives accompanying the student filled the questionnaire.

[9]When both parents filled the questionnaire, our data contain two pairs (student, father) and (student, mother). For 18 students both mother and father filled the questionnaire. For 18 students no parent filled the questionnaire.

years; and the percentage of the university tuition fee covered by *scholarship*: 0, 25, 50 or 100.

We also have information on the *degree* the students were registering for. Our sample consisted of students from a wide variety of degrees: 15.4% in Law; 22.5% in Business/Econ; 13.7% in Arts and Humanities; 15,4% in Engineering/Computer Sciences; 10,4% in Medicine/Biology/Health; 6.6% in Psychology/Sociology; 5.5% in International Relations; 8.2% in Communication; 2.2% in Mathematics. We also included a dummy variable taking value 1 for the 2011 registration data.

3   Preliminary results

We analyze the elicited rule for each decision, that is, we look at the number of times that each subject has chosen a rule. We will refer to that variable as the subject's **intensity** of preferences for a given social choice rule, *intensity* $\in \{0, 1, 2, 3\}$. The results are presented in Figure 1 for parents and children. Table 2 (section a) provides a more detailed analysis.
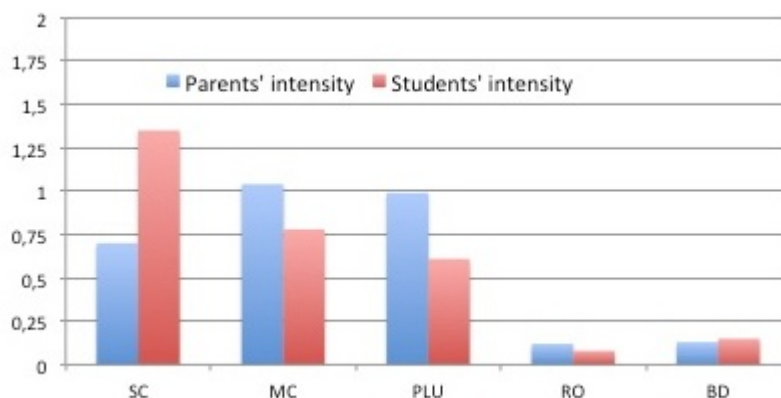
Figure 1: Fig 1

From Figure 1 we can see clear differences among parents and their offspring. Students use MC and PLU less often than their parents ($t = -2.20$, $p-value = 0.03$ for MC and $t = -3.11$, $p-value = 0.00$ for PLU), while for students SC is more popular than for their parents ($t = 5.24$, $p - value = 0.00$).[10]

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[10]In a previous study of these social choice rules, Giritligil and Sertel (2005) obtained the following percentages for students: $PLU(10.27\%)$, $RO(2\%)$, $MC(42, 93\%)$, $SC + BD(44, 7\%)$. In our data the percentages for students are $PLU(20, 4\%)$, $RO(2.9\%)$, $MC(26.2\%)$, $SC + BD(50.4\%)$. Note that the order in which the rules are favored is the same, with $SC + BD$ being the most preferred.

The differences between parents and children for the other two rules are not significant.

From Table 2 it would appear that mothers use the rules MC and PLU more often than fathers (and SC, BD and RO less often). However, the differences are not significant.[11] Interestingly, among the students women also use the rules MC and PLU slightly more often than men and SC and BD less often;but again these differences are not significant.[12]

Table 2: **Preferences for social choice rules: Parents & students**

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Note that parents choose rules based on the majority principle (MC and PLU account for 68% of the parental decisions), while their children favour SC (45.2%). In words, while parents look for alternatives that are supported by a majority as the most preferred, their kids favor the social compromise, that is, alternatives that would not be considered the worst for (and therefore strongly rejected by) any social group. This *intergenerational difference would seem to suggest that there is not much transmission* (direct vertical socialization) and that the children preferences for a social choice rule are more influenced by peers or social imitation (oblique and horizontal socialization).[13] However, as we will see in the next sections, there is vertical transmission, particularly for some social choice rules.

Apart from the intensity of preferences for a given rule, it may be interesting to check whether subjects always choose the same rule, which would denote a **strong** preference for it. For each rule, we define a dummy variable which takes value 1 if the subject chooses a given rule in the three root profiles and 0 otherwise, $strong \in \{0, 1\}$.

It is important to note that choosing different alternatives in the 3 profiles does not imply inconsistency. It may be compatible with well-defined preferences over rules since the tradeoff involved in choosing a given rule may be different in each of the three root profiles. Figure 2 provides an overview of strong preferences, while more detailed data are shown in previous Table 2 (section b).

An interesting result is that more than 50% of the participants exhibit strong preferences for any given rule (see the last column of Table 2, bottom). This percentage is about 60% for parents and 57% for children. Since the choice was by no means simple and some thought was required to come up with

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[11]For SC, $t = 0.89$ and $p - value = 0.37$; for MC $t = -0.92$ and $p - value = 0.36$; for PLU, $t = -0.75$ and $p - value = 0.46$; for RO, $t = 0.49$ and $p - value = 0.62$; finally, for BD, $t = 1.50$ and $p - value = 0.13$.

[12]For SC, $t = 0.44$ and $p - value = 0.66$; for MC $t = -1.26$ and $p - value = 0.21$; for PLU, $t = -0.11$ and $p - value = 0.91$; for RO, $t = -0.93$ and $p - value = 0.35$; finally, for BD, $t = 1.57$ and $p - value = 0.12$.

[13]See Bisin and Verdier (2010).

a decision, we may consider this result as evidence that subjects understood the task properly.
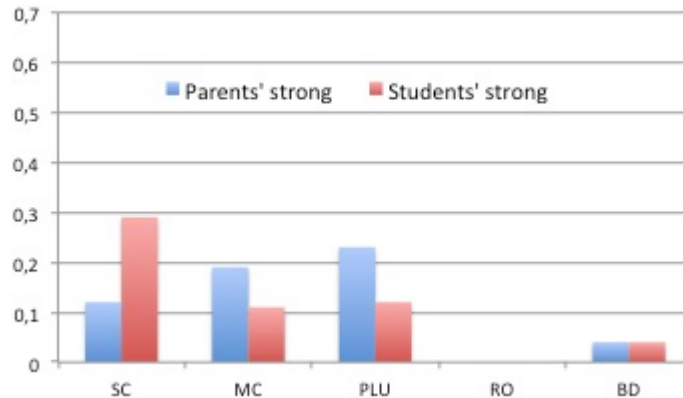

Figure 2: Fig 2

For strong preferences, in Figure 2 we find that parents choose rules based on the majority principle (MC or PLU), while their children favour SC. In fact, 29% of all the students show strong preferences for SC, which represents 50.4% among those students with strong preferences.

There are very few observations of the rule RO, hence in the following the analysis is restricted to SC, MC, PLU and BD.

Table 3 matches parental and students choices: It presents for each parental social choice rule, the children's choices. From Table 3, transmission of political preferences is not apparent. Parents who choose SC have children who also choose SC, but this may not correspond to transmission since the majority of students whose parents chose a different rule, also favored SC.

Table 3: **Transmission of preferences**

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4   Is there transmission?

First we check if strong preferences are transmitted, that is, if the fact of having a parent with strong preferences (regardless the rule) makes it more likely that the child exhibit strong preferences as well. We find that, among those 101 parents with strong preferences, 60 of their children made strong selections too

(59.40%), while among the parents without strong preferences (85, including no responses) the percentage is only slightly lower (55.29%). Differences are not significant ($t = 0.56$; $p - value = 0.57$).

Second, we look for evidence of transmission of strong preferences *for a given rule*. From the 168 observations of parental preferences, 101 showed strong preferences for a rule. Did their children show strong preferences *for the same* rule? To answer this question, we define the variable transmission, which takes value 1 if parent and child both have strong preferences for the same rule and 0 otherwise. In our sample 13.69% of all parents who responded the questionnaire have children with the same strong preferences than them.

Is 13.69% statistically significant? We analyze the significance of this level of transmission by means of a nonparametric bootstrap check. Given the number of parents and students having strong preferences for a given rule, there are bound to be some coincidences, by chance, not due to parental transmission. To separate the number of coincidences which could be attributed to chance from those due to transmission, the parents were randomly reassigned to other students and the level of transmission was recomputed. This procedure was repeated 10^3 times. We obtained the average of the variable transmission over this 10^3 random shuffling of parents -so that they were no longer matched with their children but with other students- and the average of coincidences is 9.18%. The $95-$confidence interval is $[9.16, 9.41]$ and therefore we can conclude that 13.7% is statistically significant ($p - value = 0.00$).

This definition of transmission is quite demanding: we are requiring not only that the parent influences the child's choice but that the child has strong preferences for the same rule. On the other hand, the definition also requires the parent to have strong preferences. If we restrict the distribution of the variable transmission to those parents with strong preferences, we find that 22.77% of them have children with *the same* strong preferences (for the same rule). In this case the average of coincidences over a 10^3 random shuffling of parents is 16.29%, the $95-$confidence interval is $[16.09, 16.48]$ and the conclusion is that 22.77% is statistically significant ($p - value = 0.00$). That is, for the more restrictive interpretation of transmission (parents can transmit their strong preferences only if they do have strong preferences), again we find positive and significant transmission.

We are also interested on what do parents transmit. It could be the case that some rules are easier to pass on than others and that the transmission we have found concentrates only in some rules.

5   What do parents transmit?

To make a rigorous analysis of the transmission of a given rule, we look at the relationship between the parental use of the rule and the child's use, controlling for several characteristics which may affect the students' choice of rule. The regression specification is as follows:

$$Child = \alpha + \beta_1 Parent + \beta_2 X_i + u_i,$$

where $Child$, $Parent$ are their respective choices in the task and X_i are other covariates (child's characteristics reported in Table 1).

As we did before in Figures 1 and 2 (and Tables 2 and 3), in our regression analysis we consider the variables intensity of preferences, $intensity \in \{0,1,2,3\}$, and the dummy variable for strong preferences, $strong \in \{0,1\}$, both for parents and children. In Table 4, we present our regression results. For each block (one for each rule: SC, MC, PLU and BD), the first two columns explore whether the intensity of the child's preferences is related to the parental intensity for that rule; the third and fourth columns for each rule show the relationship between the strong preferences of parents and students. The analysis is presented with and without controls for students characteristics. In sum, for each social choice rule we performed four regressions: (intensity/strong)x(controls/no controls).

Table 4: **Ologit regressions. Transmission of preferences (dep. Variable: Child behavior).**

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Is there a positive transmission of political values from parents to children? Our estimates indicate that:

- The choices of SC and MC seem unrelated to the parental choice.

- However, in the case of PLU and BD there is evidence of *direct* (positive) transmission, that is, he higher the parental use of the rule, the higher the child's use.

Results are robust to the introduction of students' characteristics (see the row for Controls at the bottom part of Table 4). The coefficients for the students' characteristics (not reported) are for the most part not significant. Parent's characteristics are not included, since they could be correlated to parents' choice of rule.

As an additional exercise we also checked if MC was related to a parental choice of PLU or viceversa, since both rules are different versions of the majority rule. The parental choice of MC is not significant for the choice of PLU; however, a parental choice of PLU has a negative coefficient (p-value=0.03), indicating that, since parents who choose PLU are more likely to have children who also choose PLU (see Table 4), their children are less likely to choose MC. Similar results obtain for SC and BD and with the same interpretation. The parental choice of SC is not significant for the choice of BD; however, a parental choice of BD has a negative coefficient (p-value= 0.04), indicating that, since

parents who choose BD are more likely to have children who also choose BD (see Table 4), their children are less likely to choose SC.

In sum, from Table 4 we conclude that SC and MC seem unrelated to parents' choices indicating that transmission is restricted to PLU and BD.

As we mention before, our definition of transmission based on strong preferences is quite demanding: we are requiring not only that the parent influences the child's choice, but that the child has strong preferences for the same rule. We may consider a weaker form of transmission and analyze the effect that strong parental preferences may have on the intensity of the child's preferences, Thus, in Table $A1$ (in the appendix) we check if strong preferences of parents may have *any* effect on the child's intensity of preferences. Results are basically identical to those in Table 4: strong PLU and strong BD have an effect on the child's intensity of preferences for these rules, and there is no effect for the other two rules, SC and MC.

In sum, the transmission we have found at the aggregate level concentrates in some rules, particularly BD and PLU, while there is no evidence of transmission for SC and MC. Apparently, either some rules are easier to pass on than others or the parents with preferences for these rules (or their children) are more prone to transmission. In the next section we explore whether transmission of political values is related to gender, to try to understand the observed asymmetries between social choice rules concerning their intergenerational transmission.

6   Gender bias

Previous literature on the intergenerational transmission of cultural or political values has emphasized gender differences (Jennings and Niemi, 1969, 1971; Nieuwbeerta and Wittebrood, 1995; Hadjar and Baier, 2003; Boehnke Hadjar and Baier, 2007; Branas-Garza and Neuman, 2011, among others). In this section we explore differences in transmission between mothers/fathers and daughters/sons. The analysis is restricted to SC, MC and PLU, the rules more frequently used (see Table 2); for the other two rules the number of choices is too low when separating by gender.[14]

It should be noted that for most students we only observe either the father or the mother but not both. Thus, we do not observe the preferences of the absent parent and there may be selfselection. For those parents with strong preferences, we found that 22.77% of them have children with strong preferences for the same rule. For those pairs with strong preference, we find that the combination (mother-daughter) is the more frequent and accounts for 39% of transmission, (father-son) is 26%, (mother-son) 22% and (father-daughter) 13%.

Restricting the sample to pairs formed by mothers and their kids (daughters and sons), we are left with 90 pairs (from a total of 168 pairs). Table 5 shows the ordered logit regression results for mothers.

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[14]Only 2.2% of the choices made by mothers and 3.6% of the daughters' correspond to the BD rule; for RO the percentages are 3.7% and 3.3%, respectively.

Table 5: **Ologit regressions.** *Mothers*. **Transmission of preferences (dep. Variable: Child behavior).**

In this table we find some evidence of gender differences: there is positive transmission of the MC social choice rule from the mother to her kids, for both variables, intensity and strong; that is, the more the mother uses this rule the more likely are her kids to use it too, and mothers with strong preferences for this rule transmit it to their offspring. We do not find a similar effect in the aggregate (see Table 4) or when the sample is restricted to fathers (in this case there is transmission of PLU, see Table $A4$ in the appendix).

We get a similar finding when we focus on the subsample of daughters (regardless the parental gender, 119 pairs), as shown in Table 6: there is direct transmission of strong preferences for the MC rule, that is, when the father or mother have strong preferences for the MC rule, daughters are more likely to have a strong preference for this rule (for sons the transmitted rule is PLU). Table $A2$ in the appendix shows the regression for mothers and daughters.

Table 6: **Ologit regressions.** *Daughters*. **Transmission of preferences (dep. Variable: Child behavior).**

To conclude, there are similar gender differences for parents and children in the rule transmitted. MC is the rule trasmitted by mothers and received by daughters, while PLU is the rule transmitted by fathers and received by sons (Table $A4$). At the aggregate level the stronger transmission of PLU dominates, while the transmission of MC seems weaker and becomes not significant at the aggregate level.

7 Discussion

To address the issue of parental transmission of political values, we collected data on parents and their children's choices that revealed their preferences over social choice rules. We focus on a few well known rules: plurality, plurality with a runoff, majoritarian compromise, social compromise and Borda rule. The sessions were organized to take place at the time of registration at Istanbul Bilgi University, and 186 students and their parents attended the sessions. Both students and parents were confronted with identical preference profiles.

The first interesting result is that more than half of the subjects (parents and students) consistently choose the same social choice rule for different scenar-

ios. This may be indicative of the extent our task was able to elicit preferences for social choice rules. Subjects faced three different profiles where the trade-offs between one rule and another were different so the fact that more than half of the people chose the same rule under different scenarios is remarkable.

Secondly, we find some support for the hypothesis of parental transmission of democratic values; the number of pairs parent-child using the same strong rule was statistically significant. We also find some indirect evidence of horizontal transmission: there is a disagreement between the rules used by students and by their parents: children favored the Social Compromise rule (embedding the democratic value of choosing alternatives that are not the worst for any minority) while their parents used mainly rules based on majority. This difference could be explained by horizontal transmission, coexisting with the vertical transmission we have found.

Are some rules more prone to transmission than others? As summarized in Table 7 parental transmission is significant for PLU and BD. Besides, MC is *transmitted from mothers* to their offspring, but this effect is not strong enough to show at the aggregate level. We did not find any evidence of transmission for the rule SC, which supports the idea that transmission of this rule must come from socialization processes like social imitation and learning -oblique and horizontal socialization (see Bisin and Verdier, 2010).

Table 7: **Summary of Results**

	transmission	intensity	strong	(see table)
SC	no			4
MC	only mothers	+	+	5
PLU	yes	+	+	4
BD	yes	+	+	4

Finally, the sign of parental transmission is always positive. We did not find any evidence that the parental use of a rule makes it less likely the child uses the same rule.

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Appendix

A. SC, BD and RO rules

A subject using social compromise (SC) will select *d* since this alternative is never the worst for anyone.

Observe that Borda (BD) yields the same result. Assigning 4, 3, 2 and 1 to the first, second, third and fourth alternatives, respectively, *d* has the maximum score.

person 1	person 2	person 3	person 4	person 5	person 6	person 7	SC
c	a	a	d	b	c	a	----
d	b	b	b	d	d	b	
a	d	d	c	c	a	d	
b	c	c	a	a	b	c	

Plurality with a runoff (RO) works in two steps. First, the two most voted alternatives at the top row are selected (*a* and *c*). Then, a majority vote is run between those two winning alternatives.

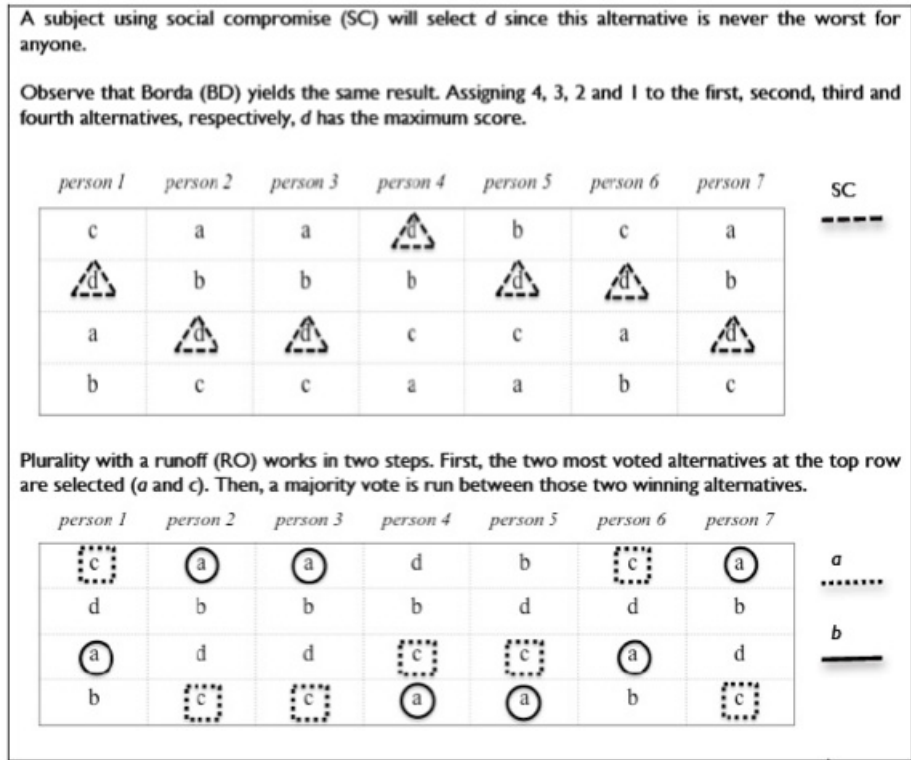| person 1	person 2	person 3	person 4	person 5	person 6	person 7	
c	a	a	d	b	c	a	*a* ....
d	b	b	b	d	d	b	
a	d	d	c	c	a	d	*b*
b	c	c	a	a	b	c	

Figure 3: Box

B. Experimental instructions

(Translation of the instructions originally given in Turkish)

A group of seven members faces four alternatives, "a", "b", "c", "d", at an election. Only one of these alternatives is to be adopted. Each member of the group ranks these four alternatives according to his/her own preference. For example, a member ranking alternatives as

$$a$$
$$b$$
$$c$$
$$d$$

has ranked 'a' as his/her top choice, 'b' as his/her second choice, 'c' as his/her third choice and 'd' as his/her last choice.

Below you can find the preferences of seven members of a group, expressed as a ranking of the alternatives 'a', 'b', 'c' and 'd'. Taking an impartial view, you are asked to indicate which alternative ('a', 'b', 'c' or 'd') should be adopted given the preferences of the group members. You are expected to indicate only one of the alternatives and why you think that alternative should be the winner of the election.

person 1	person 2	person 3	person 4	person 5	person 6	person 7
c	a	a	d	b	c	a
d	b	b	b	d	d	b
a	d	d	c	c	a	d
b	c	c	a	a	b	c

If the rankings of the alternatives by the group members are as above, taking an impartial view, which alternative ('a' or 'b' or 'c' or 'd') should be adopted for this group?

Please explain briefly the reasoning underlying your above views.

	person 1	person 2	person 3	person 4	person 5	person 6	person 7
	d	b	a	b	b	c	a
	c	d	d	d	c	d	c
	a	c	c	c	a	a	b
	b	a	b	a	d	b	d

If the rankings of the candidates by the group members are as above, taking an impartial view, which candidate ('a' or 'b' or 'c' or 'd') should be adopted for this group?

Please explain briefly the reasoning underlying your above views.

person 1	person 2	person 3	person 4	person 5	person 6	person 7
c	d	b	d	d	b	a
a	c	c	a	a	c	c
b	a	a	b	b	a	b
d	b	d	c	c	d	d

If the rankings of the candidates by the group members are as above, taking an impartial view, which candidate ('a' or 'b' or 'c' or 'd') should be adopted for this group?

Please explain briefly the reasoning underlying your above views.

person 1	person 2	person 3	person 4	person 5	person 6	person 7
c	d	a	c	c	d	b
b	a	b	b	b	a	a
a	c	d	a	a	c	d
d	b	c	d	d	b	c

If the rankings of the candidates by the group members are as above, taking an impartial view, which alternative ('a' or 'b' or 'c' or 'd') should be adopted for this group?

Please explain briefly the reasoning underlying your above views.

Description of Variables

Parent's education

There are four categories: Primary school (1), Junior high (2), Senior high (3), and University (4).

Parental profession

There are five categories: (1) Civil servant, (2) Employee, (3) Employer or self-employed, (4) Working at family business - not paid and (5) Other. Our dummy variable *Entrepreneur* takes value 1 for the subjects in the third category (employer or self-employed) and zero otherwise.

#Kids

The number of children in the family has four categories: : 1, 2, 3, 4 and above.

Highschool

The type of highschool in which the student graduated has five categories: (1) regular highschool, (2) high-level academic highschool, (3) high-level academic natural science highschool, (4) vocational highschool, and (5) private highschool. The dummy *goodschool* takes value 1 if the student belongs to categories (2) or (3). The dummy *privateschool* takes value 1 if the student belongs to category (5).

Boarding

Dummy variable taking value 1 if the subject was a boarding student during the highschool years.

Scholarship

Percentage of the tuition fee covered by scholarship: 0, 25, 50 or 100.