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Intergenerational Voter Preference Survey
- Preliminary Results[1]

February 27, 2012

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Abstract

We present results from a survey conducted in December 2011, in order to see if introduction of Demeny voting system will have the desired have effect of addressing gerentocracy. We have identified several facts from the survey that provides a positive answer to this question.

We found that there is substantial difference of policy preference between voters with young children and those without, either because they have only older children or they have not children. When proxy votes (children's votes) and their policy preferences are taken into account, the Demeny Voting Block (voters with children + children)'s policy preferences of childrearing and education (employment is not as important) is different from non-Demeny Voting Block for whom pension and employment are priorities. However we found that party preference does not differ as starkly. This may be because the current electorate is already dominated by older voters, the all parties cater to them. Parties do not identify themselves with any policies in particular. This suggests that when Demeny voting system is introduced, party manifestos will be the first to change.

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1. Introduction

A number of authors have argued that the political power wielded by an ageing electorate is inhibiting democratic governments from implementing important pension reforms.

Nowhere is this issue more salient that in Japan, which combines the highest proportion of over-65 year old people with a voting age of 20 years. Aoki and Vaithianathan (2009) calculate that the over-55 year olds constitute 43% of eligible voters. Many authors have argued that since the older voters have a direct interest in the impeding important reforms to pension policy, electoral reforms ought to precede pension reform.

One approach to overcoming the gerentocracy problem is to allow parents to cast a proxy vote on behalf of their children. According to Aoki and Vaithianathan such a scheme would reduce the over-55 voting block to 35%. This approach is often referred to as Demeny voting after US demographer Paul Demeny who proposed this approach as a direct solution to the gerentocracy problems facing ageing societies in Demeny 1986. While it has been discussed from a theoretical basis, there has been no empirical research undertaken to determine whether such a voting scheme would actually change political power and if so how.

Demeny voting is a system where parents (or legal guardians) of minors who are not permitted to vote, are allowed to vote on behalf of their children. The votes are either split between father and mother or some other scheme such as girls' votes being cast by the mother and boy's votes cast by fathers.

This paper outlines some preliminary results from a survey undertaken to explore the voting intentions of a sample of eligible Japanese voters about their policy concerns, their voting behavior and how they would vote if they were given a proxy vote under a Demeny scheme.

2. Data

The data was obtained from a survey conducted by an internet survey company on December 27 and 28, 2011. We contracted with an internet survey firm.

The surveying firm has a list of internet survey participants. The respondents were first screened by 1 screening question based on whether they had any children, and then

a further question regarding the age of their child. This yielded 3 groups of respondents:

1. Have at least one child 19 years old or younger : 1027 respondents
2. Have children all 20 years old or older 515 respondents
3. No children 514 respondents

The Questionnaire is in the Appendix.

3. Descriptive statistics

The age distribution of respondents is given in Table 1 and compared to the age distribution of the 2011 estimation of the Japanese population (Ministry of Internal Affairs and Communications 2012),

	Survey data			Population Census (2011 estimates from Japan Stats, over 20 year)		
Age	Males	Females	Total	Males	Females	Total
20 – 24	2.49	3.75	3.11	6.4%	5.6%	6.0%
25 – 29	4.21	5.52	4.86	7.2%	6.4%	6.8%
30 – 34	8.62	10.06	9.33	8.1%	7.3%	7.7%
35 – 39	16.67	18.05	17.35	9.8%	8.8%	9.2%
40 - 44	14.94	19.43	17.15	9.2%	8.3%	8.7%
45 - 49	13.79	15.19	14.48	7.9%	7.3%	7.6%
50 - 54	11.4	9.76	10.59	7.6%	7.0%	7.3%
55 - 59	11.02	6.8	8.94	8.3%	7.8%	8.0%
60 - 64	9.87	6.31	8.11	10.4%	10.0%	10.2%
65 - 69	3.45	3.45	3.45	7.5%	7.6%	7.5%
70 - 74	2.2	1.08	1.65	6.6%	7.1%	6.9%
75 - 79	1.15	0.2	0.68	5.3%	6.4%	5.9%
80 - 84	0.19	0.39	0.29	3.5%	5.0%	4.3%
85 +	0	0	0	2.3%	5.4%	3.9%

Table 1: Survey age and sex distribution and official population estimates

As one would expect with an internet based method, our survey under-represents people aged over 60 and is therefore a considerably younger sample. One of the reasons

is that we over-sampled from people with younger children and they tend to be younger.

Table 2 gives age distribution of three groups of respondents. Parents of younger children are themselves younger than parents of older children. Respondents without children are younger (average distribution) than those who have older children. This suggests the group includes those who intend to have children in the future. We use the term "No minors" as those with no young children and those with only adult children (over 20 years of age).

	At least one child under 19 years old	All children over 20 years old	No children	No minors (over 20 + No children)
20-29	43	0	121	121
30-39	367	0	183	183
40-49	480	29	142	171
50-59	131	215	54	269
60-69	5	219	14	233
70-79	1	45	1	46
80-89	0	6	0	6
Over 90	0	0	0	0
Average	41.8	59.9	37.7	48.9

Table 2 :Age Distribution

Demeny Eligibility

Since the main purpose of this research is to understand how Demeny voting if instituted for the proportional representation (PR) vote would change preferences and behavior, define "Demeny Eligible" as respondents who have at least one child under 19 years of age (19 and under) and would therefore be eligible for an extra vote (for each child 19 and under). The group "No Minors" in Table 2 are those voters who at *not* Demeny Eligible.

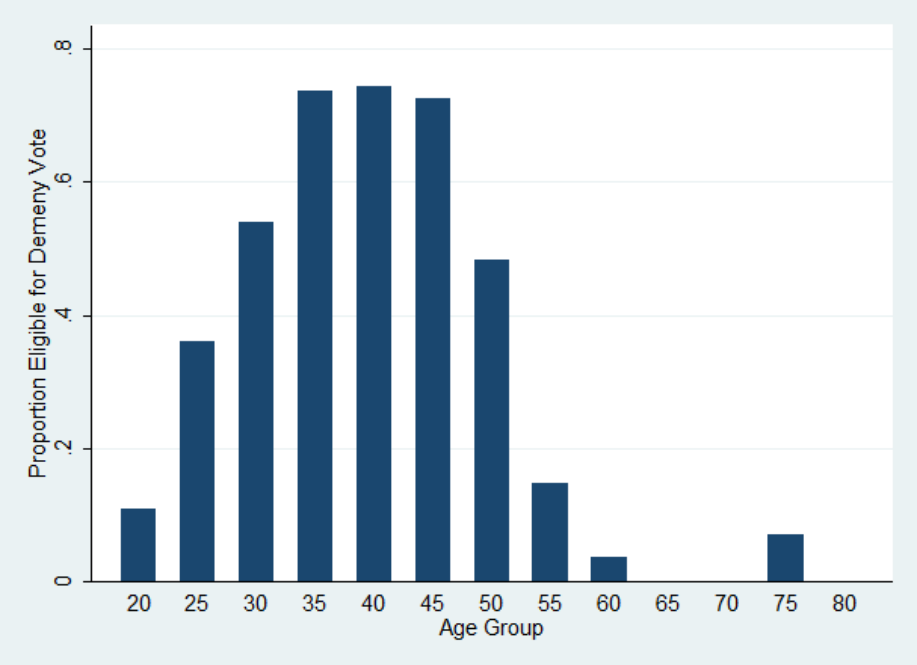


Figure 1: Proportion of Demeny Eligible Voters in each Age Group

Figure 1 shows proportion of voters that are Demeny Eligible, i.e., has at least one child under 19, in each age group. The distribution is almost symmetric around average age 41. The average number of proxy votes, one for each child under 19, Demeny Eligible voters have is shown in Figure 2. It is equivalent to the average number of children under 19 among Demeny Eligible voters.

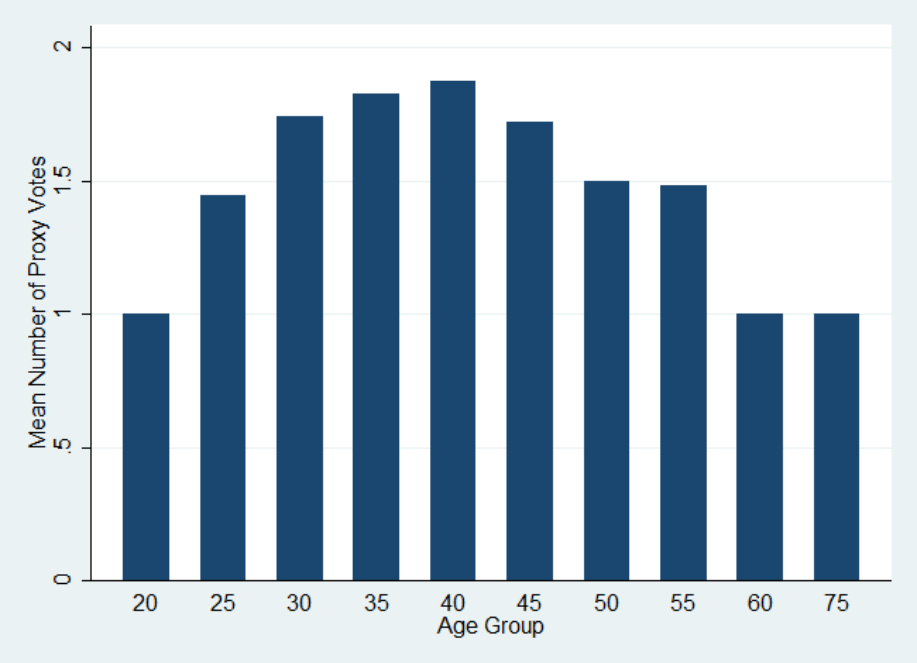


Figure 2: Mean proxy votes by Age Group (for those who are Demeny Eligible)

From numbers represented in Figures 1 and 2, we have weights to find number of votes cast by each age group under Demeny voting. This is shown in Figure 3. We see that age group 35 to 49, the work force population and generation with children, control more votes, as intended.

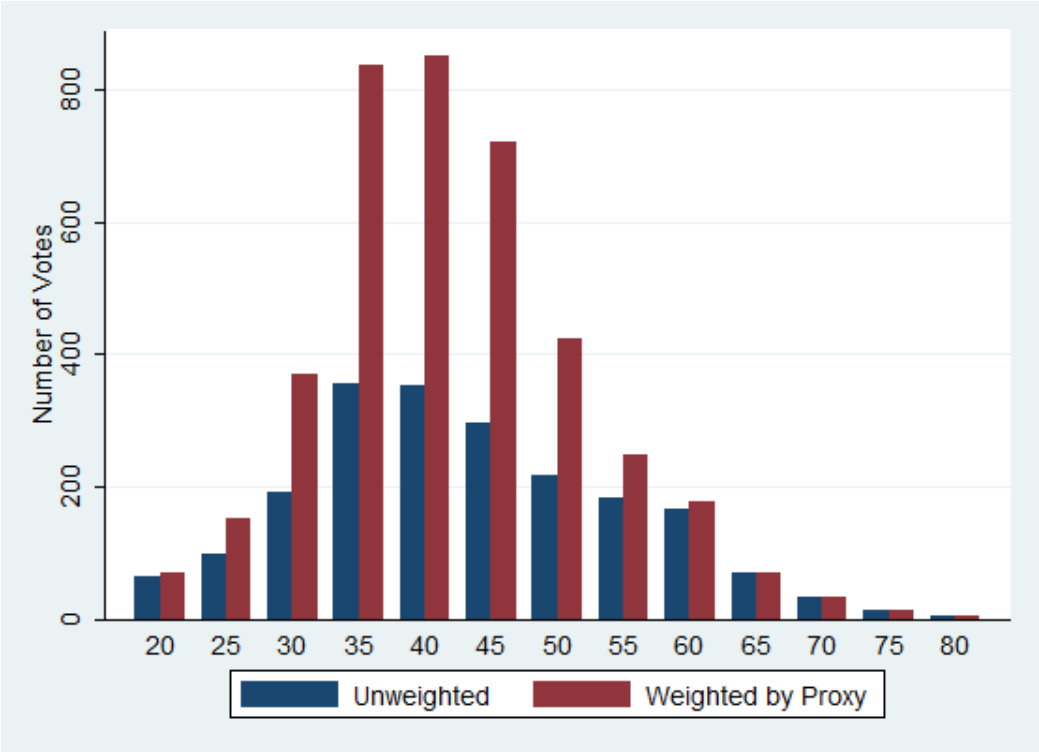


Figure 3: Weighted and Unweighted Votes by Age Group

Demeny Voting Block

Under Demeny Voting rule, parents will cast the proxy votes of their children. We will refer to the sum of Demeny Eligible voters and their proxy votes as Demeny Voting Block. Figure 3 shows how the Demeny Voting Block among the survey respondents are distributed by age groups.

We can also get an approximation of how the Demeny Voting Block in the general electorate from the 2010 Population Census. (Figure 4). This is an estimation because this is based on people who live with children 18 and under, the only published information that contains relevant information (Aoki and Vaithianathan 2010). The actual Demeny Eligible and Demeny Voting Block will be larger.

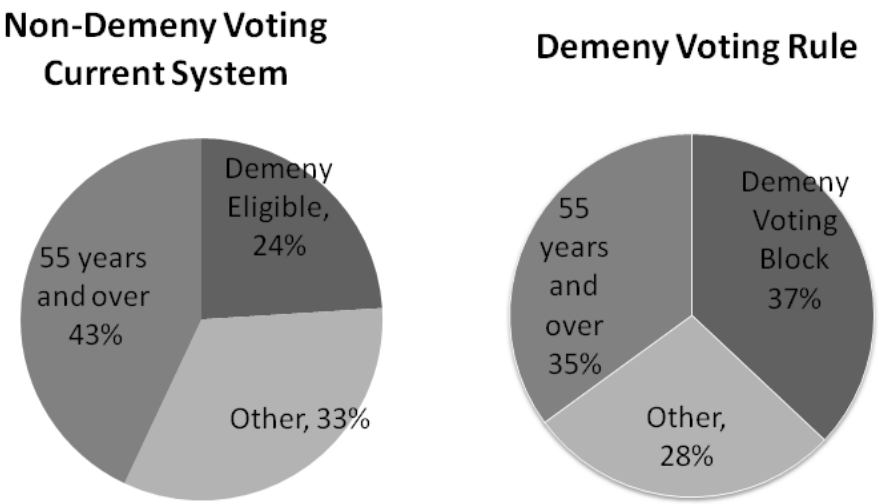


Figure 4: Estimate Demeny Eligible and Demeny Voting Block of Actual Population

4. Voter Preference over Policy

We asked respondents to choose what is the most important and second most important from a list of 11 policies.

The specific policy questions that we asked were:

1. POL1 : what is the most important policy?
2. POL2: what is the second most important policy?
3. POL1_CHILD [4]: what is the most important policy *for your child?*
4. POL2_CHILD[5]: what is the second most important policy *for your child*?

Tables 3 summarizes responses by have at least one child under 19, have children all over 20, and no children. The largest proportion in all three groups think Employment is most important. One can interpret this to mean many people think economic policy is very important. Those with young children think Childrearing Support is very important, while other two groups think Pension is very important. Pension can be important because your are old and close to getting a pension but also because you have no children and cannot expect family support in old age. We will return to the effect of having children and age later in Section 7. Instead, we will focus here on Demeny Eligibility (Table 4).

[4] Only asked from respondents with children.
[5] Only asked from respondents with children.

	Most Important (POL1)			Second Most Important (POL2)			(POL1 + POL2)/ 2		
	Under 19	Over 20	None	Under 19	Over 20	None	Under 19	Over 20	None
Pension 年金	15.1	25.9	21.2	17.1	20.8	21.2	16.1	23.3	21.2
Healthcare 医療	4.4	4.7	7.2	12.3	10.9	14.2	8.3	7.8	10.7
Longterm care 介護	1.6	2.3	3.3	3.9	8.0	6.0	2.7	5.2	4.7
Education 教育	8.4	3.1	4.5	8.5	5.8	3.7	8.4	4.5	4.1
Science & technology 科学技術	0.3	1.2	1.2	1.1	1.9	2.5	0.7	1.6	1.8
Child rearing support 子育て支援	16.3	1.6	3.1	15.7	1.9	3.9	16.0	1.8	3.5
Environment 環境	5.2	5.3	5.0	7.6	6.8	6.2	6.4	6.0	5.6
Energy エネルギー	5.5	6.6	4.5	5.6	9.1	9.1	5.5	7.9	6.8
Foreign affairs 外交	4.8	7.4	7.0	5.5	8.6	10.5	5.1	8.0	8.7
Employment 雇用	25.7	30.4	30.7	16.8	18.7	17.9	21.3	24.5	24.3
Security (safety) 安全	13.0	11.7	12.4	6.0	7.4	4.9	9.5	9.5	8.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Under 19 = Have at least one child under 19

Over 20 = All children are over 20

None = Have no children

Table 3: Policy Preference by Groups

	Non- Eligible (no minors)	Demeny Eligible (have minors)	Total
Pension	**23.55**	15.08	19.32
Healthcare	5.91	4.38	5.15
Longterm care	2.81	1.56	2.18
Education	3.88	8.37	6.12
Science & technology	1.16	0.29	0.73
Childrearing support	2.33	**16.25**	9.27
Environment	5.14	5.16	5.15
Energy	5.52	5.45	5.49
Foreign affairs	7.27	4.67	5.97
Employment	**30.33**	**25.88**	28.11
Security	12.11	12.94	12.52

Table 4: Policy Preference (POL1+POL2) by Demeny Eligibility

We asked the Demeny Eligible voter, i.e., parents of young children, what they thought were policies that matters for their child (POL1_Child, POL2_Child in Table 5). There is greatest interest in Education and Childrearing Support. 24.4% of parents think most important policy for child is Education. 20% think Education is second most important. Employment is also most important for many. As for the parents, 25.7% thought Employment is the most important, and second most important was around 15% of total for Pension, Childrearing and Employment (Table 6). Security was most important for similar proportion of parents (13%) and child (14.9%). Security is second most important for similar proportion of children (13/1%) while it was only 6% of parents. Environment is second most important for 13.3 % of children but only 7.6 % of parents. In short, parents think children's priority is more long term policies, Education, Security and Environment. For parents, Employment is overwhelmingly important with Pension and Childrearing Support the next most important. Relationship between parent and child policy preference is summarized in Table Parent Most /child and Parent Second/child in the Appendix.

	POL1_Child		POL2_Child		(POL1_Child+POL2_Child)//2	
Pension	41	4.0	88	8.6	64.5	6.3
Healthcare	36	3.5	120	11.7	78	7.6
Longterm care	3	0.3	8	0.8	5.5	0.5
Education	**303**	**29.5**	**206**	**20.1**	**254.5**	**24.8**
Science & technology	3	0.3	11	1.1	7	0.7
Child rearing support	251	24.4	137	13.3	194	18.9
Environment	55	5.4	137	13.3	96	9.3
Energy	25	2.4	41	4.0	33	3.2
Foreign affairs	1	0.1	25	2.4	13	1.3
Employment	157	15.3	119	11.6	138	13.4
Security (safety)	152	14.8	135	13.1	143.5	14.0
Total	1027	100.0	1027	100.0	1027	100.0

Table 5: Important Policy for Child

From the policy preference of Demeny Eligible and Not Eligible (Table 4), preference of children (Table 5), and proxy weights (Figure 3), we can calculate the policy preference of Demeny and Non-Demeny Voting Blocks (Figure 5).

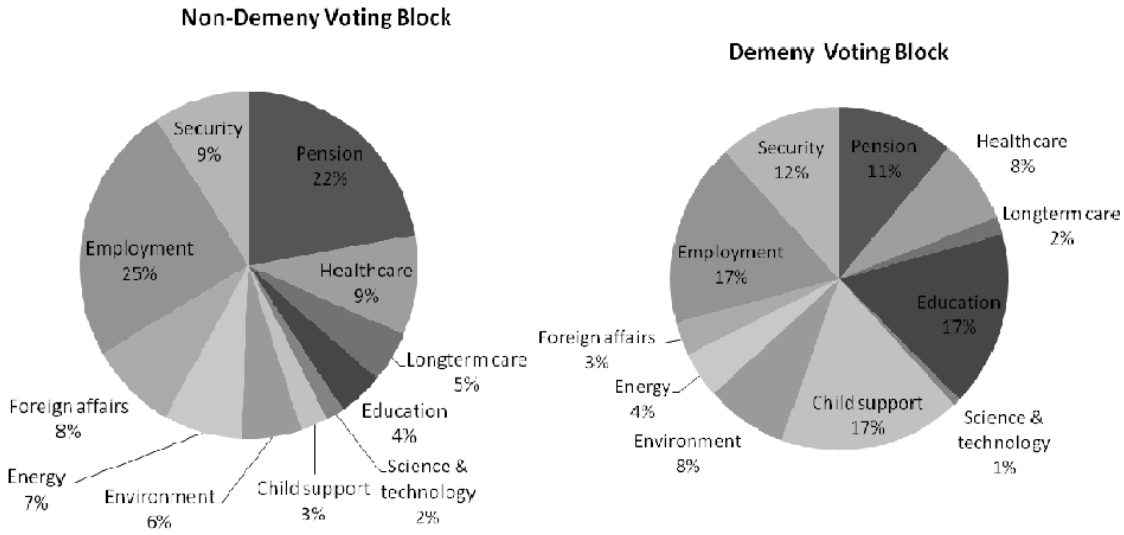


Figure 5: Policy Preferences by Demeny and Non-Demeny Voting Blocks

5. Voter preference over Party

We asked a range of questions regarding respondents' attitudes to political parties.

The PARTINT relates to questions of current (or intentional voting) while the PARTLAST relates to questions that ask the respondent to consider their vote in the last general election held on the 30th of August, 2009:

1. PARTINT (Q2): Which party do you *currently* support (which would you vote for under the PR system).
2. PARTINT_C (Q6): Which party would you vote for on *behalf of your **child*** under a Demeny system (only asked Demeny Eligible)
3. PARTINT_O (Q7): Which party would you vote for on your **own** behalf under a Demeny system (only asked Demeny Eligible)
4. PARTLAST (Q9): Which party did you vote for in the last general election?
5. PARTLAST_C(Q10): Which party would you have voted for in the last election on behalf of your child? (only asked Demeny Eligible)

The PARTINT(Q2) is summarized in Figure 4. More than half the respondents did not support any party at the time of the survye (59%).

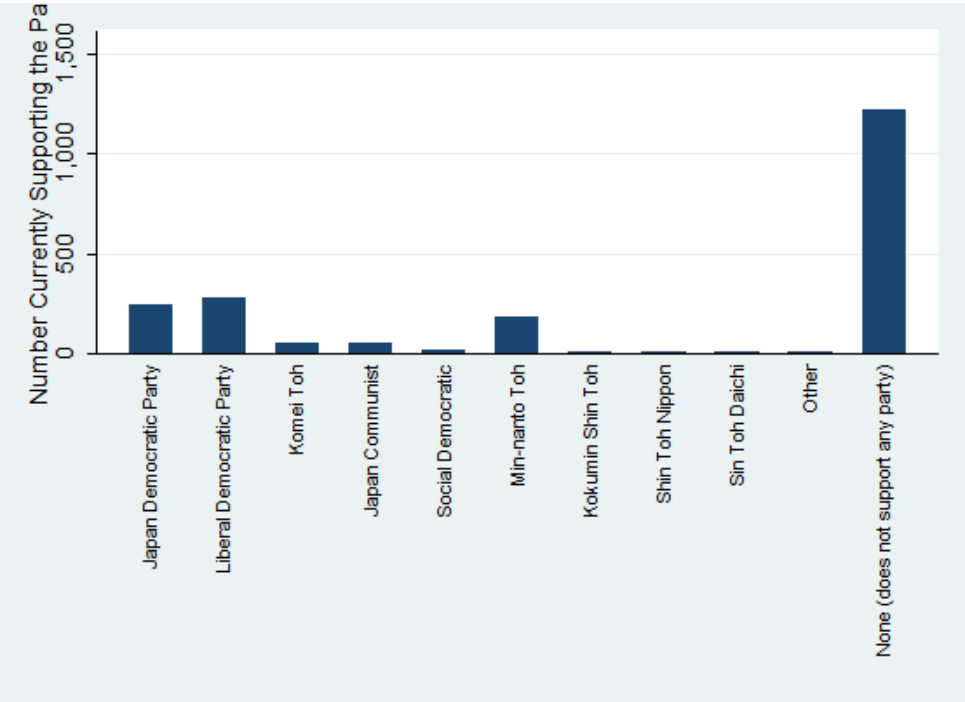


Figure 6: Party currently supported (PARTINT(Q2))

PARTINT(Q2) by Demeny Eligibility is summarized in Table 3 and Figure 6. Min-nano Toh is the party with third largest support for both Demeny Eligible and not. Among Non-Demeny Eligible voters, support for Min-nano Toh is close to that of JDP.

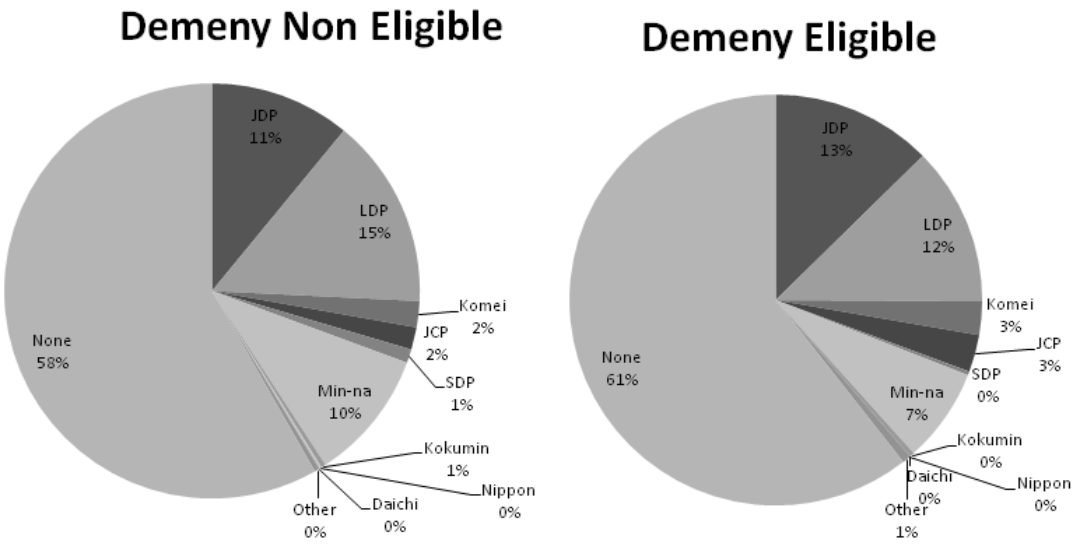


Figure 6: Party Preference by Demeny Eligibility

PARTINT(Q2)	Not Eligible	Demeny Eligible	Total
Japan Democratic Party	10.95	12.65	11.80
Liberal Democratic Party	14.83	12.45	13.64
Komei Toh	2.03	2.63	2.33
Japan Communist Party	1.74	2.92	2.33
Social Democratic Party	1.07	0.29	0.68
Min-nanto Toh	10.17	7.39	8.79
Kokumin Shin Toh	0.39	0.39	0.39
Shin Toh Nippon	0.10	0.00	0.05
Sin Toh Daichi	0.10	0.00	0.05
Other	0.39	0.68	0.53
None (does not suppor any party)	58.24	60.60	59.42
Total	100.00	100.00	100.00

Table 7: Party Supported (PARTINT(Q2) at Time of Survey, by Demeny Eligibility

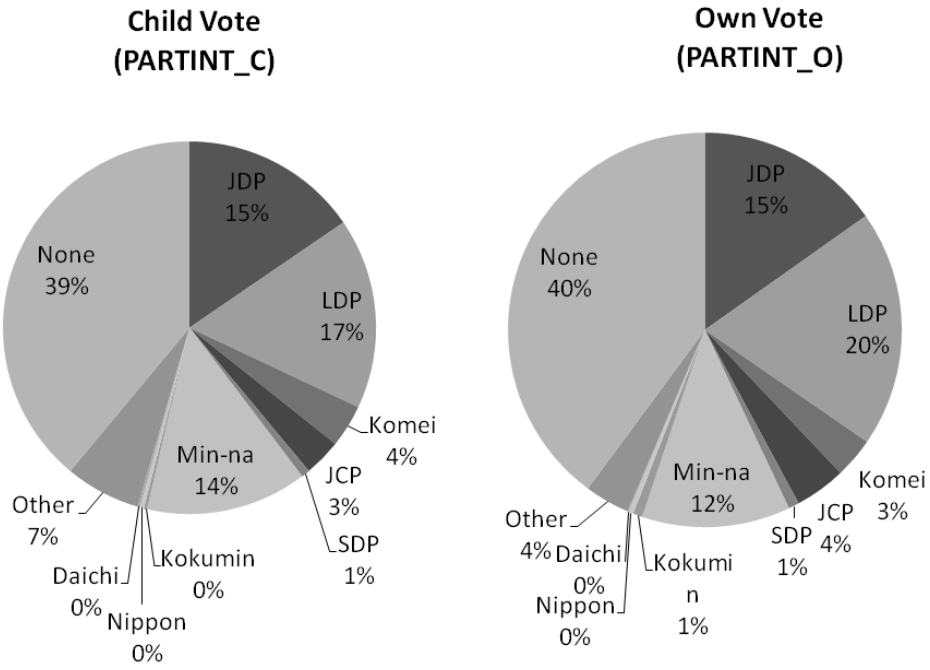
We now turn to responses when we asked the group who are Demeny Eligible (i.e. have minors) who would actually be casting votes (proxy votes) on behalf of their children, how they would vote on behalf of children (PARTINT_C (Q6)) and then how they would vote themselves (PARTINT_O (Q7)). Reponses are summarized in Table 8 and Figure 7.

There are two things to be noted in Table 8. First, some parents cast their children's vote differently from their own (columns Child and Own). In addition, some parents change their own choice once they are able to cast a vote for their child (column from Table 7 and Own). This results in reduction of proportion of those supporting no party (None) declines from 60.7 % to 40.1%. Proportion of "None" for Child is even lower at 38.9%. (Compare Figures 6 and 7). This suggests that the original lack of support for a particular single party is due to lack of a "best fit" party, i.e. one that is sufficiently close to the voter's preference. However, with two votes, it becomes possible to combine two parties, in order to find a better fit.

Due to reduction of None voters, share of all parties increase with Demeny voting. The two major parties and Min-nano Toh have significantly larger shares with Demeny voting. In particular Min-nano Toh's Child vote share is larger than that of Japan Democratic Party. Relationship between own and child vote is summarized in the Appendix and regressional analysis is in Section 7..

	Table 7, Demeny Eligible		Child Vote PARTINT_C(Q6)		Own Vote PARTINT_O(Q7)	
Japan Democratic Party	130	12.7	149	14.5	156	15.2
Liberal Democratic Party	127	12.4	167	16.3	199	19.4
Komei Toh	27	2.6	36	3.5	34	3.3
Japan Communist	30	2.9	34	3.3	43	4.2
Social Democratic	3	0.3	8	0.8	9	0.9
Min-nanto Toh	76	7.4	155	15.1	124	12.1
Kokumin Shin Toh	4	0.4	4	0.4	8	0.8
Shin Toh Nippon	0	0.0	4	0.4	4	0.4
Sin Toh Daichi	0	0.0	3	0.3	1	0.1
Other	7	0.7	68	6.6	37	3.6
None	623	60.7	399	38.9	412	40.1
Total	1027	100.0	1027	100.0	1027	100.0

Table 8: Party Preference of Child vote (PARTINT_C) and Own vote (PARTINT_O) with Demeny voting.



. Figure 7: Party Vote for Own and Child (proxy)

Relationship between own vote and child vote is tabulated in Table 6. One quarter of those that vote for JDP will cast the child's vote for some other party. We will resort to logit regression to explain who reason for the switch in Section 7.

Effect of Demeny Voting

Using the weights in Figure 3 and Table 8 we can compare party preference of Demeny and Non-Demeny Voting Blocks (Figure 9).

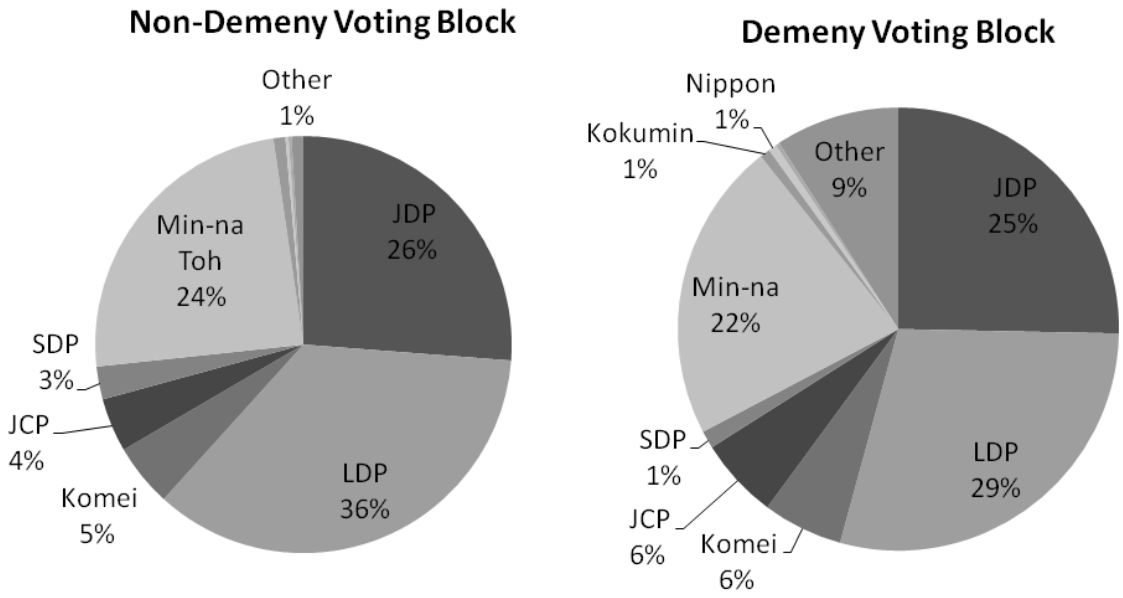


Figure 9: Current Party Preference (PARTINT), Demeny and Non-Demeny Voting Blocks.

Recall the stark difference in policy priorities between Demeny Eligible and Non-Eligible (Figure 5), as well as separation of child and own policy priorities of the Demeny Eligible voters (Tables 4 and 5). However, those differences do not seem to be reflected in the party votes. This is probably because all parties currently cater to the electorate dominated by Demeny Non-Eligible voters. There is no emphasis on policies that matte to Demeny Eligible voter. In Figure 9, the only notable difference in larger

proportion of "Other" votes in Demeny Voting Block. We asked the respondents to write what "Other" and they mostly wrote "Osaka Ishin no Toh". The survey took place in December, after that Osaka double election.

Last General Election

Now we turn to PARTLAST(Q9), how the survey respondents had voted in the last general election. This is summarized in Figure 10. In Table 9, we also present the actual breakdown of party votes in the last election. This suggests that the respondents are not representative in terms of party preference. Most notably, interpreting only those that chose a party went to vote and those that answered None did no, The actual results of Proportional Representation in the last general election were JDP 42.41% and LDP 26.73%. The survey respondents voted more pro-JDP than the general voter population. Min-nano Toh which had the third largest number of votes among survey respondents only had 4.27% among all the voters in the election. This was only the 6th largest share. Komei Toh had the third largest share in the general election had the third largest share in the last election.

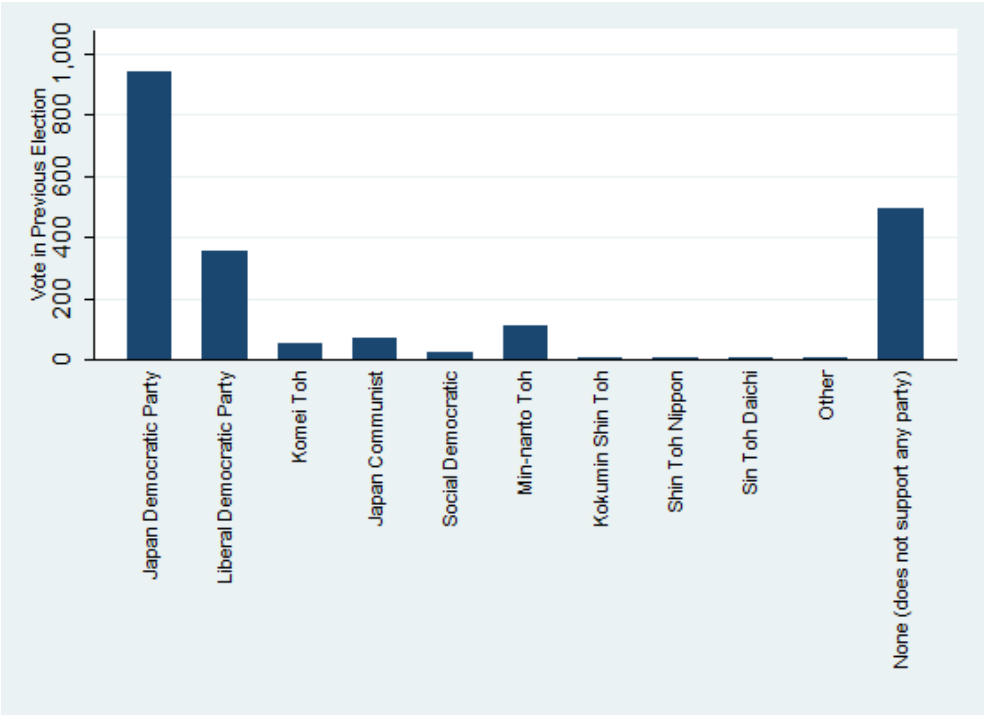


Figure 10: Vote in last general election (PARTLAST (Q9))

Party Supported in Last Election	Survey PARTLAST (Q9):	PARTLAST (Q9) without None	Actual Electorate
Japan Democratic Party	45.73	**60.11**	**42.41**
Liberal Democratic Party	17.14	**22.53**	**26.73**
Komei Toh	2.62	**3.44**	**11.45**
Japan Communist Party	3.3	**4.34**	**7.03**
Social Democratic Party	1.07	**1.41**	**4.27**
Min-nano Toh	5.49	**7.22**	**4.27**
Kokumin Shin Toh	0.15	**0.2**	**1.73**
Shin Toh Nippon	0.19	**0.25**	**0.75**
Sin Toh Daichi	0.05	**0.07**	**0.62**
Other	0.34	**0.45**	**0.74**
None (does not support any party)	23.92	**0**	**0**

Table 9: Survey Respondents Votes and Actual Electoral Outcome in Last General Election

Table 10 shows difference in party support according to three groups, at least one child under 19, only children over 20, and no children. The last two groups are aggregated into non Demeny Eligible voters in Table 11.

	Under 19		Over 20		None	
Japan Democratic Party	499	48.6	274	53.3	168	32.6
Liberal Democratic Party	171	16.7	87	16.9	95	18.4
Komei Toh	32	3.1	12	2.3	10	1.9
Japan Communist	34	3.3	14	2.7	20	3.9
Social Democratic	5	0.5	10	1.9	7	1.4
Min-nano Toh	48	4.7	29	5.6	35	6.8
Kokumin Shin Toh	0	0.0	1	0.2	2	0.4
Shin Toh Nippon	2	0.2	1	0.2	1	0.2
Sin Toh Daichi	0	0.0	0	0.0	1	0.2
Other	3	0.3	1	0.2	2	0.4
None	233	22.7	85	16.5	174	33.8
Total	1027	100.0	514	100.0	515	100.0

Table 10: Vote in Last General Election (PARTLAST (Q9)) by Groups

There is significant difference between Table 6 and Table 9. Table 6 is current

preference (PARTINT(Q2) which reflects voter's assessment of the parties since the election. We will turn to regression analysis to explain the change in the Section 7.

Party Supported in Last Election	Non Eligible	Demeny Eligible	Total
Japan Democratic Party	42.93	48.54	45.73
Liberal Democratic Party	17.54	16.73	17.14
Komei Toh	2.13	3.11	2.62
Japan Communist Party	3.29	3.31	3.30
Social Democratic Party	1.65	0.49	1.07
Min-nanto Toh	6.30	4.67	5.49
Kokumin Shin Toh	0.29	0.00	0.15
Shin Toh Nippon	0.19	0.19	0.19
Sin Toh Daichi	0.10	0.00	0.05
Other	0.29	0.39	0.34
None (does not suppor any party)	25.29	22.57	23.92
Total	100.00	100.00	100.00

Table 11:Vote in Last General Election (PARTLAST (Q9)) by Demeny Eligibility

Furthermore, we asked a retrospective (and hypothetical question) about how parents would have voted on their children's behalf (proxy vote) in the last general election (Table 12). Again, we observe child vote being cast for Min-nano Toh. As we will see in the next section, parents think the most important policy for children is education.

	Child vote PARTLAST_C(Q10):		Own vote PARTLAST_O(Q9):	
Japan Democratic Party	389	37.9	499	48.6
Liberal Democratic Party	155	15.1	171	16.7
Komei Toh	34	3.3	32	3.1
Japan Communist	32	3.1	34	3.3
Social Democratic	7	0.7	5	0.5
Min-nanto Toh	79	7.7	48	4.7
Kokumin Shin Toh	0	0.0	0	0.0
Shin Toh Nippon	3	0.3	2	0.2
Sin Toh Daichi	0	0.0	0	0.0

Other	15	1.5	3	0.3
None	313	30.5	233	22.7
Total	1027	100.0	1027	100.0

Table 12: Child's Vote in Last Election (PARTLAST_C(Q10))

Clearly Demeny Eligible voters are aware different things matter to self and child. However, since Min-nano Toh is not associated with education, this leads us the believe parents may be using the proxy vote to satisfy their party preferences. This is consistent with vote splitting involving many parties (Tables 8,12).

6. Voting Systems

We asked how a child's vote should be allocated to parent or parents. Surprisingly, more people believe that father should vote on behalf of a child than mother. However, even more people think the allocation should be decided by the parents themselves. Those that have no children have smaller proportion that think parents should decide but they have the largest proportion that think that a child's vote should be shared equally among the two parents. 68% oppose Demeny Voting among those with older children. Recall that this group had the highest average age and those young children the lowest (Table 1). The preference of those with no children, i.e., medium average age, falls between the other two groups.

	Under 19		Over 20		None	
Father	118	11.5	22	4.3	14	2.7
Mother	31	3.0	3	0.6	3	0.6
Parents decide	445	43.3	89	17.3	138	26.8
Each parent 1/2 vote	89	8.7	34	6.6	56	10.9
Other	17	1.7	14	2.7	18	3.5
Against voting system	327	31.8	352	68.5	286	55.5
Total	1027	100	514	100	515	100

Table 13: How to Allocate Child's Vote

Among those that oppose Demeny Voting system, we asked why and the response is summarized in Table 14.

	Under 19		Ove 20		None	
Not fair to people without children	33	10.1	24	6.8	30	10.5
Not possible to have voting by proxy	184	56.3	250	71.0	157	54.9
No guarantee parent votes on behalf of child	93	28.4	64	18.2	78	27.3
Have more children for more votes	1	0.3	2	0.6	3	1.0
Other	16	4.9	12	3.4	18	6.3
Total	327	100.0	352	100.0	286	100.0

Table 14: Reason for Opposing Demeny Voting

All groups have the largest proportion opposing because parents should not be voting on behalf of their children. The second most common reason is that parent may not always have the child's interest at heart. The two top reasons are probably based on similar sentiment. What we have seen in the previous sections partly support this view. Although parents are aware that policy that matters to the child is different from what is important for themselves (Table 8,10), vote splitting is not necessarily consistent with this consideration. Reasons for opposing are independent of having children or not

Demeny Voting System is not the only alternative electoral system that have been suggested. Japan has one of the highest minimum voting age which is twenty. The minimum age for voting on national referendum has already been lowered to 18. Results of Table 15 suggest the lower age limit is opposed by very few people..

	Under 19		Over 20		None	
Support	436	42.5	209	40.7	206	40.0
Don't know	391	38.1	184	35.8	203	39.4
Oppose	200	19.5	121	23.5	106	20.6
	1027	100.0	514	100.0	515	100.0

Table 15: Lower Voting Age to 18

Several people have suggested defining districts not according to geographic proximity but by age. For instance, voters aged 20 to 29 could all be in one district, votes aged 30 to 39 constitute one district, voters aged 40 to 49 constitute one district, and so on (Table 16). The age districts have been proposed to correct for differences in the turn

out rate among age groups.[6] However, if number of representatives from each district is proportional to its size, i.e., number of voters, the Preston effect will not be addressed. Lack of political voice of younger people can be corrected if number of representatives were inversely related to size of the district. This way, younger voters' votes are weighted more heavily.

	Under 19		Over 20		None	
Support	160	15.6	38	7.4	81	15.7
Don't know	560	54.5	241	46.9	268	52.0
Oppose	307	29.9	235	45.7	166	32.2
	1027	100.0	514	100.0	515	100.0

Table 16: Age Districts

7. Regression Analysis

We first try to examine policy choice. For most policies, age is the only significant variable, if anything is significant at all, with exception of three policies, Pernsion, Childrearing Support and Education (Table 16). Significant variables are Age, Number of Children and the constant term when both Pension and Childrearing Support are regressed, but the signs are opposite. Being older and less number of children increases likelihood of choosing Pension. Being younger and more number of children increases likelihood of choosing Childrearing Support. Education regression shows begin a firm employee, other than clerk or engineer, is significant. Younger voters are more likely to choose education, but unlike Childrearing Support, number of children does not matter. This could be because it is the young who do not have children that matter.

	Pension		Childrearing Support		Education	
Variable	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Civil servant						

[6] For instance, in the last general election (2009), the lowest turn out was voters 20-24 years old with rate 46.66%. Turn out rate increase with age until it peaks at 65-69 year old voters with 85.04 %. Groups covering 60-74 years of age all have turn our rate about 80%. 大４５回総選挙における年齢別投票率　財団法人　明るい選挙推進協会
http://www.akaruisenkyo.or.jp/070various/071various/379

Manager, COE	-0.231	-0.53	0.0833	0.11	-0.282	-0.48
Firm (clercial)	-0.412	-1.17	0.708	1.5	-0.692	-1.54
Firm (engieering)	-0.317	-0.92	0.338	0.71	-0.872	-1.92
Firm(other_)	-0.318	-0.87	0.435	0.86	-1.592**	-2.6
Self employed	-0.713	-1.81	0.46	0.82	-0.449	-0.91
Independent professional	-0.923	-1.32	0.906	0.99	-0.187	-0.23
Full time housewife	-0.164	-0.53	0.315	0.71	-0.830*	-2.11
Part time employment	-0.626	-1.7	0.199	0.4	-0.514	-1.16
Student						
Other	-0.413	-1.03	-0.217	-0.29	-1.208	-1.75
Unemployed	0.222	0.57	0.455	0.51	-1.355	-1.66
Sex	-0.124	-0.91	-0.113	-0.66	-0.293	-1.4
Age	.0368***	5.4	-0.123***	-10.46	-0.0247*	-2.26
Number of children	-0.288**	-3.07	0.286**	2.63	0.00902	0.07
Constant	-2.367***	-5.23	2.411***	3.84	-0.632	-1.00

Table 17: Policy Choice Regression * 95%, ** 99%, ***99.99%

We now turn to determination of party support. It turns out that factors that determine party support differs by party. There is only variable that is significant for choosing of JDP is Age (Table 18). Older the voter, the more likely he or she is to choose JDP. Age is significant at 99% but constant if significant at 99.99%. LDP is less likely to be chosen by Full-time housewife and those employed part-time. Only the constant term is significant when the same variables are regressed on Communist Party, Komei-Toh and Social Democratic Party. Min-nano Toh regression shows Age is 0.0205 and significant at 95%.

	JDP		LDP	
Variabale	Coefficient	t-value	Coefficient	t-value
Civil servant				
Manager, COE	-0.0696	-0.13	0.176	0.41
Firm (clercial)	0.195	0.49	-0.171	-0.5
Firm (engieering)	0.259	0.6	-0.699	-1.94
Firm(other_)	0.00348	0.01	-0.671	-1.74
Self employed	-0.757	-1.55	-0.672	-1.68
Independent professional	0.513	0.82	-0.192	-0.31

Full time housewife	-0.339	-0.9	-0.887**	-2.72
Part time employment	0.174	0.43	-1.454***	-3.36
Student				
Other	-0.246	-0.52	-0.163	-0.41
Unemployed	-0.184	-0.38	-0.732	-1.59
Sex	0.276	1.8	0.172	1.12
Age	0.0209**	2.68	0.00658	0.85
Number of children	0.0761	0.77	0.152	1.57
Constant	3.121***	-5.86	1.988***	-4.08

Table18: Choice of Party Regression * 95%, ** 99%, ***99.99%

We also thought to understand if and how policy preference determines party choice. Results of logit regression for JDP, LDP, Communist Party and Min-nano Toh are in Tables 19 to 22.

Japan Democratic Party

	Coefficient	t-value
civil service	0.132	0.27
business owner	0.0541	0.11
employee(clerk)	0.295	0.73
employee(engineer)	0.337	0.84
employee (other)	0.126	0.30
self employed	-0.662	1.38
Independent	0.694	1.12
house wife (husband)	-0.217	0.56
part time	0.294	0.72
Student	.	.
Other	-0.133	0.30
Unemployed	.	.
Sex	0.253	1.64
AGE	0.0228**	2.76
Number of Children	0.0658	0.66
Pension	0.307	0.97
Healthcare	0.329	0.72
Longterm care	1.028	1.93

Liberal Democratic Party

	Coefficient	t-value
civil service	0.761	1.61
business owner	0.868	1.83
employee(clerk)	0.629	1.49
employee(engineer)	0.145	0.33
employee (other)	0.143	0.31
self employed	0.0887	0.19
independent	0.628	0.94
house wife (husband)	-0.0769	-0.19
part time	-0.665	-1.33
Student	.	.
Other	0.594	1.34
Unemployed	.	.
Sex	0.181	1.16
AGE	0.00551	0.68
Number of Children	0.177	1.78
Pension	-0.323	-1.13
Healthcare	0.419	1.11
Longterm care	-0.092	-0.16

Education	0.63	1.65
Science & technology	.	.
Child support	0.545	1.54
Environment	0.639	1.60
Energy	0.524	1.32
Foreign affairs	0.146	0.33
Employment	0.652*	2.25
Security	.	.
Constant	-3.758***	-5.56

Table 19: Choice of JDP and Public Policy

Education	0.241	0.71
Science & technology	-0.498	-0.45
Child support	-0.505	-1.44
Environment	-0.965	-1.88
Energy	-0.506	-1.18
Foreign affairs	0.847**	2.62
Employment	-0.135	-0.53
Security	.	.
Constant	-2.680***	-4.01

Table 20: Choice of LDP and Public Policy

Min-nano Toh

	Coefficient	t-value
civil service	-1.122	-1.83
business owner	-0.0985	-0.21
employee(clerk)	-0.109	-0.28
employee(engineer)	-0.647	-1.53
employee (other)	-0.576	-1.31
self employed	-0.506	-1.17
Independent	-0.283	-0.40
house wife (husband)	-0.857*	-2.24
part time	-1.701**	-3.02
Student	.	.
Other	-0.565	-1.26
Unemployed	.	.
Sex	0.0831	0.45
AGE	0.0193*	2.01
Number of Children	-0.169	-1.36
Pension	0.513	1.38
Healthcare	0.785	1.58
Longterm care	-0.549	-0.51
Education	0.386	0.79
Science & technology	1.238	1.4
Child support	0.459	1.05
Environment	0.474	0.93

Japan Communist Party

	Coefficient	t-value
civil service	1.618	1.39
business owner	0.336	0.23
employee(clerk)	0.663	0.57
employee(engineer)	1.318	1.18
employee (other)	0.629	0.53
self employed	0.778	0.66
Independent	1.564	1.07
house wife (husband)	0.665	0.6
part time	0.018	0.01
Student	.	.
Other	0.534	0.43
unemployed	.	.
Sex	-0.0895	-0.27
AGE	-0.00252	-0.14
Number of Children	0.251	1.26
Pension	1.147	1.44
Healthcare	1.933*	2.19
Longterm care	1.338	1.07
Education	-0.143	-0.12
Science & technology	.	.
Child support	0.982	1.15
Environment	0.88	0.87

Energy	0.444	0.9
Foreign affairs	1.177**	2.8
Employment	0.35	0.97
Security	.	.
Constant	-2.806	-3.69

Table 21:Choice of Min-nano Toh Public Policy

Energy	0.766	0.76
Foreign affairs	1.269	1.36
Employment	0.798	1.02
Security	.	.
Constant	-5.675***	-3.43

Table 22: Choice of JCP and Public Policy

In order to understand how parents decide how to vote for self and children under Demeny voting, we used logit regression to predict probability of splitting votes, i.e., casting different votes for self and child (Table 22). Age variable is 1 =12 and under, 2 =12 to19, 3 = 20 to24, 4=25 to29, … 10=55 to 59, 11=60 and over. A parent that thinks education is an important issue is more likely to split the vote,.

	(1) Party_split	
Party_split		
job==2	-0.225	(-0.49)
job==3	-0.0781	(-0.22)
job==4	0.128	(0.37)
job==5	0.458	(1.25)
job==6	0.285	(0.76)
job==7	0.0940	(0.15)
job==8	0.851**	(2.63)
job==9	0.742*	(2.10)
o.job==10	.	.
job==11	0.996*	(2.25)
job==12	0.974	(1.81)
sex==2	-0.334*	(-2.52)
AGE	0.158***	(17.17)
Number of Childre~3)	-0.0686	(-0.79)
Pol1==Pension	0.238	(0.98)
Pol1==Healthcare	0.515	(1.38)
Pol1==Longterm care	0.455	(0.86)
Pol1==Education	-0.186	(-0.58)
Pol1==Science & te~y	-0.0587	(-0.07)
Pol1==Child support	0.325	(1.14)
Pol1==Environment	0.224	(0.67)
Pol1==Energy	0.660*	(1.97)
Pol1==Foreign affa~s	0.599	(1.74)
Pol1==Employment	0.428	(1.94)
o.Pol1==Security	.	.
Party==Japan Democ~y	-0.353	(-1.74)
Party==Liberal Dem~y	-0.396	(-1.84)
Party==Komei Toh	-0.933*	(-2.06)
Party==Japan Commu~t	-1.550***	(-3.32)
Party==Social Demo~c	-1.642	(-1.58)
Party==Min-nanto Toh	-0.176	(-0.71)
Party==Kokumin Shi~h	1.077	(1.03)
o.Party==Shin Toh ~n	.	.
o.Party==Sin Toh D~i	.	.
Party==Other	-0.817	(-0.88)
o.Party==None (doe~n	.	.
Constant	-7.996***	(-13.71)
Observations	1544	

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Table 23: Logit regression that voter will vote differently for themselves and their children
Note : Dummy variables with "o" prefix are the excluded category.

Finally, we try to find source of having changed party support since the last general election (Table 24). That is, explaining why responses to PARTINT (Q2) and PARTLAST (Q9) differ. Being self-employed, consider healthcare is most important

and childrearing support second most important policies implies greater probability of having changed party support. One of the major change of policy by JDP after the election was child support payment, not healthcare. Female and age has negative effect.

Switched Party since Last Election

Variable	Coefficient	t-value
Civil servant		
Manager, COE	0.467	1.27
Firm (clercial)	0.295	1.04
Firm (engineering)	0.425	1.52
Firm(other_)	0.308	1.04
Self employed	0.888**	2.86
Independent professional	-0.0658	-0.13
Full time housewife	0.391	1.51
Part time employment	0.232	0.81
Student		
Other	0.369	1.12
Unemployed	0.843*	2.41
Sex	-0.224*	-2.13
Age	-0.0115*	-1.97
Number of children	0.00355	0.05
POL1=		
Healthcare	-0.748**	-2.58
Longterm care	0.212	-0.52
Education	-0.0207	-0.09
Science & technology	-0.312	-0.44
Child rearing support	-0.209	-0.98
Environment	-0.0476	-0.18
Energy	0.026	0.1
Foreign affairs	-0.331	-1.29
Employment	-0.044	-0.26
Security (safety)	-0.0445	-0.23
POL2=		
Healthcare	-0.358	-1.78

Longterm care	-0.333	-1.25
Education	-0.229	-1.01
Science & technology	-0.62	-1.33
Childrearing support	0.632**	-3.02
Environment	-0.470*	-2.03
Eenergy	-0.0872	-0.37
Foreign affairs	-0.218	-0.89
Employment	-0.119	-0.54
Security (safety)	-0.314	-1.3
Constant	0.619	1.44

Table 24: Party change since last general election

A voter is more likely to have switched party since the last election if he or she thinks childrearing is important. This is more likely for younger females. One the most prominent changes in policy after the general election was cash payment for families with young children. Regression suggests this effected young women, who could be mothers or could be mother in the future, that cared about childrearing support.

8. Conclusion

In this paper we have presented results of a survey conduction in December 2011, in order to see if introduction of Demeny voting system will have the desired have effect of addressing gerentocracy. We have identified several facts from the survey that provides a positive answer to this question.

We found that there is substantial difference of policy preference between voters with young children and those without, either because they have only older children or they have not children. Among voters with young children, childrearing is very important while pension is important among other voters. (The largest proportion in both groups think employment is the most important.). Furthermore, voters with young children thought education was is most important for their children. This suggests, parents in deed are aware that their children's needs are different form their own. When proxy votes (children's votes) and their policy preferences are taken into acocount, the Demeny Voting Block (voters with children + children)'s policy preferences of childrearing and education (employment is not as important) is different from non-Demeny Voting Block for whom pension and employment are priorities,

The survey also asked their party preferences. This does not differ between groups. More significant find was that when parents are asked how they would cast own and child votes under Demeny voting system, 1) proportion of “does not support any party” was reduced from 60% when they only voted for themselves to 40.1% when they have two votes , and 2) many voted differently for own and child votes. Fact 2 suggests parents do in fact vote differently for children. However they do not vote necessarily vote for parties associated with education. Together with Fact 1, parents may be using the two votes to vote in a way that is closer to what they think is the ideal policy combination. This suggests introduction of preferential voting may improve voter interest.

The difference in party preference between Demeny and Non-Demeny Voting Blocks are very small compared to the large differences in policy preferences. One reason could be that because the current electorate is already dominated by older voters, the all parties cater to them. Parties do not identify themselves with any policies in particular. This suggests that when Demeny voting system is introduced, party manifestos will be the first to change.

The results of this survey should be interpreted with the knowledge that the survey respondents are not representative of the general electorate. We asked for what how the respondents had voted in the last general election in 2009. Compared to the actual outcome, the survey respondents are more pro-Japan Democratic Party and Min-nano Toh. 60% of the respondents who voted, voted for Japan Democratic Party. Among the respondents, Min-nano Toh had the third largest votes although in the general electorate, the party was sixth (Table 9). Respondents are also younger than the general population, because it was an internet survey and we over sampled from parents of younger children.

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Appendix

Questionnaire

Administered December 27-28, 2011

Preamble

This survey contains questions regarding delicate (political content) matters. If you agree with the survey, please respond. If you decide not to respond, please discontinue either by clicking on "stop responding" button or closing the browser. Responses of this survey will be processed statistically in a way that it will not be possible to identify individuals. We appreciate your cooperation in the survey.

Screening question

1. Do you have at least one child 19 years old or younger Yes No
2. If No, do you have children ? Yes No

[Under 19] Yes = 1000

[Over 20] No, Yes = 500

[None] No, No = 500

Main Survey

Q1. Please choose what you think is the Most Important, and the Second Most Important policy from the list below.

1 Pension
2 Healthcare
3 Longterm care
4 Education
5 Science & technology
6 Child rearing support
7 Environment
8 Energy
9 Foreign affairs
10 Employment
11 Security (safety)

Q2. Which party do you currently support ? (Which party you would vote for under Proportional Representation?)

1 Japan Democratic Party
2 Liberal Democratic Party
3 Komei Toh
4 Japan Communist
5 Social Democratic
6 Min-nanto Toh
7 Kokumin Shin Toh
8 Shin Toh Nippon
9 Sin Toh Daichi
10 Other
11 None (does not support any party)

Q3. How many children do you have ?

Q4. What is the gender of your children ?
First child
Second child
…

Q5. What is the age of your children ?
First child
Second child
…

< It is possible to give each child a vote and have parents (parent) vote on his/her behalf. This is called Demeny Voting System.>

Q6. < Ask only [Under 19]> Which party would you vote on behalf of your child under the Demeny Voting System ? If you have more than one child 19 or younger, please answer on behalf of your youngest child.

1 Japan Democratic Party
2 Liberal Democratic Party
3 Komei Toh
4 Japan Communist

5 Social Democratic
6 Min-nanto Toh
7 Kokumin Shin Toh
8 Shin Toh Nippon
9 Sin Toh Daichi
10 Other
11 None (does not support any party)

Q7. < Ask only [Under 19]> Which party would you vote for under Demeny Voting System ?

.

1 Japan Democratic Party
2 Liberal Democratic Party
3 Komei Toh
4 Japan Communist
5 Social Democratic
6 Min-nanto Toh
7 Kokumin Shin Toh
8 Shin Toh Nippon
9 Sin Toh Daichi
10 Other
11 None (does not support any party)

Q8. < Ask only [Under 19].> Which policy do you think is Most Important and Second Most Important for your child? If you have more than one child, please answer on behalf of your youngest child.

1 Pension
2 Healthcare
3 Longterm care
4 Education
5 Science & technology
6 Child rearing support
7 Environment
8 Energy
9 Foreign affairs

10 Employment
11 Security (safety)

Q9. Which party did you support or vote under Proprotional Representation in the last general election ?

1 Japan Democratic Party
2 Liberal Democratic Party
3 Komei Toh
4 Japan Communist
5 Social Democratic
6 Min-nanto Toh
7 Kokumin Shin Toh
8 Shin Toh Nippon
9 Sin Toh Daichi
10 Other
11 None (does not support any party)

Q10. Which party would you have voted for on behalf of your child (Demeny Voting System) in the last general election?

1 Japan Democratic Party
2 Liberal Democratic Party
3 Komei Toh
4 Japan Communist
5 Social Democratic
6 Min-nanto Toh
7 Kokumin Shin Toh
8 Shin Toh Nippon
9 Sin Toh Daichi
10 Other
11 None (does not support any party)

Q11. How should Demeny Voting System be implemented ?

1 Father votes on behalf of child
2 Mother votes on behalf of child

3 Parents decide who votes
4 Each parent has half a vote
5 Other
6 Opposed to the voting system

Q12. What is the main reason you are opposed to the Demeny Voting System ?

1 Not fair to people without children
2 Not possible to have voting by proxy
3 No guarantee parent votes on behalf of child
4 Have more children for more votes
5 Other

.

Q13. How do you feel about the following alternative electoral systems?

1 Lower voting age to 18	1 Support 2 Don't know 3 Oppose
2 Age Districts:Instead of geographical distrcits, such as Tokyo discrict 2, have disctricts by age, 20–29, 30–39, etc, or 20–39, 40–59, etx.	1 Support 2 Don't know 3 Oppose

Q14. Please tell us any opinion you may have about the electoral system

Q15. What is the highest academic qualification ? (Your current academic program if you are still in school)

1 Post graduate
2 University
3 Junior College
4 Professional School
5 High School, Polytechnique
6 Junior High School
7 Other

Table A1: Parent Most or Second Most Important /Child Most Important Policies

	Most Important for Child											
Most Important for Parent	Pension	Healthcare	Longterm care	Education	S&T	Child rearing	Environment	Energy	Foreign affiars	Employment	Security	Total
Pension	23.2	1.3	0.6	22.6	0.6	21.9	3.2	1.3	0.6	19.4	5.2	100.0
Healthcare	2.2	37.8	0.0	26.7	0.0	17.8	4.4	0.0	0.0	8.9	2.2	100.0
Longterm care	0.0	12.5	12.5	31.3	0.0	31.3	6.3	0.0	0.0	6.3	0.0	100.0
Education	0.0	3.4	0.0	81.6	1.1	5.7	2.3	0.0	0.0	3.4	2.3	100.0
Science & technology	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	100.0
Child rearing support	0.0	2.4	0.0	23.4	0.0	64.7	1.8	0.0	0.0	4.2	3.6	100.0
Environment	0.0	0.0	0.0	15.1	0.0	17.0	37.7	3.8	0.0	11.3	15.1	100.0
Energy	1.8	5.4	0.0	17.9	1.8	17.9	10.7	26.8	0.0	12.5	5.4	100.0
Foreign affairs	2.0	4.1	0.0	51.0	0.0	14.3	4.1	8.2	0.0	8.2	8.2	100.0
Employment	0.8	1.1	0.0	30.6	0.0	18.5	4.5	0.8	0.0	32.8	10.9	100.0
Security (safety)	0.0	0.0	0.0	12.7	0.0	11.9	1.5	0.0	0.0	6.7	67.2	100.0

Table A2: Parent Second /Child Most Important

	Most Important for Child											
2nd Most Important for Parent	Pension	Healthcare	Longterm care	Education	S&T	Child rearing	Environment	Energy	Foreign affairs	Employment	Security	Total
Pension	1.1	5.1	0.0	26.0	0.0	29.9	6.2	0.6	0.0	21.5	9.6	100.0
Healthcare	6.3	4.0	0.8	29.4	0.8	26.2	4.0	2.4	0.0	13.5	12.7	100.0
Longterm care	10.0	5.0	0.0	17.5	0.0	32.5	0.0	0.0	0.0	27.5	7.5	100.0
Education	0.0	0.0	0.0	47.1	0.0	26.4	2.3	0.0	0.0	5.7	18.4	100.0
Science & technology	9.1	0.0	0.0	18.2	9.1	9.1	0.0	9.1	0.0	36.4	9.1	100.0
Child rearing support	5.0	3.7	0.0	24.2	0.0	34.2	5.6	1.9	0.0	11.8	13.7	100.0
Environment	1.3	5.1	0.0	33.3	1.3	11.5	10.3	2.6	0.0	5.1	29.5	100.0
Energy	0.0	3.5	1.8	26.3	0.0	10.5	8.8	10.5	0.0	17.5	21.1	100.0
Foreign affairs	5.4	0.0	0.0	39.3	0.0	8.9	5.4	5.4	1.8	21.4	12.5	100.0
Employment	8.0	2.9	0.6	26.9	0.0	25.7	4.0	2.3	0.0	16.6	13.1	100.0
Security (safety)	0.0	2.2	0.0	16.4	0.0	6.0	3.7	1.5	0.0	6.7	9.7	46.3