Online Appendix

Table A1 Summary statistics of the National Attitude Survey from the Association for Promoting Fair Elections (APFE)

Election	Year	Survey Period	Respon-dents	Respon-se Rate	20-29	30-39	40-49	50-59	60+
Lower House	1972	12/12-12/18	2,468	82.3%	517	622	556	389	384
Upper House	1974	7/10-7/14	2,435	81.2%	504	613	522	386	410
Lower House	1976	12/06-12/13	2,371	79.0%	474	581	533	366	417
Upper House	1977	7/13-7/17	2,460	82.0%	444	600	586	401	429
Lower House	1979	10/18-10/24	2,416	80.5%	376	576	584	451	429
Simultaneous	1980	6/27-7/03	2,427	80.9%	397	576	560	449	445
Upper House	1983a	6/30-7/06	2,342	78.1%	328	557	533	406	518
Lower House	1983b	12/20-12/26	2,361	78.7%	326	559	524	430	522
Simultaneous	1986	7/09-7/15	2,372	79.1%	275	565	534	501	497
Upper House	1989	7/31-8/06	2,288	76.3%	278	408	511	489	602
Lower House	1990	2/24-3/03	2,269	75.6%	236	370	500	476	687
Upper House	1992	8/01-8/16	2,185	72.8%	232	325	484	475	669
Lower House	1993	7/28-8/08	2,301	76.7%	233	350	569	544	605
Upper House	1995	7/31-8/13	2,132	71.1%	201	332	467	465	667
Lower House	1996	10/31-11/10	2,114	70.5%	205	318	489	393	709
Upper House	1998	7/21-8/03	2,210	73.7%	224	319	443	518	706
Lower House	2000	7/03-7/16	2,260	75.3%	267	299	370	531	793
Upper House	2001	8/06-8/26	2,115	70.5%	216	279	347	488	785
Lower House	2003	11/17-12/01	2,138	71.3%	190	277	340	463	868
Upper House	2004	7/20-8/03	2,143	71.4%	178	266	313	480	906
Lower House	2005	10/15-11/06	1,621	54.0%	155	228	233	331	674
Upper House	2007	8/25-9/09	1,853	61.8%	157	229	310	379	778
Lower House	2009	10/01-10/18	1,798	59.9%	151	249	310	343	745
Upper House	2010	8/19-9/05	1,899	63.3%	134	258	293	379	835
Lower House	2012	3/14/2013-4/17	2,155	71.8%	208	332	382	327	882
Upper House	2013	9/18-10/24	2,019	67.3%	188	288	310	348	823
Lower House	2014	1/26/2015-2/21	2,029	67.6%	200	269	349	349	808
Upper House	2016	9/05-11/2	2,004	66.8%	256	251	314	323	789

Note.

Survey Design:

Sampling Approach: Stratified two-stage cluster sample design (cross-section)

Population: Japanese residents over 20 years old (18 in 2016).

Stratification Design: Geographical areas (11) and city population size (4-level)

Sample Size: 3,000

Sampling Frame: Voter registration record

The details of the survey design are published by the APFE titles 'The Current Status of the General Election of the House of Representatives' for LH elections and 'The Current Status of the Regular Election of the House of Councilors' for UP elections. Survey data from 1972 to 2005 are available for a fee from the *Leviathan Data Bank* run by Bokutaku-sha (URL http://www.bokutakusha.com/ldb/ldb_databank.html). More recent survey data (2007 and beyond) are available within the Social Science Japan Data Archive free of charge (URL http://csrda.iss.u-tokyo.ac.jp).

The sampling design is expected to produce a nationally representative sample, as the Voter Registration Record covers all Japanese voters (i.e., citizens over 20 years old or over 18 years old since 2016). However, recent studies have more elderly and fewer young respondents compared with older studies, not only because of population aging but also due to a declining response rate, especially among the youth.

Table A2 Summary of model and variables

	Item	Description
Model	Generalized Linear Model with R (Link Function - Binomial)	
Election Year	Lower House: 1972, 1976, 1979, 1983b, 1990, 1993, 1996, 2000, 2003, 2005, 2009, 2012, 2014. Upper House: 1974, 1977, 1983a, 1989, 1992, 1995, 1998, 2001, 2004, 2007, 2010, 2013, 2016. Simultaneous: 1980, 1986.	Included in the model as a random effect for each election and linear variable (rescaled to center 1993, 20 years for one unit – i.e., 0 for 1993, 1 for 2013, -1 for 1973).
Outcome Variables	Welfare Issue: Considered the welfare issue when making a voting decision.	Yes (1) or No (0). Wording - Welfare (1972-2000), Welfare & Elderly Nursing Care (2001-2005), Medical Service & Elderly Nursing Care (2007-2016).
	Education Issue: Considered the education issue when making a voting decision.	Wording - Education (1974-2009), Child Raising & Education (2012-2016). The analysis is for the period between 1974 and 2016 because the issue is not on the list in 1972.
Explanatory Variables	Age Group	Five categories: (1) 20's: 20-29, (2) 30's: 30-39, (3) 40's: 40-49, (4) 50's: 50-59, (5) 60+: over 60 years old (Reference group: 40's). In 2016, (1) includes those of 18 and 19 years old.
	Age Group × Election Year	Coefficient indicates the shift of the age group effect for 20 years (due to rescaling of the year).

Covariates	Gender	Male or female (coded as 0 and 1, respectively).
	Education	Three categories: (1) less than high school, (2) high school diploma, (3) college or post-graduate degree.
	City Size	Four categories: (1) Metropolitan cities, (2) cities with residents ≧ 100k, (3) cities with residents < 100k, and (4) town or village.
	Salience of Other Main Issues: Considered economy, education or defense issues when making a voting decision.	None (0) to all of them (3), treated as ordinal variable. Wording of the economy item has shifted as follows: (1) Inflation (1972-2000), (2) Economy & Inflation (2001-2004), (3) Economy & Employment (2005-2010), (4) Economic Policy (2012-2016).
	Ideology Dummy	Voted for the Liberal Democratic Party: Yes (1), No (0).
	Media Coverage of "Welfare Issue"	Number of articles published for a year before the voting day in *Yomiuri Newspaper*. Searched at *Yomidasu*, the newspaper's archive with the keyword, "*Fukushi* (Welfare)", published in the national edition in politics, election, administration categories.
	Unemployment Rate	Unemployment rate of the election year.
	House Dummy	Adjustment for the house up for election: (1) LH election, (2) UH election, (3) simultaneous election.
	Welfare Wording Dummy	Adjustment for wording of the welfare item: (1) Welfare (1972-2000), (2) Welfare & Elderly Nursing Care (2001-2005), (3) Medical Service & Elderly Nursing Care (2007-2016).

Table A4 Issue salience of the four main issues

POISSON REGRESSION, Outcome Variable: Sum of Issue Salience of Welfare, Inflation/National Economy, Education, and Defense (1974-2016)	Coefficient	Standard Error
Age: 20s	-0.182 ‡	(0.017)
Age: 30s	-0.033 *	(0.013)
Age: 50s	-0.007	(0.013)
Age: over 60	0.035 †	(0.012)
20 Years	0.081	(0.073)
intercept	0.075	(0.043)
Gender: Female	0.041 ‡	(0.008)
Education: High School	0.176 ‡	(0.011)
Education: Some College+	0.211 ‡	(0.013)
City Size: City over 100k	0.000	(0.011)
City Size: City less than 100k	-0.047 ‡	(0.013)
City Size: Town & Village	-0.100 ‡	(0.013)
Wording: Welfare & Elderly Nursing Care	-0.119	(0.088)
Wording: Medical & Elderly Nursing Care	0.085	(0.103)
Election: Upper House	0.029	(0.027)
Election: Simultaneous	0.084	(0.092)
Number of Observation	47613	

Note. Statistical significance at *: 5%, †: 1%, ‡: 0.1% levels, respectively. Election Year is re-centered to zero in 1993, and 20 years is rescaled to one unit (i.e., 1973 is coded as -1, and 2013 is 1).

Other Main Issues: Chose three	2.023‡	(0.062)	2.007‡	(0.063)	2.848‡	(0.057)	2.024‡	(0.062)
Ideology: LDP voting	-0.271‡	(0.020)	-0.260‡	(0.020)	-0.054*	(0.027)	-0.268‡	(0.020)
Wording: Welfare & Elderly Nursing Care	-0.235	(0.206)	-0.282	(0.210)			-0.246	(0.205)
Wording: Medical & Elderly Nursing Care	-0.419*	(0.212)	-0.500*	(0.216)			-0.433*	(0.210)
Election: Upper House	0.072	(0.060)	0.074	(0.060)	-0.044	(0.082)	0.072	(0.060)
Election: Simultaneous	0.156	(0.202)	0.162	(0.205)	-0.089	(0.316)	0.162	(0.200)
N. of Obs. 50057	48224		48224		46073		48224	

Note. Statistical significance at *: 5%, †: 1%, ‡: 0.1% levels, respectively. Election Year is re-centered to zero in 1993, and 20 years is rescaled to one unit (i.e., 1973 is coded as -1, and 2013 is 1). The number of newspaper articles is also rescaled so that it starts at 100 as 0, as well as one unit represents 100 articles: i.e., 0 means 100 articles, 1 means 200 article, and so on.

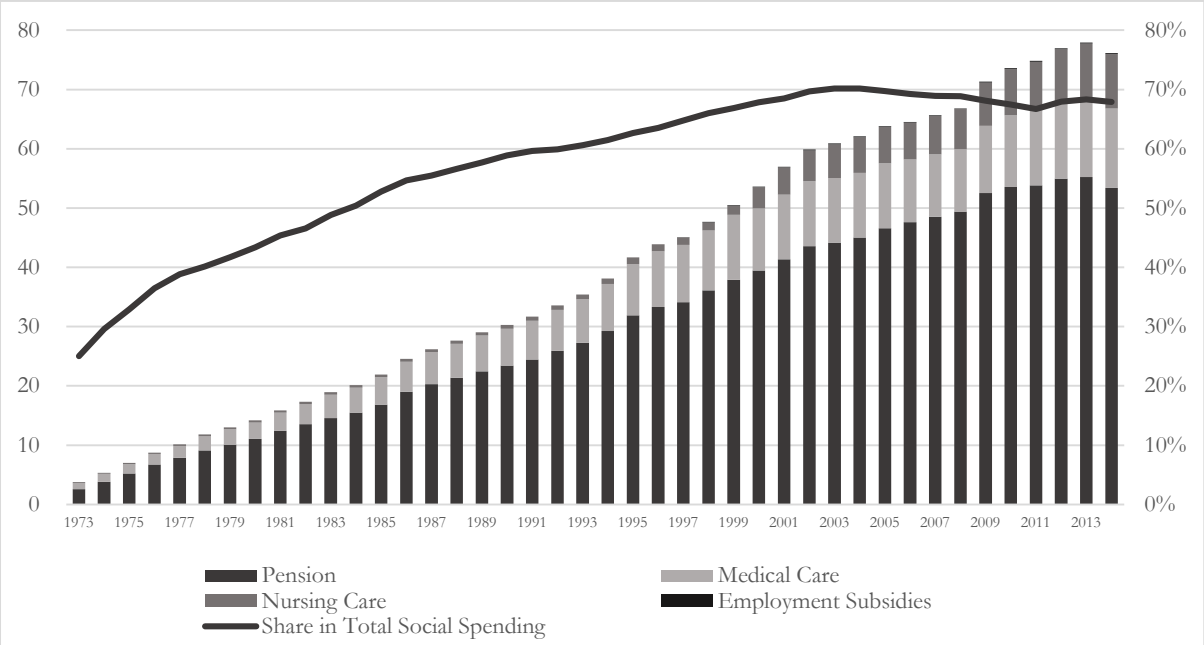

Fig. A1 Social welfare spending for the elderly in Japan, 1972-2014 (trillion Japanese Yen, CPJ adjusted for 2014 yen)

Note

Data Source: National Institute of Population and Social Security Research. 2014. The Statistics of Social Welfare Spending FY2014. Available at: http://www.ipss.go.jp/ss-cost/j/fsss-h26/4/H26-18.xlsx. The CPI has been adjusted by the author using data from the Statistics Bureau, Ministry of Internal Affairs and Communications. National Consumer Price Index (CPI) Time Series Data, Fiscal Year Average. Available at: https://www.e-stat.go.jp/en/stat-search/database?page=1&layout=datalist&toukei=00200573&tstat=000001084976&cycle=0&statdisp_id=0003143513&result_page=1&second=1&second2=1&tclass1val=0