Online Appendix for "Compulsory Voting, Turnout, and Government Spending: Evidence from Austria"

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The Online Appendix is organized as follows. Appendix A provides additional figures and tables. Appendix B provides additional institutional background details on compulsory voting in Austria. Appendix C provides additional discussion and results.

Appendix A Appendix Tables

Table A.1: Description of Expenditure Subcategories and Groupings

Administrative Expenses

i) Elected representatives and general administration:
State parliament, state government, state government delegations, sub-state governments, special offices, committees, pensions, personnel expenses, and other tasks of the public administration.

ii) Finance:
Capital assets and unincorporated foundations, financial allocations and grants, liabilities, budgetary compensation, and handover and takeover of the annual results.

Welfare Expenses

i) Education, sports and science:
Secondary education, vocational education and teacher formation, preschool education, education promotion, extracurricular educational activities for the youth, sports and extracurricular physical education, adult education, and research and science.

ii) Social welfare and promotion of house construction:
General public welfare, youth welfare, emergency funds, social and family policies, and housing subsidies.

iii) Health:
Health services, environmental protection, rescue and warning services, health worker training, public hospitals, hospitals operated by other legal entities, and veterinary medicine.

iv) Arts, culture and religion:
Fine arts, music and performing arts, literature and language, museums, heritage preservation, radio, press, films, and church affairs.

Infrastructure Expenses

i) Road construction, hydraulic engineering and transport:
Road construction and maintenance, hydraulic construction, flood protection, road/rail/water traffic, aviation, and postal and telecommunication services.

ii) Promotion of the economy:
Improvement and promotion of agriculture and forestry, promotion of energy, tourism, trade, commerce, and industry.

iii) Services:
Public services (water supply, lighting, waste management, etc.), residential and commercial buildings, and utility companies.

iv) Public order and security:
Public order, security and special police, firefighting, disaster relief and national defense.

Notes: Detailed breakdown of each category was obtained from Appendix 2 of the 787/1996 Ministry of Finance regulation on budgeting and accounts (Voranschlags- und Rechnungsabschluverordnung VRV).

Table A.2: Interest in Politics, Information Acquisition and Party Membership: Austria vs. Other OECD Countries

	OECD Countries (WVS 2005-09)	Germany and Scandinavia (WVS 2005-09)	Switzerland (WVS 2007)	Austria (ASS 2003)
Interest in Politics				
Very interested	12.10%	16.20%	26.60%	26.24%
Somewhat interested	39.10%	49.30%	45.30%	39.37%
Not very/not at all interested	48.20%	33.90%	27.80%	34.39%
Newspaper Reading				
Reads the newspaper regularly / Used newspaper last week	74.80%	89.80%	91.40%	68.73%
Membership of a political party				
Member of a party	13.40%	11.50%	16.00%	12.41%

Notes: Information from other OECD countries comes from the 2005-09 wave of the World Values Survey. Selected samples: Canada 2005, Finland 2005, France 2006, Germany 2006, Hungary 2009, Italy 2005, Japan 2005, Netherlands 2005, New Zealand 2004, Norway 2007, Poland 2005, Slovenia 2005, South Korea 2005, Spain 2007, Sweden 2006, Switzerland 2007, United Kingdom 2005, United States 2006. For Austria, statistics come from the 2003 ASS. For interest in politics, the ASS asks "*How interested are you in politics? (1) Very interested, (2) rather interested, (3) mildly interested, (4) not very interested, or (5) uninterested.*", whereas the WVS asks: "*How interested would you say you are in politics? (1) Very interested, (2) somewhat interested, (3) not very interested or (4) not at all interested*". We categorize (1)-(2) from the ASS and (1) from the WVS as *Very interested*, whereas (4)-(5) from the ASS and (4) in the WVS are categorized as *Not very/not at all interested*. Regarding newspaper reading, the ASS asks "*How regularly do you read the newspaper? Regularly or not regularly?*" The WVS asks "*People use different sources to learn what is going on in their country and the world. For each of the following sources [daily newspaper], please indicate whether you used it last week or did not use it last week to obtain information.*" On political party membership, the 1986 wave of the ASS asks "*Are you member of a political party? Yes or no,*" whereas the 2003 wave asks "*Are you a member or do you have an active role in a political party? Member without an active role (1), I have an active role (2), or I'm not a party member (3).*" We consider individuals answering (1) or (2) as being members of a political party. The WVS question is: "*I am going to read off a list of voluntary organizations. For each one [political party], could you tell me whether you are an active member, an inactive member or not a member of that type of organization?*" We consider active and inactive members of a political party.

Table A.3: Effect of CV on Turnout and Invalid Votes (1979-2010)

	Parliamentary	State	Presidential	Pooled
Panel A: Turnout (%) as Dependent Variable				
CV	0.045**	0.125	0.110***	
	(0.017)	(0.096)	(0.024)	
	[0.058]	[0.005]	[0.006]	
CV * Parliamentary				0.085**
				(0.028)
				[0.000]
CV * State				0.124***
				(0.037)
				[0.000]
CV * Presidential				0.108***
				(0.024)
				[0.012]
Observations	90	61	71	222
R Squared	0.945	0.964	0.974	0.936
Mean Turnout (if CV=0)	0.838	0.775	0.763	0.800
Panel B: Invalid Votes (%) as Dependent Variable				
CV	0.001	0.012	0.022**	
	(0.004)	(0.012)	(0.008)	
	[0.795]	[0.069]	[0.004]	
CV * Parliamentary				0.007
				(0.006)
				[0.266]
CV * State				0.019*
				(0.009)
				[0.024]
CV * Presidential				0.021**
				(0.008)
				[0.008]
Observations	90	61	72	223
R Squared	0.779	0.911	0.877	0.863
Mean Invalid Votes (if CV=0)	0.017	0.020	0.038	0.023

Notes: Standard errors clustered by state in parentheses, and cluster-robust wild-bootstrap p-values in square brackets. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects and state-specific linear trends (at the election level). An observation in these regressions is a state-election. The sample in columns (1)-(3) includes all parliamentary, state, and presidential elections from 1979-2010, respectively. The pooled regressions in column (4) include the three types of elections elections from 1979-2010, with their corresponding election type dummies. *Turnout* measures the percentage of registered voters who issued a vote, and *invalid votes* is the proportion of ballots considered invalid. *CV* is a dummy for whether voting was mandatory in the state and election. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.4: Effect of Presidential CV on Expenditures (1980-2012)

	Log-Levels				Log-Per Capita				% of Total		
	Total	Admin.	Welfare	Infrast.	Total	Admin.	Welfare	Infrast.	Admin.	Welfare	Infrast.
CV	-0.016	-0.031	-0.020	-0.086	0.023	0.007	0.018	-0.048	-0.001	0.001	-0.000
	(0.037)	(0.084)	(0.050)	(0.097)	(0.051)	(0.091)	(0.065)	(0.095)	(0.019)	(0.021)	(0.017)
	[0.697]	[0.693]	[0.775]	[0.392]	[0.681]	[0.961]	[0.749]	[0.621]	[0.891]	[0.941]	[0.975]
R Squared	0.991	0.949	0.990	0.979	0.930	0.792	0.895	0.942	0.590	0.791	0.875
Observations	297	297	297	297	297	297	297	297	297	297	297
Mean Dep. Variable	7.878	6.449	7.342	5.937	-5.649	-7.078	-6.184	-7.590	0.248	0.592	0.160

Notes: This table is similar to Table 4 in the main text except the regressor of interest is whether there is CV in presidential elections (instead of parliamentary or state elections). See notes of Table 4 for details. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.5: Effect of CV on All Expenditure Categories – Parliamentary Elections (1980-2012)

	Administrative		Welfare				Infrastructure			
	General	Finance	Education	Social	Health	Arts	Transport	Security	Economy	Services
Panel A: Log-Levels										
CV	0.036	-0.009	0.026	-0.036	0.138	-0.031	-0.031	-0.080	0.207	-0.024
	(0.035)	(0.192)	(0.020)	(0.072)	(0.077)	(0.053)	(0.112)	(0.147)	(0.115)	(0.481)
	[0.376]	[1.000]	[0.180]	[0.717]	[0.302]	[0.513]	[0.801]	[0.633]	[0.084]	[0.949]
R Squared	0.993	0.887	0.999	0.988	0.925	0.991	0.935	0.978	0.917	0.940
Panel B: Log-Per Capita										
CV	0.013	-0.033	0.002	-0.059	0.114	-0.055	-0.055	-0.104	0.183	-0.048
	(0.045)	(0.200)	(0.034)	(0.070)	(0.096)	(0.064)	(0.109)	(0.140)	(0.109)	(0.476)
	[0.801]	[0.903]	[0.999]	[0.551]	[0.464]	[0.368]	[0.675]	[0.549]	[0.122]	[0.927]
R Squared	0.940	0.698	0.920	0.897	0.818	0.952	0.728	0.945	0.860	0.915
Panel C: % of Total										
CV	0.000	-0.008	-0.003	-0.013	0.019	-0.001	0.000	-0.000	0.012	-0.005
	(0.005)	(0.029)	(0.005)	(0.017)	(0.013)	(0.001)	(0.006)	(0.001)	(0.010)	(0.007)
	[1.000]	[0.757]	[0.557]	[0.663]	[0.356]	[0.258]	[0.975]	[0.737]	[0.178]	[0.298]
R Squared	0.797	0.521	0.878	0.715	0.728	0.876	0.762	0.917	0.760	0.935
Mean Dep. Variable	0.119	0.129	0.199	0.206	0.167	0.020	0.067	0.006	0.045	0.042
Observations	297	297	297	297	297	297	297	297	297	297

Notes: Standard errors clustered by state in parentheses, and cluster-robust wild-bootstrap p-values in square brackets. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects, and state-specific linear trends (at the year level). An observation in these regressions is a state-year, and the sample is composed of all the years in 1980-2012. The independent variable in all elections is whether voting in the corresponding electoral period was compulsory for parliamentary elections The dependent variable is the log of yearly real spending by the state government in Panel A, the log of yearly per capita spending in Panel B, and spending in that particular category as a % of total spending by the state government in Panel C. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.6: Effect of CV on All Expenditure Categories – State Elections (1980-2012)

	Administrative		Welfare				Infrastructure			
	General	Finance	Education	Social	Health	Arts	Transport	Security	Economy	Services
Panel A: Log-Levels										
CV	0.012	-0.298	-0.002	0.015	0.107	0.029	-0.059	-0.011	-0.025	-0.042
	(0.035)	(0.189)	(0.016)	(0.042)	(0.104)	(0.043)	(0.092)	(0.091)	(0.097)	(0.210)
	[0.777]	[0.122]	[0.943]	[0.729]	[0.370]	[0.442]	[0.505]	[0.921]	[0.811]	[0.833]
R Squared	0.993	0.890	0.999	0.988	0.924	0.991	0.935	0.978	0.914	0.940
Panel B: Log-Per Capita										
CV	0.054	-0.256	0.041	0.057	0.149	0.072	-0.017	0.031	0.017	0.001
	(0.049)	(0.198)	(0.042)	(0.065)	(0.113)	(0.066)	(0.073)	(0.092)	(0.079)	(0.238)
	[0.328]	[0.234]	[0.398]	[0.306]	[0.248]	[0.316]	[0.805]	[0.785]	[0.781]	[0.961]
R Squared	0.941	0.704	0.921	0.898	0.819	0.952	0.728	0.944	0.857	0.915
Panel C: % of Total										
CV	0.004	-0.044*	0.003	0.007	0.023	0.001	-0.007	-0.000	-0.002	0.014
	(0.006)	(0.022)	(0.007)	(0.014)	(0.013)	(0.001)	(0.007)	(0.001)	(0.007)	(0.017)
	[0.613]	[0.040]	[0.655]	[0.657]	[0.174]	[0.412]	[0.406]	[0.851]	[0.813]	[0.356]
R Squared	0.798	0.534	0.878	0.713	0.731	0.877	0.765	0.917	0.754	0.936
Mean Dep. Variable	0.119	0.129	0.199	0.206	0.167	0.020	0.067	0.006	0.045	0.042
Observations	297	297	297	297	297	297	297	297	297	297

Notes: Standard errors clustered by state in parentheses, and cluster-robust wild-bootstrap p-values in square brackets. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects, and state-specific linear trends (at the year level). An observation in these regressions is a state-year, and the sample is composed of all the years from 1980-2012. The independent variable in all elections is whether voting in the corresponding electoral period was compulsory for state elections. The dependent variable is the log of yearly real spending by the state government in Panel A, the log of yearly per capita spending in Panel B, and spending in that particular category as a % of total spending by the state government in Panel C. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.7: Instrumental Variables Regression: Effect of Turnout on Expenditures (1980-2012)

	Log-Levels				Log-Per Capita				% of Total		
	Total	Admin.	Welfare	Infrast.	Total	Admin.	Welfare	Infrast.	Admin.	Welfare	Infrast.
Panel A: Parliamentary Elections											
Turnout (%)	0.556	0.099	0.618	1.180	0.138	-0.318	0.201	0.763	-0.151	0.022	0.129
	(0.384)	(1.734)	(0.500)	(1.447)	(0.603)	(1.796)	(0.748)	(1.360)	(0.394)	(0.381)	(0.229)
	[0.124]	[0.893]	[0.284]	[0.464]	[0.883]	[0.909]	[0.737]	[0.609]	[0.757]	[0.981]	[0.659]
First Stage F-Statistic	10.521	10.521	10.521	10.521	10.521	10.521	10.521	10.521	10.521	10.521	10.521
R Squared	0.991	0.949	0.989	0.978	0.930	0.793	0.894	0.941	0.590	0.791	0.875
Panel B: State Elections											
Turnout (%)	-0.141	-1.235*	0.238	-0.213	0.170	-0.923	0.550	0.098	-0.296*	0.253*	0.043
	(0.224)	(0.698)	(0.251)	(0.615)	(0.355)	(0.801)	(0.358)	(0.561)	(0.156)	(0.148)	(0.109)
	[0.633]	[0.096]	[0.324]	[0.775]	[0.649]	[0.396]	[0.202]	[0.825]	[0.040]	[0.130]	[0.701]
First Stage F-Statistic	10.549	10.549	10.549	10.549	10.549	10.549	10.549	10.549	10.549	10.549	10.549
R Squared	0.991	0.947	0.990	0.979	0.930	0.786	0.894	0.942	0.571	0.783	0.875
Observations	297	297	297	297	297	297	297	297	297	297	297
Mean Dep. Variable	7.878	6.449	7.342	5.937	-5.649	-7.078	-6.184	-7.590	0.248	0.592	0.160

Notes: Standard errors clustered by state in parentheses. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects, and state-specific linear trends (at the year level). An observation in these regressions is a state-year, and the sample is composed of all the years from 1980-2012. The dependent variable is yearly real spending by the state government, and the independent variable in Panels A, B, and C is turnout in the parliamentary, state, and presidential elections for the corresponding electoral period, respectively. Spending totals and spending for each subcategory (administrative, welfare, and infrastructure) is in logs in columns (1)-(4) and in per capita logs in columns (5)-(8). Yearly spending for each subcategory is expressed as a percentage of total state spending in columns (9)-(11). All equations are estimated using an instrumental variables regression. *Turnout* measures the percentage of registered voters who issued a vote, and is instrumented with a dummy for whether voting was mandatory in the state and electoral period. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.8: Effect of the 1992 Elimination of CV on Turnout, Invalid Votes, and Spending

	Turnout (%)	Invalid Votes (%)	Total Exp. (in logs)	Admin. Exp. (in logs)	Welfare Exp. (in logs)	Infrast. Exp. (in logs)
CV	0.098***	0.013**	-0.006	0.059	-0.076	0.110
	(0.014)	(0.004)	(0.066)	(0.050)	(0.058)	(0.187)
	[0.008]	[0.020]	[0.946]	[0.245]	[0.263]	[0.564]
Observations	72	72	234	234	234	234
R Squared	0.921	0.723	0.983	0.936	0.982	0.954
Mean Dep. Variable	0.835	0.020	7.970	6.546	7.434	6.010

Notes: Standard errors clustered by state in parentheses, and cluster-robust wild-bootstrap p-values in square brackets. All regressions control for state population and unemployment rate, and include state fixed effects, and year fixed effects. An observation is a state-election in columns (1)-(2) and a state-year in columns (3)-(6). The sample includes all parliamentary elections held in 1986-2008 in columns (1)-(2), and yearly state-level spending for 1986-2012 in columns (3)-(6). *Turnout* measures the percentage of registered voters who issued a vote, and i*invalid votes* is the proportion of ballots considered invalid. Real spending in total and for each subcategory (administrative, welfare, and infrastructure) is in logs. *CV* is a dummy for whether voting was compulsory in the corresponding parliamentary elections in columns (1)-(2), and a dummy for whether voting in parliamentary elections was compulsory in the corresponding electoral period in columns (3)-(6). * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.9: Robustness Check: Effect of CV on Turnout and Invalid Votes

	Turnout (%)	Invalid Votes (%)
CV (t+1) * Parliamentary	-0.017	-0.000
	(0.020)	(0.005)
	[0.348]	[0.919]
CV (t) * Parliamentary	0.098**	0.009
	(0.037)	(0.007)
	[0.018]	[0.246]
CV (t-1) * Parliamentary	-0.011	0.003
	(0.020)	(0.003)
	[0.573]	[0.168]
CV (t+1) * State	-0.003	0.001
	(0.014)	(0.008)
	[0.869]	[0.895]
CV (t) * State	0.109*	0.018*
	(0.049)	(0.008)
	[0.000]	[0.056]
CV (t-1) * State	-0.017	-0.007
	(0.055)	(0.004)
	[0.761]	[0.270]
CV (t+1) * Presidential	-0.026*	-0.003
	(0.012)	(0.006)
	[0.034]	[0.613]
CV (t) * Presidential	0.078***	0.012*
	(0.017)	(0.006)
	[0.006]	[0.032]
CV (t-1) * Presidential	-0.028	-0.001
	(0.017)	(0.004)
	[0.358]	[0.741]
Observations	388	391
R Squared	0.935	0.853
Mean Dep. Variable (if CV=0)	0.844	0.020

Notes: Standard errors clustered by state in parentheses, and cluster-robust wild-bootstrap p-values in square brackets. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects, state-specific linear trends (at the election level), and election type dummies. An observation in these regressions is a state-election, and the sample includes all parliamentary, state, and presidential elections from 1949-2010. *Turnout* measures the percentage of registered voters who issued a vote, and *invalid votes* is the proportion of ballots considered invalid. *CV* dummies and their lags and leads indicate whether voting was mandatory in a state and election. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.10: Robustness Check: Effect of CV on Expenditures

	Log-Levels				Log-Per Capita				% of Total		
	Total	Admin.	Welfare	Infrast.	Total	Admin.	Welfare	Infrast.	Admin.	Welfare	Infrast.
Panel A: Parliamentary Elections											
CV (t+1)	0.017	-0.079	0.079	0.084	-0.021	-0.116	0.042	0.047	-0.031	0.031	0.001
	(0.047)	(0.143)	(0.082)	(0.140)	(0.072)	(0.149)	(0.105)	(0.133)	(0.038)	(0.040)	(0.026)
	[0.741]	[0.603]	[0.484]	[0.573]	[0.731]	[0.454]	[0.745]	[0.737]	[0.517]	[0.535]	[0.999]
CV (t)	-0.011	-0.023	-0.020	0.015	-0.008	-0.020	-0.017	0.018	-0.003	-0.005	0.008
	(0.018)	(0.117)	(0.022)	(0.059)	(0.022)	(0.121)	(0.018)	(0.055)	(0.027)	(0.022)	(0.007)
	[0.444]	[0.803]	[0.366]	[0.719]	[0.625]	[0.815]	[0.270]	[0.661]	[0.875]	[0.837]	[0.200]
CV (t-1)	0.064	0.084	0.059	0.051	0.036	0.055	0.030	0.022	0.004	-0.003	-0.001
	(0.035)	(0.171)	(0.038)	(0.074)	(0.027)	(0.153)	(0.053)	(0.076)	(0.038)	(0.036)	(0.014)
	[0.128]	[0.569]	[0.206]	[0.456]	[0.136]	[0.671]	[0.689]	[0.749]	[0.883]	[0.887]	[0.889]
R Squared	0.991	0.949	0.990	0.979	0.930	0.795	0.895	0.942	0.595	0.794	0.875
Panel B: State Elections											
CV (t+1)	0.019	-0.071	0.055	-0.018	0.023	-0.067	0.060	-0.013	-0.024	0.029	-0.005
	(0.046)	(0.126)	(0.087)	(0.078)	(0.049)	(0.131)	(0.088)	(0.071)	(0.038)	(0.037)	(0.009)
	[0.695]	[0.739]	[0.763]	[0.787]	[0.671]	[0.753]	[0.675]	[0.831]	[0.915]	[0.893]	[0.585]
CV (t)	-0.020	-0.166	0.030	-0.029	0.022	-0.123	0.072	0.013	-0.039*	0.033*	0.006
	(0.039)	(0.092)	(0.034)	(0.101)	(0.057)	(0.106)	(0.054)	(0.088)	(0.018)	(0.018)	(0.017)
	[0.631]	[0.166]	[0.348]	[0.791]	[0.649]	[0.400]	[0.200]	[0.827]	[0.070]	[0.140]	[0.693]
CV (t-1)	0.001	-0.029	-0.007	-0.058	-0.001	-0.031	-0.008	-0.060	-0.005	0.000	0.005
	(0.061)	(0.146)	(0.095)	(0.130)	(0.074)	(0.166)	(0.095)	(0.129)	(0.030)	(0.036)	(0.025)
	[0.929]	[0.843]	[1.000]	[0.683]	[1.000]	[0.877]	[1.000]	[0.693]	[0.885]	[0.963]	[0.853]
R Squared	0.991	0.950	0.990	0.979	0.930	0.796	0.898	0.942	0.604	0.799	0.875
Observations	297	297	297	297	297	297	297	297	297	297	297
Mean Dep. Variable	7.878	6.449	7.342	5.937	-5.649	-7.078	-6.184	-7.590	0.248	0.592	0.160

Notes: Standard errors clustered by state in parentheses, and cluster-robust wild-bootstrap p-values in square brackets. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects, and state-specific linear trends (at the year level). An observation in these regressions is a state-year, and the sample is composed of all the years from 1980-2012. The dependent variable is yearly real spending by the state government, and the independent variables in Panels A and B are whether voting in the corresponding, past, or future electoral period was compulsory for parliamentary or state elections, respectively. Spending totals and spending for each subcategory (administrative, welfare, and infrastructure) is in logs in columns (1)-(4) and in per capita logs in columns (5)-(8). Yearly spending for each subcategory is expressed as a percentage of total state spending in columns (9)-(11). * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.11: Effect of CV on Electoral Outcomes (1979-2010)

	Left (%)	Right (%)	Minor Parties (%)	Num. of Parties	Share Winner (%)	Margin of Victory
Panel A: Parliamentary Elections						
CV	-0.020**	0.013	0.007	-0.091	0.005	0.034
	(0.007)	(0.025)	(0.027)	(0.522)	(0.016)	(0.031)
	[0.036]	[0.829]	[0.811]	[0.931]	[0.715]	[0.258]
Observations	90	90	90	90	90	90
R Squared	0.993	0.900	0.925	0.982	0.886	0.712
Mean Dep. Variable	0.379	0.506	0.114	8.722	0.425	0.107
Panel B: State Elections						
CV	0.047	-0.017	-0.030	-0.538	-0.009	0.079
	(0.033)	(0.028)	(0.025)	(0.625)	(0.043)	(0.043)
	[0.047]	[0.053]	[0.003]	[0.003]	[0.812]	[0.267]
Observations	61	61	61	61	61	61
R Squared	0.990	0.920	0.830	0.821	0.910	0.927
Mean Dep. Variable	0.363	0.549	0.088	6.607	0.478	0.106

Notes: This table is similar to Table 5 in the main text. The difference is the sample is restricted to 1979-2010. See notes of Table 5 for details. * significant at 10%; ** significant at 5%; *** significant at 1%

Table A.12: Instrumental Variables Regression: Effect of Turnout on Electoral Outcomes (1949-2010)

	Left (%)	Right (%)	Minor Parties (%)	Num. of Parties	Share Winner (%)	Margin of Victory
Panel A: Parliamentary Elections						
Turnout (%)	-0.221	0.270	-0.049	6.333	0.302	0.609**
	(0.142)	(0.249)	(0.237)	(5.771)	(0.197)	(0.242)
	[0.130]	[0.468]	[0.845]	[0.312]	[0.296]	[0.118]
Observations	171	171	171	171	171	171
R Squared	0.983	0.922	0.902	0.965	0.879	0.750
Mean Dep. Variable	0.400	0.515	0.085	6.959	0.465	0.120
Panel B: State Elections						
Turnout (%)	0.203	0.005	-0.208	-0.303	0.081	0.021
	(0.147)	(0.142)	(0.141)	(1.886)	(0.143)	(0.166)
	[0.623]	[0.977]	[0.352]	[0.915]	[0.643]	[0.891]
Observations	121	121	121	121	121	121
R Squared	0.965	0.915	0.841	0.823	0.862	0.790
Mean Dep. Variable	0.393	0.535	0.072	5.975	0.494	0.101

Notes: Standard errors clustered by state in parentheses. All regressions control for state population and unemployment rate, and include state fixed effects, year fixed effects, and linear state election trends. An observation in these regressions is a state-election. The sample in Panels A and B includes all parliamentary elections and state elections from 1949-2010, respectively. Vote shares for the *left* and *right* are the percentage of valid votes that went to SPÖ + KPÖ and ÖVP + FPÖ, respectively. Votes shares for *minor parties* are the percentage of valid votes received by other smaller parties. *Number of parties* is the number of parties participating in each election and state. The *vote share of the winner* is the percentage of valid votes obtained by the highest ranking party in each state, and *margin of victory* is the difference in vote shares between the highest ranking party and the runner-up. All equations are estimated using an instrumental variables regression. *Turnout* measures the percentage of registered voters who issued a vote, and is instrumented with a dummy for whether voting was mandatory in the state and election. * significant at 10%; ** significant at 5%; *** significant at 1%

Appendix B Further Background on CV in Austria

Appendix B.1 Compulsory Voting in Austria before 1945

The debate concerning the introduction of CV in Austria goes back to the enfranchisement of women in 1918. Conservative parties feared that their women supporters would not be as politically active and easy to mobilize as women who supported the Social Democrats, who had advocated for universal voting rights. CV was therefore seen as an instrument for conserving their power. Informal accounts mention that during the debates regarding the implementation of CV, conservatives put forward the argument that participation in political decisions and public life was not only a right but a duty of every citizen.[36] Social Democrats were against its implementation, and thus a compromise was reached, leaving the prerogative of instating mandatory voting to the states. In 1919, before the elections for the Constituent National Assembly, provisions for CV were made in Vorarlberg and Tyrol.[37] When the 1920 constitution was amended in December 1929, it became up to each state to decide whether voting was compulsory or not in national parliament and state parliament elections.[38]

The 1920 constitution, which was parliamentary in nature, underwent other important changes in 1929. The responsibilities of the president were broadened, and the election of the president became determined by popular vote rather than by decision of the members of the legislature. Furthermore, voting in presidential elections became mandatory in the whole country.[39] Although the first election was supposed to occur in 1931, due to the worldwide economic depression, political parties decided to suspend the elections and reelect the incumbent president. In May 1934, the Fascist ruling party repealed the 1929 constitution, but after World War II, in May 1945, the 1920 constitution (with its 1929 amendments) was reinstated. Thus, both the country-wide provisions for mandatory voting in presidential elections and the state-determined CV in national parliament and state parliament elections were restored. In spite of this, and probably due to the post-war chaos, the 1945 national and state parliament elections were carried out according to a national law made specifically for this election.[40] Thus, voting in the 1945 elections was optional for individuals in all states, including Tyrol and Vorarlberg. Only in the next election for national and state parliament, both held in 1949, did Vorarlberg and Tyrol re-implement CV. Furthermore, the state of Styria also enacted its own CV law for these elections.[41]

[36] http://www.onb.ac.at/ariadne/projekte/frauenwaehlet/Raum07.html, last accessed March 16, 2016
[37] http://www.parlament.gv.at/PERK/HIS/WAHL/REGEL/index.shtml, last accessed March 16, 2016.
[38] Federal Constitution of December 1929 (B-VG) Articles 26 (1) and 95 (1)-(2).
[39] Federal Constitution of December 1929 (B-VG) Article 60 (1).
[40] Election Law 198 (Wahlgesetz) from October 1945.
[41] Styria Law 30 from July 11, 1949.

Appendix B.2 Fines for Abstention under Compulsory Voting

Maximum fines for abstention in presidential and parliamentary elections with CV were established by the National Parliament, whereas state parliaments had the authority for establishing maximum fines for non-voting in state elections. In all three election types, however, the actual fine amounts and their enforcement were left to local governments. As described in Section 2.2, abstention penalties were extremely rare, since the law allowed for a wide range of excuses for not voting.[42] Although there is no comprehensive information on the exact fines that individuals were charged with in the few cases in which these were enforced, anecdotal evidence suggests that fines were in fact much lower than the ceilings set by law.

Since each state had the authority for establishing maximum fines for non-voting in state elections, there was substantial variation across states (and time) in these maximum fines. When CV for state elections was established in Vorarlberg in 1919, fines varied depending on the socioeconomic status of the violator, ranging from 1 kronor(0.9 US dollars) to 50 Austrian kronor (44 USD).[43] The law establishing the value of these fines was modified over time, and in 1988, for example, fines were capped at 10,000 schillings (1,413 USD).[44] Although maximum penalties were high, this ceiling was not binding, and in practice fines were significantly lower. Only in very few cases were non-voters effectively fined, with fines around 300-500 schillings (∼42-71 USD). Non-voters from Vorarlberg were asked by the mayor of their municipality to provide reasons for abstention, but were not required to provide any official proof. Those who did not comply with this request within a week and were reported to the authorities were granted an extra two weeks to provide a justification for their abstention. In 1949, punishment for abstention in state elections in Styria was set at a maximum of 1,000 schillings and four weeks of imprisonment, following the maximum sanctions for abstention in federal elections.[45] In the case of Tyrol, maximum fines for abstention in state parliament elections were always kept at 1,000 schillings, ranging due to inflation from around 506 USD in 1958 to 102 USD in 2002 when CV was eliminated (all in December 2015 values).[46] While the aforementioned states formally sanctioned abstention in state parliament elections, the enactment of CV in Carinthia in 1986 only explicitly set a punishment for abstention in federal elections (matching the corresponding federal laws). For state parliament elections, the law only states that

[42] Private correspondence between the authors and government officials confirmed that fines were enforced in only a handful of cases. Additionally, the website http://www.idea.int/vt/compulsory_voting.cfm describes the sanctions for not voting as being "weakly enforced" (accessed March 16, 2016).

[43] Vorarlberg State Law enacted in January 27, 1919, Article 2.

[44] Vorarlberg State Law number 60 enacted in December 14, 1988, Article 73(3). All figures in schillings are expressed in nominal terms. To express these in current dollars, the schilling values are updated to their 2015 value using the Austrian CPI, and then converted to dollars using the appropriate exchange rate.

[45] Styria State Law enacted in July 11, 1949, Article 1(3).

[46] Tyrol State Law number 27, enacted in July 29, 1949; Tyrol State Law number 20, enacted in July 5, 1965; and Tyrol State Law number 54, enacted in November 21, 1988.

abstainers must be sent a message from the government informing them about the importance of voting under a democratic state.[47]

Sanctions for abstention in presidential elections were initially capped at 1,000 schillings[48] ($\sim$ 506 USD). In 2004, the last presidential election in which any state had CV, this sanction could amount to 72 euros ($\sim$ 97 USD in December 2015).[49] The maximum fine for non-voting in parliamentary elections was also initially set at 1,000 schillings, but unlike presidential elections, the national law regulating parliamentary elections also established that failure to settle this fine was punishable by up to four weeks in jail.[50] In 1971, maximum sanctions for abstention in parliamentary elections were increased to 3,000 schillings (992 USD), but maximum imprisonment for not paying the fines was lowered to two weeks.[51]

Appendix B.3 Further Information on Elimination of CV Starting in 1994

Anecdotal information from the state legislature discussions on the elimination of CV shows that this repeal was triggered by the *de facto* null enforcement of the fines, and by the fact that parliamentary CV had already been repealed in 1992. Specific references can be found in Styria's state parliament session of January 26, 1993, and Tyrol's state parliamentary session of June 30, 2004.

Appendix C Additional Discussion and Results

State spending. Beyond sharing of responsibilities, decision-making powers may also be shared across different levels of government for closely related areas (Fuentes et al., 2006). In the description in Section 2.1 in the main text, we focus on the components of fiscal transfers. We use information from Tables 1 and 2 of Lehner (1997) to do our calculation about the share of transfers that are earmarked. It should be noted that federal transfers make up a majority but not all of state-level spending (Lehner, 1997) and there are also changes over time. Other sources focus on breakdowns for revenues instead of transfers. For example, Fuentes et al. (2006) report that earmarked revenues are about one-third of total state revenues (net of additional fiscal arrangements between state and municipal governments) (Fuentes et al., 2006, p. 11). OECD (1997) notes that "the proportion of their gross revenue which the [states] can spend at their own discretion rises to about 40 per cent" (this again focusing on revenues

[47] Carinthia state law issued in April 7, 1986, Article 3(3).
[48] 1957 Federal Presidential Election Law, Article 25.
[49] 2002 Federal Presidential Election Law, Article 23(3).
[50] Federal Parliament Election Law, Article 105 (3).
[51] Article 109 (3) of the 1971 Federal Parliament Election Law.

instead of transfers). Our point in the main text is that Austrian states still have autonomy over a considerable share of the budget (in an absolute sense) and that our analysis would be able to pick up important changes in state-level spending were they to arise.[52]

Effect of the 1992 Elimination of CV on Turnout, Invalid Votes, and Spending. Table A.8 show the results of our difference-in-difference regression limiting our sample to the parliamentary elections in the electoral periods between 1986 and 2011, in which the only change in CV laws was federally enacted in 1992. This law forced Vorarlberg, Styria, Tyrol and Carinthia to eliminate CV in parliamentary elections.[53] The magnitude and statistical significance of the results is remarkably similar to those shown in Tables 3 and 4. The repeal of CV in 1992 causes a decrease in turnout in parliamentary elections of 9.8 percentage points, and an increase in invalid ballots of 1.3 percentage points. Likewise, in neither of our specifications do we find that CV affects fiscal policy. Due to the short time period covered in these regressions, we do not include state specific trends. Controlling for state-specific time trends, the repeal of CV in 1992 causes a decrease in turnout of 3.75 percentage points (significant at the 10% level), and an increase in the proportion of invalid ballots by 0.20 percentage points, although the latter is statistically insignificant. Furthermore, the results for our spending regressions are quantitatively similar when we control for state trends. These results suggest that any other changes in CV (besides the 1992 one) are unlikely to be correlated with trends in the main dependent variables.

Electoral Outcomes. As discussed in the main text, the SPÖ and ÖVP are the two major parties in Austria. We define "right-wing" parties as ÖVP and FPÖ and "left-wing" parties as SPÖ and KPÖ, although it is somewhat arbitrary to include the KPÖ in this list. The variables for the four parties are defined using the column headers marked "OEVP," "SPOE," "FPOE," and "KPOE" from the election data spreadsheets (which a research assistant created from the Ministry of Interior yearbooks). Thus, we ignore votes gained when smaller parties have run under different names and groupings over time. At the start of the sample period, there was the "Electoral Party of Independents," which was the predecessor to the FPÖ (Manoschek, 2002). We have defined this party as part of "minor parties," but our conclusions are robust

[52] Our point is not that Austrian states have a high level of fiscal autonomy compared to states in other federal countries (e.g., Austrian states lack significant tax powers (Fuentes et al., 2006)).

[53] The estimation equation is given by: $y_{st} = \alpha_0 + \alpha_1 CV_s * Pre_t + X_{st}\beta + \delta_s + \nu_t + \epsilon_{st}$. As in our previous specifications, y_{st} is an election outcome variable or expenditures in state s and year t; CV_s is a dummy variable indicating whether voting was compulsory in state s before the 1992 constitutional amendment, Pre_t is a dummy for the elections before 1992, X_{st} is a vector of state–year covariates (population and the unemployment rate), δ_s and ν_t are state and year fixed effects and ϵ_{st} is the error term. Our interest lies in the coefficient that measures the difference-in-difference between states with and without CV, before and after the reform, α_1. For comparison with previous tables, we introduce the "Pre" instead of "Post" dummy because after 1992, CV was repealed, rather than introduced.

to including it in the right-wing parties. In addition, we count the "linksblock" (left bloc) as part of minor parties. Our conclusions are also robust to defining the "left-wing" solely as the SPÖ (i.e., not counting the KPÖ as part of "left-wing" parties).

For our analysis of electoral outcomes, we do not study presidential elections because parties do not run as separate entities in those races. Instead, they form coalitions that cross party lines and change over time, making it impossible to identify the proportion of votes for right and left wing parties. In 1974, for example, the candidate nominated by the socialist SPÖ won the presidential election. This candidate was reelected in the 1980 elections, where he received support from the SPÖ but also from the right-wing ÖVP party.

With respect to our state and parliamentary election regressions, although we only report the results considering vote shares for left (SPÖ + KPÖ) and right wing (ÖVP + FPÖ) parties, we also run regressions using the individual vote shares of these parties and find no effect. We also checked whether there was any impact on voter polarization, and find that there is no effect of CV on the sum of vote shares for the two main parties (SPÖ and ÖVP).

CV Effects by Heterogeneity in Turnout. An additional test of our hypothesis is to explore the heterogeneity of the effect between low vs. high turnout states. If it is indeed the case that voters who turn out to vote only because of the introduction of CV do not have different preferences than those who vote despite the absence of CV, this effect should not depend on the baseline level of turnout, or even on the size of the "first stage" (i.e., the effect of CV on turnout). The results (available upon request) show that the effect of CV is larger in low turnout states, though the effect is not always statistically significant. This result is consistent with Funk (2007), who documents that the effect of the abolition of CV (a law with low or no sanctions) in Swiss cantons is larger in places with lower baseline turnout. She argues that low baseline turnout is related to a social norm, thus in places in which the social norm was stronger, the effects of an expressive law were undermined. However, despite the heterogeneity that shows up in the first stage, the effect of CV on the composition and level of spending at the state level remains very close to zero and statistically insignificant in most cases.

Further Details on Elections. In Austria, elections occur for five bodies/offices: (1) The National Council (henceforth "parliamentary elections"), (2) State parliaments ("state elections"), (3) Federal President ("presidential elections"), (4) Municipal council, and (5) The European Parliament. Throughout the paper, we focus exclusively on the first three. In 2007, the voting age in Austria was lowered to 16 for nationwide elections, referenda, and plebiscites (Kritzinger et al., 2013; Wagner et al., 2012).

CV and Transmission of Political Information. One way that CV could affect turnout and other outcomes is by affecting political information. When voting is compulsory, this may change the incentive of voters to acquire political information and/or may also affect the incentive of parties to transmit information in political campaigns. To examine whether CV affects voters' acquisition of information, we repeated the first regression in Table 6, but using newspaper reading as the outcome instead of turnout. We found no significant relation between CV and newspaper reading, though we recognize this is only a coarse measure of information acquisition. We do not have data on the campaign activities of political parties, so we cannot examine whether parties change their behavior. Overall, transmission of political information could be an important mechanism for our results, but it is difficult for us to examine this empirically.

Turnout disparity by income. Beyond the factors discussed in the Conclusion as reasons why the impacts of CV may vary by country, another factor is how large are the disparities in CV by income. See Mahler et al. (2014) and http://www.politico.com/magazine/story/2015/01/income-gap-at-the-polls-113997 (last accessed in September 2016) for further evidence on disparities. Such disparities could affect how CV affects multiple outcomes, including turnout, spending, and electoral outcomes.

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