Supplementary Information for "How populist attitude scales fail to capture support for populists in power" published in *PLOS ONE*

Sebastian Jungkunz[1,2,3,*], Robert A. Fahey[4,*], Airo Hino[5],

1 Institute for Socio-Economics, University of Duisburg-Essen, Duisburg, Germany
2 Chair of Political Sociology, University of Bamberg, Bamberg, Germany
3 Center for Political Communication, Zeppelin University, Friedrichshafen, Germany
4 Waseda Institute of Political Economy, Waseda University, Tokyo, Japan
5 School of Political Science and Economics, Waseda University, Tokyo, Japan

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Appendix A: Main Study

Table S1. Overview CSES Data and Populist Parties

Country	Year	N	Populist Parties	In Power before election
Austria	2017	1203	FPÖ	no
Australia	2017	2000	–	–
Belgium (Flanders)	2019	1084	Vlaams Belang	no
Belgium (Wallonia)	2019	730	–	–
Brazil	2018	2506	PSL	no
Canada	2019	2889	–	–
Chile	2017	2000	–	–
Costa Rica	2019	1456	–	–
Finland	2019	1598	Finns Party	no
France	2017	1830	FN, LFI	no, no
Germany	2017	2032	AfD, Left Party	no, no
Great Britain	2017	2194	–	–
Greece[1]	2015	1078	SYRIZA	no
Hong Kong[1]	2016	1020	–	–
Hungary	2018	1208	FIDESZ, Jobbik	yes, no
Iceland	2016	1295	People's Party	no
Iceland	2017	2073	Centre Party, People's Party	no, no
Ireland[1]	2016	1000	Sinn Féin	no
Italy	2018	2001	FI, LN, M5S	no, no, no
Japan	2017	1688	(LDP)[2]	yes
Lithuania	2016	1500	Order and Justice	no
Montenegro	2016	1213	DPS	yes
Netherlands	2017	3428	FvD, PVV, SP	no, no, no
New Zealand	2017	1808	–	no
Norway	2017	1792	FrP	no
Portugal	2019	1500	–	–
South Korea[1]	2016	1199	(Saenuri)[2]	yes
Sweden	2018	3784	Sweden Democrats	no
Switzerland	2019	4645	SVP	no
Taiwan[1]	2016	1690	–	–
Taiwan	2020	1680	–	–
Turkey	2018	1069	AKP	yes
United States	2016	3648	–	–
United States	2020	8280	–	–

Populist parties that gained less than five percent of the popular vote are not listed as they were omitted from the analysis due to computational reasons (low sample size).
"In Power" indicates whether a populist party has been the ruling party already prior to the respective election survey.
[1] Part of the CSES pre-test with reversed E3004_1 item.
[2] Neither the LDP nor Saenuri are formally classified as populist parties, and we do not treat them as such in this study. However, each of them has been argued to have adopted elements of populist rhetorical strategy.

Table S2. Confirmatory Factor Analysis Models (3 Dimensions)

Country	N	RMSEA	SRMR	CFI	Avg. Loading	Min. Loading	Lowest Loading
Austria	1020	0.068	0.024	0.982	0.679	0.701	E3004_4
Australia	1666	0.054	0.022	0.985	0.751	0.550	E3004_3
Belgium (Flanders)	922	0.091	0.028	0.967	0.7605	0.534	E3004_3
Belgium (Wallonia)	583	0.103	0.034	0.950	0.754	0.549	E3004_3
Brazil	1933	0.031	0.018	0.984	0.620	0.201	E3004_3
Canada	1974	0.050	0.019	0.982	0.710	0.497	E3004_3
Chile	1324	0.078	0.038	0.914	0.492	0.250	E3004_3
Costa Rica	1030	0.041	0.022	0.976	0.650	0.312	E3004_3
Finland	902	0.070	0.025	0.979	0.642	0.484	E3004_3
France	1286	0.072	0.029	0.968	0.627	0.518	E3004_3
Germany	1659	0.024	0.010	0.998	0.653	0.541	E3004_3
Great Britain	781	0.106	0.036	0.946	0.731	0.448	E3004_3
Greece[1]	717	0.082	0.035	0.929	0.587	0.420	E3004_3
Hong Kong[1]	722	0.066	0.038	0.811	0.470	0.190	E3004_3
Hungary	832	0.079	0.031	0.963	0.634	0.435	E3004_3
Iceland 2016	848	0.055	0.023	0.983	0.770	0.679	E3004_3
Iceland 2017	1381	0.044	0.018	0.989	0.766	0.604	E3004_3
Ireland[1]	827	0.036	0.016	0.992	0.602	0.482	E3004_3
Italy	1260	0.082	0.034	0.941	0.583	0.398	E3004_3
Japan	1352	0.061	0.027	0.958	0.584	0.462	E3004_3
Lithuania	1008	0.101	0.045	0.916	0.612	0.408	E3004_3
Montenegro	806	0.062	0.026	0.978	0.589	0.158	E3004_3
Netherlands	2355	0.074	0.022	0.979	0.780	0.585	E3004_3
New Zealand	1290	0.064	0.025	0.977	0.745	0.488	E3004_3
Norway	1583	0.052	0.021	0.984	0.748	0.589	E3004_3
Portugal	1152	0.058	0.028	0.968	0.710	0.445	E3004_3
South Korea[1]	1179	0.042	0.024	0.960	0.539	0.425	E3004_3
Sweden	3170	0.086	0.026	0.974	0.682	0.422	E3004_3
Switzerland	3826	0.036	0.015	0.992	0.721	0.383	E3004_3
Taiwan 2016[1]	1248	0.062	0.031	0.935	0.555	0.411	E3004_4
Taiwan 2020	1350	0.046	0.024	0.969	0.655	0.408	E3004_3
Turkey	912	0.068	0.030	0.954	0.692	0.426	E3004_3
United States 2016	3481	0.061	0.024	0.970	0.607	0.457	E3004_3
United States 2020	6734	0.070	0.026	0.967	0.695	0.480	E3004_6

[1] Part of the pre-test with reversed E3004_1 item. As the Swedish data does not contain E3004_1, we used a two-factor model without a Manicheanism dimension. Shown are standardized loadings.

Table S3. Confirmatory Factor Analysis Models Wuttke et al. version (two dimensions)

Country	N	RMSEA	SRMR	CFI	Avg. Loading	Min. Loading	Lowest Loading
Austria	986	0.082	0.030	0.961	0.650	0.452	E3004_6
Australia	1638	0.076	0.040	0.949	0.568	0.125	E3005_2
Belgium (Flanders)	916	0.066	0.029	0.970	0.634	0.477	E3005_2
Belgium (Wallonia)	574	0.060	0.032	0.968	0.570	0.243	E3005_2
Brazil	1898	0.051	0.021	0.977	0.432	0.199	E3005_2
Canada	1822	0.052	0.025	0.970	0.544	0.336	E3005_2
Chile	1311	0.046	0.032	0.904	0.418	0.050	E3005_2
Costa Rica	1018	0.027	0.022	0.965	0.293	0.020	E3005_2
Finland	864	0.053	0.037	0.977	0.592	0.354	E3005_2
France	1406	0.089	0.045	0.908	0.503	0.118	E3005_2
Germany	1592	0.062	0.030	0.975	0.627	0.378	E3005_2
Great Britain	702	0.100	0.047	0.921	0.689	0.312	E3005_2
Hungary	813	0.068	0.043	0.915	0.490	0.075	E3005_2
Iceland 2016	805	0.067	0.034	0.958	0.519	0.090	E3005_2
Iceland 2017	1275	0.069	0.032	0.956	0.528	0.086	E3005_2
Italy	1268	0.074	0.039	0.911	0.507	0.332	E3004_1
Japan	1234	0.051	0.030	0.928	0.357	−0.013	E3005_2
Lithuania	994	0.090	0.047	0.873	0.474	0.131	E3004_1
Montenegro	786	0.086	0.045	0.918	0.490	0.182	E3004_3
Netherlands	1518	0.055	0.025	0.979	0.629	0.379	E3005_2
New Zealand	1099	0.064	0.032	0.963	0.565	0.270	E3005_2
Norway	1577	0.055	0.026	0.972	0.563	0.325	E3005_2
Portugal	1096	0.069	0.040	0.904	0.447	0.070	E3007
Switzerland	3799	0.068	0.035	0.956	0.673	0.400	E3004_3
Turkey	729	0.073	0.043	0.899	0.335	−0.075	E3005_2
United States 2016	3448	0.073	0.040	0.930	0.538	0.370	E3005_2
United States 2020	6693	0.074	0.038	0.936	0.571	0.301	E3005_2

Shown are standardized loadings.

Fig S1. Predictions of Populist Vote Across Countries (3 Dimensions) I
Predictions of vote choice are based on multinomial structural equation models with 95% confidence intervals.

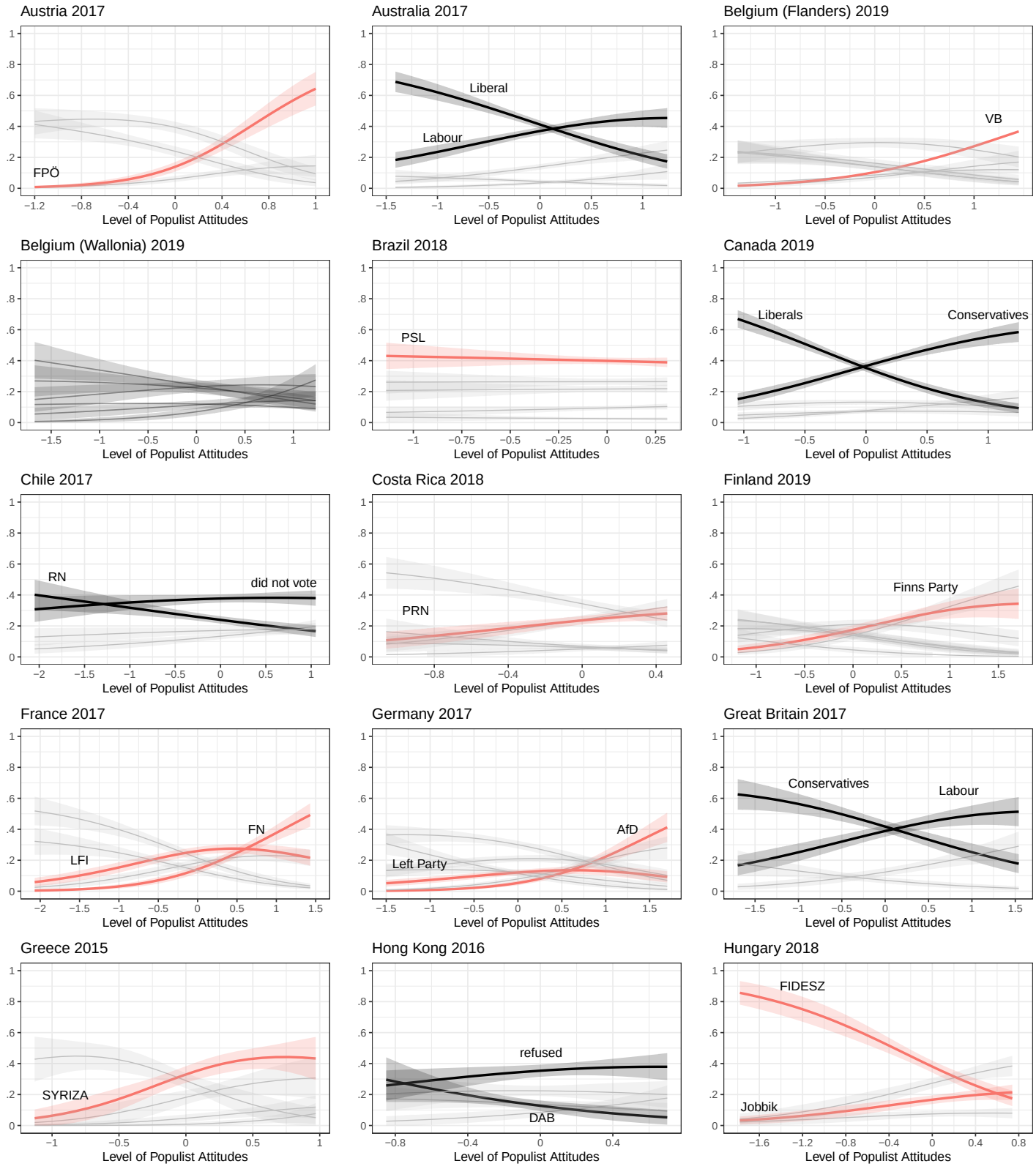


Fig S2. Predictions of Populist Vote Across Countries (3 Dimensions) II
Predictions of vote choice are based on multinomial structural equation models with 95% confidence intervals.

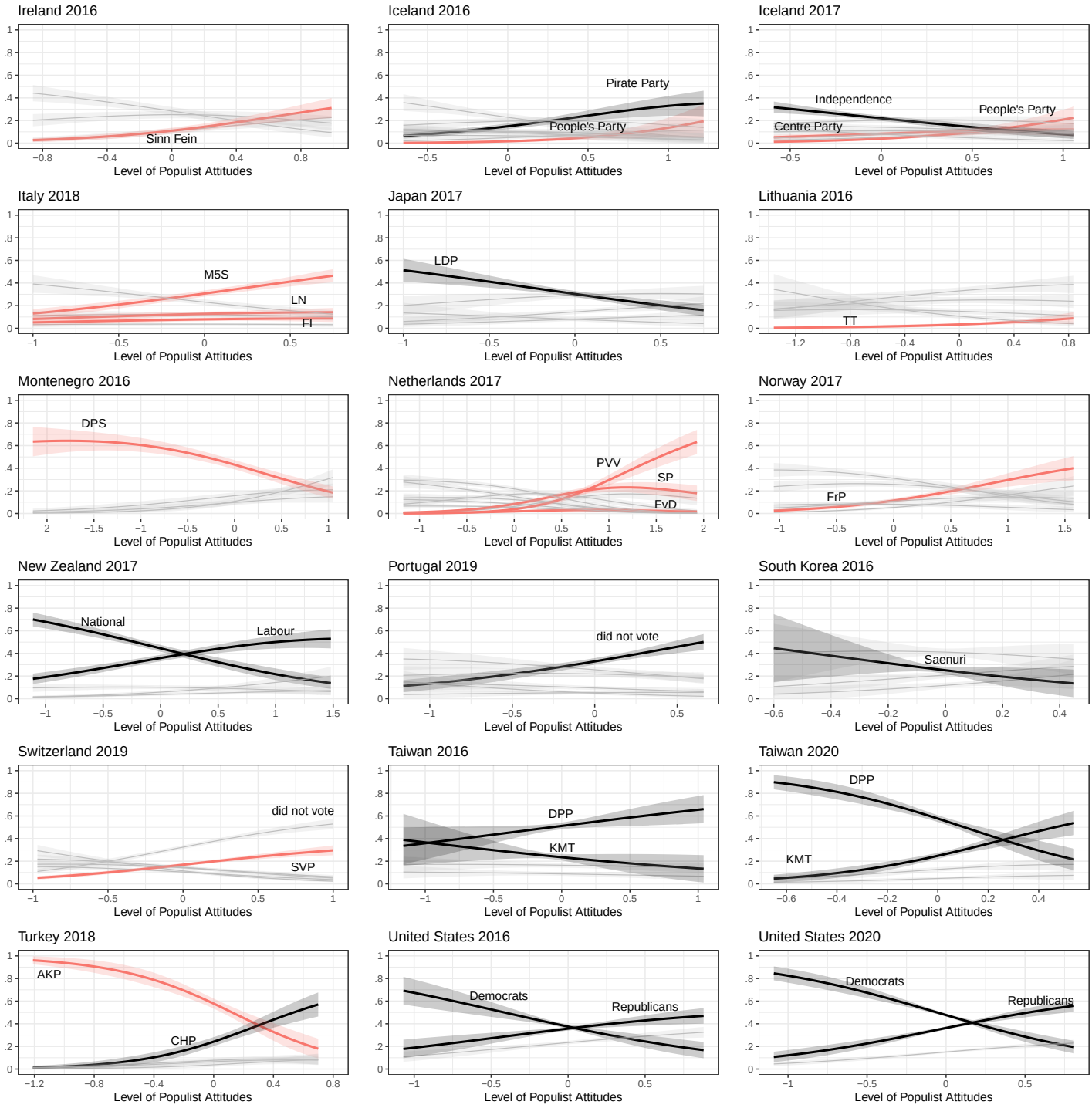


Fig S3. Predictions of Populist Vote Across Countries (Goertz: 3 Dimensions) I Predictions of vote choice are based on multinomial regression models with 95% confidence intervals.

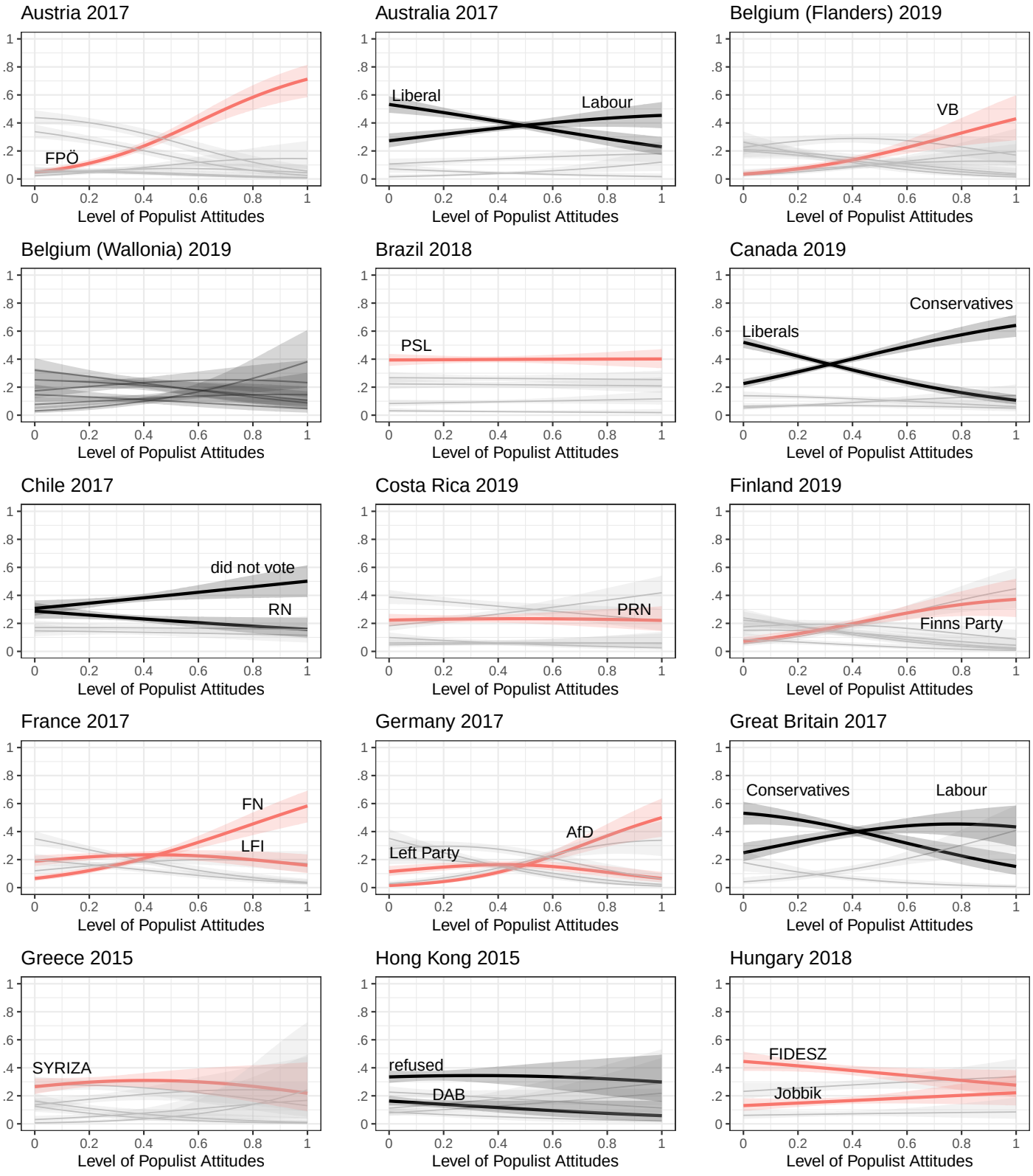


Fig S4. Predictions of Populist Vote Across Countries (Goertz: 3 Dimensions) II Predictions of vote choice are based on multinomial regression models with 95% confidence intervals.

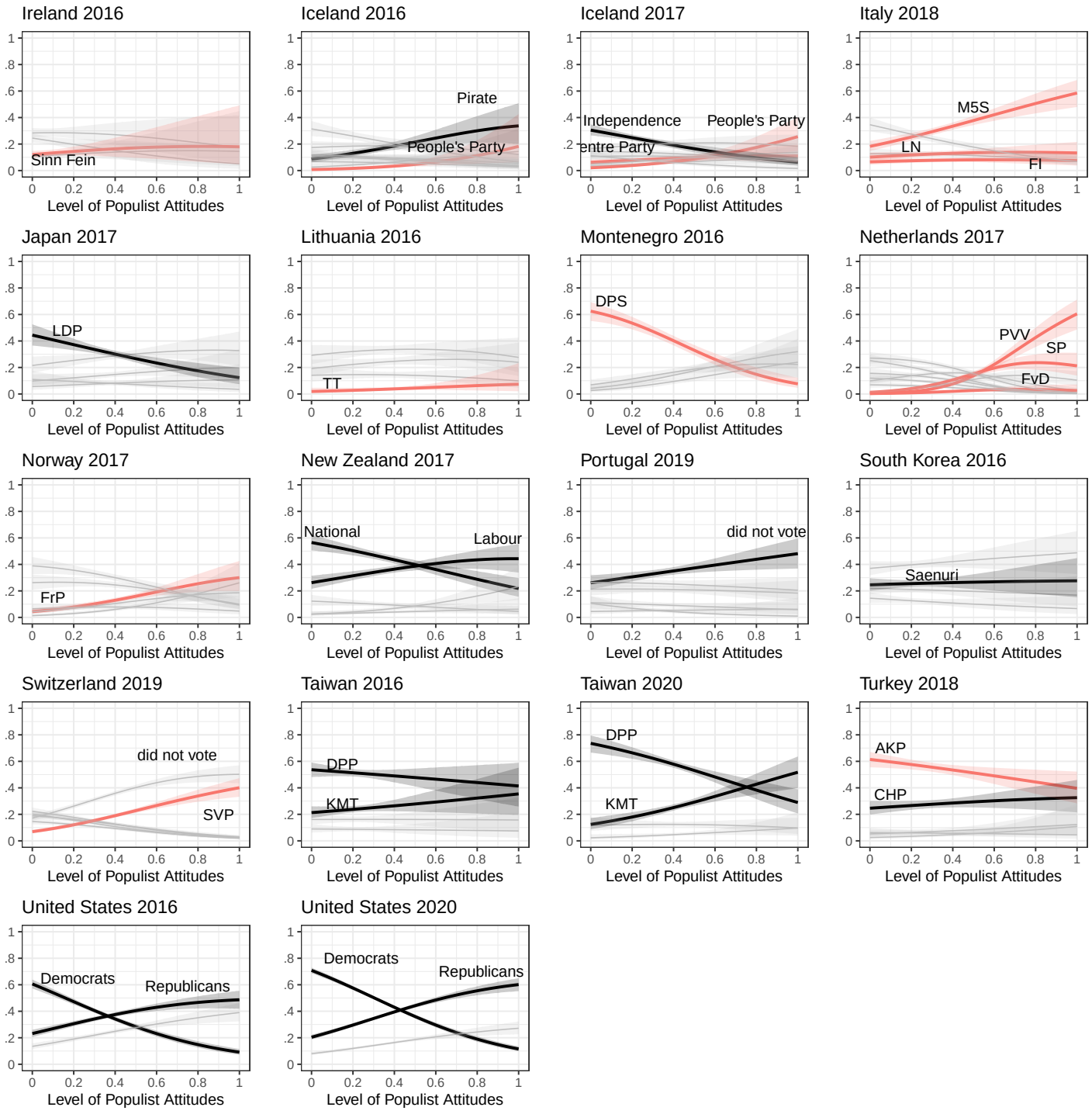


Fig S5. Predictions of Populist Vote Across Countries (Goertz: Wuttke et al.) I Predictions of vote choice are based on multinomial regression models with 95% confidence intervals.

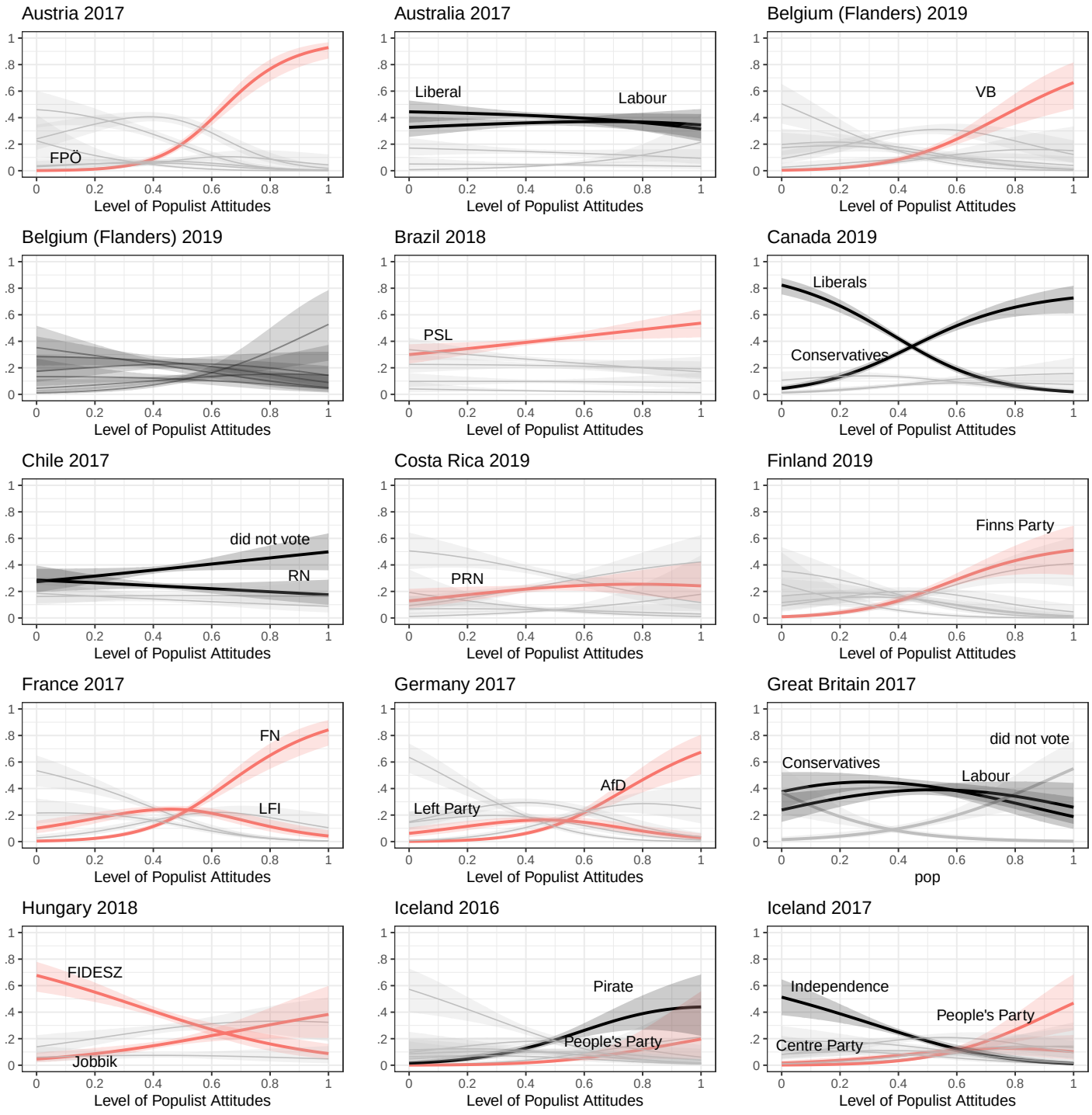


Fig S6. Predictions of Populist Vote Across Countries (Goertz: Wuttke et al.) II Predictions of vote choice are based on multinomial regression models with 95% confidence intervals.

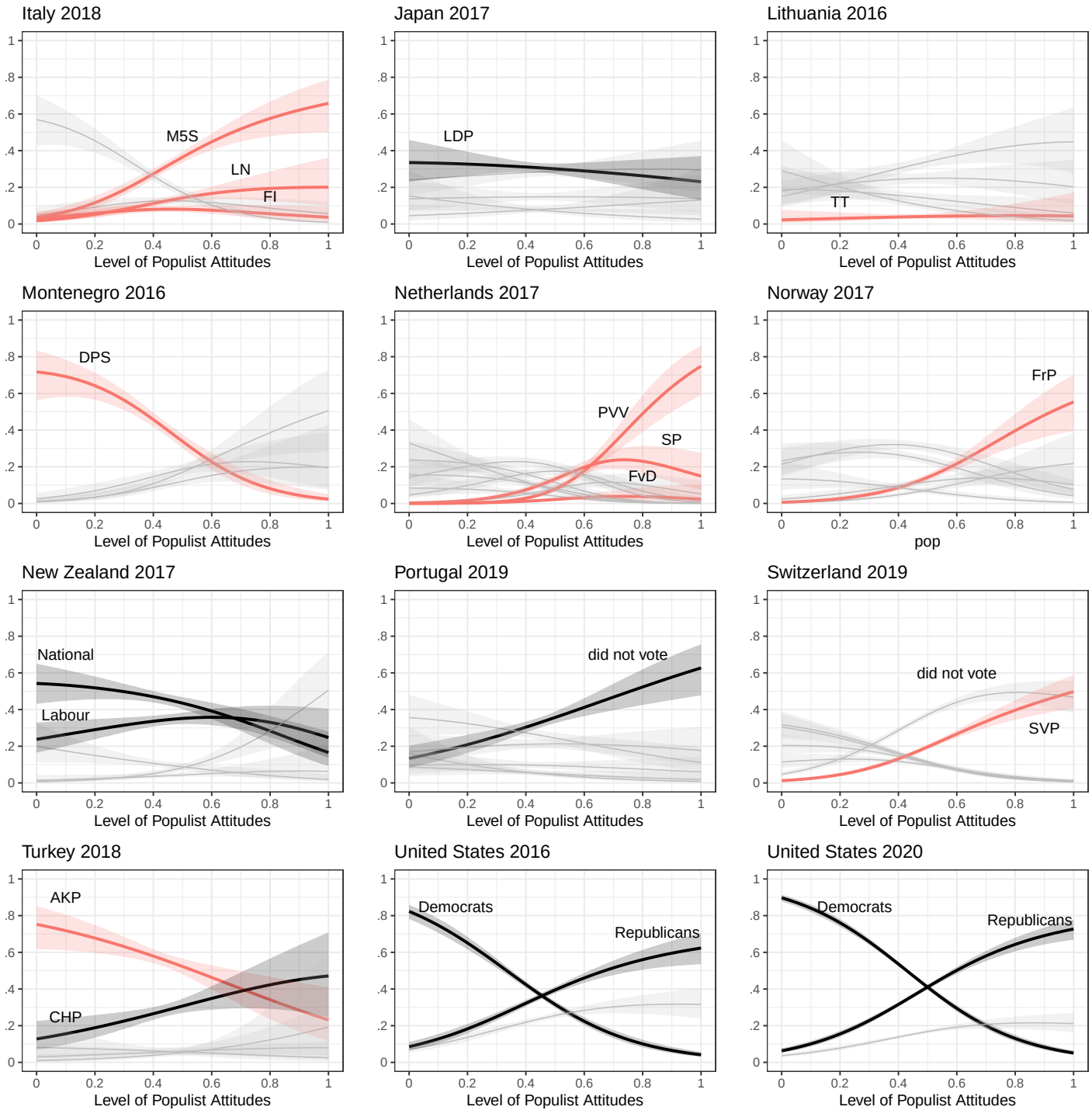


Fig S7. Predictions of Populist Vote Across Countries (Goertz: Wuttke et al. without item E3007) I Predictions of vote choice are based on multinomial regression models with 95% confidence intervals.

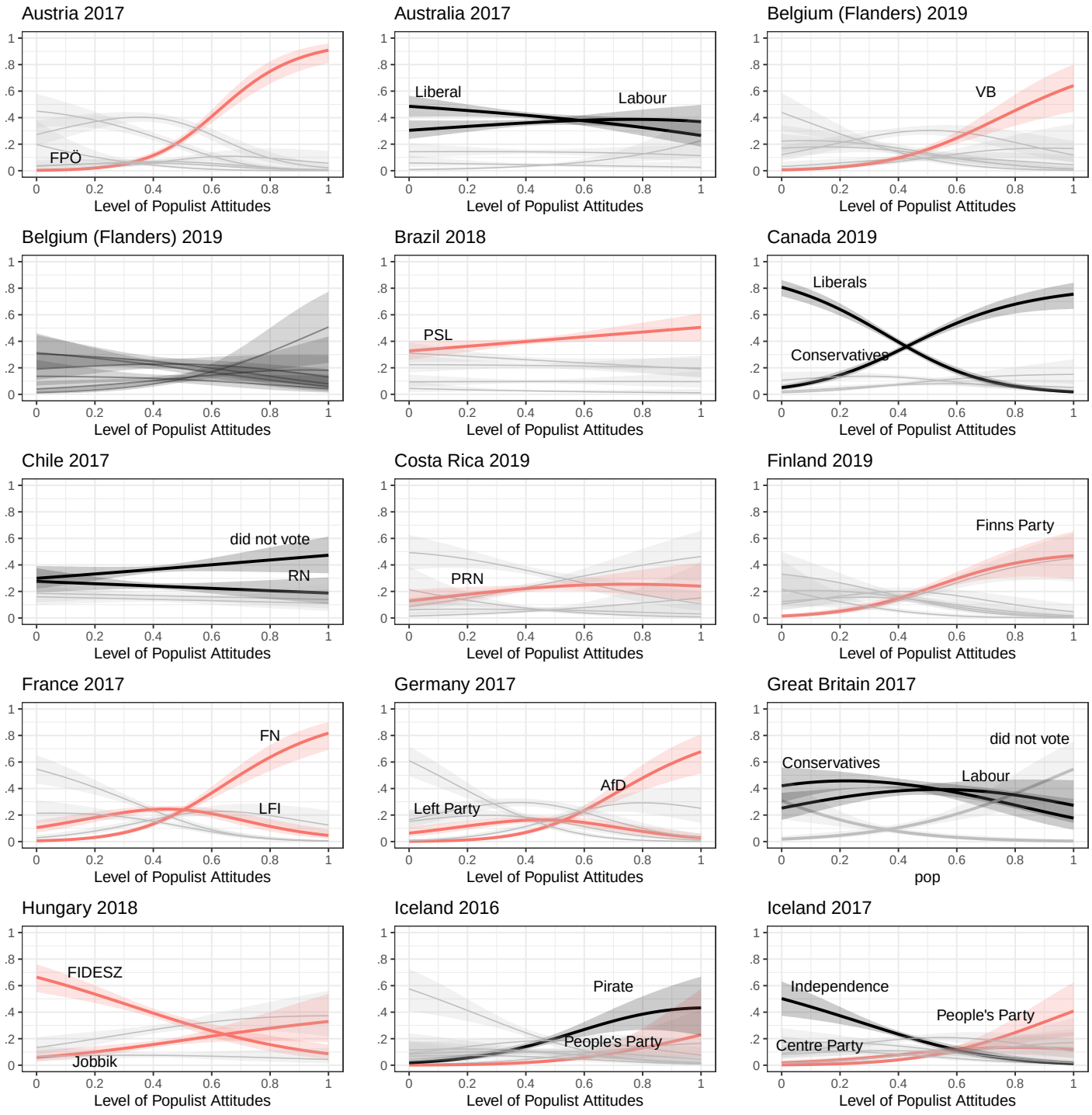
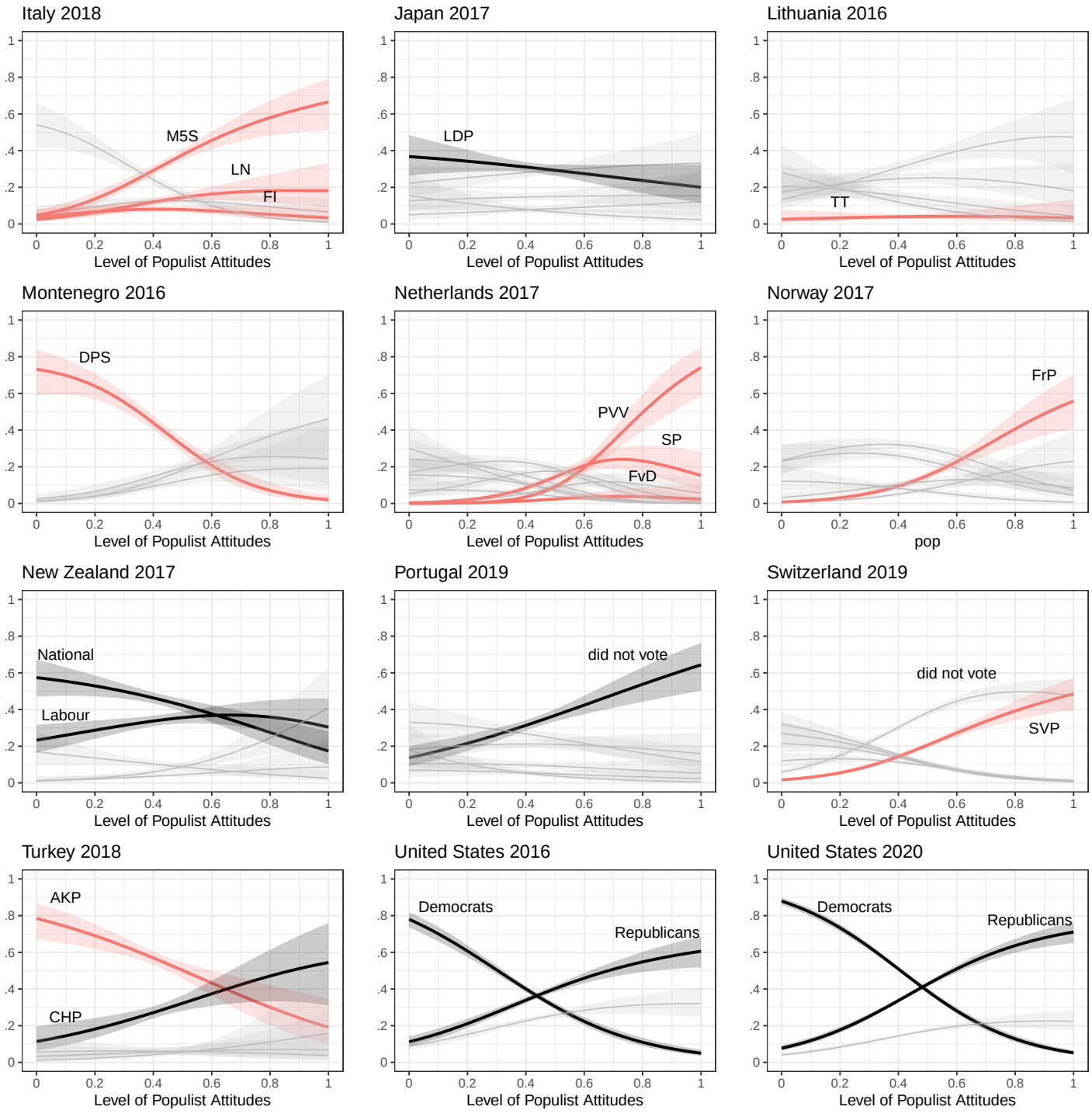


Fig S8. Predictions of Populist Vote Across Countries (Goertz: Wuttke et al. without item E3007) II Predictions of vote choice are based on multinomial regression models with 95% confidence intervals.



Appendix B: Robustness Checks

Greece (2016)

The first robustness check uses the Greek data from Castanho Silva et al.[1] who sampled 310 adults via CrowdFlower as part of a nine country survey between December 2016 and March 2017 (median age: 32 years, 55% females, median years of education: 15, median income decile: 3rd, mean left-right self-placement on a 1-9 scale, where 1 is the left: 5.2). At the time of the survey, SYRIZA has been the ruling party since the January 2015 elections. We estimate the effect of six different populist attitudes scales on vote choice for SYRIZA and find that only one of the scales (Stanley 2011) produces a slightly positive effect whereas all the other scales show no effect [1–6]. This provides further evidence that populist attitudes scales do not work as proposed whenever populist parties are in power.

Table S4. Question Wording Akkerman et al. Items

Item	Wording
AKK1	The politicians in the Greek Parliament need to follow the will of the people.
AKK2	The people, and not politicians, should make our most important policy decisions.
AKK3	The political differences between the elite and the people are larger than the differences among the people.
AKK4	I would rather be represented by a citizen than by a specialized politician.
AKK5	Elected offcials talk too much and take too little action.
AKK6	What people call "compromise" in politics is really just selling out on ones principles.

Table S5. Question Wording Castanho Silva et al. Items

Item	Wording
CS-PPL1	Politicians should always listen closely to the problems of the people.
CS-PPL2	Politicians don't have to spend time among ordinary people to do a good job.
CS-PPL3	The will of the people should be the highest principle in this country's politics.
CS-ANT1	The government is pretty much run by a few big interests looking out for themselves.
CS-ANT2	Government officials use their power to try to improve people's lives.
CS-ANT3	Quite a few of the people running the government are crooked.
CS-MAN1	You can tell if a person is good or bad if you know their politics.
CS-MAN2	The people I disagree with politically are not evil.
CS-MAN3	The people I disagree with politically are just misinformed.

Table S6. Question Wording Elchardus and Spruyt Items

Item	Wording
ES1	The opinion of ordinary people is worth more than that of experts and politicians.
ES2	Politicians should listen more closely to the problems the people have.
ES3	Ministers should spend less time behind their desks, and more among the ordinary people.
ES4	People who have studied for a long time and have many diplomas do not really know what makes the world go round.

Table S7. Question Wording Schulz et al. Items

Item	Wording
S-ANT1	MPs in Parliament very quickly lose touch with ordinary people.
S-ANT2	The differences between ordinary people and the ruling elite are much greater than the differences between ordinary people.
S-ANT3	People like me have no influence on what the government does.
S-SOV1	The people should have the final say on the most important political issues by voting on them directly in referendums.
S-SOV2	The people should be asked whenever important decisions are taken.
S-SOV3	The people, not the politicians, should make our most important policy decisions.
S-HOM1	Ordinary people are of good and honest character.
S-HOM2	Ordinary people all pull together.
S-HOM3	Although the [NATIONALS] are very different from each other, when it comes down to it they all think the same.

Table S8. Question Wording Stanley Items

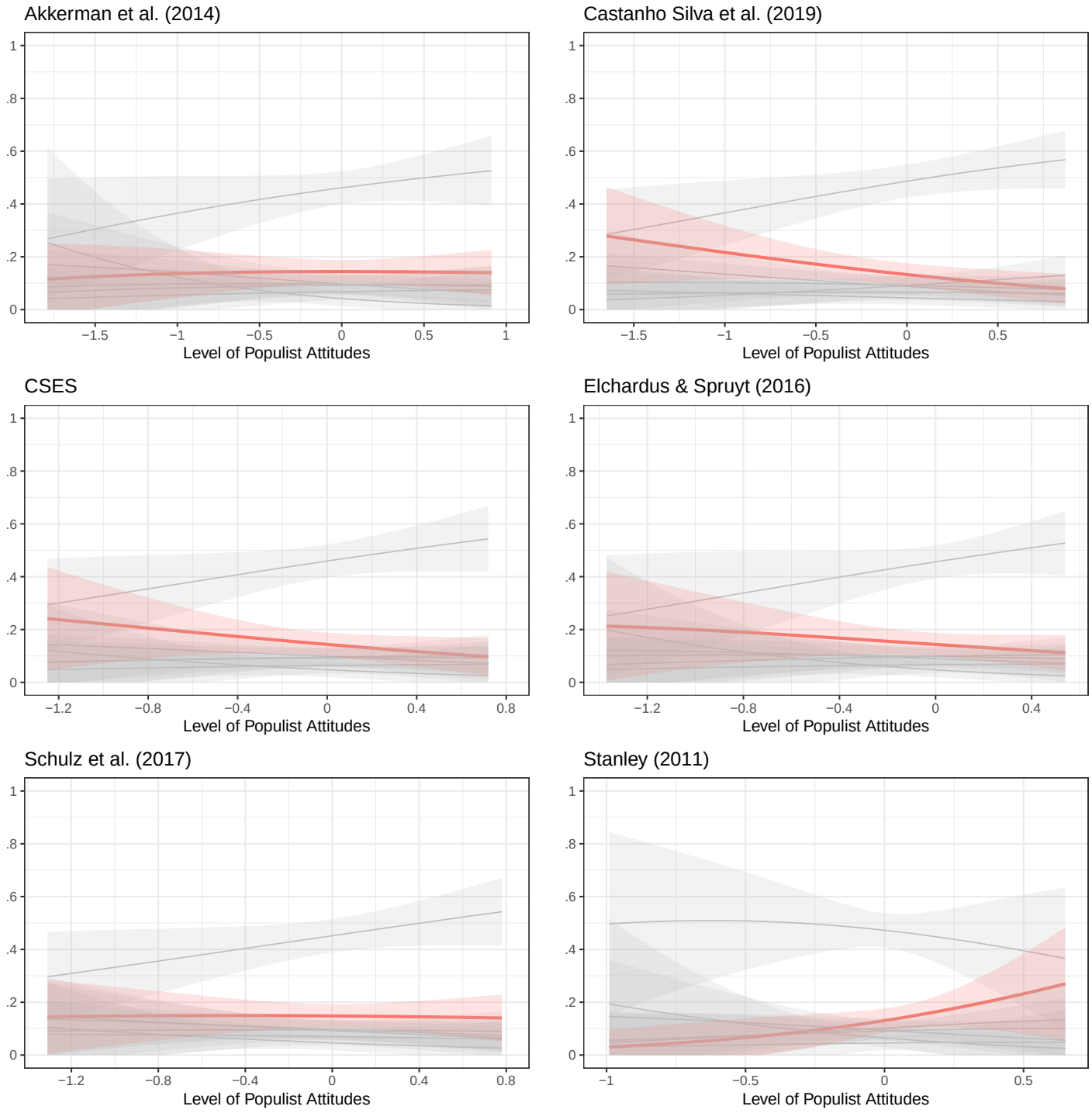
Item	Wording
STAN1	The ordinary people are divided by many different values.
STAN2	The people who belong to the political elite are divided by many different values.
STAN3	Ordinary people are prevented from improving their lives by the actions of unaccountable elites.
STAN4	Not all politicians are the same; some genuinely care about what the people want.
STAN5	Democracy is about finding compromise between different interests and opinions.
STAN6	Ordinary people are unable to make the correct decisions about the future of our country.
STAN7	The majority of politicians are honest people.
STAN8	Modern politics is in essence a struggle between the good, honest people and the evil elite.

Table S9. Confirmatory Factor Analysis Models for Populist Attitudes Scales (Greece 2016)

Country	N	RMSEA	SRMR	CFI	Avg. Loading	Min. Loading	Lowest Loading
Akkerman et al.	254	0.077	0.038	0.948	0.570	0.507	AKK3
Castanho Silva et al.	267	0.077	0.059	0.918	0.430	0.252	CS-MAN2
CSES	254	0.056	0.037	0.969	0.537	0.369	E3004_3
Elchardus and Spruyt	258	0.238	0.078	0.789	0.509	0.190	ES4
Schulz et al.	246	0.045	0.037	0.974	0.629	0.484	S-HOM3
Stanley	246	0.101	0.069	0.736	0.390	0.217	STAN7

Shown are standardized loadings.

Fig S9. Predictions of SYRIZA Vote by Populist Attitudes Scales



Japan (2019)

As the Japanese and South Korean cases are both contested, we have not labelled these parties as populist. However, the LDP has been argued to have embraced some aspects of populist rhetoric and strategy, most notably under Junichiro Koizumi (Prime Minister from 2001-2006) but also under his successor Shinzo Abe (Prime Minister 2006-2007, 2012-2020) [7–9]), while both the Saenuri Party during the rule of Park Geun-hye and the leaders of the protest movement which ultimately deposed her from the presidency have been labelled populist by some scholars (see for example [10, 11]).

We fielded an online survey through a Yahoo Cloud panel in Japan in August 2019 in which we included the items of the Castanho Silva et al. and Schulz et al. scales along with questions on vote choice and political attitudes (N=1192). Prior research in Japan has indicated a disconnect between literature on populist leaders and parties and the actual voting behaviour of those voters classified as populists using existing survey scales [12]. Japan's ruling party, the Liberal Democratic Party (LDP), is an "edge case" in terms of the adoption of populist rhetoric and strategies; while the LDP cannot reasonably be bracketed alongside overtly populist parties such as Hungary's FIDESZ or Germany's AfD, the party (especially under recent influential leaders, Junichiro Koizumi and Shinzo Abe) is argued to have adopted a number of elements of populist rhetoric, embracing what Yoshida describes as a "Japanese style of populism" ([8]; see also [9, 13]. This strategy has been argued to have been effective in limiting the appeal of potential populist challengers from outside the party [14]. Japan therefore presents a complex test case for the existing scales which could show whether they work similarly when applied to an incumbent party which only partially meets the definitions of populism.

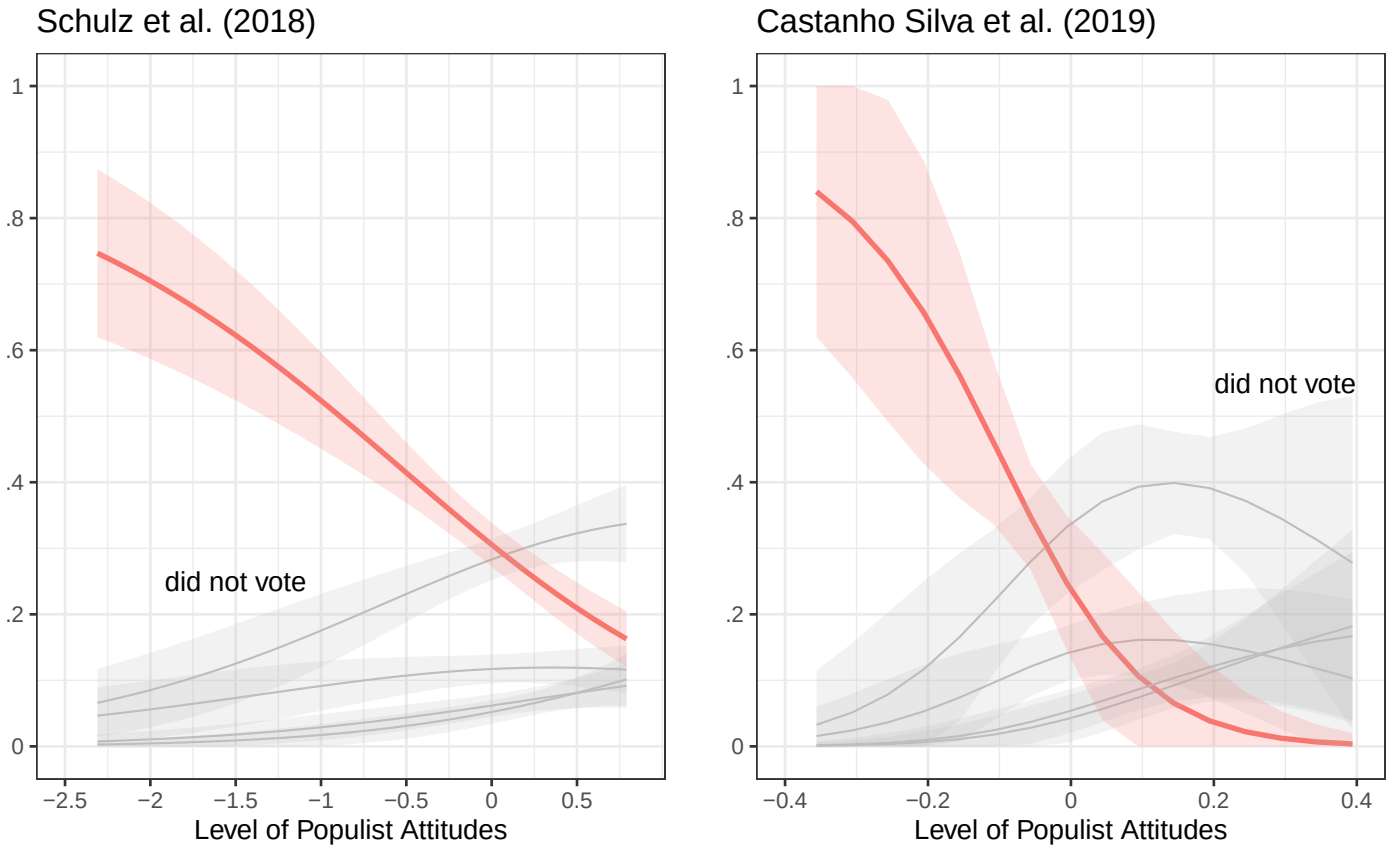
Our results were consistent with our analysis of the CSES Module 5 data in this case, with the same strong negative relationship between populist attitudes and vote for the LDP (see Fig S8). However, both scales had some issues regarding goodness of fit — the Castanho Silva et al. scale had poor fit metrics (CFI is less than .95 and RMSEA is over .06, per [15]) and its anti-elitism dimension correlated only weakly with the other two dimensions, while the Schulz et al. scale, though it scored well on fit measurements, had an unexpectedly negative loading on the populism factor for one of its dimensions (related to national homogeneity). These problems are consistent with our expectation that existing scales of populism are unsuited to complex cases, such as those where populist parties have entered government, or where existing mainstream parties have adopted populist strategies to appeal to certain voters. Our contention is not that the results for the Japanese case are "wrong", *per se*, since even most scholars who argue that the LDP has adopted populist rhetoric do not go so far as to claim that it's actually a populist party; rather, it's that when used in this context, the populist attitudes scales are not actually measuring what they purport to measure, and that their results may be meaningless or worse, actually misleading.

Table S10. Confirmatory Factor Analysis Models for Castanho Silva et al. and Schulz et al. scales (Japan 2019)

Country	N	RMSEA	SRMR	CFI	Avg. Loading	Min. Loading	Lowest Loading
Castanho Silva et al.	907	0.077	0.058	0.905	0.512	0.358	PPL3
Schulz et al.	920	0.057	0.037	0.970	0.703	0.374	ANT3

Shown are standardized loadings.

Fig S10. Predictions of LDP vote by Castanho Silva et al. and Schulz et al. scales



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