

Supplementary material for ‘How populist are parties? Measuring degrees of populism in party manifestos using supervised machine learning’

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A Description of the data

In this section, we present some tables summarizing the Political Manifesto data used in the main text. Table A shows the electoral rounds for each country for which we have collected political manifestos. Table B shows the classification of populist and non-populist parties used for the labelling of sentences as described in the Methods section of the main text. We excluded from the training set parties that are ambiguously populist over time or are considered as populist only in some classifications.

A.1 Country selection

We focused on political parties in Austria, France, Germany, Italy, Spain and the Netherlands. The reasons underpinning our choices are related to the construction of a corpus of manifestos as complete as possible and the characteristics that make these nations particularly suitable for comparison. The process of integrating manifestos that are missing from the MPD (Werner Krause et al., “Manifesto corpus,” *WZB Berlin Social Science Center*, 2018,) is a time-intensive process, which is seldom automatable. Manifestos which were missing were not only collected manually, but also split and pre-processed in order to be comparable with the ones already available in the MPD. Therefore, even if our method can be easily applied to a vast number of countries, we decided to privilege an initial selection with a more comprehensive corpus rather than a broader selection with a less detailed corpus. However, this selection also benefits from the countries’ backgrounds, which make interesting cases for comparison. For instance, they all belong to the eurozone, which means they share common cultural and social traits and have been exposed to economic, social and political crises which played a role in the way their varieties of populism developed (Hanspeter Kriesi and Takis S Pappas, *European populism in the shadow of the great recession* [Ecpr Press Colchester, 2015]). Furthermore, western European populist parties have a basis of issues composed of topics on which they express sentiments rather than holding proper positions (Paul Taggart, “Populism in Western Europe,” in *The Oxford handbook of populism* [2017]). This is also evident for the parties in our country selection. Their electoral campaigns are often centred around a few recurrent topics such as immigration, regionalism, corruption or European integration. We believe that this similarity in their basis of issues, and the other characteristics that we mentioned, contributes to making spatial and temporal comparisons among these countries an interesting case study. However, our method can be easily extended to a broader country selection and temporal interval as long as the corpus is available or can be constructed.

Table A: The election years used for the algorithm training and the derivation of the measure per country of analysis.

Country	Years of elections
Italy	[2006, 2008, 2013, 2018]
France	[2007, 2012, 2017]
Spain	[2004, 2008, 2011, 2015, 2016, 2018, 2019]
Germany	[2002, 2005, 2009, 2013, 2017]
Netherlands	[2002, 2003, 2006, 2010, 2012, 2017]
Austria	[2002, 2006, 2008, 2013, 2017]

Table B: Parties whose electoral manifestos were given label $Y = 0$ (non-populist) and parties whose electoral manifestos were given label $Y = 1$ (populist) for training the Random Forest classification algorithm. Parties which are ambiguously populist over time or are considered as populist only in some classifications were excluded from the training.

Country	Non-Populists $Y = 0$	Populists $Y = 1$	Excluded parties
Austria	<ul style="list-style-type: none"> ·Austrian Social Democratic Party (SPÖ), ·Austrian People’s Party (ÖVP), ·The Greens (GRÜNE), ·Austrian Communist Party(KPÖ), ·The New Austria (NEOS) 	<ul style="list-style-type: none"> ·Freedom Party of Austria (FPÖ), ·Team Stronach (TSÖ), ·Alliance for the Future of Austria (BZÖ), ·Hans-Peter Martin’s List (MARTIN) 	<ul style="list-style-type: none"> ·Peter Pilz List (Jetzt)
France	<ul style="list-style-type: none"> ·Left Radical Party (PRG), ·Democratic Movement (MoDem), ·Centrist Alliance (AC), ·Republic Onwards! (LREM), ·Left Front (FG), ·Union for a Popular Movement (UMP), ·Socialist Party (PS), ·Union of Democrats and Independents (UDI), ·New Centre (NC), ·Radical Party (PR) 	<ul style="list-style-type: none"> ·National Front (FN), ·Indomitable France (FI) 	<ul style="list-style-type: none"> ·The Greens (LV), ·French Communist Party (PCF), ·New Anticapitalist Party (NPA), ·Let’s Resist (Résistons), ·France Arise (DLR)
Germany	<ul style="list-style-type: none"> ·Alliance’90-Greens (B’90/Die Grünen), ·Christian Democratic Union-Christian Social Union (CDU-CSU), ·Free Democratic Party (FDP), ·Social Democratic Party of Germany (SPD), ·Party of Democratic Socialism (PDS) 	<ul style="list-style-type: none"> ·The Left (Linke), ·Alternative for Germany (AfD) 	<ul style="list-style-type: none"> ·Pirates

Italy	<ul style="list-style-type: none"> ·The Olive Tree (Ulivo), ·Italian Communist Party (PCI), ·The Rose in the Fist (RNP), ·Democrats of the Left (DS), ·National Alliance (AN), ·Union of the Centre (UdC), ·Democratic Party (PD), ·Movement for the Autonomies (MpA), ·The Right (La Destra), ·Socialist Party (PSI), ·Left Ecology and Freedom (SeL), ·Future and Freedom (FL), ·Democratic Centre (CD), ·The Megaphone–Crocetta List (Megafono), ·Moderate Party (PM), ·Civic Choice (SC), ·Amnesty Justice and Freedom (RI), ·Civil Revolution (RC), ·Enough Taxes (Basta Tasse), ·More Europe (Più Europa), ·Centrists for Europe (CpE), ·Popular Civic List (CP), ·Freedom and Equal (LeU), ·Trentino Tyrolean Autonomist Party (PATT), ·Autonomy Progress Federalism Aosta Valley (VdA–APF), ·South Tyrolean People’s Party (SVP), ·Labour and Freedom List (3L) 	<ul style="list-style-type: none"> ·Brothers of Italy (FdI), ·The (North) League (LN), ·Five Star Movement (M5S) 	<ul style="list-style-type: none"> ·Forward Italy (FI), ·Freedom’s Party (PdL), ·Italy of Values (IdV), ·Casapound (CPI)
Netherlands	<ul style="list-style-type: none"> ·Christian Democratic Appeal (CDA), ·Labour Party (PvdA), ·Christian Union (CU), ·Democrats’66 (D66), ·People’s Party for Freedom and Democracy (VVD) 	<ul style="list-style-type: none"> ·Socialist Party (SP), ·Fortuyn List (LPF), ·Forum for Democracy (FvD) 	<ul style="list-style-type: none"> ·Denk, ·Party for the Animals (PvdD), ·Reformed Political Party (SGP), ·50Plus (50+), ·Green Left (GL)
Spain	<ul style="list-style-type: none"> ·Spanish Socialist Workers’ Party (PSOE), ·Convergence and Union (CiU), ·People’s Party (PP), ·Union Progress and Democracy (UPyD), ·United Left (IU), ·Popular Unity (UP), ·Democracy and Freedom (DiL) 	<ul style="list-style-type: none"> ·We Can (Podemos), ·In Common We Can (ECP) 	<ul style="list-style-type: none"> ·Amaiur, ·Aragonist Council (CHA), ·Andalusian Party (PA), ·Basque Country Unite (EH Bildu), ·Basque Nationalist Party (EAJ-PNV), ·Basque Solidarity (EA), ·Canarian Coalition (CC), ·Catalan Republican Left (ERC), ·Citizens (C’s), ·Compromis (C), ·Democratic Convergence of Catalonia (CDC), ·Forum Asturias (FORO), ·Yes to the Future (Geroa Bai), ·Galician Nationalist Bloc (BNG), ·In Tide (En marea), ·Navarrese People’s Union (UPN), ·Valencian style (A la valenciana)

B The computation of the Score

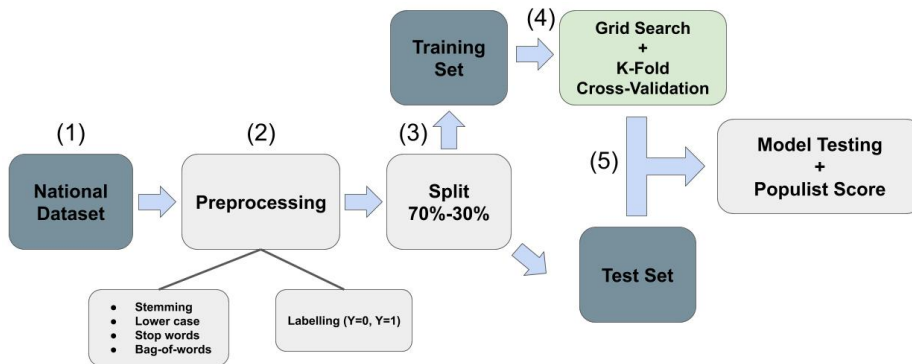


Figure A: The different phases of the process of deriving the score. We started with a national dataset of sentences (1). We proceeded by pre-processing it (2) removing stop words, stemming it and transforming each sentence in a corresponding bag-of-words. Moreover we labelled each sentence with 0 or 1 according to the chosen labelling scheme (e.g. 1 if belonging to populist party manifestos, 0 otherwise). The obtained data of bag-of-words features + labels were then split into training and test sets, being the first one the 70% of the whole data (3). We used the training data set to train the classification algorithm, using a Grid Search over the model hyperparameters and K-Fold cross-validation to compute a validation accuracy (4). Finally, we tested the trained model classifying the sentences of the test set, so as to have the model accuracy on out-of-sample data. The fraction of sentences belonging to a party in the test set that were classified as 1 were then used as populist score for the party, together with the sentence of the excluded parties in Table B of Supplementary Material.

C Random Forest Training

For each national dataset, the Random Forest algorithm was trained by performing a Grid Search over some of its hyperparameters. Table C shows the set of hyperparameters used as well as the values used in the Grid Search. The considered hyperparameters are:

- **n_estimators**: the total number of trees used by the Random Forest
- **max_features**: the maximum number of features used to split a node in the tree. We allow only two possible values: $\log_2 N_{features}$ and $\sqrt{N_{features}}$ where $N_{features}$ is the number of features of the data points.
- **min_samples_split**: the minimum number of data points to be placed in a node before it can be split.
- **min_samples_leaf**: the minimum number of data points required to be a leaf node.
- **criterion**: the function to measure the quality of the split. There are only two possible options the Gini Criterion and the Entropy Criterion.

We do not give any stop condition in terms of the depth of each tree, so that they will expand until each leaf is pure. Note that we report the names of the hyperparameters as they are defined in the python **scikit-learn package**¹, to ease the reproducibility of our findings.

Table C: Possible values of the Random Forest hyperparameters used in the Grid Search.

Hyperparameters	Values
<i>n_estimators</i>	50, 100, 200, 400
<i>max_features</i>	$\log_2 N_{features}$, $\sqrt{N_{features}}$
<i>min_samples_split</i>	2, 5, 10
<i>min_samples_leaf</i>	1, 2, 4
<i>criterion</i>	Gini, Entropy

1. <https://scikit-learn.org/stable/index.html>

At the end of the Grid Search, we found the best combination of the hyperparameters in Table C. Table D shows these combinations for the different nations used in the training. Remarkably the best combinations are very similar across countries. Moreover, the consistent choice of 400 decision trees which is the highest we set, suggests that a higher value of this parameter would probably enhance the precision, but with larger computational costs.

Table D: Hyperparameter values for the different nations, found using the Grid Search.

	n_estimators	max_features	min_samples_split	min_samples_leaf	criterion
Austria	400	$\log_2 N_{features}$	2	2	Entropy
France	400	$\log_2 N_{features}$	10	1	Entropy
Germany	400	$\log_2 N_{features}$	10	1	Entropy
Italy	400	$\log_2 N_{features}$	5	1	Entropy
Netherlands	400	$\log_2 N_{features}$	10	1	Entropy
Spain	400	$\log_2 N_{features}$	10	1	Entropy

D Examples of Classified Sentences

Table E: Some sentences that the Random Forest algorithm has classified as populist or non-populist drawn from the manifestos of Italian parties and coalitions. All the sentences were translated using DeepL (<https://www.deepl.com/>).

Party (Italy)	Sentences classified as populist
The League, 2018	Yes to the Europe of peoples, of peace and freedom. No to the Europe of bureaucrats and speculators.
Five Star Movement, 2018	We say "Stop" to loans to the shareholders of the banks interviewed [...] In the same way, we will ensure that Bank of Italy top management and staff no longer have to do transactions with "related parties" (relatives, like, influential people).
Power to People, 2018	For this reason we fight for: the abolition of the Fornero "reform"; a decent pension, proportionate to the last salary received; the right to a pension at 60 years of age or 35 years of contributions for all; the adjustment of minimum pensions to the real cost of living, for a dignified old age; [...]
Democratic Centre, 2013	Now as then the country finds itself having to recover from the rubble of a piercing political and social season, which in addition to pushing it into the rear of advanced economies, undermined the principles of public ethics.
Civic Choice, 2018	The highest cost of politics is due to bad decisions or non-decisions that put the burden on the new generation.
Democratic Party, 2018	At "home" we will have to bridge the fault that has been created between citizens and politics.
Ecology Left and Freedom, 2013	Fiscal austerity profoundly affects the reduction of gross domestic product which, in turn, worsens the country's solvency ratios, increasing investor distrust.
Brothers of Italy, 2013	If we want to reduce the distance between the will of the people and the government, it is necessary to give citizens the right to choose their institutional representatives directly.
Free and Equal, 2018	Retirement is one of the most sensitive topics for many millions of Italians. We believe it is necessary to revise the Fornero reform in-depth, also by re-organising the system of early or late departures for types of activity, based on the heavy burden of the work performed.
Casapound, 2018	EXIT FROM EURO. The Euro a mechanism at the service of private groups and hostile nations that expropriate the Italian public good with piloted privatisations, keep citizens under pressure, destroy savings, multiply debt and devastate the welfare state.

Party (Italy)	Sentences classified as non-populist
Five Star Movement, 2018	A government assignment that will lead us to present ourselves to the chambers and ask for trust. A trust that will be based on a program, no exchange of seats, no agreements on other tables, there are those who speak of wanting to do live streaming again, tables. We have always said one thing: the votes are in parliament, the political forces are in parliament and there is discussion in parliament, there is no need to move to obscure or less obscure tables outside parliament. Our approach will be simple, clear agreements and long friendship.
The League, 2018	The League, Salvini, here, take it all. This is the goal and the result can be achieved in the coming months because there is no opposition, because the center-right is gone, because Berlusconi’s leadership is weakening, because the Lega has made the generational change, and rides the themes that are themes that are very much shared by public opinion.
Brothers of Italy, 2013	Today we must go back there and we must build a labor market in which there is a single system of social safety nets that applies to everyone because it is incredible that two people who do the same job and who have five, six, ten, twenty years of difference must have a totally different social amortization system in addition to having a totally different pension, because there are those who have the salary and a generation today who has the contribution and will not even take all the contributions that he paid working all his life. Today we need to overcome that dichotomy, a single system of social safety nets and a single type of contract that applies to everyone and that goes on over the years.
Democratic Centre, 2013	And again, in the promotion of tourism, in the enhancement of artistic and landscape beauties, in territorial policies, in public and private construction, the country needs advanced and innovative development policies, which only an overall vision, capable of combining in new way public and private, economics and ecology, finance and ethics, can allow to realize.
Civic Choice, 2013	All of this serves to help the transition of traditional sectors.
Democratic Party, 2013	The core of that conflict is no longer just the classic antagonism between business and workers, but the complex world of producers, that is, people who think, work and do business.
Five Star Movement, 2013	And there is a new Italy waiting for us and it will be great to be part of it. It is moving, I am moved, I am moved, I am moved.

E Alternative Classification Algorithms

The Random Forest algorithm can be in principle exchanged with other classifiers. We applied the same scheme of Figure A by exchanging the Random Forest with a Logistic Regression, a Feed-Forward Neural Network, and a Gradient Boosting algorithm, and tested their classification accuracy. Table F, Table G and Table H show the parameters used in the Grid Search, where the best combination is highlighted in bold. Finally, Table I shows the average AuROC and F1 scores on the validation sets obtained with the K-Fold cross-validation and the same scores on the test sets. As for the Random Forest, the names of the parameters come from the python scikit-learn package.

Table F: Possible values of the Logistic Regression hyperparameters used in the Grid Search. The bold values between brackets are the best ones obtained with the Grid Search.

Hyperparameters	Values
penalty	$L1$, [$L2$]
C	[0.5], 1, 2, 10

Table G: Possible values of the Feedforward Neural-Network hyperparameters used in the Grid Search. The bold values between brackets are the best ones obtained with the Grid Search.

Hyperparameters	Values
hidden_layer_sizes	(50, 1), (50, 2), [$(100, 1)$], (100, 2), (200, 1), (200, 2)
activation	[$relu$], sigmoid

Table H: Possible values of the Gradient Boosting hyperparameters used in the Grid Search. The bold values between brackets are the best ones obtained with the Grid Search.

Hyperparameters	Values
learning_rate	0.01, [0.1]
n_estimators	50, 100, [200]
max_features	$[\log_2(N_{features})]$, $\sqrt{N_{features}}$
min_samples_split	2, 5, [10]
min_samples_leaf	1, [2] , 4

Table I: Details concerning the AuROC levels and F1-scores for the Italian Case using Logistic Regression, Gradient Boosting and Neural Network. In the validation case, the values shown represent the mean and standard deviation of the AuROC over the different split of the K-Fold cross validation.

Algorithm	AuROC (Validation)	F1 (Validation)	AuROC (Test)	F1 (Test)
Logistic Regression	0.82 ± 0.1	0.62 ± 0.01	0.83	0.61
Gradient Boosting	0.84 ± 0.1	0.53 ± 0.01	0.85	0.61
Neural Network	0.85 ± 0.1	0.64 ± 0.02	0.86	0.64

F Score Validation Datasets

To validate the final score, we used the Chapel Hill Expert Survey (CHES) (Jonathan Polk et al., “Explaining the salience of anti-elitism and reducing political corruption for political parties in Europe with the 2014 Chapel Hill Expert Survey data,” *Research & Politics* 4, no. 1 [2017]: 2053168016686915, <https://doi.org/10.1177/2053168016686915>, eprint: <https://doi.org/10.1177/2053168016686915>, <https://doi.org/10.1177/2053168016686915>), the 2018 Populism and Political Parties Expert Survey (POPPA)(Maurits Meijers and Andrej Zaslove, *Populism and Political Parties Expert Survey 2018 (POPPA)*, 2020), and the Global Populism Database (GPD)(Kirk A Hawkins et al., “Measuring Populist Discourse: The Global Populism Database,” in *Presentado en el 2019 en EPSA Annual Conference en Belfast, Reino Unido, June [2019]*)). Table J and Table K report the dimensions used for the score validation drawn from the 2017 CHES and the 2018 POPPA, respectively. The attributes listed in Table K are the same used to build the latent populism variable (Maurits Meijers and Andrej Zaslove, “Measuring populism in political parties: appraisal of a new approach,” *Comparative Political Studies*, 2020, 0010414020938081) that we used for a further validation of the score. Table L reports the parties matching between our dataset and the datasets used for validating the score. For the GPD only, the table also indicates the year of matching, since not all the years and parties are present in our dataset and in the GDP one. In the GDP, we only considered scores obtained looking at ‘campaign’ speeches since we argue they are the best suited to be compared to electoral manifestos. Given a certain party in a certain year, we computed its corresponding (GPD) score by averaging over all the scores that the different coders gave to all the party speeches in that year. Since the coders could give a score ranging between 0 and 2, we divided the final score by 2 for the (GPD) score be in the same range as ours. Figure B shows the correlation between our populist score and the (GPD) score. In general, we find good agreement between the two scores, with the exception of one strong outlier, the Spanish Socialist Workers’ Party (PSOE) in 2008. For this party, our score exhibits low value of populism while the (GPD) score is higher. We argue that this might be due to two possible reasons already addressed in Section 3 of the Main Text. Firstly, it can depend on the possible differences in populism levels existing between manifestos and speeches, with the second ones being more populist. Secondly, it could be due to the differences between leaders’ levels of populism and parties’ levels of populism, with leaders being more populist than their parties’ manifestos. We conclude that, for validating our score with the GPD, we should use leaders’ speeches or the same corpus as the GPD.

Table J: List of the 2017 CHES dimensions (Jonathan Polk et al., “Explaining the salience of anti-elitism and reducing political corruption for political parties in Europe with the 2014 Chapel Hill Expert Survey data,” *Research & Politics* 4, no. 1 [2017]: 2053168016686915, <https://doi.org/10.1177/2053168016686915>, eprint: <https://doi.org/10.1177/2053168016686915>, <https://doi.org/10.1177/2053168016686915>) used for the validation.

Name (CHES, 2017)	Dimension	Values
anti-elite salience	salience of anti-establishment and anti-elite rhetoric	0 = not important at all 10 = extremely important
people_vs_elite	position on direct vs. representative democracy	0 = Elected office holders should make the most important decisions. 10 = ‘The people’, not politicians, should make the most important decisions

Table K: List of the 2018 POPPA dimensions (Maurits Meijers and Andrej Zaslove, *Populism and Political Parties Expert Survey 2018 (POPPA)*, 2020) used for the validation.

Name (POPPA, 2018)	Dimension	Values
manichean	Some parties see politics as a moral struggle between good and bad. This is often described as a Manichean worldview	0 = Not Manichean at all 10 = Extremely Manichean
indivisible	Some parties consider the ordinary people to be indivisible (i.e. the people are seen as homogenous)	0 = Not at all 10 = Very much
generalwill	Some parties consider the ordinary people’s interests to be singular (i.e. one can speak of a ‘general will’)?	0 = Not at all 10 = Very much
peoplecentrism	Some parties believe that sovereignty should lie exclusively with the ordinary people (i.e. the ordinary people, not the elites, should have the final say in politics)	0 = Not at all 10 = Very much
antielitism	Some parties can be characterized by their anti-elitism	0 = Not at all anti-elitist 10 = Very anti-elitist

Table L: List of parties/years that match between the datasets used for the validation and our dataset.

Country	2017 CHES	2018 POPPA	GPD
Austria	Not present in 2017 CHES	FPÖ, Grünen, NEOS, ÖVP, PILZ, SPÖ	ÖVP (2017), SPÖ (2006, 2008, 2013)
France	DLF, EELV, FN, FI, LR, LREM, MODEM, PCF, PS	DLF, EELV, FN, FI, LR, LREM, MODEM, NPA, PCF, PS, PR	LREM (2017), UPM (2007), PS (2012)
Germany	AfD, CDU, FDP, Grünen, Linke, SPD	AfD, B’90/Die Grünen, CDU, FDP, Linke, SPD	CDU – CSU (2009-2013)
Italy	CD, FdI, LN, M5S, PD, UDC	FI, FdI, LN, M5S, PD	
The Netherlands	50PLUS, CDA, CU, D66, DENK, FvD, GL, PVV, PvdA, PvdD, SGP, SP, VVD	50PLUS, CDA, CU, D66, DENK, FvD, GL, PVV, PvdA, PvdD, SGP, SP, VVD	VVD (2012)
Spain	C’s, PP, PSOE, Podemos	C, C’s, PP, PSOE, Podemos	PSOE (2008), PP (2011)

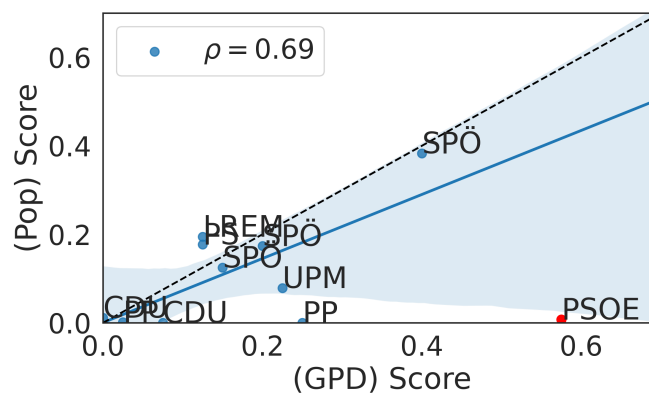


Figure B: Correlation between the score of populism and the score in the Global Populism Database (GPD) (Kirk A Hawkins et al., “Measuring Populist Discourse: The Global Populism Database,” in *Presentado en el 2019 en EPSA Annual Conference en Belfast, Reino Unido, June [2019]*). (GPD) Score is the arithmetic mean of leaders’ speeches scores given by the different coders for a given year. The dashed black line represents the diagonal of the x and y axes. Outlier points are shown in red.

G Comparison with other datasets

In the main text, we compared the parties’ score computed using political manifestos with the similar scores derived using a party leaders’ speeches dataset and the same political manifesto dataset where sentences have been manually coded. We performed both comparisons only for the Italian case, using the Random Forest algorithm and performing the same cross-validation and hyperparameter tuning procedure used in the main text. Table M briefly shows some characteristics of the speeches dataset and the manually coded manifesto datasets. Table N reports some examples of sentences which were labelled $Y = 1$ during the manual coding of the Italian corpus of speeches. Figure C and Figure D show the correlations between the scores obtained with these two new datasets and the one obtained in the main text.

Table M: Features of the Leaders’ Speeches and the Manually Coded Manifesto datasets. Both datasets have been made for the Italian country.

Dataset	Number of Sentences	Fraction of Pop. Sentences	Number of Parties	Years	AuROC (Valid.)	F1 (Valid.)	AuROC (Test)	F1 (Test)
Leaders’ Speeches	1759	0.29	36	[2006, 2008, 2013, 2018]	0.81	0.10 ± 0.01	0.83	0.64
Manually Coded	6587	0.10	14	[2006, 2008, 2013, 2018]	0.84	0.42 ± 0.04	0.84	0.40

Table N: Speeches coded as populist in the manually-coded dataset of speeches for Italy only. All the sentences were translated using DeepL (<https://www.deepl.com/>).

Leader	Sentences	Year	Link
Grillo	So these people talking about the IMU, when the Berlusconi government with 45 laws, 44 decrees, bypassed parliament in the last law and took away the ICI, took away the ICI from the municipalities. The municipalities went into a deficit of 3 billion, then the state to reimburse the municipalities took the money from the IRPEF and VAT, then paid it to those who do not even have a house. This is the people who go there [in parliament] to fuck with us again. That’s enough, gentlemen!	2013	https://youtu.be/YMD7QqxHAOI
Salvini	The euro is a criminal currency that in 11 years has proven to have brought levels of unemployment and poverty that have not been there for 40 in Europe. It has enriched someone, it has enriched multinationals, banks, finance, speculators and has devastated salaries and pensions. So the euro is the first enemy to beat.	2013	https://youtu.be/SuPWSojkJSI
Storace	Maybe I would talk about banking seigniorage, national sovereignty, the right to money, that is, issues that may perhaps attract the attention of citizens. These things cannot be discussed, RAI is forbidden to outsiders to the system, we fight our battle in the territory, we never tire of reporting.	2013	https://youtu.be/J.ZFpbCqUmI
Berlusconi	There is another judiciary in other countries, we are a country in which there is an anomaly which is a pathology, we have a judiciary within which there are many honest judges, but there is also a current linked by a red thread that uses justice to make politics against political opponents.	2013	https://youtu.be/d442uODraM8

Maroni	Umberto Bossi is right when he says “the north is fine first, but there is also Rome”. Well, but first the north means that we, who has been called to govern the northern regions, will stay here and will commit themselves to do what Rome does not want or cannot do and if necessary we will make war on Rome and on the government and will serve, I assure you.	2013	https://youtu.be/uPQfX0cJT10
Di Maio	This electoral campaign will be a campaign where once again everyone will tell you that they want to eliminate annuities. It will be the election campaign, again, in which everyone will tell you that they want to eliminate waste and privileges. They have already done so in that of 2013, but since 2013 a political force has passed from words to deeds. All the others, what had been the campaign promises, have renounced them.	2018	https://youtu.be/VOFrMx2yIN8
Salvini	Salvini tries to the last to change the rules of this Europe, but they can give me two answers, they can answer yes or they can answer no. If they answer yes I am happy because it means that we are in Europe with a sense and bringing home something, if they answer no I must be ready to defend the savings of the Italians, to defend the issues of the Italians, discussing everything, even the single currency. It is not the bible, it was not imposed on us by Jesus Christ.	2018	https://youtu.be/MCjcLatzomo
Carofalo	Hello, I turn to you who got rich speculating on earthquakes and environmental disasters, who did business with the great works, not voting power to the people. And to you who make contracts with your employees two months in two months, who make them work on Sundays, at night, who warn them with a message on WhatsApp about the next day’s shift change, who at the first opportunity dismiss all those who can create problems, women, those who have an illness, those who make unions, do not vote power to the people	2018	https://youtu.be/SV5mCKSQV5E
Di Battista	I am telling you to take our lives together democratically, to rebel, because it is our duty, because the sovereign people see themselves in these contexts. Some trains only pass by once and today we have the opportunity, precisely, to try, to try a change	2018	https://youtu.be/1o2leo0EsvY

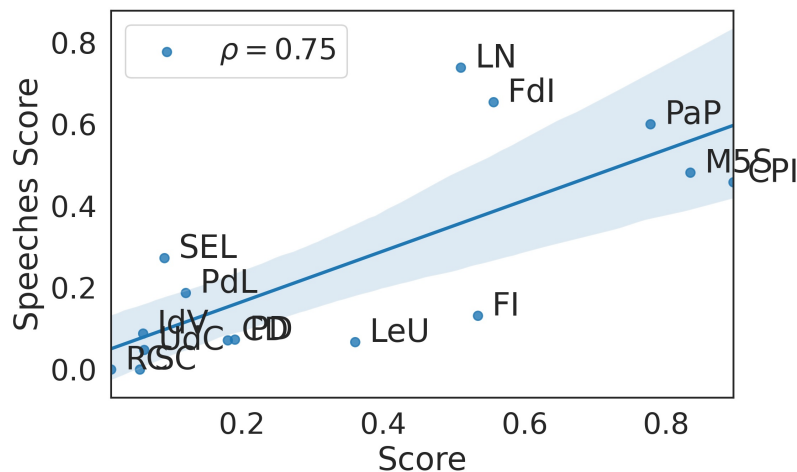


Figure C: Correlation between the populist scores derived from Italian electoral manifestos and Italian leaders’ speeches from 2006 to 2018. The high correlation rate points to similar rates of populist narrative in both corpora.

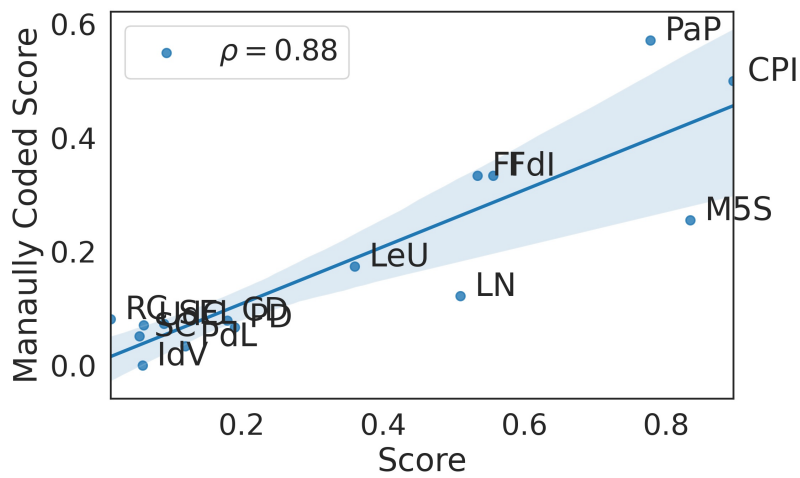


Figure D: Correlation between the score obtained with a manually-coded dataset and the score obtained without manual coding (for Italy only). Even if a manually-coded dataset can lead to more precise results, the high correlation rate shows that outcomes from the two trainings are consistent.

H Parties' Score Evolution

While many parties have not a long lifespan, either because they are relatively young or have disappeared soon, for some parties it is possible to follow the evolution of their populist score for many years. Figure E shows this evolution of all the parties in each country for which we have at least three manifestos belonging to different national elections.

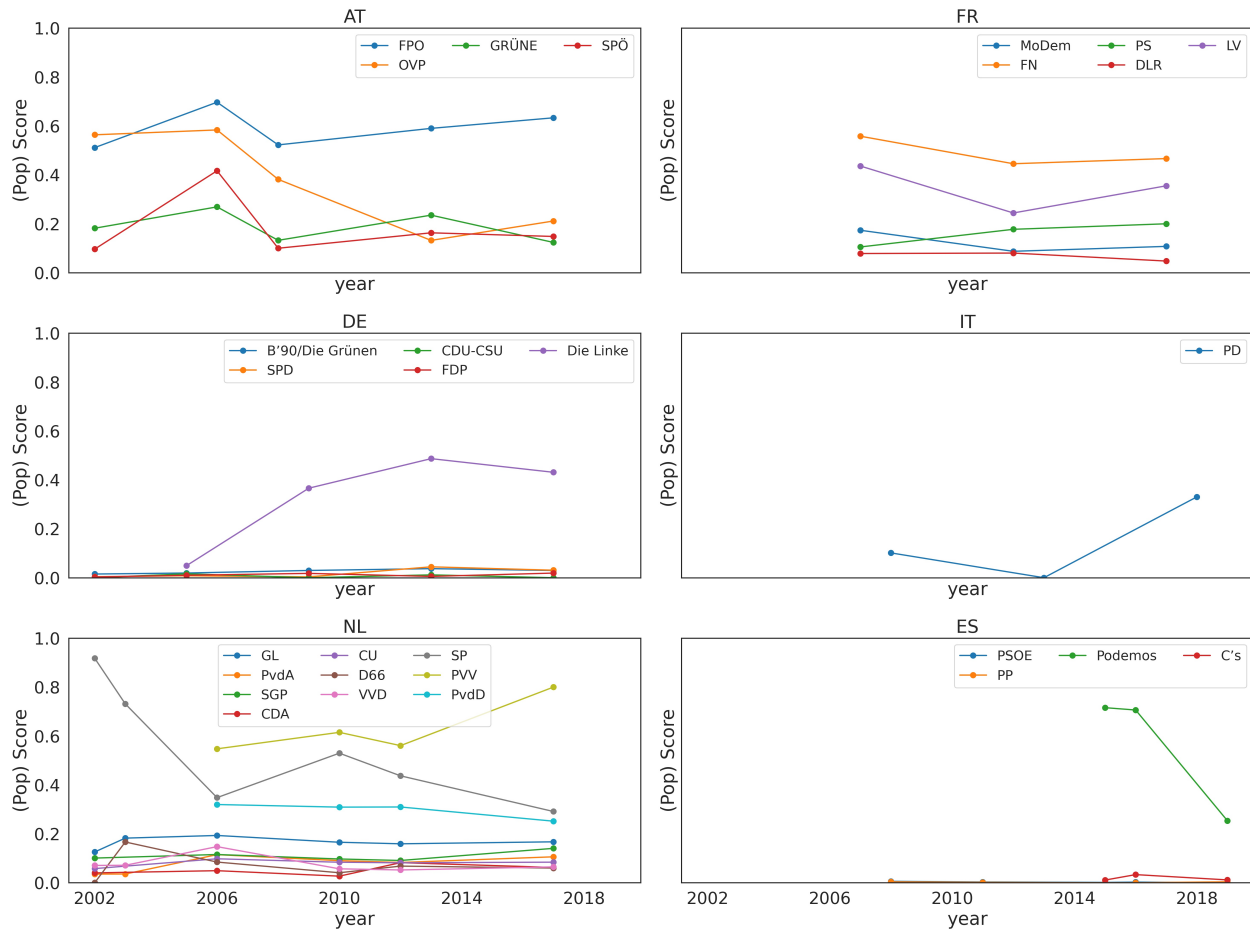


Figure E: Evolution of the populist score for parties in all the countries in our data. For each country, we selected only parties appearing in at least 3 electoral rounds.

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