Appendix

1 Measurement of predictor variables: additional information

Insider formation. This variable was coded based on primary as well as secondary literature (e.g. Krouwel and Lucardie 2008; Bolleyer 2013).

Seat share. The sources used were Caramani (2000), the EJPR data yearbook, the Global Elections Database, the Constituency Level Electoral Archive (CLEA), and official electoral records from Australia, Austria, Belgium, Denmark, Finland, Germany, New Zealand, Netherlands, Norway and Sweden, and Wikipedia. As mentioned in the manuscript, we use the lagged natural logarithm of party's seat share reflecting the expectation that changes in seat share at lower values have a stronger impact on survival than those at higher values. Since many parties had a seat share of 0, we add the constant of 1 to the seat share variable before logging it.

Government access. Parties that hold ministerial posts in a given year, either at national level or (in federalized or devolved systems) on the regional level, are given the score of 1 on this variable, all others receive the score of 0. We coded regional government access for Germany, Spain, UK, Austria, Australia, Belgium, Canada and Switzerland, all of which - based on the Regional Authority Index by Hooghe et al. (2010) - have a policy scope of 2 or more, indicating significant regional competences and thus the presence of powerful regional governments, to which access can be considered a major reward. We compiled information on national government access drawing on the ParlGov database (Doring and Manow 2018) and regional access was compiled based on primary sources.

Societal Roots. The variable captures whether party's foundation was supported by one or several identifiable promoter organizations or groups. In essence, new parties qualified as rooted when a societal group with at least a rudimentary organisational infrastructure

with members or affiliates supported its foundation (for more details see Bolleyer 2013: 40-1). The few remaining parties not covered by Bolleyer (2013) were coded based on secondary literature and existing primary documents detailing the circumstances of these parties' formations.

Ideologically novel formation. Whether a party is an ideologically novel formation was measured in two steps. First, we identified which parties in our sample either belonged to the new Green or new right family, the only two genuinely new party families that - according to Mudde (2007) - established themselves across a wide range of established democracies. Party family categories proposed by the Parlgov dataset (Doring and Manow 2018) were used in this process. The Parlgov database also provided information on the family of most of the parties included in our dataset. In few cases, we changed the Parlgov codes if published research on the party or communication with country experts suggested a different family. For example, the Reform Group in Finland is coded as a special interest party by Parlgov, but Ignazi (2003: 160-161) classifies the party as radical/new right based on its xenophobic and welfare chauvinistic policies. We therefore coded this party as radical/new right. The few parties that were not included in the Parlgov dataset were also coded based on the communication with country experts or country-specific sources. To capture whether these new right or Green parties brought something novel and distinct to their party systems (and thus were likely to take ownership of these issues in the longer term), we only coded those of them as ideologically novel formations (1) if they were the first party of that family - in terms of their year of formation - that entered their respective party system. All other parties were coded 0. This was suitable to measure ideological novelty since in numerous countries more than one new Green or new right party have emerged over the last four decades.

Competitor. The information on this variable was provided by the Parlgov database (Doring and Manow 2018).

Party funding. As discussed in the manuscript, this variable takes the value of 1 if the party won sufficient votes or seats to obtain state funding (organizational or electoral) made

available by the party finance regime in place in the respective electoral cycle and a score of 0 otherwise. If different types of funding are provided for we use the lower threshold for coding the access variable to code whether a party had access to financial support or not which is suitable as most parties in our sample win only few vote shares, i.e. the minimum threshold is likely to be most relevant to them. If the threshold is specified in terms of seats, we used the minimum vote share to win a seat under given electoral rules as basis to compute the threshold. For information on regulations 1968-2000, we relied primarily on the information compiled by Bischoff (2006) complemented and updated for the period until 2011 using research from the SIEPOL project (EUI) and IDEA (2014).

Electoral system disproportionality. We use the average district magnitude of the lower tier of electoral system to measure electoral thresholds. Bormann and Golder (2013) is the source of this data.

References:

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Bolleyer, N. 2013. *New Parties in Old Party Systems: Patterns of Persistence and Decline*, Oxford: OUP.

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Mudde, C. 2007. *Populist Radical Right Parties in Europe*. Cambridge: Cambridge UP.

Volkens, A., P. Lehmann, T. Matthie, N. Merz, S. Regel and A. Werner. 2016. The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2016a. Berlin: Wissenschaftszentrum Berlin fr Sozialforschung (WZB).

2 Descriptive statistics

In Table 1 we provide the descriptive statistics of the variables used in the analysis. Additionally, Tables 2, 3 and 4 show the overlap between three time-invariant characteristics of the parties in our sample: the insider status, rootedness and ideological novelty. Although there are theoretical reasons to think that the correlation between these variables should be high, which can in turn affect the validity of our results, we observe it is not case in our sample.

Table 1: Descriptive statistics

Variable	**Min**	**Median**	**Mean**	**Max**	**SD**	**N**
Party death	0	0.0	0.0	1.0	0.2	2638
Insider	0	0.0	0.4	1.0	0.5	2638
Seat share	0	0.5	2.7	46.4	5.1	2638
Government	0	0.0	0.1	1.0	0.3	2638
Rootedness	0	1.0	0.7	1.0	0.5	2638
Ideologically Novel Formation	0	0.0	0.4	1.0	0.5	2638
Presence of a Competitor	0	1.0	0.5	1.0	0.5	2638
Strength Regional Tier	0	12.2	15.4	37.0	9.9	2638
Party funding access	0	0.0	0.4	1.0	0.5	2638
District magnitude	1	7.7	21.2	150.0	44.7	2638

Table 2: Overlap between the insider status and rootedness

	Insider = 0	Insider =1
Rootedness = 0	25	43
Rootedness = 1	47	29

Table 3: Overlap between the insider status and ideological novelty

	Insider = 0	Insider =1
Novelty = 0	45	57
Novelty = 1	27	15

Table 4: Overlap between rootedness and ideological novelty

	Novelty = 0	Novelty =1
Rootedness = 0	56	12
Rootedness = 1	46	30

Additionally, Figure 1 presents the number of parties per country. We note that all countries in the sample are represented by at least several new parties, but at the same time none of the countries has more than 20 parties. The Netherlands emerges as the country with the highest number of new parties (18).

Figure 1: Number of parties per country

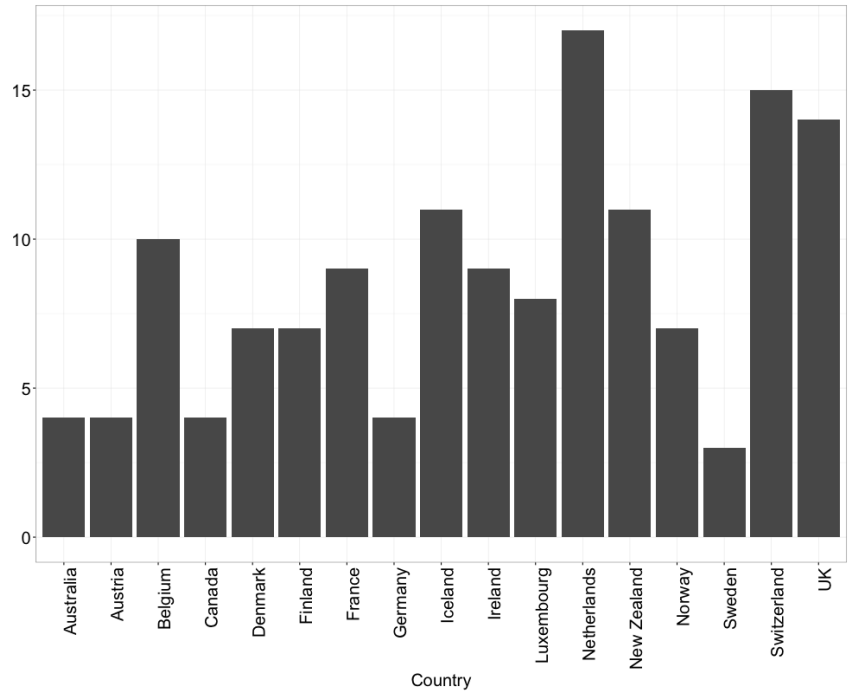


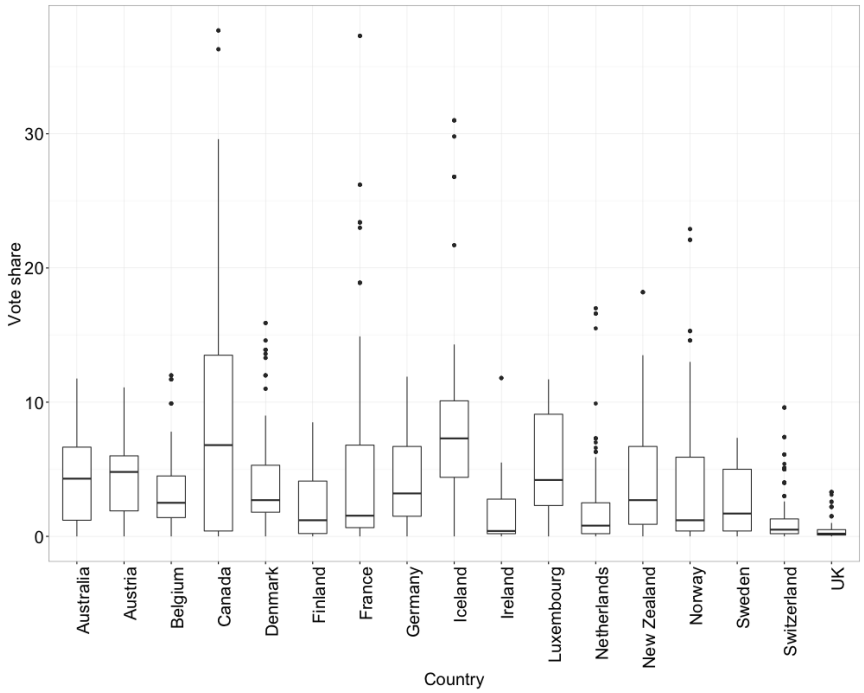
Figure 2 shows the variation in the vote share variable in each country in the sample.

3 Model choice

As mentioned in the paper, we use the proportional hazard model developed by Cox (1972) to estimate the impact of the variables discussed above on the probability of the death of parties. We choose the Cox model for the analysis as it does not assume a specific probability distribution for the time until an event occurs (Box-Steffensmeier and Zorn 2001). All statistical analyses are fit with the Survival package in R (Therneau 2014).

For this dataset, it is a distinct advantage that we do not need to parameterize time dependency as we have no theory on new party life cycles that would allow us to specify

Figure 2: Variation in vote share at the country level



any particular distribution a priori. The Cox model provides estimates of the influence of covariates on the hazard rate of an event. The hazard rate is the conditional probability of the event occurring at time point t, given that the event has not occurred prior to this. In this analysis, the hazard rate represents the risk that a party "dies" at a specific point in time. Negative regression coefficients therefore indicate that the increase in the values of the predictor variables decrease the hazard rate of party failure or, in other words, increase its chances of survival. Positive coefficients, conversely, suggest that the party is more likely to die as the values of predictor variables increase. To control for any country specific effects, we use robust standard errors clustered by country. An alternative approach would be to fit a mixed-effects Cox model that would include random intercept terms for countries (see next section of this Appendix). However, the results of such a model (fit using the coxme package in R (Therneau 2015)) are similar to those reported below (i.e. the statistical and substantive significance of almost all predictor variables in the model remains the same). Furthermore, the improvement in the log-likelihood resulting from fitting a mixed-effects

model is not statistically significant at 0.1 level. Thus, we present the results of a simpler model without random effects.

Our predictor variables comprise constant as well as time varying ones. The formation characteristics of the individual parties are naturally constant over time (formation by parliamentarians, the involvement of societal groups and initially novel ideological profile). All other variables vary over time at the national level (election threshold and regional authority) or at party level (seat share, government participation, continued ideological novelty and eligibility for funding).

4 Mixed-effects Cox regression model

	Model 1
Insider formation	-3.58^{**}
	(1.08)
Insider Formation * ln (years)	1.69^{**}
	(0.44)
Ln (seat share)	-0.29
	(0.22)
Government Access	-1.13
	(0.75)
Rooted Formation	-2.57^{**}
	(1.09)
Rooted Formation * ln (years)	0.69
	(0.43)
Ideologically Novel Formation	-0.90^{**}
	(0.37)
Presence of a Competitor Party	-0.25
	(0.32)
Strong Regional Tier	-0.20^{**}
	(0.07)
Strong Regional Tier * ln (years)	0.07^{**}
	(0.03)
State Funding Access	2.74^{*}
	(1.01)
State Funding Access * ln (years)	-1.33^{*}
	(0.43)
Ln (district magnitude)	-0.85^{**}
	(0.36)
Ln (district magnitude) * ln (years)	0.45^{**}
	(0.14)
Country-level variance	0.00
AIC	499
Number of parties	144
Number of events	64
Number of observations	2638
Number of countries	17

$^{**}p < 0.05$, $^{*}p < 0.1$

The use of mixed-effects Cox regression model with random intercepts at the country level do not substantially change the results of the analysis. The partial exception is two variables related to the Downsian model of parties: two variables associated with this model (seat share and government access) lost statistical significance, although their substantive significance remains substantial.

5 Cox regression model with the year of the first election as the first year of party's existence

	Model 1
Insider formation	-1.61^{**}
	(0.67)
Insider Formation * ln (years)	0.86^{**}
	(0.28)
Ln (seat share)	-0.40^{**}
	(0.18)
Government Access	-0.94
	(0.64)
Rooted Formation	-0.78^{**}
	(0.26)
Ideologically Novel Formation	-0.90^{**}
	(0.33)
Presence of a Competitor Party	-0.25
	(0.37)
Strong Regional Tier	-0.16^{**}
	(0.07)
Strong Regional Tier * ln (years)	0.05^{**}
	(0.02)
State Funding Access	1.47^{**}
	(0.67)
State Funding Access * ln (years)	-0.86^{**}
	(0.31)
Ln (district magnitude)	0.30^{**}
	(0.06)
AIC	418
Number of parties	144
Number of events	64
Number of observations	2478

$^{**}p < 0.05$, $^{*}p < 0.1$

The results do not change if the year in which the party participated in a national parliamentary election is considered as its first year of existence.

6 Cox regression model with the change in established parties' positions as one predictor variables

As described in the manuscript, to test the Competitor Hypothesis (H2.3), we examined whether any of the parties with at least 1 percent of the vote represented the same ideological family as any of the new parties in our sample in each previous national parliamentary election throughout the party's life cycle. To test this hypothesis further, we used Manifest Project Database (Volkens et al 2016) to measure whether all relevant parties in the party system shifted their positions towards the position of the new party on the dimension that is most important to it.

This measure is constructed as follows. We first identify whether economic or socio-cultural (social) dimension of party competition is more important for each new party. The economic dimension was identified as more important for all communist and social democratic parties as well as some conservative and liberal parties. The social dimension was identified as more important for all ecological, Christian democratic and radical right parties as well as some conservative and liberal parties. For the parties that did not represent any of these established ideologies, we established the more important dimension by consulting country-specific sources and country experts. Secondly, we identify which side on this dimension (left or right for the economic dimension and progressive or conservative for the social dimension) the new party was supportive of. For example, social democratic and communist parties occupy leftist economic positions. Thirdly, for each dyad of party and electoral period present in our sample, we compute the seat-weighted average of the positions (on the dimension associated with the new party) of all parties for which Manifesto Project data was available. We then subtract from this quantity the seat-weighted average position of the parties on that dimension (again, based on Manifesto Project data) in the electoral period in which the new party was established. This difference thus measures the extent to which the average position of the relevant parties in the party system shifted closer to the position of the new party since the formation of the latter. We develop two versions of this measure by using

	Model 1	Model 2
Insider formation	-3.55^{**}	-3.76^{**}
	(0.85)	(0.78)
Insider Formation * ln (years)	1.68^{**}	1.75^{**}
	(0.33)	(0.30)
Ln (seat share)	-0.28^{*}	-0.27
	(0.17)	(0.18)
Government Access	-1.11	-1.17^{*}
	(0.70)	(0.70)
Rooted Formation	-2.70^{*}	-2.64^{*}
	(1.55)	(1.52)
Rooted Formation * ln (years)	0.75	0.73
	(0.58)	(0.58)
Ideologically Novel Formation	-0.81^{**}	-0.82^{**}
	(0.36)	(0.32)
Change in mainstream parties' positions	-4.74	-4.36
	(3.19)	(3.55)
Change in mainstream parties' positions * ln (years)	1.65	1.56
	(1.50)	(1.40)
Strong Regional Tier	-0.20^{**}	-0.19^{**}
	(0.08)	(0.07)
Strong Regional Tier * ln (years)	0.07^{**}	0.07^{**}
	(0.03)	(0.02)
State Funding Access	2.76^{**}	2.89^{**}
	(0.78)	(0.85)
State Funding Access * ln (years)	-1.32^{**}	-1.36^{**}
	(0.37)	(0.40)
Ln (district magnitude)	-0.91^{**}	-0.98^{**}
	(0.16)	(0.17)
Ln (district magnitude) * ln (years)	0.47^{**}	0.49^{**}
	(0.07)	(0.07)
AIC	500.22	500.12
Events	64	64
N	2638	2638

$^{**}p < 0.05$, $^{*}p < 0.1$

(1) the economy (state-market) and society (progressive-conservative) dimensions provided by the MARPOR project converted to the logit scale in line with the recommendations by Lowe et al (2011) and (2) the two-dimensional scaling of the Manifesto Project data with the Bayesian item-response theory (IRT) model developed by Daeubler and Benoit (2017). Model 1 in Section 4 of this Appendix presents the results with the first variant of the measure while Model 2 uses the second version.

The results of the analysis remain very much the same as the ones presented in the manuscript. The similarity of other parties' positions does not affect the survival of the new party, thus providing further evidence against H2.3. The statistical and substantive significance of the other variables also does not change.

References:

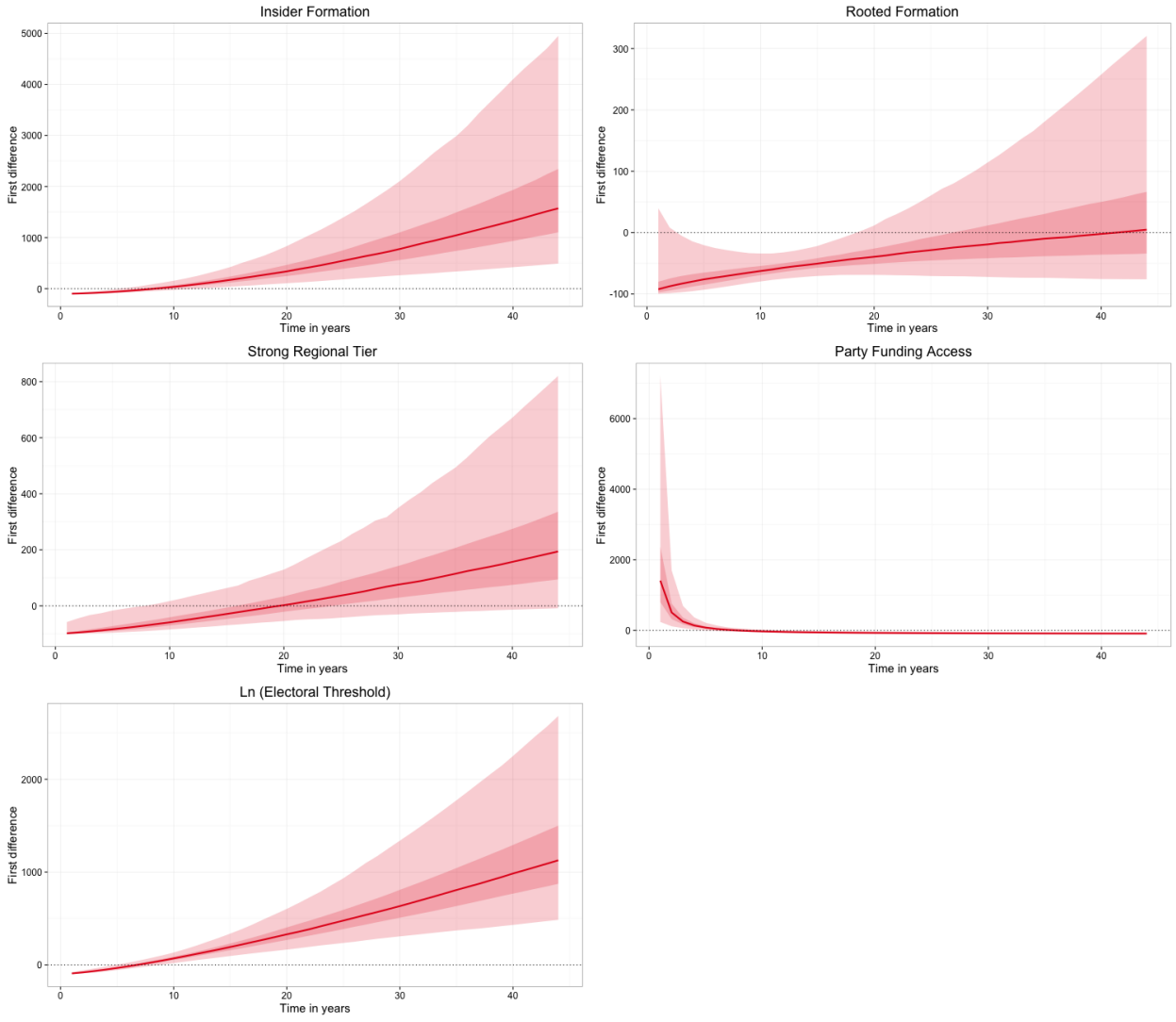
Dubler, T. and K. Benoit. 2017. Estimating Better Left-Right Positions Through Statistical Scaling of Manual Content Analysis. Available at: http://www.kenbenoit.net/pdfs/text_in_context_2017.pdf Date Accessed 25/02/2017

Lowe, W., K. Benoit, S. Mikhaylov and M. Laver. 2011. Scaling Policy Preferences From Coded Political Texts. *Legislative Studies Quarterly* 20, 123-155.

Volkens, A., P. Lehmann, T. Matthie, N. Merz, S. Regel and A. Werner. 2016. The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2016a. Berlin: Wissenschaftszentrum Berlin fr Sozialforschung (WZB).

7 Additional information on time-dependent effects

Figure 3: First differences of hazard rate for the predictor variables with time-dependent effects



The figure complements the information in Table 3 of the manuscript by providing the first differences in the hazard rate of party death across the observed values of party age. These plots were simulated using simPH (Gandrud 2015) package in the statistical environment R and are based on the estimates of Model 3 in Table 2 of the manuscript. The values of the continuous predictor variables are changed from one standard deviation below the mean to one standard deviation above the mean. The lightly-shaded areas represent 95%

confidence intervals.