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Fertile soil: explaining variation in the success of Green parties

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ABSTRACT

Comparative political science has largely ignored the marked cross-national variation in Green party electoral performance. This article uses a unique aggregate dataset of 347 parliamentary elections from 32 countries over the course of 45 years to test competing theories about the causes of Green party success. The findings show that voter demand, institutions and mainstream party strategy all affect the Green vote. Green parties do well in societies with post-materialist conflicts caused by high levels of wealth or the presence of a tangible environmental dispute. The article also shows that regional decentralisation helps Green parties, but electoral systems have little effect on their vote share. Most importantly, it demonstrates that the impact of mainstream party strategy on Green electoral strength is dependent on the age of the Green party. While mainstream parties can undermine young Green parties by adopting the environmental issue, this effect is reversed once the Greens have survived a number of elections. Thus 'accommodative' mainstream party strategies eventually boost the Green vote by increasing the salience of the key Green issue.

KEYWORDS Green parties; niche parties; environmentalism; party competition; post-materialism

The Greens are the most enduring and cohesive new party family since the rise of the Social Democrats a century ago. From Italy to Ireland, Finland to France, Green parties have been regular participants in governing coalitions across developed democracies. And whether in government or not, many Green parties have blackmail or coalition kingmaker potential (Sartori 1976: 121–4). However, such success has not been universal. In some advanced democracies – for example, Norway, Spain and Poland – Green parties remain fundamentally inconsequential electoral players.

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Supplemental data for this article can be accessed here.

Why is this? There is little comparative research that attempts to explain Green party success and failure. While there is an ever-growing literature on other 'niche' parties,[1] whether that be the radical right (Arzheimer 2009; Arzheimer and Carter 2006; Carter 2005; Golder 2003; Ignazi 2003; Jackman and Volpert 1996; Kitschelt and McGann 1995; Lubbers *et al.* 2002; Mudde 2007; Norris 2005; Pardos-Prado 2015; Van der Brug *et al.* 2005) or radical left (Gómez *et al.* 2016; March 2011; March and Mudde 2005; March and Rommerskirchen 2015; Ramiro 2016; Visser *et al.* 2014), we do not know why some Green parties succeed and others fail. This is despite the Greens preceding these other new party families, routinely outperforming them electorally in many countries, and being more regular participants in government.

To explain Green party electoral success, we distinguish among three main possible explanations: the opportunities presented by voter demands, the opportunities presented by favourable institutional arrangements and, most interestingly, the opportunities afforded by mainstream party strategies. Whereas previous studies have been relatively limited in terms of both space and time (Kaelberer 1998; Kitschelt 1989; Meguid 2008; Müller-Rommel 1993, 1998; Petithomme 2008), we use a newly constructed aggregate level dataset of 347 general election results in 32 countries from 1970 to 2015. Using Tobit models to properly account for left-censoring (as some elections in some countries were not contested by Green parties), we find that, unlike for the radical left and right, it is the forces that shape voter demand that seem to matter most to Green electoral fortunes. Moreover, while mainstream party strategy affects Green party support, this effect is contingent on the age of the Green party itself: young Green parties suffer when mainstream parties steal their clothes, but old Green parties actually benefit. This latter finding is important as it suggests that niche party success is not simply determined by mainstream party positioning, but also by the ability of the Green party to capitalise on the increased salience of 'their' issue.

In the rest of the article, we first set out the main theoretical accounts of Green party success and distinguish between those that focus on voters, those that focus on institutions and those that focus on mainstream parties. Second, we discuss our data and our measures. Third, we show the results of a series of Tobit regressions that model the Green vote share. Finally, we summarise our findings and offer suggestions for future research.

What explains Green party success?

As is common when thinking about niche party success, we divide explanations into three: voter demand; institutional constraints; and the political opportunity structure that the mainstream party-political environment provides (Eatwell 2003). The first emphasises various structural

factors that mediate voters' desire for environmentalist policy. Here we focus on economic development, economic distress and environmental conflict. The second explanation concerns the presence of institutions commonly held to help or hinder smaller parties. Here we focus on government decentralisation and electoral system permissiveness. The final explanation, and the main focus of this article, is the political context in which niche parties find themselves. Is it one in which mainstream parties already offer environmentalist polices, one in which mainstream parties oppose environmental policies, or one in which they ignore these issues altogether?

Voter demand

When it comes to environmentalism, the dominant demand-side theory is that of post-materialism. The post-materialist thesis predicts inevitable shifts in the axis of political conflict from class-based to quality-of-life-based issues (of which environmentalism is often treated as quintessential) due to rising levels of existential security (Inglehart 1971, 1977; Dalton 2014). The pursuit of economic self-interest is argued to reach a point of diminishing returns in advanced industrial societies. Correspondingly, the old left parties eventually 'run out of steam' as demand for traditional redistributive policies falters (Inglehart and Flanagan 1987: 1295). New generations of voters raised in post-scarcity, and thus post-material, societies are liberated from the traditional political priorities of economic growth and redistribution and are instead more interested in pursuing 'newer' goals such as environmentalism. This idea has proved enormously influential and certainly chimes with individual-level evidence of the Greens as the party of the young and the university-educated (Beaudonnet and Vasilopoulos 2013; Birch 2009; Dolezal 2010; Kitschelt 1989; Müller-Rommel 1998; Otjes and Krouwel 2015; Rüdig 1985). Since post-materialism is argued to be largely driven by economic development, we should find greater support for Green parties in richer countries. This leads to a straightforward hypothesis:

H1: *As economic development increases, the Green party vote share increases.*

In his later work, Inglehart acknowledged that negative short-term effects such as a recession should push all cohorts' priorities towards materialism (Inglehart 2008). Arguably economic crisis, especially greater levels of unemployment, refocuses priorities away from environmentalism. For example, increases in unemployment levels among US states are associated with increasing scepticism towards climate change (Kahn and Kotchen 2010). Most pertinently, the recent 'luxury goods' hypothesis indicates that voters who think the economy is weak punish governing

parties more severely when they associate them with environmental policies (Abou-Chadi and Kayser 2017). In bad economic times, environmentalism is deemed an unaffordable distraction from the more important issue of macroeconomic stability. This literature leads to our second hypothesis:

H2: *As unemployment increases, the Green party vote share decreases.*

The final aspect of demand is the presence of tangible issues that are related to Green party policy. The analogy is with radical right parties which potentially mobilise voters when immigration is high (Arzheimer 2009; Golder 2003). Unlike the radical right, Green parties have mobilised on different specific issues at different points in time (clean water, deforestation, population control, climate change, wildlife preservation and so on). There is, however, one universal and measurable issue: opposition to nuclear power. This has been a consistent feature of Green party campaigns from the earliest days, and case studies of Green parties in Germany (Rüdig 1985, 2012), Austria (Kreuzer 1990) and elsewhere (Kitschelt 1989; Richardson and Rootes 1995) suggest that many Green political organisations emerged directly from anti-nuclear demonstrations. Indeed, a commitment to the abandonment of nuclear power remains very prominent in the charter of the international federation of Green parties (Global Greens 2012). Related periodic high-profile international incidents such as Three Mile Island, Chernobyl and Fukushima serve as a rallying point for national campaigns, and there is existing evidence that this affects Green party support. For example, work in Germany has shown that, at the subnational level, *Die Grünen* perform better in areas close to nuclear power stations (Schumacher 2014). Thus nuclear power is a visible issue which may affect demand for Green parties in the same way that immigration levels serve as a catalyst for the radical right. This leads to hypothesis 3:

H3: *As nuclear power production increases, the Green party vote share increases.*

Institutional constraints

Niche party support is typically assumed to be affected by a country's institutions. One key institutional difference that we consider is regional decentralisation. The existence of meaningful sub-national offices is often argued to provide a springboard for national success for smaller parties (Harmel and Robertson 1985; Willey 1998). Minor parties find it easier to win seats at the subnational level, possibly due to the smaller size of the electorate and the relative lack of resources committed to these secondary

elections by the major national parties. These are typically second-order elections which are perceived as less important by voters, and therefore allow for greater niche party success (Farrer 2015; Kitschelt and McGann 1995: 99–102; Reif and Schmitt 1980). Consequently, niche parties can build reputations as credible legislators which aids future national election campaigns. If we add to this the commitment of Greens to the decentralisation of power (Global Greens 2012), as well as the origins of many parties in local environmental campaigns, it seems reasonable to hypothesise that decentralised systems provide a boost to Green parties:

H4: *As decentralisation increases, the Green party vote share increases.*

The other institutional factor that we consider is the electoral system. It is commonly thought that majoritarian systems penalise smaller parties such as the Greens. The mechanical effects of such electoral systems can clearly reduce their seat share, but there is also a psychological effect (the desire of the electorate to avoid a 'wasted vote') which corrodes their vote share by incentivising strategic voting for larger parties (Duverger 1964). The degree to which this occurs depends on voter motivation to some extent. More instrumental voters (i.e. rational policy-seeking utility maximisers) will be more affected by this psychological mechanism. More expressive voters (i.e. identity-affirmers or those just wishing to 'send a message' to establishment parties) will be less affected. Indeed, Norris (2005: 255) argues that many supporters of the radical right find larger parties so far from their idealised policy point that the supposed 'psychological' penalty of majoritarian systems is rather minor. And while some find a positive relationship with electoral system permissiveness and the radical right vote (Ignazi 2003; Jackman and Volpert 1996), others do not (Arzheimer and Carter 2006; Carter 2002; Golder 2003; Van der Brug *et al.* 2005). Nonetheless, overall we might expect that more proportional systems benefit Green parties by encouraging both expressive and instrumental voters to show their support. This gives us hypothesis 5:

H5: *As electoral system proportionality increases, the Green party vote share increases.*

Political opportunity structure

The final two factors relate neither to institutions nor demand, but the party-political setting in which Green parties find themselves and which 'condition the medium-term openness or accessibility of a political system for would-be political entrepreneurs' (Arzheimer and Carter 2006: 422). The first is straightforward. The presence of radical left parties might be expected to decrease the Green vote. There is a degree of functional

equivalency between the two, both in terms of economically left-wing policies and anti-establishment protest appeal. Indeed, Greens and radical left parties have entered pre-election coalitions with each other throughout southern Europe. Furthermore, radical left supporters are somewhat similar to those of the Greens demographically. They too tend to be young, urban, secular and highly educated (Ramiro 2016). It thus seems plausible that the two party families compete for the same pool of voters, leading to hypothesis 6:

> H6: *As the radical left vote share increases, the Green party vote share decreases.*

Most importantly, Meguid (2005, 2008) has made the argument that it is not just rival minor parties that affect niche party success. She argues that 'the fortunes of niche parties are … a function of the strategic responses of the mainstream parties in competition with each other' (Meguid 2008: 22) and discusses three possible strategies that these larger parties can employ towards the niche party's key issue: dismissive, adversarial and accommodative. The first means simply ignoring the niche party's policies, the second opposing their policies, the third adopting their policies. The interaction between the major centre-left and centre-right parties' strategies then explains niche party success.

Meguid's findings suggest that niche parties benefit when both major parties take adversarial positions on the niche party's central issue. In effect, this bolsters the salience of the key policy area and increases the distinctiveness of the niche party's policy position. Equally a dual-accommodative strategy (both major parties committing to some measure of environmental protection) is argued to reduce the Green vote. Established parties absorbing environmental policies into their programme has long been considered a potential threat to Green parties and any potential 'new party realignment' stemming from post-materialism (Rohrschneider 1993). Such a strategy dilutes the distinctiveness of the Green position and leads to the defection of instrumental Green voters to more electorally credible alternatives.

This has proved to be a very influential argument. Not least because, in Meguid's original (2005) paper, an adversarial strategy by both the centre-right and centre-left (i.e. in the case of the Greens, prioritising economic growth above environmental sustainability) was associated with a six-percentage point increase in the minor party's vote share. Dismissive and accommodative strategies were associated with substantial decreases (Meguid 2005: 354). Her later book (Meguid 2008) confirmed that dually dismissive strategies decrease the Green vote (presumably because they defuse the salience of environmentalism), but also suggested that adversarial reactions from the major parties may be more propitious for the

radical right than the Greens. This could be because a negative reaction to radical right issues legitimates their populist claims about an out-of-touch, and politically homogenous, establishment. However, as dually adversarial strategies were never actually adopted against Green parties in the period she observes, this is never fully tested. Nonetheless these broad claims about mainstream party strategy give us our final hypothesis:

> H7: *Dually dismissive and accommodative strategies by mainstream parties decrease Green party vote shares and dually adversarial strategies by mainstream parties increase Green party vote shares.*

In summary, we have three sets of factors that potentially explain the Green vote: demand factors focused on post-materialism and nuclear power; the institutional factors of the electoral system and decentralised government; and political opportunity factors centred around the presence of rival parties and, crucially, the strategies of mainstream parties. In the next section, we discuss the data and measures that we use to test which of these different sets of explanations are important for the Green vote share.

Methods and data

Case selection and dependent variable

Our dataset covers 32 countries and all of the 347 national elections between 1970 and 2015 for which party positions could be sourced from the Comparative Manifesto Project (Volkens *et al.* 2018). This accounts for the entire lifespan of the Green party family, proceeding from the first electoral contest of New Zealand's *Values Party* in 1972. In terms of country selection, we take only general elections in advanced Western parliamentary, or semi-presidential, democracies. This is all current EU and European Free Trade Agreement (EFTA) members (bar Cyprus and Liechtenstein, as well as Malta for reasons of data availability), in addition to Australia, Canada and New Zealand. Unlike earlier studies, we therefore include a number of post-communist countries which traditionally have not proved fertile territory for Green parties.

Obviously, but importantly, we need to define which parties are Green parties. An unclear typology risks 'putting parties that are often quite different (and unaware of each other) in the same ideological box' (Mair and Mudde 1998: 214). Coding parties simply by the use of 'Green' or 'ecology' in their name is unsatisfactory as it both includes significant amounts of esoteric fringe parties only tangentially devoted to environmental issues and also excludes self-identifying Green parties such as Hungary's *Politics Can Be Different*. We take Green parties to be all those

parties subscribing to a political ideology which primarily emphasises the importance of ecological sustainability and environmentalist principles beyond traditional materialist priorities. Historical adherence to this definition was provided by consultation with authoritative histories on the party family such as O'Neil (1997), and, for more recent cases, membership of party confederations. The Global Greens is a worldwide network which consists of all national Green parties which have ratified the Global Greens charter and regularly contest elections (Global Greens 2012). We include full members, associate members and the predecessor organisations of current members as Green parties.[2] This list of parties is available in Appendix 1 online.

Our dependent variable is the percentage of the vote received by these Green parties in each national parliamentary election. These figures were primarily sourced from Álvarez-Rivera's (2016) online depository.[3] For all 347 elections, Green parties received on average 2.4% of the vote. Excluding elections without a Green party (129 elections) they received 3.8%.

In a few countries, the national Green party does not appear as a distinct entity on the ballot, but as a partner in a pre-electoral coalition. Although others simply drop these cases (Carter 2013), we consider this problematic. Dropping these cases could mean a sample that systematically under-represents those cases in which the Greens were particularly disadvantaged and had been forced into an electoral pact. We therefore try and indirectly measure the actual 'Green vote' for these cases. We use the number of seats awarded to the Green party after the election to calculate the notional percentage of the overall vote received by the coalition that is attributable to the Greens. For example, in 2006 the *Latvian Green Party* received four seats. The combined total for their coalition with the *Farmers Union* was 18 seats with 17% of the vote. This means that the *Green Party* received 22.2% of the coalition's seats. That proportion of the combined vote of 17% gives a notional vote of 3.7% for the Greens.[4]

Independent variables

For the demand and institutional variables in our models, the operationalisation is relatively straightforward. Economic development is measured by logged gross domestic product (GDP) per capita in 2005 $US adjusted for purchasing power parity. Unemployment is the official rate of unemployment at each election year as a percentage of the total labour force. Data on GDP were taken from the Penn World Table Vol. 9 (Feenstra *et al.* 2015);[5] data on unemployment from the International Monetary Fund (IMF) (2017) for years after 1980 and UN Monthly Bulletin of Statistics journals prior to that. Nuclear power production is

the percentage of electricity generated by nuclear power at each election year (World Bank 2017). Electoral system permissiveness is captured by Bormann and Golder's (2016) measure of average district magnitude, log transformed to take account of its skewed distribution. Decentralisation is captured by Hooghe *et al.*'s (2016) Regional Authority Index (RAI). This is an annual measure of the authority of regional governments across 10 dimensions: institutional depth, policy scope, fiscal autonomy, borrowing autonomy, representation, law making, executive control, fiscal control, borrowing control and constitutional reform.

The political opportunity measures are more complex. First, we need to identify the mainstream parties. Meguid (2005, 2008) does this by taking the largest parties that can be identified as centre-left and centre-right. We replicate this strategy using the ParlGov dataset's left–right measure (Döring and Manow 2016) which averages the party scores from multiple expert surveys. Scores of 1.25–3.75 on the 0–11 left–right dimension are taken to indicate a centre-left party; scores of 6.25–8.75 a centre-right party.[6] The list of mainstream parties is available in Appendix 1 online.

The second step is to measure the mainstream party positions. Following Meguid (2005, 2008), we use data from the Comparative Manifesto Project (Volkens *et al.* 2018) to measure the strategies of the mainstream parties at each election.[7] Favourable mentions of environmental protection and transition to low-growth economies are assumed to be evidence of an accommodative strategy. Favourable references to the free-market economy and agriculture and farmers, as well as negative references to internationalism, comprise adversarial strategies. Dismissive strategies are distinguished from active strategies where less than 5% of a manifesto is dedicated to Green issues.[8] Even if more than this amount is dedicated to Green issues, a strategy is also coded as dismissive by Meguid where there are both a high number of accommodative *and* a high number of adversarial statements (as the party's true stance becomes blurred and hard to discern). A dismissive strategy is therefore also taken to be present when the number of accommodative statements were between 40% and 60% of the total of adversarial and accommodative statements. Manifestos were hence coded adversarial or accommodative where Green issues took up over 5% of the subject matter and accommodative positions were under 40% of the total number of Green statements (adversarial) or over 60% (accommodative).

The combinations of the strategies of the two main parties give us a categorical variable. Mainstream parties can act in the same way: they can both be adversarial (which Meguid argues is the most propitious for the Greens, and is our reference category), both be dismissive or both be accommodative. They can also act differently to one another: one party could be dismissive and the other accommodative, one party could be

Table 1. Tobit regression predicting Green party vote share.

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
GDP per capita (logged $10,000)	2.20**	0.90	1.92**	0.95	1.89**	0.94
% unemployment	−0.18***	0.05	−0.21***	0.05	−0.14***	0.05
% nuclear power	0.04***	0.01	0.03***	0.01	0.03***	0.01
Regional decentralisation (RAI, 0–30)			0.07***	0.02	0.06**	0.02
Logged district magnitude			0.06	0.15	−0.02	0.17
Radical left vote share					−0.12***	0.04
Mainstream party strategies						
Dismissive-dismissive					−0.10	0.91
Accommodative-accommodative					0.61	1.03
Accommodative-dismissive					0.75	0.92
Dismissive-adversarial					−0.51	0.85
Accommodative-adversarial					0.23	1.13
Adversarial-accommodative					0.81	0.97
Adversarial-adversarial (reference)					–	–
Ex-communist country dummy	−2.34***	0.79	−1.49*	0.81	−1.80**	0.82
Decade dummies	Yes		Yes		Yes	
Constant	−5.10***	1.03	−5.58***	1.14	−5.40***	1.35
Standard error (sigma)	11.25		10.80		10.17	
Log pseudolikelihood	−640.99		−635.71		−628.35	
Δ in Log pseudolikelihood	25.57		5.28		7.36	
LR test	*51.14***		*10.56***		*14.72***	
N (non-censored)	347 (218)		347 (218)		347 (218)	

*p-value < 0.10; **p-value < 0.05; ***p-value < 0.01.

Note: Modelling was conducted with robust standard errors. In each model the change in LL and the LL Ratio Test is calculated from a null model (with only the time and ex-communist dummies) for Model 1, then the previous model from then on.

dismissive and the other adversarial, or one party could be accommodative and the other adversarial. Following Meguid, we further separate the last category into two: one where the accommodative position was more pronounced, the other where the adversarial position was more pronounced. In total this gives us seven different types of combined mainstream party strategy.

Finally, we measure the vote share of radical left parties as categorised by March (2011). We included a few additional parties which have emerged since March's article such as Spain's *Podemos*, France's *Left Front*, the Croatian *Labourist Party* and New Zealand's *Mana Party*.[9]

Results

In this section we present our models testing the prior hypotheses about the major determinants of Green party performance. We use Tobit regression models to account for the left-censoring of the data (McDonald and Moffitt 1980). Some elections do not see Green parties standing, or see them receiving a negligible share of the vote. Simply coding these cases as zeros is distorting, for it assumes that factors such as economic development or political opportunity structures have no effect on the Green vote

Table 2. Illustration of the magnitude of demand and institutional factors on Green party vote share (calculated from Model 2, Table 1).

GDP per capita (logged $10,000)	2 standard deviation increase	+1.7%**
% unemployment	2 standard deviation increase	−2.0%***
% nuclear power	2 standard deviation increase	+1.4%***
Regional decentralisation	2 standard deviation increase	+1.5%***
Logged district magnitude	2 standard deviation increase	−0.2%

*Statistically significant effect in Model 2 of Table 1 at the *0.10, **0.05 or ***0.01 level.
Note: The mean Green party vote share for all 347 elections is 2.4% (standard deviation of 3.2%), for the 218 non-censored observations it is 3.8% (standard deviation of 3.4%).

in such countries.[10] Jackman and Volpert (1996) and Golder (2003) recognise these problems in regard to the study of the extreme right; March and Rommerskirchen (2015) in regard to the study of the radical left. In response, these papers utilise Tobit models with a maximum likelihood estimator for left-censored variables. This allows the imputation of latent party vote shares in the absence of party formation. Here we also use Tobit models (with robust standard errors) to predict the Green vote. The resulting coefficients can be interpreted as one would an Ordinary Least Squares (OLS) regression.

Table 1 shows the results of a series of models. The first model includes demand factors, the second adds institutional factors and the third adds political opportunity factors. To control for possible time trends, we also include decade fixed-effects (coefficients not shown), though our results are robust to their removal. We also include a dummy for ex-communist countries. This is negative and statistically significant in all models, meaning that the Greens perform worse in Eastern Europe than we might expect, even accounting for lower levels of economic development. This finding corroborates a longstanding claim that the salience of environmentalism is markedly lower, both in terms of mass attitudes and party competition, in post-communist Europe (Chaisty and Whitefield 2015).

Model 1 indicates that Green parties tend to perform better in richer countries that produce more nuclear power and worse in countries with high levels of unemployment. This all appears to accord with hypotheses 1–3. Nonetheless, Model 2 shows that there is also some effect of institutions. In particular, national elections fought in decentralised systems tend to see greater vote shares for Green parties,[11] as predicted in hypothesis 4. Yet, although in the direction suggested by hypothesis 5, the effect of district magnitude is not statistically significant.

How big are these effects? Table 2 shows the magnitude of the effects on the Green vote in the case of a two-standard-deviation increase in the independent variable. Given that the mean vote share of Green parties over this period is 2.4%, with a standard deviation of 3.2%, these factors are clearly important predictors of how well Green parties do. For

Table 3. The impact of mainstream party strategies on changes in the Green vote share.

	Model 4	
	B	SE
GDP per capita (logged $10,000)	3.49***	0.61
% unemployment	0.08	0.05
% nuclear power	0.06***	0.02
Regional decentralisation (RAI, 0–30)	−0.04	0.05
Logged district magnitude	−0.22	0.25
Radical left vote share	−0.04	0.04
Mainstream party strategies		
Dismissive-dismissive	0.20	0.55
Accommodative-accommodative	1.19*	0.57
Accommodative-dismissive	1.14**	0.55
Dismissive-adversarial	0.68	0.51
Accommodative-adversarial	0.58	0.60
Adversarial-accommodative	1.28**	0.61
Adversarial-adversarial (reference)	–	–
Country dummies	Yes	
Lagged dependent variable	Yes	
Constant	−2.79**	1.33
Standard error (sigma)	3.76	
Log pseudolikelihood	−500.23	
Δ in Log pseudolikelihood	128.12	
LR test	*256.24***	
N (non-censored)	347 (218)	

*p-value < 0.10; **p-value < 0.05; ***p-value < 0.01.
Note: Modelling was conducted with robust standard errors. Change in LL is in reference to Model 3 (Table 1).

example, Model 2 predicts that for a country that is not ex-communist in the 2000s, moving from a standard deviation below the mean level of logged GDP to one standard deviation above it, with all other variables held constant at their mean, almost doubles the Green vote share from 2.1% to 3.8%. These changes can also be politically consequential given the fact that the margins needed to cross explicit parliamentary thresholds in many countries are 3%, 4% or 5% of the national vote.

Institutions and voter demand affect Green party support, but what of the political opportunity structure? Model 3 includes variables measuring the presence of radical left parties and the strategies of the mainstream parties. The first has a clear negative effect, meaning that there is a trade-off between the two sets of niche parties to some extent (corroborating the findings of March and Rommerskirchen 2015). However, we find little evidence that mainstream party strategies have much effect on Green party success. Accommodative and dismissive strategies were hypothesised to decrease Green vote shares, adversarial ones to increase them. None of the differences are statistically significant. We thus find little support for the idea that Green parties are affected by mainstream party positions on 'their' issue, and certainly nothing to suggest that major parties can undermine Green parties through co-opting 'their' issues.[12]

Table 4. OLS regression predicting Green party vote share.

	Model 5	
	B	SE
GDP per capita (logged $10,000)	2.64***	1.01
% unemployment	0.04	0.05
% nuclear power	0.06**	0.03
Regional decentralisation (RAI, 0–30)	−0.01	0.07
Logged district magnitude	0.08	0.30
Radical left vote share	−0.04	0.04
Mainstream accommodative strategy	−1.38*	0.79
Green party age (number of elections contested)	−0.07	0.20
Green party age* mainstream accommodative strategy interaction	0.44***	0.17
Country dummies	Yes	
Constant	2.03	1.94
R^2	0.71	
N	217	

*p-value< 0.10; **p-value< 0.05; ***p-value< 0.01.

Model 4 in Table 3 undertakes a more formal replication of Meguid's (2005, 2008) findings. Here we include a lagged dependent variable in the model, which means that we now effectively predict change in Green party support. We also add country fixed-effects. Demand-related factors, in the form of economic development and nuclear power, still predict increased Green vote share, but the institutional variables and radical left share are not statistically significant. This is not surprising as we are modelling change and holding country effects constant. Most importantly, the differences between dual accommodative, dual dismissive and dual adversarial mainstream party strategies remain in the opposite direction to those predicted by Meguid.

Why is this? One explanation focuses on the age of Green parties. Most cases included in Meguid's analysis were elections in the 1980s and 1990s when Green parties were fairly new. Our analysis includes many more cases of established Green parties. It seems likely that mainstream parties will find it easier to 'steal' a Green party's market niche (environmentalism) when the Green party is new. Once that party has survived a few elections, further mainstream accommodative strategies are self-defeating as they simply raise the salience of environmental issues.[13]

Model 5 in Table 4 demonstrates support for this idea.[14] In this model we include a measure of Green party age (operationalised as the number of national elections contested at that point) and interact it with a dummy variable which captures whether *any* mainstream party was undertaking an 'accommodative' strategy (measured in the same way as before) at that election. Here we are only interested in cases where a Green party actually exists, so we use an OLS model. Country dummies are still included, though we drop the lagged dependent variable as this is collinear with the age of the parties. The interaction is statistically

significant. Holding all else equal, accommodative strategies deplete the vote share of a Green party for roughly the first three elections it contests. At this point, however, the direction of the effect flips and mainstream accommodative strategies actually start to boost the Green vote. If Green parties are to be smothered by accommodative mainstream party strategies, it must be done (practically) at birth.

Discussion

This article provides a series of explanations for why Green electoral performance varies. Our findings are consistent with a post-materialist story, as high levels of economic development and the presence of tangible environmental issues are important predictors of the Green vote share.[15] Institutions also appear to matter, but this is less about electoral system permissiveness and more about the opportunities that decentralised government provides. Green party electoral support is thus about having a pool of people that care about their key issue of environmentalism, and an institutional structure that allows for the mobilisation of those people. Wealth, good economic times and environmental conflict over nuclear power produces more of these people, while decentralisation facilitates mobilisation by creating local springboards for success.

Perhaps most interestingly, the Green party vote in aggregate does not seem to be associated with mainstream party strategy. Yet this null finding hides the fact that the effect of mainstream accommodative stances is contingent upon the age of Green parties. We know that mainstream parties adopt environmental issues in response to perceived threats from Green parties (Spoon *et al.* 2014), but our results suggest that this may actually be counter-productive once the latter are well-established. In the case of mainstream centre-left parties, not only does an overtly pro-environmental approach risk incurring the wrath of voters during economic downturns (Abou-Chadi and Kayser 2017), it is also not always effective at undermining the Green parties that are increasingly common across political systems.

Our findings point to further avenues of research that might help us to understand Green party success, particularly those focused on the 'meso-level' (Mudde 2007). The most obvious example of this is media coverage of Green parties, mainstream parties and environmental issues. The salience and editorialisation in coverage of environmental issues might help explain if, and when, mainstream party reactions to Green parties affect their success. Boomgaarden and Vliegenthart (2007) link media coverage of immigration issues and radical right party success. Another possible area of future research could focus more on the Green parties themselves. Work on the German Greens (in many ways the prototypical case) has

suggested that the transition from a radical environmentalist position in the 1980s to a broader left-libertarian 'rainbow catch-all' position, incorporating issues of feminism and multiculturalism, helped to increase support (Kaelberer 1998; Lowe and Rüdig 1986). Thus, one source of variation between elections is not just the circumstances in which Green parties find themselves, but also the offers that Green parties present at particular elections. Work on the radical right has already highlighted the importance of such factors to niche party fortunes Kitschelt and McGann 1995; Mudde 2007; van Kessel 2013). As Spoon (2011) notes, we should be wary of placing all strategic agency in the hands of mainstream parties: decisions made by small parties themselves often determine their ability to survive.

Notwithstanding these caveats, our findings help us to better understand the determinants of Green party success. They also help us to refine our understanding of party competition and open up new avenues of research into why mainstream parties are sometimes unable to usurp the positions of niche parties. Our findings thus have an importance beyond simply the success or failure of Green parties. They potentially help us understand the interplay of forces between niche parties and mainstream parties over time and how this changes as niche parties themselves become part of the system.

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Notes

1. Niche parties are typically conceptualised as parties which reject the traditional class-based (economic) orientations of politics and raise a restricted set of issues that do not coincide with existing levels of political division (Meguid 2005: 347-8). Others have extended this concept to include those trading in 'extreme' versions of traditional ideologies (Adams *et al* 2006) or 'challenging' mainstream parties (Hobolt and Tilley 2016).
2. This approach has been criticised by Mair and Mudde who argue that many federations accept parties far too easily, being 'more interested in power of numbers than in the power of ideological homogeneity' (1998: 216). This is

probably true for other party families, but for the Greens the adoption of a common charter ensures that there is a great deal of ideological similarity. To avoid this problem further, we also exclude any party that is also a member of a traditional left international federation (such as the Danish *Red-Green Alliance*) or appears in March's (2011) study of the radical left. All our results are robust to a different definition of Green parties that excludes those with close family ties with (or origins in) rival non-Green party families (see Appendix 2 online).

3. Where data was missing for a country or not disaggregated enough we consulted Nohlen and Stöver (2010) or individual official parliamentary websites.
4. In a small number of cases, this strategy was not possible as the coalitions received fewer than 2 seats. Here the total vote share was simply divided by the number of coalition members.
5. For the 1991 Croatian and 1992 Estonian elections economic data were unavailable. Accordingly, data from the earliest year available was applied retrospectively. In addition, there were no data available for the 1992 and 1996 Lithuanian elections and the Latvian figures were therefore used as a proxy. An adjustment was also made for Luxembourg where, according to Eurostat (2016: 3) 'the high level of GDP per inhabitant … is partly due to the large share of cross-border workers in total employment. While contributing to GDP, they are not considered part of the resident population which is used to calculate GDP per capita'. Given this we use GNI PPP figures, which ignore earnings transferred to or from abroad and the wages and salaries of frontier workers, taken from OECD (2017) data and subsequently converted into 2005 $US for comparability purposes.
6. In Belgium we take the Socialist and Liberal party families as a whole. Where two parties fulfil the criteria (e.g. two centre-right parties) the one with the highest electoral average between 1970 and 2015 is chosen. The exceptions to this are certain elections in the post-communist countries. Due to high electoral volatility in the early years of democratisation, we use whichever two parties were largest at each election.
7. Our results are not fully comparable to Meguid's data as in a few cases she then recoded party strategies using information from several primary and secondary sources (see Meguid 2008: 49 – 50). We are solely using data from the CMP.
8. All our results our substantively unaffected by using a less demanding threshold for an active strategy (see Appendix 3 online).
9. We do not include most orthodox Communist parties as they did not seek to co-opt 'new politics' issues such as the environment. Appendix 1 online lists the parties included.
10. Most cross-national studies focus exclusively on those countries where Green parties regularly contest elections and receive non-negligible vote shares (Kaelberer 1998; Meguid 2008; Müller-Rommel 1998; Petithomme 2008). This is a problem because there is good reason to believe that the factors that affect support will be systematically related to whether such a party exists in the first place (Golder 2003). As Willey notes, 'when the probability of achieving success seems low, potential party formers will most likely turn to the second option of forming interest groups and pressuring existing parties' (1998: 656).

11. By contrast, Arzheimer and Carter (2006) show that decentralisation had little impact on radical right vote share. One explanation for this difference may be that Green parties find it easier to join governing coalitions at the subnational level and can therefore reap the benefits of displaying lower level administrative competence.
12. An alternative heuristic could be that voters simply gauge positions on the environment from the general left-right orientation of the incumbent party and then decide if Green party representation is needed. Both Kitschelt (1989) and Redding and Viterna (1999) find that these parties tend to perform better when there is an incumbent left-wing government. Presumably this is because the traditional centre-left party has less capacity and fewer incentives to reach out to the environmentalist community due to the general concerns of governing and constraints and practicalities of office (leaving Greens to soak up the supply). We do not find consistent evidence to support this proposition (see Appendix 4 online).
13. Although Meguid (2005: 352-3) argues that mainstream accommodative strategies can be undermined when such strategies come after an extended period of dismissiveness, this explanation still focuses on characteristics of the mainstream party, not the niche party.
14. Another way of examining this is to break Model 4 in Table 3 down by decade. Appendix 5 online does this. It shows that adversarial strategies are more beneficial to the Greens than accommodative and dismissive strategies in the 1980s, and, to a lesser extent, the 1990s. The 21st century observations show accommodative strategies as more beneficial to the Greens. Appendix 5 online also demonstrates that our main results are not affected by the inclusion of the 1970s observations when Green parties had mobilised in only a handful of countries.
15. A more direct measure of post-materialist attitudes (using Inglehart's original 4-item survey battery) is available for a limited number of countries that are covered by the *Eurobarometer* surveys during the 1970s to 1990s and the *Australian National Election Survey* from 1987 onwards. In Appendix 6 online, we re-run our full model (Model 4 in Table 3) on a reduced dataset, substituting a measure of the number of post-materialists minus materialists in a country at a given election. The coefficient for post-materialist attitudes is statistically significant and has the same direction (and similar magnitude) as our measure of GDP. This is not too surprising, as the correlation between logged GDP per capita and post-materialism is high (+0.65, n = 105).

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