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Greens in government. The distributive policies of a culturally progressive force

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Abstract

Given the crucial role of Green parties in modern party systems, we know surprisingly little about the impact that Green parties in governments have on distributive issues, neither on the spending nor the revenue side of distributive politics. Providing such insights is the purpose of our study. Based on an encompassing cross-national data set on 34 countries from 1970-2015, we examine the impact of Green government participation on three dimensions of distributive policy-making: Social consumption, social investment, and taxation policies. We find that the inclusion of Green parties in national governments leads to higher spending on social investment, while the status quo prevails regarding social consumption spending and taxation. Nonetheless, as procurers of center-left majorities, Greens in government prevent retrenchment on social consumption and decreasing corporate and top marginal income taxes. Our study bears relevance for the study of party politics, the reconfiguration of welfare states and the literature on coalition dynamics.

Keywords: Green parties, government coalition, social investment, welfare state, fiscal policies

Since their emergence in the political landscapes of advanced democracies during the late 1970s, Green parties have challenged established modes of party politics and placed new issues on the political agenda. Despite considerable variation in their electoral fate, Green parties are an integral part of party systems of advanced democracies today and have evolved from fringe parties to mature parties that take government responsibility (Müller-Rommel and Poguntke 2002; Poguntke 2002). Given their crucial role in modern party systems, we know surprisingly little about the impact that Green parties in governments have on distributive issues. Understanding the influence of Green parties on distributive policymaking is crucial because Green parties stand at the forefront of the conflict that shapes contemporary politics in advanced industrialized societies: The cleavage between winners and losers of globalization and social modernization (Kriesi *et al.* 2008). In this perspective, Green parties are pitted against the populist right as the antipodes in an integration versus demarcation divide (Kriesi et al. 2008), also called transnational (Hooghe and Marks 2018) or libertarian-universalist versus traditionalist-communitarian cleavage (Bornschier 2010). The resulting party system fragmentation makes the traditional center-left/center-right governments, that were so important for distributive policymaking in the post-war period, less likely (Manow *et al.* 2018) and raises the question about the impact of smaller parties on distributive politics. Recent studies have explored the impact of populist right parties' access to government on distributive politics (Röth *et al.* 2018) but no attention has been devoted to Green parties in a comparative setup. Given their increasing electoral relevance and the – rather speculative – talk about Green parties as the future 'main party of the left', we consider filling this lacuna worthwhile.

Our argument deviates in two ways from traditional approaches on Green parties: first, we argue that Greens are not 'single issue' parties exclusively characterized by their concern about the environment (Spoon *et al.* 2014; Abou-Chadi 2016).[1] Green parties are "New Left" parties, a party family born out of the New Social Movements in the 1960s and 1970s. Values of social justice, equality and solidarity rank high in the ideology of New Social Movements and – as we will show – socio-economic policies have a central role in Green parties' ideological orientation.

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[1] Rihoux and Rüdig (2006) emphasize that at least when Green parties enter government, they must take a stance on distributive issues.

Second, we argue for a differentiated view on the distributive impact of Green parties, namely the differentiation between social consumption, social investment politics and taxation. In this point, we follow the perspective of those who argue that distributive conflicts today are mainly about the orientation and prioritization of the welfare state (Beramendi *et al.* 2015; Hemerijck 2017). We develop an argument that shows how material self-interest and ideology drive Green voters' distributive preferences. These distributive preferences are then the basis for the distributive impact of Green parties in governments.

We test our arguments by running matched panel regressions on more than 570 governments across 34 countries. We take account of the special economic and social context of Green parties in governments with a balancing tool in order to match covariates of governments with and governments without Green parties.

To preempt our findings, our study suggests that Green parties play a crucial role in the configuration of modern welfare states. Green parties defend the status quo of compensatory welfare state components. Furthermore, our study shows that Green parties increase social investment expenses even in comparison to other left governments. Green parties' electoral support is accordingly key to the modernization of the welfare state towards a social investment state. Increasing expenses in the social investment domain are at least programmatically argued to be met with higher and more progressive taxation. Yet, our study shows that Green parties are not more successful in implementing more progressive tax schemes than similar center-left governments. In terms of implementing their voters' preferences, a pronounced impact of Green parties in government manifests in constellations where material self-interest and ideological position of their voters correspond. In case of diverging motives, the status quo tends to prevail.

Theoretical framework

At the roots of the Green parties' emergence lies the profound transformation of advanced democratic societies since the end of the Second World War. Post-war prosperity caused a pronounced value change when an ever-growing proportion of younger citizens rejected the

material, authoritarian orientation of the immediate post-war society and embraced post-materialist values of self-autonomy, participation and emancipation instead. This 'Silent Revolution' of generational value changes (Inglehart 1977) brought about a range of less silent New Social Movements such as the student, women, human rights, environmental, as well as the global peace and denuclearization movements.[2] As diverse as these movements were, they all crystalized around the claim of individual autonomy and the recognition of differences in terms of lifestyles, gender and sexuality. By politicizing these issues, the New Social Movements set the foundations for the rise of a new group of parties, variously called "New Politics" (Price-Thomas 2016), "Left-Libertarian" (Kitschelt 1988) or "New Left" parties (Kriesi 1998).

A core element of Green parties' programmatic orientation is naturally the fight for the protection and conservation of the environment causing some scholars to label them as "issue entrepreneurs" (Spoon et al. 2014; Abou-Chadi 2016). Green parties are not single-issue parties, though. As children of the New Social Movements, Green parties place great value on the individual liberty to choose an autonomous lifestyle and therefore on women's emancipation and gay liberation (Poguntke 1989) as well as de-centralized modes of political decision-making (Poguntke 1993). Gender parity in terms of the party (collective) leadership and MPs, for instance, has always been important to Green parties (Dolezal 2016; Rihoux 2016), so were pacifism and multiculturalism (Kitschelt 1989; Price-Thomas 2016).

Despite early claims to be a political movement beyond the 'old-fashioned' left-right distinction, Green parties are situated on the left in economic terms (Müller-Rommel and Poguntke 2002). Many of its early activists have a history in neo-Marxist, communist or left-alternative movements. Jürgen Trittin, the Chancellor candidate for the German Green party in 2013, for instance, started his political career in the communist party and was a member of the communist splitter *Gruppe Z* that influenced the socio-economic orientation of the Green party through mass entries into the newly founded Green party (Raschke 1993). In the 1980s, the German Greens were marred with friction between "Eco-Socialists" that stated an irreconcilable contradiction between capitalism and ecologism and postulated a "democratic, ecological,

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[2] But see Hamilton (2002) on how environmentalism and nationalism may overlap and Galbreath and Auers (2009) on the specific overlapping on environmentalism and nationalism in Latvia.

internationalist and participative socialism" and "eco-libertarians" taking a more conservative stance towards distributive politics (Nishida 2005). The Green parties of Switzerland and Austria experienced similar divisions. A comparative assessment of party families on a state-market dimension confirms the location of Green parties as moderate left parties (Figure A1, online appendix). Moreover, distributive issues are clearly important for their ideological appeal, and increasingly so. In 2010, Green parties on average put more emphasis on distributive issues in their electoral platforms than, for example, social democratic or liberal parties (see Figure A2 in the Online Appendix).

After their foundation, Green parties set out to 'march through the institutions' of the political system and started to enter governments, typically as junior partners in coalition governments (see Dumont and Bäck 2006: on the conditions to their government access). While Green parties have been coalition partners with parties from all ideological camps – with the exception of the populist right – most of the time they were part of center-left coalitions (see also Little 2016). The policy outcome of this dynamic has been mainly analyzed in respect to its relevance for environmental (Galbreath and Auers 2009; Knill *et al.* 2010; Jensen and Spoon 2011; Schulze 2014; Abou-Chadi 2016; Leinaweaver and Thomson 2016) or socio-cultural issues (Rüdig 2000; Poguntke 2002). In this study, we focus on their impact on both the spending and the revenue side of distributive politics by considering their impact on social spending and taxation.

Distributive demands

How do parties translate their electoral mandate into policy preferences? Parties pursue a mix of vote, office and policy seeking (Strøm and Müller 1999). We argue that policy preferences of parties in government are predominantly shaped by the preferences of their voters. Votes are the "hard currency" of modern policy-making: without votes, no office, hence no policy. All parties that want to be re-elected have to implement the demands of their electorate as much as possible (Schumacher *et al.* 2013).

What are the demands of the Green electorate regarding distributive politics then? So far, we know surprisingly little about the distributive preferences of Green voters. Generally,

preferences can be informed by two sets of factors: *Material self-interest* based on a rational choice logic or *political ideology,* where perceptions of fairness and questions of altruism and egalitarianism play a larger role. Depending on the policy in question, the two motivations of preference formation might pull voters in the same or opposite direction. Since it is ultimately an empirical question which motivation prevails, we discuss both motivations for each dimension of distributive politics. We start our argument with a brief discussion of the state-of-the-art literature on social policy and fiscal preferences.

<u>The spending-side of distributive politics: Social consumption and social investment preferences</u>

One of the most important lines of argument in explaining individual variation in support for distributive policies pertains to the role of *material self-interest* in shaping such preferences. Apart from income, the classical factor for material self-interest (Meltzer and Richard 1981), risk exposure has been found to drive preferences towards distributive politics strongly with lower income and more risk exposed groups demanding more generous distributive politics (Iversen and Soskice 2001; Rehm *et al.* 2012; Häusermann *et al.* 2016; Schwander 2019; Thewissen and Rueda 2019). This speaks also to the well-established finding about the importance of class in distributive politics (Evans and De Graaf 2013), as both income *and* risk exposure strongly correlate with class (Oesch 2006; Schwander and Häusermann 2013). An alternative approach posits that distributive preferences are also shaped by other-regarding concerns or – as we call it – *ideological predispositions*. Altruism and equalitarianism are among the most important of these ideological predispositions to affect social policy preferences (Kamas and Preston 2015). Women, for instance, have been found to be more egalitarian, in particular if these altruistic preferences for a more equal income distribution come at a personal cost (Andreoni and Vesterlund 2001). Beliefs about the deservingness of welfare beneficiaries, about fairness and luck as determinants of economic success as well as religious orientations influence these norms (Fehr and Schmidt 2006; van Oorschot 2006; Stegmueller *et al.* 2011).

As the distributive preferences of Green voters have not been systematically studied, we base our expectation on the political sociology of Green voters: they are comparatively younger (Bochsler and Sciarini 2010; Dolezal 2010) and more highly educated (Knutsen 2004; Bremer

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and Schwander 2019). Green parties also enjoy a higher support among women (Knutsen 2004; Dolezal 2010) as well as among middle class employees than other parties (Müller-Rommel 2002; Seitz 2008; Bremer and Schwander 2019) and they prosper in big cities (Close and Delwit 2016). In short, the voter base of Green parties is the young, urban 'new' middle class. These are the winners of the transition from an industrial to a post-industrial, knowledge-based service economy; they are the winners of the tertiarization, educational upscaling and feminization of the workforce that this transition entails. These younger, higher educated cohorts are filling the new service and often public-sector jobs that demand specialized expertise and knowledge (Oesch 2006). Rather than exercising much managerial responsibility, the employees in these jobs are dealing with human individuality and diversity and enjoy a substantial amount of autonomy in their work on a daily basis. This re-enforces preferences of social reciprocity and individual creativeness over monetary earnings (Kitschelt 1994: 16) as well as solidarity with weaker members of the society (Oesch 2006). These values lead them to endorse redistribution and a strong welfare state (Kitschelt and Rehm 2014). In addition, the welfare state represents an important source of employment for Green voters many of whom work in education, social services or health care. Importantly for this article's argument, these common socio-structural characteristics mean that Green voters do not only share similar values but also exhibit specific distributive preferences as they share a left-leaning, state-interventionist disposition (Kitschelt 1988; Close and Delwit 2016). Hence, based on both self-interest and ideology, we expect that:

H1: Green government participation should lead to higher social spending.

Building on the literature on the multi-dimensionality of welfare state conflicts, we argue for a differentiated view on distributive politics. Today, distributive conflicts are mainly about the orientation of the welfare state and the prioritization of different social policies (Beramendi et al. 2015; Hemerijck 2017). We therefore claim that we should consider the impact of Green parties on passive consumption and active investment policies separately. Mature welfare states can protect citizens ex-post in the case of an adverse event such as loss of employment, old age or disability. In line with Beramendi et al. (2015), we refer to this passive protection

dimension of the welfare state as "social consumption" policies. This is – somewhat simplified – the "old" welfare state of the industrial age. As to the social consumption preferences of Green voters, their material self-interest and ideological predispositions pull them in opposite directions. Given their socio-structural characteristics, Green voters are less likely to benefit personally from social compensation and should therefore not be supporting social consumption spending. Ideologically, by contrast, Green voters should be inclined to support social consumption.

H2a: Green government participation leads to higher social consumption spending (ideology trumps self-interest).

H2b: Green government participation leads to lower social consumption spending (self-interest trumps ideology).

Alternatively, the welfare state can prepare its citizens for a changing economic environment by investing in their human capital and capabilities (Morel *et al.* 2012; Hemerijck 2017). Social policy experts and policy-makers have proposed "social investment" policies – such as public early childhood education and care, reconciliation policies, child- and women- oriented family policies, or active labor market policies – to mitigate new risks (Esping-Andersen 2002; Jenson 2009). Research on individual-level drivers of support for social investment finds that classical self-interest related determinants such as income or education matter less for social investment support than for support for social consumption (Busemeyer and Garritzmann 2017; Garritzmann *et al.* 2018). Considering the strong "Matthew-effect" of social investment policies (Bonoli *et al.* 2017)[3], this stands to reason. Gender also seems to be of less importance for social investment support than for social consumption (Garritzmann and Schwander 2017). Risk exposure, by contrast, impacts demand for social investment because those in vulnerable positions benefit from the activating effects of social investment (Rueda 2005; Häusermann *et al.* 2015; Schwander 2018).

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[3] The Matthew-effect of social investment" states that social investment policies are to the particular advantage of the middle class that use educational and childcare facilities over-proportionally (Bonoli et al. 2017).

Green voters have been shown to be particularly supportive of social investment, both for ideological and rational-choice motivations (Bremer and Schwander 2019). Their level of education, age and class position makes them beneficiaries of social investment policies. In addition, the social investment idea squares well with the egalitarian ideology of the middle class, which represents the core of the Green electorate (Dolezal 2010). Hence, in the case of social investment, ideology and self-interest pull in the same direction leading us to expect that:

H3: Green government participation leads to more social investment spending.

<u>The revenue-side of distributive politics: Fiscal preferences</u>

Our knowledge on fiscal preferences is less well established. Only recently scholars have started to investigate the revenue side of distributive politics, identifying the three important sets of factors that drive individual-level preferences: first, and perhaps not surprisingly, material self-interest is a strong driver of fiscal preferences as well. This workhorse of political economy predicts that people are supportive of higher taxes as long as they benefit from higher taxes (Meltzer and Richard 1981; see Hennighausen and Heinemann 2015: among others for empirical support). Similarly, Mettler (2011) finds that beneficiaries of public spending are more supportive of the taxes that finance the spending. Recently, the literature has come to adapt a more nuanced perspective and distinguishes between the preferred level of taxation and the progressivity of taxation. Barnes (2015) for instance finds that material self-interest, expressed in income, employment status, or risk exposure as well as social and political trust strongly shape preferences towards both the level and the shape of taxation (see also Jaime-Castillo and Saez-Lozano 2010; Roosma *et al.* 2016; Ballard-Rosa *et al.* 2017). A second important group of factors that forms part of ideology factors are *fairness concerns and trust*: The perception of a fair distribution of tax burdens generally seems to be an important driver of fiscal preferences (Roosma et al. 2016; Ballard-Rosa et al. 2017). Social and political trust explain both variation in fiscal preferences between individuals (Hetherington 2005; Roosma et al. 2016) and over time (Alm and Torgler 2006) and also attitudes towards the consolidation of public finances (Stix 2013; Hayo and Neumeier 2014). Third, tax preferences are strongly shaped by *political ideology*: Where left-wing parties draw strongly on the "ability-to-pay" principle (higher taxes

for those who can afford them), right-wing parties reject high taxes among all income groups (Confalonieri and Newton 1995; Roosma et al. 2016; Ballard-Rosa et al. 2017).

Again, we expect self-interest and ideology to pull Green voters in opposite directions. Based on the socio-demographic description of Green voters presented above, the majority of Green voters would benefit from tax-cuts more than the average voter, in particular from less progressive taxation. Material self-interest would caution Green voters against progressive taxation and lead them to favor lower or flat-rate taxes. The ideological predisposition predicts different preferences: Despite belonging to the well-earning part of the society, Green voters support redistribution from the rich to the poor based on their ideology (Kriesi 1998; Dolezal 2010). If we extend this ideology to fiscal preferences, we expect Green voters to support progressive taxation that taxes the rich more than the poor. In term of fiscal policy agenda of Green parties in governments, this translates into two contradicting hypotheses:

H4a: Green government participation leads to higher and more progressive taxation (ideology trumps self-interest).

H4b: Green government participation leads to lower and less progressive taxation (self-interest trumps ideology).

The influence of Green parties within the coalition government

Based on the preference profile of their voters, we therefore expect Green government participation to systematically impact distributive politics. Yet, how are junior coalition partners able to influence government policies? After all, Green parties take the role of junior partners in coalition governments. We discuss the question from a structural-institutionalist perspective that is more suited for our large comparative study, although the personal ability of ministers to impact policy-making matters as well (Alexiadou 2016). Building on insights from the literature on coalition government's policy-making, we identify three mechanisms how junior coalition partners influence governmental policymaking. The first mechanism relates to the formal authority the junior partner holds over policy areas, mainly in the form of appointing the relevant minister(s) (Oppermann and Brummer 2014). Such formal authority gives parties a substantial advantage in the decision-making process, not only in the substance of policy

decision but also in the agenda setting, formulation and implementation stages of decision making (Laver and Shepsle 1994; Kaarbo 1996; Klüver and Bäck 2019). Empirically, Green parties held formal authority over relevant ministries in the domain of distributive policies in over 40% of their 91 ministries in our sample (compare Green portfolios in Table A1 in the OA).

In cases where Green parties do not control the relevant portfolios, the influence of Green parties on distributive policy making is more likely to result from their 'ability to restrain the discretion of the senior partner' (Oppermann and Brummer 2014: 559) as well as from their 'corrective function' within the coalition government (Kaarbo 1996: 504). Institutions such as coalition or fiscal agreements allow the junior partner to restrain the discretion of the senior partner (Hallerberg *et al.* 2009; Moury 2013; Bäck *et al.* 2017). Coalition agreements tend to grow more specific and detailed if the issue is salient to both coalition partners but disagreement between coalition partners is equally high (Klüver and Bäck 2019). Green parties are able to impact coalition agreements on distributive policies, precisely because there is a substantial amount of disagreement between the coalition partners regarding the priorities of distributive policies and the issues are salient to both coalition partners in a center-left government. That second model of influence pertains to the 'cabinet government' model of coalition government, which gives prominence to centralized authority structures within governments and highlights the collective control of individual departments from the center. This stands in contrast to the first model of 'ministerial government' which emphasizes the autonomy of individual departments in a decentralized authority structure (Laver and Shepsle 1994; Müller and Strøm 2008: 160-164).

A third, indirect mechanism how Green parties impact distributive policies refers to their crucial position in the party system. Green parties' electoral relevance can tip the electoral balance towards center-left majorities. As we will show, center-left government pursue a distinctively more expansive distributive policy agenda than center-right governments. This mechanism is what we call 'majority procuring'.

<u>Selection, Data and Method</u>

To investigate our hypotheses, we calculate several time-series cross-sectional regression models. Depending on the coverage of the different dependent variables, the models are based on data from 28 to 34 countries[4] from 1970 until 2015 in order to capture the entire period of Green parties' political relevance. We first decompose the Greens' impact on different components of social spending. In a second empirical part, we estimate their impact on taxation.

Dependent Variables

We first consider the overall amount of social spending as percentage of the GDP as the most aggregate measure of welfare effort. We then disaggregate the analysis into spending for three social consumption policies and four social investment policies. We select unemployment, old age and housing[5] expenditures as the most important compensatory welfare schemes. We take advantage of OECD indicators measuring them all as percentage of GDP (OECD 2018). We capture social investment related expenditures by spending on families, on childcare and on active labor market policies (Armingeon *et al.* 2017).[6] Finally, we focus on education for primary, secondary and higher education on all government levels combined (Ronchi 2016).[7] Second, we distinguish between three types of tax schemes: Corporate tax rate, top marginal income tax rate and the value added tax rate (VAT). Whereas higher tax rates on corporate and

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[4] Included countries: Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Latvia, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and United Kingdom.

[5] The classification of housing in the consumption/investment distinction is contested. On the one hand, housing fulfills the "buffer" function of social investment for those in need (see Hemerijck 2017 on the function of social investment). On the other hand, housing can be considered as social compensation as this passive benefit helps to cover the costs of consuming shelter. We keep this ambiguity in mind when interpreting the results.

[6] Equally, there is an ongoing debate in the social policy literature about the classification of different family policies (Morel et al. 2012; Häusermann 2018). Parental leaves tend to be considered as part of reconciliation oriented social investment while family allowances are more often classified as passive consumption benefit. As our data does not allow do disentangle the difference, we keep the ambiguity of spending on families in mind when discussing the results.

[7] Ronchis' approach improves the comparability of education spending data and divides public spending categories on education by target groups. Accordingly, we can interpret the measurements as per capita spending. Alternative measures such as public education spending as a percentage of GDP from the UNESCO are alternatively used in the Online Appendix. The ladder two Datasets have two main drawbacks with regard to our purposes. They are

top income are considered to be progressive, higher VAT is seen as regressive because lower income people have relatively higher consumption shares. The different tax schemes are measured as rates ranging from 0 to 100 percent (Table A2 in the online appendix entails a precise description of the data). All dependent variables will be modelled as changes since we assume governments to affect spending patterns incrementally and thereby avoid comparing path-dependent trajectories of spending patterns or tax rates. Furthermore, Green parties' government participation is more likely in contexts of high welfare spending and thus, dependent variables expressed as first differences reduce endogeneity concerns (see also Table A8 in the OA).[8]

Main Independent Variables: Green Parties in Government

Green parties are defined by a strong emphasis of ecologism and environmentalism and typically, but not always, incorporate the term "Green" in their party names (Richardson and Rootes 1995; Dobson 2000). We select Green parties as coalition partners when they are represented in the executive decision-making body, the cabinet, and/or support their coalition partner(s) in the legislative arena. Thus, we use a dummy with 1 indicating a Green party being part of the government. Table A1 in the OA presents the resulting list of parties, the years and cabinets in which they have achieved *government participation* as well as their cabinet portfolios.

Periodization

We compare governments with Green parties to the most similar ones without. Thus, cabinets and not country-years are the conceptually closest periodization to our main independent

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unfortunately very fragmentary (up to 50 percent missings in our sample) and use classification approaches which are to a lesser degree comparable across countries and time.

[8] An alternative explanation to changes in distributive politics are changes in public opinion. The idea here is that the same electoral preferences that lead to Green parties' government participation affect the positions of other parties as well and therefore affect the distributive agenda of the government directly. Folke (2014) addresses this issue with a Regression Discontinuity Design (RDD) that rules out the influence of public opinion change and establishes the causal effect of government participation of small parties on a number of issues directly. In our large N, cross-national setting, we cannot implement such a design approach. Electoral rules do not change sufficiently frequent in a cross-national perspective to apply a RDD, in particular since we are in the executive representation of Green parties where changes in the formal rules are even less frequent.

variable. A cabinet approach[9] is also in line with recent advice in government research (see Schmitt (2016) or Garritzmann and Seng (2016)).[10] A serious problem using cabinet periodization is that the appropriate modelling of controls in cabinet periodization is insufficiently solved. For example, Schmitt (2016) proposes to use a definition of cabinets which rests solely on the partisan composition which leads for example to a single 16-year lasting Kohl cabinet in Germany. Such a period includes many different periods of economic boom and bust, low and high economic integration and it includes periods before and after historic events such as the reunification. In short, important contexts in which governments operate are washed out by a cabinet periodization which results in a strong bias against control variables (we return to this issue while discussing the balancing procedure). Weighting advantages against disadvantages of a cabinet versus country-year periodization, we decided to model both.

Balance of Controls and Estimation

We control for all alternative explanations listed in Table 1 (for a detailed discussion of the control variables, their measurement and data sources, compare online appendix, part 4). All alternative explanations turn into necessary controls, so called confounders, once they are also shown to affect the likelihood of Green parties to make it into government (selection into treatment). Controlling confounders is not sufficient when distributions are skewed. Entropy balancing provides a remedy for problems of overlap since the procedure creates analytical weights to every observation until the first three moments (mean, variance and skewness) of treatment and control units are exactly similar (Hainmueller and Xu 2013). Governments without Green parties receive higher weights the more they resemble Green government on all the attributes specified.

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[9] We assume that changing electoral support and ministerial distribution across parties are important for our argument and hence we follow the cabinet definition of Döring and Manow (2019). Cabinet and opposition parties in parliament with their seat strength at each instance of government formation. Note: new cabinets are defined for (I) any change in the set of parties holding cabinet membership; (II) any change in the identity of the prime minister; (III) any general election; (IV) any substantively meaningful resignation

[10] Interestingly, both articles propose a cabinet specification for the exactly opposite reason. A precise discussion of under and overestimation of partisan effects using cabinet periodization is beyond the aim of this study.

Table 1: Balance of control variables between governments with and without Green parties – cabinet periodization

Before weighting	Treatment (Green party in government)			Control (no Green party in government)		
	Mean	Variance	Skewness	Mean	Variance	Skewness
Opportunity structures						
Days governed per cabinet	1132	287627	-0.02	825.20	223559	0.56
Seat share cabinet	57.81	82.00	0.11	54.14	172.00	-0.41
Market liberalism of government	0.51	0.01	1.13	0.52	0.03	-0.19
Socio-economic conditions						
Unemployment	8.92	9.21	0.97	7.43	19.39	1.08
GDP growth	1.73	3.49	-0.29	2.56	15.64	2.57
Public debt	67.30	1007.00	0.40	55.19	1445.00	1.53
Δ Open economy	5.89	58.61	1.10	2.91	81.40	1.87
Level open economy	87.79	1225.00	0.83	79.55	2043.00	2.25
European Monetary Union	0.54	0.26	-0.15	0.14	0.12	2.02
GDP per capita (log)	19299	27600000	-0.80	15294	37000000	0.45
Union density	39.98	608.30	0.30	38.81	443.90	0.59
Share of individuals over 65	16.03	9.18	-0.68	14.44	8.28	0.29
Δ debt	2.72	207.00	0.95	2.78	156.00	-1.86
Δ Share of individuals over 65	0.61	0.20	0.40	0.36	0.11	0.43
Δ Union density	-1.41	9.92	-2.78	-1.44	15.54	-3.77
Δ Unemployment	0.19	7.69	0.28	0.28	3.97	0.93

Note: Pre-treatment distribution generated by the ebalance package using Stata (Hainmueller and Xu 2013). 30 Treatment cases are balanced to 543 control cases. Convergence achieved after 16 iterations.

A closer look at the distributions indicates that the approach of balancing is warranted (Table 1). Green parties govern in circumstances with higher unemployment, higher debt, lower growth (although in more wealthy countries) and in contexts of higher and rising economic world market integration (compare also Table A3 to A6 in the OA).[11]

The balancing procedure serves one additional purpose. It allows to compare Green coalition governments with most similar governments without Green parties' inclusion and thus, shifts the benchmark of comparison to similar centre-left government once we include the market liberalism indicator in the balancing procedure (compare Röth 2017; 2018 for a detailed description of the indicator). This specification serves as our first counterfactual: Similar center-

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[11] However, the procedure fails to balance the second and third moment once we shift the periodization from country-years to cabinets. The reason is simple, cabinet periods reduce a lot of variance in the controls and thus, reduce the chance of exact balance by definition. Accordingly, regression weights are based on balanced means for all models using cabinet periodization.

left coalitions without Greens might have implemented the same policies. Such a comparison is of crucial theoretical relevance but we should note that the regression coefficients thereby turn into local effects. Governments with Green party participation might make no difference to otherwise identically center-left governments, but these governments might still pursue very different polices from more market-liberal governments. This argument builds on our third mechanism of majority procuring: Strong Green parties might prevent center-right governments and thus, the implementation of their market-liberal policies. Accordingly, we compare the effect of Green governments from the balanced models with the effect of an average market-liberal government. In short, our estimation strategy aims at two different comparisons. First, comparing governments with formal Green party participation with similar governments without Green party inclusion. Second, comparing governments with Green party inclusion with market-liberal governments.

We use the analytical regression weights from the balancing procedure in times-series cross-section regressions with panel-corrected standard errors (Beck and Katz 1995).[12] All dependent variables are used in their first difference because we assume governments to make incremental but constant differences. In short, we estimate the effect of Green parties in government on the changes in distributive spending and tax changes via panel regression with panel-corrected standard errors controlling for a set of potential confounders in their first difference as well as at their level. All models include analytical regression weights obtained by entropy balancing (compare section 5 in the OA).

Green Parties' Impact on Social Consumption and Social Investment
We regress a series of indicators on the Green government dummy, controlling for potential confounders. The "effect of Green parties" should be interpreted as the impact of Green parties in government in comparison to otherwise most similar governments without Green parties – a

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[12] We specify first order autocorrelation.

typical center-left government. The "benchmark effect" relates to the comparison with an average center-right government.[13]

The first row in Table 2 shows that Green parties appear to be drivers of social spending compared to equally interventionist governments without Green party support. This finding, as almost every other finding, is independent of a cabinet or country-year specification. Governments with Green parties increase social spending by 0.9 percentage points of the GDP per years or 0.26 percentage points within an average cabinet period (around 1132 days for cabinets with green parties). Both effects compared indicate that a cabinet periodization and a yearly periodization yields almost equal substantial effects.

The benchmark model further indicates that market-liberal governments systematically decrease social spending by 0.43 percentage points in comparison to more interventionist cabinets. What do both effects substantially mean? A typical alternation between a center-left and a center-right government on the market dimension is around 0.3 on the 0-1 market liberalism scale. Hypothetically, a strong Green party leading to a center-left majority coincides with an average increase of 0.13 percentage points in social spending (based on the "benchmark effect" and an average alternation; -0.43*0.3). Green parties have an additional effect within these typical center-left coalitions, namely an average increase of 0.26 percentage points in social spending. Combining both effects, Greens in government increase social spending by 0.39 percentage point within an average cabinet term or 840 days. Social spending, measured in public expenses as percentage of GDP, ranges from around 6 to 18 percent considering the 5th to 95th percentile of the distribution. To set the 0.39 percentage point increase into relation, the average and entire spending on unemployment benefits in our sample is 1.14 percent of the GDP.

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[13] All models entail the same controls, only the lagged dependent variable is adjusted to the respective dependent variable.

Table 2: Green parties' impact on social protection and social investment

	Dependent variable (first differences)	Effect of Greens (everything else equal) Country-years	Benchmark (Effect of market liberal government) Country-years	No. of countries	No. of cases	Positive cases	R²	Effect of Greens (everything else equal) Cabinet periodization	Benchmark (Effect of market liberal government) Cabinet periodization	No. of countries	No. of cases	Positive cases	R²	Time span
(1)	Social transfers in general	0.09*	-0.16*	34	1,194	66	0.66	0.26**	-0.43*	34	500	25	0.68	1970-2015
	Social consumption													
(2)	Unemployment	0.04	-0.04	34	877	59	0.64	0.04	-0.11	34	357	21	0.69	1980-2015
(3)	Old age	0.00	-0.23***	34	885	60	0.56	0.04	-0.36**	34	364	22	0.55	1980-2015
(4)	Housing	0.03*	0.02	34	861	59	0.20	0.05***	0.03	34	356	21	0.53	1980-2015
	Social investment													
(5)	Family	0.05**	-0.06	34	885	60	0.46	0.06*	-0.14*	34	364	22	0.45	1980-2015
(6)	Childcare	0.03***	-0.04***	28	758	54	0.22	0.07***	-0.07*	28	304	20	0.25	1980-2015
(7)	Active labor market	0.00	0.03	28	742	54	0.36	-0.05*	0.04	28	285	20	0.21	1980-2015
(8)	Education	182.56***	-91.24	28	389	39	0.53	55.70	-121.75	28	155	14	0.34	2000-2015

Controls: days governed per year (cabinet duration in days for the cabinet periodization), seat share of government, market ideology of government, unemployment rate, Δ unemployment rate, Log level of GDP, GDP growth, public debt, Δ public debt, open economy, Δ open economy, EMU, union density, Δ union density, individuals over 65, Δ individuals over 65.

Notes: * < 0.90; **<0.95; ***<0.99 levels of confidence. Δ refers to first differences. EB = Entropy Balancing. The dependent variables are measured as public expenditures, % of GDP (first difference). The exception is education spending (measured as per capita equivalents). The balancing procedure for the education spending models is restricted to observations including the years 2000 to 2015.

A disaggregated perspective on social consumption (rows 2-4) and social investment (rows 5-8) reveals that Green parties leave consumption spending predominantly unaffected. Unemployment spending as well as old age expenditures are not significantly affected by Green government participation if we look at their distinct impact in comparison to otherwise similar governments. The exception is public spending on housing where Green parties increase the public expenses even in comparison to similar governments without Green party inclusion. Once we turn to a comparison with average center-right governments, Green parties might in some constellations prevent the retrenchment of old age spending due to their enabling of center-left majorities.

The difference in social spending between governments including Green parties and those without is predominantly located in the social investment dimension. Green parties in government increase spending on families, on childcare and education even in comparison to otherwise similar governments. Additionally, the impact of Green parties in government increases as we compare them to a counterfactual world, where a market-liberal government would have a majority. The reason is that market-liberal governments systematically reduce spending in two out four social investment dimensions whereas Greens show a systematic and positive impact. The only exception is active labor market spending, where in some models market-liberal governments show a positive effect. The area of family allowances serves as an example to clarify the substance of the effects. Greens in government increase spending on families by 0.06 percentage points per cabinet in comparison to otherwise similar governments. Prevented majorities of the center-right make a difference of another 0.14 percentage points. In total, an average term of a government with Green party inclusion increases spending on families by 0.20 percentage points. This is substantial as the average level of spending on families is around 1.9 percent of the GDP.

Finally, our results imply that Green parties substantially increase spending on education whereas market-liberal governments tend to reduce spending on education (significance levels vary across country-year and cabinet models). The substantial interpretation of the effect on education differs from the previous spending domains as education is measured in per capita instead of percentage of GDP. An average increase of 182.56€ equals an increase of 3.7 percent of the average per capita spending (4893.61€). This effect is still underestimated as the

authority over education spending lies very often with sub-national governments (Kleider *et al.* 2018). We demonstrate in the Appendix that the positive effect on education spending by Green parties in government is substantially stronger in countries where authority over education lies with the state-wide level. Furthermore, market liberal governments tend to systematically reduce education spending in countries where authority over education lies with the central government and thus the difference to a market liberal government adds to the increased resources dedicated to education (compare Figure A3 OA). We would like to note that we do not find systematic effects of Green parties in government on education spending once we use alternative measures of education spending (see section 7.5 in the OA for a detailed discussion). Overall, we infer Green parties actively and substantially increase resources in the social investment domain of the welfare state and protect the status quo on consumptive elements by procuring center-left majorities.

Green Parties' Impact on Taxation

Higher social spending implies higher demand for revenues, at least for responsible governments and taxes are the predominant form of public revenues. Programmatically, Greens express their willingness to increase the progressivity of the tax system. Empirically, we find only limited evidence that the progressive fiscal signals find their fulfilment in progressive tax reforms (see Table 3). Green government participation affects VAT negatively which means a relative lower tax burden for lower income groups. However, corporate and marginal top income tax – the most effective and substantial means of progressive taxation – are not systematically affected by Green government participation compared to most similar center-left governments without Greens.

The impact of Green parties on tax systems reads differently once we buy into the argument of Greens being majority procurers of the center-left. Market-liberal governments significantly reduce corporate and top marginal income taxes (see Table 3). Thus, in comparison to market-liberal governments, Green parties can tip the power balance to the status quo. The difference between the status quo and a market-liberal government can be quite pronounced, as the example of top marginal income taxes reveals. Market-liberal governments decrease top marginal income taxes by around 5.4 percentage points per average cabinet duration. The

average top marginal tax rate in our sample in 2010 was 38% and hence, a decrease of 5.4 percentage points per cabinet term resembles a substantial decline in one of the key state-revenue pillars.

Another interpretation could be, that tax preferences of governments including Green parties are better captured by the indicator of market liberalism as for example the difference between social investment and consumption. In such a case, we cannot really expect an additional "Green effect" on top of the most similar center-left government. However, that would imply that Green governments should have a positive effect on either corporate taxes or top marginal income taxes once we omit the market liberalism indicator from the models and the weighting procedure. This is, however, not the case (not shown). As we also know from the benchmark models that interventionist governments have a positive effect on corporate and marginal income taxes it appears very plausible that Green parties are either not very successful nor keen on raising income and corporate taxes despite their progressive programmatic signals. A closer look at various model specification (see Table A10 or A13 in the OA) indicate that the effect of Greens in government on taxation is not very robust which means that there are probably rather different approaches of Green parties in government towards tax policies.

Table 3: Green parties' impact on social protection and social investment

	Dependent variable (first differences)	Effect of Greens (everything else equal)	Benchmark (market liberal government)					
		Country-years	Country-years	No. of countries	No. of cases	Positive cases	R²	Time span
(10a)	Corporate tax	-0.16	-0.91**	31	898	61	0.17	1970-2015
(11a)	Top marginal income tax	0.18	-2.54***	29	1,010	55	0.19	1970-2015
(12a)	VAT	-0.12	-0.30ŧ	33	1,009	61	0.11	1970-2015
		Effect of Greens (everything else equal)	**Benchmark (market liberal government)**					
		Cabinet periodization	Cabinet periodization	No. of countries	No. of cases	Positive cases	R²	
(10b)	Corporate tax	0.00	-1.94*	31	364	24	0.47	1970-2015
(11b)	Top marginal income tax	0.31	-5.36***	28	355	22	0.30	1970-2015
(12b)	VAT	-0.19*	0.08	32	371	20	0.32	1970-2015

Controls: days governed per year (cabinet duration in days for the cabinet periodization), seat share of government, market ideology of government, unemployment rate, Δ unemployment rate, Log level of GDP, GDP growth, public debt, Δ public debt, open economy, Δ open economy, EMU, union density, Δ union density, individuals over 65, Δ individuals over 65.

Notes: * < 0.90; **<0.95; ***<0.99 levels of confidence. Δ refers to first differences. EB = Entropy Balancing.

A series of robustness checks leaves the key results for social investment and housing unaltered, but point to interesting particularities of specific governments with Green party inclusion. For example, Greens in Finland appear to be rather ineffective in raising social investment spending. Whereas the positive effect of Greens on childcare and family spending is significant in every model, the effect on housing is more country dependent and in particular the inclusion of Iceland is crucial for our results (see section 7.1 of the OA). Fixed-effects models are estimated in order to isolate within-country-effects from cross-country effects (Bell and Jones 2015). In fact, almost all our main findings hold using country- and/or decade-fixed effects. However, all models using country -fixed effects show a positive effect of Green governments on the top marginal income tax. Thus, restricting comparisons to within-country-dynamics alters our perception on Greens tax policies (see robustness section in the OA for a detailed discussion of these issues). We also assessed whether Green parties' support of minority governments (a special case of majority procuring) provides comparable effects on social consumption and investment. We find, that government support of Green parties does not show any effect in comparison to similar minority center-left governments without Green support and thus, differ from the impact described for Greens being formal coalition parties (see section 7.6 OA). Finally, Green government participation increased predominantly since the 1990s. To assess whether unobserved characteristics of earlier decades influence our findings and inference we restricted the time period for the inclusion of controls but find no evidence for different patterns (see section 7.7 in the OA). Overall, our analysis for government participation of Greens (unlike the support of minority governments) lend robust evidence for the statement that Green parties are a progressive force increasing social investment spending in comparison to similar center-left government without Greens and even more so in comparison to market-liberal governments. Furthermore, they protect the status quo in consumptive areas of the welfare state and thus, prevent retrenchment of market liberal governments by majority procuring. In the realm of taxation, we do not observe any stable and pro-active patterns of Green influence. However, as providers of center-left majorities they prevent substantial tax-cuts of more market liberal competitors.

Conclusion

This article studies the impact of Green government participation on the distributive output of government in a cross-national and longitudinal perspective in 34 countries from 1970-2015. Previous studies on the impact of Green parties on governmental policies have almost exclusively focused on their effect on Green core issues, such as environmental or socio-cultural policies (Poguntke 2002; Rüdig 2002; Knill et al. 2010; Jensen and Spoon 2011; Schulze 2014; Leinaweaver and Thomson 2016). This study focuses on the distributive implications of Green parties' march through the institutions to government participation.

We argue that Green voters are particularly supportive towards social investment policies for both ideological as well as material self-interest motivations. In the domains of social consumption and taxation ideological predisposition and self-interest diverge because Green voters are the winners of the social and economic modernization (Kriesi 1998; Oesch 2006). Accordingly, Green voters are less dependent on social consumption and on average benefit from lower taxation.

All disaggregated results on the two dimensions of welfare and taxes combined leave a fairly systematic impression: Green parties do not directly affect the traditional welfare components of compensation. The only welfare compensation component for which Green government participation systematically increases spending is housing, resonating well with their urban voters. Yet, Green party government participation has a positive effect on social investment spending. In particular spending on families, childcare and education constitute important budget priorities for Green parties setting them apart from traditional left parties and even more so from market-liberal competitors.
Leaving spending on compensatory benefits unaltered while pushing for an increase in social investment spending leaves a costly budgetary footprint but we find no pronounced effect of Green parties in government on tax policies. Green parties only have an indirect effect on fiscal policy by preserving the status quo and preventing more market-liberal governments which substantially reduce top marginal income and corporate tax rates.

Recalling the socio-economic characteristics of Green voters, it appears that the budgetary priorities of Green parties resonate well with the socio-economic interest of their electorate. In

all three domains of social consumption, social investment and taxation, Green parties' output seem to follow the material self-interest of their voters. In the domain of taxation and social consumption, where voter's materialist interests and ideological profiles diverge, we observe Green parties' footprint to be more aligned with the genuine self-interest of their voters. In the domain of social investment, where self-interest and ideological convictions clearly overlap, we observe the most pronounced impact of Green parties in government.

With this, our study adds to four strands of research. First, we add to the *party literature* by providing evidence for Green parties' relevance on distributive politics. Whereas earlier research warns Green parties to neglect "Green core competence by trying too hard to become a party concerned with a broader range of themes" (Poguntke 2002: 143), we demonstrate that Green parties have fully matured into a New Left and progressive party family with a corresponding impact of governments' political agendas. In times, in which Green parties are rumored to become the "new main party of the left", that is an important finding. Secondly, we add to the *realignment literature* in modern democracies. The realignment literature considers Green parties as one of the two poles of the socio-cultural cleavage (Bornschier 2010; Oesch and Rennwald 2010). Our study corroborates this argument by showing that this is not merely a socio-cultural conflict about the right way to live but has clear distributive implications too. Whereas the populist right defends compensatory welfare schemes for those parts of the population they consider to be deserving, that is the native population (Afonso and Rennwald 2018), Green parties shift resources to the welfare domain of social investment. Third and fourth, our study contributes to the *comparative welfare state research* as well as the study of *coalition governments*. In both strands of research, the relevance of partisan control of ministerial portfolios is a core argument. The comparative welfare state research shows forcefully how the partisan composition of the government matters for "conventional" distributive policies (Esping-Andersen 1990; Huber and Stephens 2001; van Kersbergen and Manow 2009) as well as for the social investment turn (Huber and Stephens 2006; Bonoli 2013). But it has tended to focus on social democratic parties first, and then on Christian democratic and recently on populist right wing parties (see Röth et al. 2018). Our study shows that the partisan effect on distributive politics can be extended to Green parties and to specific reforms such as social investment.

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