A cross-country study of collective political strategy: Greenhouse gas regulations in the European Union

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Abstract

This study examines the outcome of collective political strategy across countries, within the context of new greenhouse gas regulations in the European Union. Drawing on the economic theory of regulation, I argue that collective political strategy can result in varied distortions of environmental policies, depending on the ideology of government actors, the electoral cycle and the type of prevalent bureaucratic regulatory system. An interesting finding in this regard is that left-leaning governments react more favorably to political strategies by industries. The study highlights the important role cross-country heterogeneity of political systems plays in influencing the outcomes of collective political strategies.

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INTRODUCTION

Firms around the world increasingly deploy political strategies collectively with other firms (e.g., through industry associations) to affect government policy outcomes to their advantage, often reaping significant economic rents when they are successful (Hillman & Hitt, 1999; Hillman, Keim, & Schuler, 2004; Marcus, 1985).¹ The basic logic behind these collective political strategies traces its origins back to the economic theories of regulation and rent-seeking, which consider the government a source of economic rents that are pursued by firms and interest groups (e.g., Mueller, 2003; Stigler, 1971). An important but underexplored consequence of firms' collective political strategies is the distortion of government regulations away from their original purpose of correcting an underlying market failure (Posner, 1974; Stiglitz, 2008). Given that variations in political and regulatory configurations can affect the

outcomes of collective strategy in different ways, such distortions are not independent of country-specific contexts. This fact, however, has not been adequately accounted for in the literature. While much work in political economy has examined collective political strategy through the lens of interest group politics, this research has focused either on single-country or single-industry settings (e.g., Beghin & Kherallah, 1994; Marcus, 1985; Marcus & Goodman, 1986; Mitnick, 1993a; Mueller, 2003; Wilson, 1980, 1995). At the same time, studies in the international business and the corporate political strategy literature that examine the relationship between country context and political strategy have been primarily centered on the level of the firm rather than on collective strategies (e.g., Lawton, McGuire, & Rajwani, 2013). Such approaches, however, provide only piecemeal insights on this relationship. In order to better understand the systematic effects of collective political strategies on distortion of government policies, it is imperative to examine the outcome of collective political strategies across countries and industries.

Improving our theoretical understanding of the effects of collective political strategies on policy outcomes in different regulatory and political environments is important for two key reasons. First, while government regulations are often justified by arguments drawing on the public interest theory in economics (Posner, 1974; Stiglitz, 2008), collective political strategies can distort such policies in socially inefficient ways (Brooks, Cameron, & Carter, 1998). This in turn can lead to unintended consequences that can undermine some of their potential benefits for society at large (Goulder, Jacobsen, and Van Benthem, 2012). The degree to which such distortions of government regulations occur will likely depend on characteristics of the prevalent political and regulatory system. Extant research has not sufficiently examined the drivers for variation across countries in the distortion of policies as a result of collective political strategy. Second, within the interest group literature, the government actors and bureaucrats that develop and administer government regulations are often viewed as homogenous stakeholders with uniform preferences across countries (Grossman & Helpman, 1994; Van der Ploeg, 1984). However, these government actors and bureaucrats operate within country-specific institutional systems that influence their preferences and objective functions, thereby elevating the need to better understand

how country context affects their responsiveness to collective political strategy efforts. Thus, it is important to consider heterogeneity among government actors across countries in terms of their susceptibility to collective political strategy efforts.

The purpose of this research is to help address these issues. Drawing on the economic theory of regulation as the theoretical anchor, this study examines how collective political strategies can distort the same type of government regulation differently across distinct political and regulatory contexts. In particular, the study focuses on the underlying characteristics of governments that can determine their susceptibility to political strategies. To do so, the study utilizes the setting of new environmental regulations in the European Union, specifically the EU Emissions Trading Scheme (EU ETS), which is the world's largest cap-and-trade program for greenhouse gas emissions. The rising salience of climate change and the accompanying introduction of greenhouse gas regulations in countries and regions around the world (e.g., the European Union, California, and China) has led to intensified efforts by interest groups to influence emissions regulations for their benefit (CEO, 2010a; Kolk & Hoffman, 2007; Pinkse & Kolk, 2007; Reuters, 2008). Most of the new regulations are based on cap-and-trade programs, where the distribution of emissions permits by governments creates opportunities for firms to capture rents.² A hand-collected panel dataset of industrial sectors in the EU ETS (2005–2012) is used to examine differences in the emissions permits these industries receive from government actors. At a positive price, these permits represent substantial economic rents that are allocated by the government to the regulated firms and plants. The data also includes supplemental qualitative evidence of the political strategy efforts by industry groups and firms, obtained from news reports and informal interviews with regulators, policy experts, market participants and industry representatives.

The findings of this study demonstrate how variations across countries in terms of their political and regulatory characteristics can affect the outcome of collective political strategies in ways that are often unexpected. Political strategy efforts in the EU resulted in policy outcomes that can undermine some of the public interest purposes of the new regulations. Partly as a result of the collective political strategy efforts, industry groups received on average an 18% surplus of emissions permit rents from 2005 to 2012. This indicates that

collective political strategy is at least partially successful in distorting the policy in ways that weaken its impact. Moreover, certain industry groups were more successful in their political strategy efforts in obtaining surplus emissions permit rents through the threat to relocate production to other jurisdictions, despite little evidence showing that plants were actually relocated.

Interestingly, the analysis shows that traditional left-leaning government actors were more generous towards industry groups than centrist or right-leaning ones, due to their alignment with unions prevalent in polluting industries. This finding contravenes the traditional notion that left-leaning governments are more hostile towards business interests than right-leaning ones, and that they are always more sympathetic towards environmental concerns. Moreover, while a bureaucratic regulatory system that is more favorably inclined towards the private sector resulted in higher permit rents for industry groups, results indicate that electoral pressures during election years reduced the propensity of government actors to award larger permit rents. Finally, the qualitative insights in the paper suggest that multinational companies (MNCs) took a prominent role in leading and organizing the collective political strategy efforts within the EU ETS.

CONCEPTUAL UNDERPINNINGS

Corporate Political Strategy by Interest Groups

Firms can reap a variety of economic benefits by engaging in corporate political strategies to influence policy outcomes to their advantage (Mueller, 2003; Schuler, 1999). Hillman, Keim, & Schuler, (2004: 838) define corporate political activity as “[...] as corporate attempts to shape government policy in ways favorable to the firm”, while Hillman and Hitt (1999: 826) conceptualize corporate political behavior as “[...] an attempt to use the power of government to advance private ends”. This study draws on these conceptualizations to focus on corporate political strategy by industry groups for the purpose of securing economic rents from the government. Engaging in political strategy collectively rather than individually at the firm level is one of the major strategic choices available to firms when formulating their corporate political activities (Baumgartner & Leech, 2001; Hillman & Hitt, 1999; Hillman et al., 2004; Kaufman, Englander, & Marcus, 1993). By cooperating with other firms – often in the same industry – companies are able to gain more leverage vis-à-vis the government,

reduce firm-level costs for implementing political strategies, and secure economic advantages over other such groups. Interest group politics are particularly more likely to arise when the costs and benefits of political efforts are concentrated (Wilson 1995), which is often the case when rents are awarded by the government. As a result, firms often consider it more beneficial to participate in group efforts in order to secure larger rents for themselves, usually to the detriment of less organized or more dispersed groups such as consumers (Brooks et al., 1998; Mitchell & Munger, 1991; Olson, 1965).

The underlying logic of collective political strategy behavior has its roots in the economic theory of regulation (e.g., Dal Bó, 2006; Helm, 2006; Marcus, 1985; Mitnick, 1993b; Noll, 1989; Peltzman, 1976, 1993; Peltzman, Levine, & Noll, 1989; Posner, 1974; Stigler, 1971) and theories of rent-seeking (e.g., Congleton, Hillman, & Konrad, 2008; Grossman & Helpman, 1994; Hillman, 2013; Mueller, 2003). These schools of thought consider the government a source of economic rents that can be pursued by profit maximizing firms and interest groups through attempts to influence government actors (Mueller, 2003; Peltzman, 1976; Stigler 1971). Government actors are thus viewed as vulnerable to being “captured” by private interests, leading to a potential subversion of the public good as resources are diverted away from more productive uses (Mitchell & Munger, 1991; Mueller, 2003). While such corporate behavior can be considered socially inefficient, it allows the relevant interest groups to establish or maintain economic advantages (Fogel, 2006). Not surprisingly, interest groups have been found to pursue a variety of rents through policies such as tariffs, quotas, voluntary export restraints, agricultural subsidies, desired government regulations (or removal of regulations), and tax breaks (e.g., Beghin & Kherallah, 1994; Brooks et al., 1998; Milner, 2002; Mitchell & Munger, 1991; Mueller, 2003; Thies & Porche, 2007).

The corporate political strategy literature has extended the fundamental ideas of theories of regulation and rent-seeking to examine how firms pro-actively manage their interaction with government actors (Baysinger, 1984; Hillman et al., 2004; Lawton, Rajwani, & Doh, 2013; Mitnick, 1993a; Schuler, Rehbein, & Cramer, 2002). Prior work in this research stream has, for instance, examined the political strategy behavior of subsidiaries of MNCs (Blumentritt and Nigh, 2002), the relationship

between corporate political strategy and the performance of mergers and acquisitions (Brockman, Rui, & Zou, 2013), the link between first mover advantages and political resources (Frynas, Mellahi, & Pigman, 2006), corporate campaign contributions to candidates for the U.S. House of Representatives (Hersch & McDougall, 2000), and different types of political strategies deployed by firms (Keim & Zeithaml, 1986). Other studies have examined the impact of corporate political strategy on legislative decision making (Lord, 2000), the integration of market and non-market strategies (Holburn and Vanden Bergh, 2008), and how firms deploy political strategies in emerging economies (De Villa & Lawton, 2015; Heidenreich, Mohr, & Puck, 2015; Puck, Rogers, & Mohr, 2013; Shirodkar & Mohr, 2015). Additional work has investigated how firm characteristics such as size, age, corporate ownership, managerial and organizational characteristics, and resource dependence, affect corporate political activity (Cook & Fox, 2000; Getz, 1997), how the structure of an industry can influence the ability of its members to engage in collective action (Bhuyan, 2000), what the performance effects of political strategies are (Hadani & Schuler, 2013), and how prevalent institutional factors shape firm-level political strategies (Hillman, 2003; Lawton, McGuire, & Rajwani, 2013a; Hillman & Wan, 2005; Wan & Hillman, 2006).

Need for Further Research

While the growing literature on corporate political strategies has illuminated many of the crucial topics delineated above, there is an essential theoretical question that has been underexplored and that warrants further research – how the use of collective political strategies by groups of firms affects the distortion of government policies under varying political and regulatory contexts. This is an issue that is important for several reasons.

One reason relates to the original core purpose of government regulations. While the public interest theory posits that the main goal of regulation is the correction of market failures (Posner, 1974), this view does not account for possible distortions of regulations due to corporate political strategies. The logic behind the public interest theory is that markets often do not work as intended, creating a need for the government to step into make them more efficient. This reasoning is frequently used by government actors as rationale for the introduction and implementation of new government regulations, and would be the baseline for ideally designed regulations. However, as the regulatory

capture perspective suggests, firms and interest groups have their own goal to capture economic rents through regulations, and thus attempt to shape regulations through political strategies for their own benefit. This can result in the distortion of policies in ways that are not easily foreseen, and can run counter to the original public interest purpose of the regulation. Moreover, given their combined power, interest groups are able to affect policy outcomes more significantly than individual firms, magnifying the effects of collective political strategy on the shaping of policies. Importantly, from the public interest perspective, the degree to which such policy distortions occur will not be uniform across different political and regulatory environments, but highly dependent on country context. Different political and regulatory configurations cannot be expected to have the same impact on the outcome of collective political strategy, which is an aspect that is largely neglected by the economics-focused literature on interest groups. Despite growing appreciation in the international business literature for the impact of institutional variations on political strategy (e.g., Doh, Lawton and Rajwani, 2012; Lawton et al., 2013a), little work has considered the systematic effects of collective political strategy on policy distortions.

A second reason for why it is important to improve our understanding of how collective political strategies can distort regulations differently across countries relates to the underlying motivations of government actors. Extant interest group research largely conceptualizes the government actors and bureaucrats in charge of government regulations as having homogenous preferences (Van der Ploeg, 1984), ignoring potential differences in their inclination to be more or less responsive towards certain interest groups across countries. However, the characteristics of government actors, such as their specific ideology or level of accountability, may be important in determining their susceptibility to being captured by interest groups (Dal Bó, 2006). This suggests that differences among preferences of government actors across countries may play a key role in this relationship, and should be considered when examining how these actors respond to collective political strategy. Thus, it is important to explicitly incorporate cross-country differences in the characteristics of government actors, and in the bureaucratic system they operate in.

Finally, another important aspect of collective political strategy across countries relates to the benefits firms attempt to gain through this

behavior. The potential rents provided by the government, which are sought after by interest groups and firms, are a finite resource. As a result, collective political strategy can be described as competition among interest groups to try and gain an advantage over others, sometimes even those in other countries. Often, this endeavor pits different industry groups against each other, thereby elevating the need to analyze collective political strategy within cross-country and multi-industry settings. This issue is of special relevance for international business, given that multinational companies (MNCs) operate in a variety of institutional settings and need to assess where and how to engage in political strategy efforts as members of an interest group (Blumentritt and Nigh, 2002).

Given the above points, government policy distortions as a result of collective political strategy can best be understood through the consideration of variation across countries and industries while holding the type of regulation constant. Doing so would circumvent limitations of earlier studies that focus on a single industry across countries or multi-industry studies within a single country. Importantly, examining the characteristics of the political and regulatory environment that affect how these distortions differ across countries is an important area of research that has yet to be explored more fully. One type of regulation that has become particularly salient for collective political strategy efforts are environmental regulations (CEO, 2010b; Ellerman, Convery, & De Perthuis, 2010). The rising importance of climate change and the introduction of regulations for greenhouse gases around the world have elevated these regulations as target for political strategy efforts by interest groups. Although the growing impact of climate change on international business and strategy is reflected in an emerging body of research on this topic (e.g., Kolk, 2015; Kolk & Hoffman, 2007; Kolk & Pinkse, 2008, 2012; Lundan, 2011; Pinkse & Kolk, 2007, 2012; Romilly, 2007), prior work on climate change and greenhouse gas regulations has largely focused on firm-level effects and strategies rather than interest group efforts. In light of this, this study focuses on environmental regulations, which impact multiple industries and exist across a large number of countries.

HYPOTHESES DEVELOPMENT

In order to advance our understanding of how interest groups can distort environmental policies to capture government rents and how these

distortions vary across countries, I consider two important elements of collective political strategy: (1) the characteristics of the interest groups that engage in political strategy and (2) the susceptibility of a country's political and regulatory environment to political strategy efforts. To examine how collective political strategy can shape and distort environmental policies, the first two hypotheses are formulated, pertaining to how industry groups attempt to influence government actors. The next three hypotheses then explicate how variation across countries stemming from different political and regulatory characteristics affect regulatory distortions as a result of collective political strategy.

Influencing Regulations Through Collective Political Strategy

The initial step for firms to engage in collective political strategy is to coordinate with other potential members of an interest group towards achieving a common goal (Olson, 1965). If firms choose to work jointly with other companies in their industry to influence policy outcomes, they will have to cooperate with their direct competitors. Consequently, firms have to overcome a collective action problem that supersedes their inherent underlying competitive rivalry (Grier, Munger, & Roberts, 1994; Mitchell & Munger, 1991; Olson, 1965).

The unique nature of government rents in particular can provide powerful incentives for firms to engage in collective behavior with their industry peers. Often, government rents are available to a variety of participants in an economy, which suggests that firms in one industry might have to compete for these rents with firms in other sectors. For example, when trying to influence policymakers to grant tax breaks or award subsidies (which represent limited government rents), firms in the oil industry might compete with companies in the telecommunication industry, something they usually would not do in the marketplace. As a result, firms are more willing to organize through industry associations with peers in their own industry to pursue such government rents against other industry groups.

The effectiveness of these collective efforts will depend on the tradeoffs between the costs of collective action and the expected size of economic rewards (Grier, Munger, & Roberts, 1994). As a result, the more members an interest group has, the more difficult and costly it will be to organize the group effectively towards the common pursuit of

government rents. In addition, a larger number of members might also exacerbate the “free-rider” problem associated with collective action, prompting some members to contribute less to the common efforts while still benefiting from any group rewards (Olson, 1965; Schuler, Rehbein, & Cramer, 2002). Consequently, as prior theoretical and empirical work has indicated in different policy contexts, interest groups with fewer members are generally more effective at collective action than interest groups with a larger number of members (e.g., Becker, 1983; Mitchell & Munger, 1991; Olson, 1965). Therefore, an important premise for the argument that collective political strategy can distort government policies within the context of environmental regulation is that interest groups suffer from collective action problems, which can impede their ability to influence government actors effectively. Thus, I propose the following hypothesis:

Hypothesis 1: When engaging in collective political strategy within the context of environmental regulation, industries with fewer members receive higher rents than industries with more members.

An important aspect of political strategy by industry groups relates to the tools they can deploy to exert influence on policy makers. In order for collective efforts to be successful, an interest group has to be able to compel government actors to design and implement policies that are favorable to the group. An underlying objective of government actors is their motivation to remain in power, which is largely facilitated through monetary support as well as support from interest groups and the broader population. In representative democracies, government actors’ ability to remain in power largely depends on garnering monetary contributions and increasing voter welfare (Grossman & Helpman, 1994), and even in less democratic systems, support of interest groups and the larger populace will be important in maintaining power.

While interest groups regularly spend money in support of certain political actors they favor (Brooks et al., 1998; Cho, Patten, & Roberts, 2006; Grier et al., 1994), they particularly avail themselves of using population welfare concerns as a channel of influence within the context of environmental regulation. When new environmental regulations are introduced in jurisdictions around the world, firms and industry groups regularly

allege that those regulations would harm their competitiveness and threaten to relocate production to jurisdictions outside the coverage of these regulations, a phenomenon called “leakage” (Greaker, 2003).³ By bringing up potential relocations, industry groups engage in constituency building, a widely used tactic of corporate political strategy, that appeals to the concerns of a certain segment of the population (e.g., affected workers) and creates pressure on government actors (Keim and Zeithaml, 1986; Lord, 2000).

Since factory relocation would likely result in a loss of jobs and local tax income for the jurisdiction the plant is moving away from, political decision-makers are sensitive to this potential outcome. However, the threat of leakage will be more effective for industries that can more credibly threaten to move their plants to jurisdictions outside the new regulatory program. The credibility of this threat will be influenced by the size of target markets in external jurisdictions as well as the relocation costs for a plant (which depend on a variety of factors such as capital expenditures, production technology, the physical requirements for the plants, the characteristics of the products manufactured at the site and available factor inputs). Certain industries such as electricity generation are less mobile since their production plants have to be in closer physical proximity to their target markets (e.g., electricity cannot be transmitted over long distances without losses). Hence, I propose:

Hypothesis 2: When engaging in collective political strategy within the context of environmental regulation, industries that can credibly threaten to relocate more easily receive higher rents than industries tied to their current geographic location.

The Political and Regulatory Environment of Collective Political Strategy

The susceptibility of government actors to interest group activity can vary substantially across countries as different political and regulatory configurations can be more or less receptive to certain political strategies (Beghin and Kherallah, 1994; Brockman, Rui, & Zou, 2013; Eising, 2007; Hillman & Wan, 2005; Thies and Porche, 2007). The question that arises is which characteristics of the political system in a country might make government actors more responsive to political strategy efforts by industry groups within the context of

environmental regulation. A fundamental premise of the economic theory of regulation is that most regulations are implemented as a response to interest groups pressure. According to this logic, interest groups are seen as “capturing” government actors in order to influence policies to their advantage (Dal Bó, 2006). This theoretical perspective is at least partly consistent with empirical observations that government actors often protect industries from foreign competition (e.g., through tariffs) and regularly award generous subsidies to certain industries, such as the agricultural sector (Beghin and Kherallah, 1994; Milner, 2002; Mueller, 2003; Stigler, 1971).

Government actors in turn have incentives to maximize the support they receive in terms of both monetary contributions and citizen votes, as delineated by Grossman & Helpman (1994), in order to ensure re-election (Van der Ploeg, 1984). As a result, they have to balance demands from interest groups as well as voter preferences among their broader constituencies. This tension is especially relevant for government actors who have the power to decide the distribution of rents in the economy, particularly those that are subject to considerable influence from the executive branch of government. Consistent with Van der Ploeg (1984), three critical elements that can influence how this trade-off manifests itself in the response of government actors to collective political strategy are considered: the ideology of government actors, electoral pressures and the nature of the bureaucracy.

Ideology of government actors

As Van der Ploeg (1984) asserts, the ideology of government actors is an important factor in their quest to stay in power. As a result, the decisions of the members within the executive branch (i.e., the government in power) will to some extent be driven by their own ideology as well as the various demands of the interest and constituency groups aligned with their ideological orientation (Alvarez, Garrett and Lange, 1991; Olper, 2007; Potrafke, 2010). As Belke and Potrafke (2012: 1127) point out, political actors implement those policies that most closely represent the “... preferences of their clienteles (partisans)”. This insight has important implications for collective political strategy targeted at environmental regulation. Many of the heavy industries that are among the most polluting sectors have a strong union presence among their workers. These unions are traditionally aligned with parties on the left of the political spectrum,

particularly established social democratic parties (e.g., the Social Democratic Party in Germany or Labour party in the UK) (Allern and Bale, 2012; Brunell, 2005; Streeck and Hassel, 2003).⁴ Those workers and their unions regularly participate in elections through voter mobilization and campaign donation efforts, ensuring that government actors with traditional left-leaning (i.e., social democratic) ideologies are sensitive to their concerns (Streeck and Hassel, 2003). The unions’ efforts to influence the government can even supersede efforts of other left-leaning interest groups (e.g., environmentalists) that might be at odds with pro-union objectives. As Dutt and Mitra (2005: 59) put it, left-leaning parties will implement measures that are “[...] prolabor, ... because its constituents are workers whose welfare they need to care about to be guaranteed their support in votes and political contributions [...]”. This alignment is consistent with the argument mentioned above, stipulating that parties on the traditional left are more concerned with the preferences of the labor movement and with keeping unemployment lower (Belke & Potrafke, 2012). Since employment problems as a result of new environmental regulations are expected to resonate particularly strongly with the labor movement, it is in the interest of unions to put pressure on government actors they align with ideologically. For these reasons, the size of rents industries can capture is expected to be influenced by the ideology of the politicians in charge of the executive branch in their country. This leads to the following hypothesis:

Hypothesis 3: When engaging in collective political strategy within the context of environmental regulation, industries receive higher rents if the politicians in power are ideologically left-leaning in the traditional sense (e.g., if they follow a social democratic ideology).

The electoral cycle

While the ideology of government actors in the executive branch is one important factor that can influence the outcome of political strategy efforts by interest groups, the electoral cycle is also likely to temper or reinforce the responsiveness of government actors to political strategy (Anzia, 2011; Foremny & Riedel, 2014; Keech and Pak, 1989). As Van der Ploeg (1984: 2) put it, the government has “[...] objectives of its own manifested in its ideology and its attempts to secure survival (re-election).”

The desire to be re-elected constitutes a strong element of the objective function of government actors as conceptualized by Grossman and Helpman (1994) and will therefore affect their actions particularly during an election year.

When government actors face an election, the trade-off between weighing the benefits of responding to demands from specific interest groups versus broadening their appeal to a larger group of voters is likely to shift in favor of the latter. Prior work has documented that government actors regularly cater to voters' policy and economic preferences during election years, both in terms of macroeconomic outcomes such as inflation and unemployment, but also in terms of shifts toward more visible and popular public spending such as healthcare and education projects (Aidt, Veiga, & Veiga, 2011; Anzia, 2011; Bove, Efthyvoulou, & Navas, 2016; Castro & Martins, 2016; Nordhaus, 1975; Rogoff, 1990). Moreover, the pressures from various constituencies and interest groups on incumbent government actors are particularly salient in an election year (Henisz & Zelner, 2005; Thies & Porche, 2007). Therefore, any policy decisions taken by government actors will be subject to more scrutiny by the public at this time (under the assumption that there is a sufficient level of transparency and accountability in the political system). As a result, it is likely that in an election year government actors do not want to be seen as being influenced by certain interest groups, leading them to implement policy measures that appeal to the economic needs and welfare of the broader electorate (Franzese, 2002). This in turn reduces their incentives to award larger rents to narrow interests groups in response to collective political strategy efforts. Thus, I propose:

Hypothesis 4: When engaging in collective political strategy within the context of environmental regulation, industries will capture smaller rents during election years than non-election years.

The regulatory system

While ideology and electoral demands are two important factors that shape decisions by government actors in the executive branch due to their desire to get re-elected (Van der Ploeg, 1984), they also have to work within an institutionalized regulatory system when engaging with interest groups on the issue of environmental regulation.

Established regulatory systems consist of long-standing bureaucratic procedures and administrative structures that play an important role for the ability of government actors to respond favorably to the demands of interest groups, potentially facilitating or counteracting the direction of these responses.

Variations among established regulatory systems become especially salient in a cross-country context as nations still differ quite significantly along a variety of dimensions in their approach to government regulations (Levy & Spiller, 1993). These different characteristics of country-specific regulatory environments will affect how easy it is for interest groups to influence government actors (Van Koten & Ortmann, 2008). Examples include the extent to which the economy is regulated, whether regulations follow a risk-based or precautionary approach, whether the business-government relationship is more cooperative or confrontational, or how friendly the regulatory system is towards the private sector (Lawton et al., 2013a).

The degree to which the regulatory system is favorably inclined towards firms is particularly important for the outcomes of collective political strategy as it can shape the degree to which government actors can award larger rents if they desire. In particular, if the regulatory system is more sympathetic towards companies and business interests, it will be easier for government actors to dispense larger rents through the system without publicly appearing to be captured by interest groups (in line with expectations of market participants for a pro-business regulatory system). In that case, a pro-business regulatory system provides government actors with the cover to shape policies that favor certain interest groups, increasing the likelihood of success for collective political strategy efforts. A regulatory system that is more friendly towards the private sector will make it easier for interest groups to influence government actors working within that system. However, if the institutionalized regulatory system is generally perceived to be antagonistic to the private sector, it would be more difficult for government actors to accede to industry group pressures since awarding larger rents would be considered as less consistent with the established regulatory system. Hence, I propose:

Hypothesis 5: When engaging in collective political strategy within the context of

environmental regulation, industries will capture higher rents in countries where the regulatory system is more business-friendly than in countries where it is less friendly towards the private sector.

EMPIRICAL SETTING

Cap-and-Trade Programs and Allowance Rents

In recent years, as the problem of climate change has become more salient, a growing number of governments have introduced new regulations to curb the emissions of greenhouse gases. Most of these new programs are based on the principle of cap-and-trade (also called emissions trading), which is a market-based policy tool to regulate emissions of a given pollutant. Within an emissions trading scheme, regulators set a pre-determined emissions cap for a group of industrial plants or firms and then distribute a number of emissions permits (allowances) equivalent to the emissions cap to the affected firms. Usually this cap is set at the targeted level of emissions below current levels in order to achieve an overall emissions reduction goal. In many existing programs, these permits are allocated for free by government regulators to the covered entities, using allocation formulas that incorporate historic emissions, projected output or efficiency benchmarks (Ellerman, Convery, & De Perthuis, 2010). Firms then have to comply with the program by submitting enough emissions permits to regulators at the end of every year to cover their verified emissions. While the distribution of emissions permits does not matter for the achievement of the environmental goal since the overall cap remains fixed, the allocation of allowances does matter for the competitive position of individual firms and industrial sectors covered by the scheme. If an interest group can influence regulators to receive a larger allotment of emissions permits than needed, it will not have to reduce emissions or buy permits on the market and can even sell surplus permits at a profit. Any interest group that receives a shortfall in allowances will have to incur the costs of decreasing emissions or buying permits on the market. Moreover, since these permits usually exhibit market prices above zero, they are valuable assets by themselves. As those are rents directly created and distributed by government actors, emissions trading programs provide the ideal setting for this analysis.

Political Strategy in the European Union Emissions Trading Scheme (EU ETS)

The empirical setting of this study is the EU Emissions Trading Scheme (EU ETS), which started in 2005. The EU ETS covers all EU member countries and can be divided into three periods (European Commission, 2011a): Phase I (2005–2007), Phase II (2008–2012) and Phase III (2013–present). The analysis will focus on the years 2005–2012, encompassing phases I and II. For those two periods, the program covered all industrial plants of every industrial sector defined in the EU Directive governing the EU ETS and that met minimum size criteria (European Union, 2003). Not only is the EU ETS considered an important test case for effective multinational greenhouse gas regulations by policymakers around the world, but early lessons from the EU ETS have been incorporated into other programs such as the Californian cap-and-trade scheme, as noted in my conversations with EU regulators.

The initial allocation of emissions permits emerged early on as a crucial focal point for interest groups trying to influence the process for their benefit (Ellerman et al., 2010). Industries engaged heavily in collective political strategy efforts to obtain a larger number of allowances, arguing that this would help them stave off any potential negative effects of the new environmental regulations as reported in the media at the time (CEO, 2010a; Nastu, 2009; Reuters, 2008). Industry groups regularly raised the threat of relocation of their factories outside the EU as well as potential job losses in the media and public sphere in order to put pressure on regulators (Fagan-Watson, Elliott, & Watson, 2015; Guardian, 2010). For instance, as part of such efforts, industry groups penned public letters to policy makers, asking for favorable treatment within the EU ETS and threatening adverse consequences for EU economies and labor markets (European Steel, 2009; Fagan-Watson, Elliott, & Watson, 2015). A report in the British newspaper *Guardian* discussed the examples of the iron and steel and cement industries: “[...] the steel and cement sectors lobbied the EU for free CO₂ permits, claiming they would be forced to relocate to other parts of the world if they did not receive concessions – a threat known as ‘carbon leakage’” (Guardian, 2010: 1). In order to investigate this issue further, I conducted a variety of informal interviews and conversations with regulators, policy experts, market participants and industry representatives, including at the UN climate

conference in Paris in December 2015. In addition, interviews with EU regulators at the 10-year anniversary conference of the EU ETS allowed me to obtain further information. The insights gained through this qualitative approach confirm the notion that firms across different EU countries decided to cooperate with their industry peers in order to obtain larger allowance rents through collective political strategy efforts. Selected quotes from these experts are presented in Tables A1 and A2 in the “Appendix”. Moreover, the quotes confirm that the use of threats of relocation and layoffs was a potent political strategy that industry groups deployed to influence government actors to their benefit.

In order to allay political opposition by those interest groups and to provide national governments with more flexibility, EU regulators decided to implement an allocation process that allowed for differential treatment of the affected entities along several dimensions, a fact that was also confirmed in my conversations with carbon market experts. First, most of the decisions with regard to the allocation of emissions permits were delegated to national regulators, albeit under the supervision of the European Commission. National governments were required to develop “National Allocation Plans (NAPs)” and submit those to the European Commission before the start of each phase (European Commission, 2011a). The NAPs for Phase 1 had to be finalized in 2004 and contained the future allocation of emissions permits to each plant for every year of Phase 1 (2005–2007). The NAPs for Phase 2 (2008–2012) had to be completed in 2006 and similarly specified the permit allocation for every plant for each year of Phase 2 (European Commission, 2011b). The decentralized nature of the program provided national governments with substantial discretion on how to distribute permits within their jurisdiction, which they exerted through the development of country-specific allocation formulas (European Commission, 2011a; NAP Austria, 2004). As a consequence, the EU ETS exhibited significant variance in the allocation of allowances even to the same industry across countries in Phases 1 and 2.

Second, while allocation formulas generally used historic emissions of the affected industrial plants as baselines, national regulators introduced numerous different adjustment factors into these formulas, often based on the industry affiliation of the relevant industrial plants (NAP Austria, 2004). These industry-adjustment factors allowed

regulators to treat industries distinctly when allocating allowances to plants, providing an opening for industry groups to affect the allowance allocation process to their advantage through their targeted political strategy efforts (Ellerman et al., 2010; European Commission, 2011a; NAP Austria, 2004). As a result of this regulatory approach, there is significant variation in the allocation of allowances across different industries, even within the same country.

The decentralized nature of the allowance allocation process across countries and the differential treatment of industries by regulators therefore make the EU ETS the ideal setting to test my hypotheses.

METHODS

Data

This analysis focuses on industrial sectors as interest groups, with a country–industry pair as the unit of analysis. A novel panel dataset of industrial sectors in 24 EU member states from 2005 to 2012 (covering both phases of the EU ETS) was constructed. Romania and Bulgaria were excluded as they joined the EU while the EU ETS was well underway, Malta because it has a negligible number of EU ETS plants and Croatia as it entered the EU only in 2013. During Phases 1 and 2 of the EU ETS, there were nine different industry categories defined by the European Commission as relevant for ETS: bricks and ceramics, cement and lime, coke ovens, combustion, glass, iron and steel, paper, refining, and roasting and sintering (CMD, 2016; European Union, 2003).⁵ The data on emissions, allowances, installations, number of industry members and categorization into industries were hand-collected and verified from National Allocation Plans, European Commission documents, EU data sources and CMD (2016), which compiles the data from the European Commission (European Commission, 2016). The data on the ideology of the executive branch and the electoral cycle stem from the World Bank’s political indicators database (World Bank, 2011). The data on regulatory characteristics stem from the World Governance Indicators database (WGI, 2016) and GDP growth numbers were obtained from Eurostat, the statistical office of the EU (Eurostat, 2016). Any information about the accession of each member state to the EU and important deadlines regarding the EU ETS were compiled from official EU sources and

documents by the European Commission (European Union, 2011). As not every country has installations in all industries, the resulting panel dataset contains 167 country–industry pairs observed from 2005 to 2012. After removing several observations for smaller sectors that ceased production during the observation period (those sectors had only a few plants, which closed), the final sample size resulted in 1322 country–industry pairs.

Dependent Variable

In order to measure the magnitude of rents different industries received within the EU ETS, a relative rent measure that relates allocated allowances to verified emissions is constructed. This variable captures the relative surplus/shortfall in emissions allowances in an industry, normalized by the original number of allowances received. The use of a relative rent measure corresponds to the approach used in the literature on rent-seeking related to trade or agricultural protection. Moreover, since this normalized relative rent measure captures the surplus/shortfall as a percentage of the original allowance allocation, it is possible to use it to compare industries of different sizes in a meaningful way.

The dependent variable is defined as follows:

$$AG_{ijt} = \frac{\text{Allowances}_{ijt} - \text{Emissions}_{ijt}}{\text{Allowances}_{ijt}}$$

AG_{ijt} is the measure of allowance surplus/shortfall as a percentage of the original allowance cap for industry i in country j in year t , denoted as the allowance gap (AG) from here onwards. Allowances_{ijt} is the number of allowances received, while emissions_{ijt} represents the verified emissions of industry i in country j in year t . If AG_{ijt} is equal to 0, the industry received exactly as many allowances as needed to cover all emissions. If the number is positive, the industry had an allowance surplus (positive rent), and if negative, it exhibited an allowance shortfall (negative rent).

In addition to the standard AG variable as defined above, two more measures were constructed as alternative dependent variables to provide further robustness to the empirical findings. For the first, the deviation of AG of industry i in country j in year t from the average AG across all industries in country j in year t is calculated. This variable captures by how much the rents received by a country–industry pair differed from the average rents awarded across all industries by regulators in that country (allowing further investigation of

differences among industries in their ability to capture rents within their country):

$$AGDeviation_Country_{ijt} = AG_{ijt} - \text{Average } AG_{jt}$$

The second measure calculates the deviation of AG of industry i in country j in year t from the average AG of industry i across all countries in year t . This variable measures by how much the rents received by an industry in a specific country differ from the average rents awarded to this industrial sector across all countries (allowing further investigation of differences among countries in the size of rents awarded to the same industrial sector):

$$AGDeviation_Industry_{ijt} = AG_{ijt} - \text{Average } AG_{it}$$

Independent Variables

Number of members

To measure the number of firms in an industry for Hypothesis 1, the number of distinct account holders (which is the EU designation of the owner of an installation covered by the EU ETS) at the end of the period 2005–2012 is identified for each industry.⁶

Relocation threat

In order to measure which industry can more credibly threaten to relocate production to outside the EU (Hypothesis 2), additional data was collected on product exports from the EU to all countries outside the EU from Eurostat (2016) for each industry for the first year when allowances were allocated. An industry ranking score is created by ranking the industries in terms of total number of exports (in terms of volume of product) from 1 (lowest exports) to 9 (highest exports).⁷ The volume of exports is used as a proxy for relocation threat as it measures the extent to which companies in an industry have a substantial market outside the EU. For example, if products are more mobile, it is less important where in the world they are produced. An example of this kind is the paper industry. On the other hand, if firms produce mostly for the local market, it likely suggests that their products are more difficult to transport over long distances. An example is the electricity industry.

Ideological orientation of the executive branch

This categorical variable relating to Hypothesis 3 captures the ideological orientation of the executive branch of the government in power in the

home country of an industry in the year when allowances were allocated. The original variable can take the following values: 0 if there is no information, 1 if the ideology is right, 2 if it is at the political center, 3 if it is left. In the analysis, all observations with values of 0 are dropped, reducing my sample size to 1200 observations for specifications that include this variable.⁸ In this sample, governments classified as left were all ones led by social democratic parties.

Election year indicator

This variable relating to Hypothesis 4 is an indicator equal to 1 if either an election of the executive branch or an election of the legislative branch was held during the years allowances were allocated.

Pro-business regulatory score

This variable relating to Hypothesis 5 measures how pro-business a country's regulatory environment was in the year allowances were allocated. It was collected from the world governance indicators database from the World Bank and reflects "[...] perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development." It ranges from -2.5 (lowest rating) to 2.5 (strongest rating). As the variables in that World Bank dataset are based on comprehensive surveys of a variety of economic participants in a country, this variable is used to measure how friendly the prevalent regulatory system is perceived to be towards businesses.

Control variables

The control variables include a dummy variable for sectors in new EU member countries that only joined the EU in 2004 (*New EU member*), as well as yearly GDP growth in the home country of an industry (*GDP growth*). The former variable accounts for unobservable characteristics of sectors in former Soviet countries (e.g., outdated technology, inefficient use of energy, etc.), while the latter controls for the effect of GDP growth in the home country of an industry on the allowance gap (through the influence of emissions). In addition, an indicator variable for the prevalent legal system in the home country of an industry as control variable is included. This variable is intended to capture any differences in how the legal system might facilitate or impede political strategy activities. Corresponding to the classification used in La Porta, López-de-Silanes, Shleifer, & Vishny (1997)

and CIA (2010), each country is assigned to one of the following four classifications: Common law, French civil law, German civil law, and Scandinavian civil law.

Empirical Approach and Model

The main model is specified as follows (Eq. 1):

$$DV_{ijt} = \alpha + \beta_1 * ExecId_{ijtAll} + \beta_2 * Elec_{ijtAll} + \beta_3 * ProBusiness_{ijtAll} + X_{ijt} + \varepsilon_{ijt} \quad (1)$$

in which DV_{ijt} is the dependent variable of industry i in country j in year t , $ExecId_{ijtAll}$ is the ideology of the executive branch in the home country j of industry i in the year the allowances were allocated t_{All} and $Elec_{ijtAll}$ is the indicator capturing whether there was an election in home country j of industry i in t_{All} . $ProBusiness_{ijtAll}$ is the pro-business score of the home country j of industry i in t_{All} . X_{ijt} are the control variables mentioned above and ε_{ijt} is the error term. The model will be estimated through a random-effects generalized least-squares panel regression and will include year dummies. For the full model, a fixed-effects specification is not possible as all time-invariant variables would be absorbed by the fixed effects. However, a limited model with country-industry fixed effects is estimated as a robustness test.

RESULTS

Descriptive Statistics

Table 1 shows the summary statistics for the variables across all observations in the panel. The average allowance gap is +18%, reflecting an overall allowance surplus from 2005 to 2012 across all country-industry pairs. Table 2 shows the pairwise correlations between the dependent and the independent variables. The correlations suggest that there are no significant concerns about multi-collinearity among the independent variables.

Industry Differences

In order to examine the variation in the allowance gap across industries in more detail, the average allowance gap for each year and industry across all countries is calculated. The plot of these industry averages in Figure 1 shows substantial variation in AG across industries, with the variation increasing over time. While in 2005 the allowance gap ranges from 6% (combustion) to 21% (paper), in 2012 the range is from 9% (combustion) to 53% (bricks and ceramics). Table 3 shows the results of the

Table 1 Summary statistics for all industry-country-year observations (from 2005 to 2012)

Variable	Description	Obs.	Mean	Std. Dev.	Min.	Max.
$Allowances_{ijt}$ (tons of CO ₂)	Allowances received by an industry i in country j in year t	1322	1.18×10^7	3.40×10^7	6294	3.85×10^8
$Emissions_{ijt}$ (tons of CO ₂)	Verified emissions of industry i in country j in year t	1322	1.15×10^7	3.75×10^7	517	3.80×10^8
AG_{ijt}	The allowance gap of industry i in country j in year t (rent measure)	1322	0.18	0.24	− 1.31	0.97
Nr. of members _{ij}	The number of members of industry i in country j	1322	45	102	1	717
Ideology of Executive _{$ijtAll$}	Ideology of the executive branch in the home country j of an industry i in the year when allowances were allocated (t_{All}) ^a	1200	1.88	0.91	1	3
Election year _{$ijtAll$}	Variable indicating if there was an election in the home country j of industry i in the year when allowances were allocated t_{All}	1322	0.37	0.48	0	1
Pro-business regulations _{$ijtAll$}	Pro-business regulatory score for the home country j of industry i in the year when allowances were allocated (t_{All}) ^a	1322	1.30	0.33	0.72	1.85
GDP growth _{ijt}	GDP growth in the home country j of industry i in year t in %	1322	1.43	4.15	− 14.8	11.9

^a For observations in years 2005, 2006, and 2007, t_{All} is 2004. For observations in years 2008–2012 t_{All} is 2006.

Table 2 Pairwise correlations

Variable	AG	Nr. of members	Ideology	Election	Pro-business regulations	GDP growth
AG	1.00					
Nr. of members	− 0.25*** (0.00)	1.00				
Ideology	0.05† (0.06)	− 0.01 (0.66)	1.00			
Election	− 0.01 (0.78)	− 0.09** (0.003)	0.07* (0.02)	1.00		
Pro-business regulations	− 0.10*** (0.00)	0.01 (0.70)	− 0.06* (0.04)	− 0.04 (0.21)	1.00	
GDP growth	− 0.14*** (0.00)	− 0.01 (0.79)	0.04 (0.13)	− 0.07* (0.02)	− 0.001 (0.96)	1.00

Numbers shown are rounded. Significance levels are in parentheses.

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Observations with “0” as entry for ideology (missing values) are dropped.

estimation of industry effects through a panel GLS regression with year fixed effects (combustion is the omitted industry) for AG in Column 1. The majority of sectors exhibit significantly larger allowance gaps than combustion. The results remain robust largely when using AGDeviation_Country as dependent variable (shown in Column 2). Multivariate tests for the simultaneous equality of means of AG of all nine industry groups confirm that the means are not equal across all industries. Further pairwise tests of equality of the regression coefficients from Column 1 of Table 3 indicate that out of the 28 potential coefficient pairings, 15 are significantly different from each other (results available on request). These findings provide a strong indication that industries differ significantly in the size of rents they received from regulators.

Regression Results

The results for Hypothesis 2 will be presented before those for the Hypothesis 1 since the discussion of this test is best positioned directly after presenting the estimation of industry effects. To recall, Hypothesis 2 predicts that industries that can threaten relocation more credibly will receive higher rents. In order to test Hypothesis 2, the AG and AGDeviation_Country measures are regressed on the relocation threat ranking variable, which yields the results shown in Table 4 (Columns 1 and 2, respectively). For AG, the coefficient on the relocation threat ranking variable is positive and significant ($\beta = 0.02$, $p < 0.05$). Similarly, for AGDeviation_Country, the coefficient is positive and highly significant ($\beta = 0.02$, $p < 0.01$). These results suggest that the ability to more credibly threaten

Figure 1 Average allowance gap by industry (2005–2012).

Table 3 Estimation of industry effects

Dependent variable	AG (1)	AGDeviation_ Country (2)
Bricks and ceramics	0.35*** (0.05)	0.34*** (0.04)
Cement and lime	0.18*** (0.05)	0.18*** (0.04)
Coke ovens	0.14 (0.10)	0.17* (0.08)
Combustion	Omitted	Omitted
Glass	0.18** (0.05)	0.18*** (0.04)
Iron and steel	0.27*** (0.06)	0.28*** (0.05)
Paper	0.24*** (0.06)	0.25*** (0.05)
Refining	0.06 (0.05)	0.06† (0.04)
Roasting and sintering	0.11† (0.06)	0.14** (0.05)
Constant	– 0.03 (0.04)	– 0.18*** (0.03)
Year effects	Y	Y
<i>p</i> value	0.00	0.00
Wald Chi ²	436.61	170.71
Observations	1322	1322

Standard errors in parentheses; Numbers shown are rounded; Results obtained through a random-effects GLS panel regression with robust standard errors.

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

relocation leads regulators to award larger rents, and provide strong support for Hypothesis 2.⁹ An increase of one rank in the relocation threat

Table 4 Effect of industry relocation threat variable on size of rents

Dependent variable	AG (1)	AGDeviation_ Country (2)
Industry relocation threat variable	0.02* (0.01)	0.02** (0.01)
Constant	0.07† (0.04)	– 0.08* (0.03)
Year effects	Y	Y
<i>p</i> value	0.00	0.356
Wald Chi ²	360.15	8.84
Observations	1322	1322

Standard errors in parentheses; Numbers shown are rounded; Results obtained through a random-effects GLS panel regression with robust standard errors.

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

variable leads to an increase of about 1.5% in the dependent variable AG.

The results for the full model as specified in Eq. (1) for AG as dependent variable are shown in Column 1 of Table 5.

The coefficient on the number of firms is negative and highly significant ($\beta = -0.0005$, $p < 0.001$), providing strong support for Hypothesis 1 that a larger number of members in an industry makes it more difficult to engage in collective action to obtain larger rents. Industries with a larger number of members received lower standardized allowance rents than sectors with a smaller number of members. Holding all else constant, an increase by 100 members of an industry, would lead

Table 5 Estimation of full model as defined in Eq. (1)

Dependent variable	AG (1)	AGDeviation_ Industry (2)
Number of members	– 0.0005*** (0.0001)	– 0.0002 (0.0001)
Ideology of executive	0.05*** (0.01)	0.05*** (0.01)
Election year	– 0.04 [†] (0.02)	– 0.04* (0.02)
Pro-business regulations	0.22* (0.10)	0.21** (0.08)
GDP growth control	– 0.01** (0.003)	– 0.01** (0.002)
New EU member control	0.23** (0.07)	0.22*** (0.05)
Common law control	0.09 (0.06)	0.10* (0.04)
French civil law control	0.23*** (0.05)	0.22*** (0.04)
Scandinavian civil law control	0.13* (0.05)	0.13** (0.05)
German civil law control	Omitted	Omitted
Constant	– 0.40* (0.17)	– 0.54*** (0.13)
Year effects	Y	Y
p value	0.00	0.00
Wald Chi ²	331.79	95.65
Observations	1200	1200

Standard errors in parentheses; Numbers shown are rounded; Results obtained through a random-effects GLS panel regression with robust standard errors.

[†] $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

to a decrease in the allowance gap of 5%. This result is consistent with the predictions of existing theories on collective action, suggesting that larger interest groups face more difficulties in organizing towards a common goal (Mitchell & Munger, 1991). Importantly, this result provides an essential foundation for testing the subsequent hypotheses as it establishes an underlying relationship about collective political strategy directed at influencing government policies.

Hypothesis 3 predicts that left-leaning governments award larger rents to industries. The findings confirm this prediction since the ideology of the executive branch has a positive and significant coefficient ($\beta = 0.05$, $p < 0.001$), providing strong support for Hypothesis 3. A change in ideology by 1 point (e.g., from a centrist to a left-leaning government) leads to an increase in the allowance gap of more than 5%. This finding underscores the importance of ideological preferences of government actors when they are confronted with collective

political strategy, and highlights the essential role cross-country variation in ideology can play in influencing the distortion of policy outcomes.

Hypothesis 4 predicts that rents awarded to industries during election years will be lower, which is borne out by the regression results. The coefficient on election year is significant and negative ($\beta = -0.04$, $p < 0.1$), indicating that regulators awarded lower rents during an election year. This finding provides support for Hypothesis 4, indicating that during an election year, regulators seem to be less receptive to political strategy efforts by interest groups. Calculating the marginal effect indicates that an election year results in a 4% reduction of the AG measure for industries, showing that the effect of left-leaning ideology was almost entirely negated during election years. This is an important result as it suggests a mitigating democratic influence against the ability of interest groups to distort government policies to their benefit.

Finally, Hypothesis 5 predicts that a more business-friendly regulatory bureaucracy will result in larger rents for industries. Indeed, the coefficient on the pro-business regulatory score is positive and significant ($\beta = 0.22$, $p < 0.05$), providing strong support for Hypothesis 4. In countries, where participants in the economy perceive the bureaucratic regulatory system to be more supportive of the private sector, regulators seem to be more susceptible to influence from interest groups. Interestingly, this coefficient has the strongest impact on the AG variable, with an increase of 1.0 in the pro-business score, leading to a 22% rise in the allowance gap. This finding points to the importance of the institutionalized, bureaucratic regulatory system in potentially facilitating or restraining collective political strategy efforts. Even if political actors have a priori ideological preferences, they face established channels within the existing regulatory system that impact their ability to respond to political strategy efforts.

Column 2 of Table 5 shows the results when using the deviation of AG from industry averages AGDeviation_Industry as dependent variable. The results for all country-level variables remain robust (the election year indicator is now significant at 95%), confirming that the proposed country-level characteristics affect the size of rents industrial sectors can capture across different countries. As expected, the coefficient on the number of firms in Column 2 is not significant due to the way AGDeviation_Industry is constructed.

Robustness

While the previous section contains the main regression results for the full model as specified in Eq. (1), the following additional tests aim to rule out potential alternative explanations and assess the robustness of the empirical results.

Firm size, power, and motivation

The arguments for including the number of industry members as an important control are based on theories of collective action which postulate that the number of members of an interest group affects its ability to organize effectively to achieve a common goal. However, in addition to the number of interest group members, their size might also

have an effect as a group of large firms could wield more power than a similarly sized group of small firms. In order to test for this possibility, the average firm size in terms of emissions for each country–industry pair is calculated by dividing emissions of that industry by the number of members. The results when including this additional control variable remain robust as shown in Column 1 of Table 6. The coefficient on size is not significant, suggesting that this variable does not drive the findings.

Similarly, sectors that produce more emissions per firm might have stronger motivation to engage in political strategy efforts than sectors with lower emissions per firm. To investigate this concern, I first

Table 6 Robustness checks

Dependent variable	AG (1)	AG (2)	AG (3)	AG (4)	AGDeviation_ Industry (5)
Number of members	– 0.0006*** (0.0002)	– 0.0006* (0.0003)	– 0.0001 (0.0004)	– 0.0006*** (0.0001)	–
Ideology of executive branch	0.05*** (0.02)	0.05*** (0.01)	0.05*** (0.02)	0.05*** (0.02)	0.06*** (0.01)
Election year	– 0.04† (0.02)	– 0.04† (0.02)	– 0.04† (0.02)	– 0.04† (0.02)	– 0.04* (0.02)
Pro-business regulations	0.21* (0.10)	0.22* (0.09)	0.21* (0.10)	0.20* (0.10)	0.36** (0.13)
Member size ^a	– 0.003 (0.004)	–	–	–	–
Member size (large) dummy ^b	–	– 0.12** (0.04)	–	–	–
Member size dummy × Nr. of members	–	0.0002 (0.0003)	–	–	–
Emissions (scaled)	–	–	– 0.001 (0.001)	–	–
Δ Emissions _{t-1}	–	–	–	– 0.02** (0.01)	–
GDP growth control	– 0.01** (0.003)	– 0.01** (0.003)	– 0.01** (0.003)	– 0.01* (0.003)	– 0.01*** (0.002)
New EU member control	0.22** (0.07)	0.22*** (0.06)	0.23** (0.07)	0.21** (0.07)	–
Legal family dummies	Y	Y	Y	Y	Y
Constant	– 0.37* (0.17)	– 0.33* (0.16)	– 0.39* (0.17)	– 0.39* (0.17)	– 0.58* (0.19)
Year effects	Y	Y	Y	Y	N
Country–industry fixed effects	N	N	N	N	Y
p value	0.00	0.00	0.00	0.00	0.00
Wald Chi ²	340.88	343.08	332.36	313.96	11.69
Observations	1200	1200	1200	1045	1200

Standard errors in parentheses; Numbers shown are rounded; Results obtained through a random-effects GLS panel regression with robust standard errors.

^a Calculated by dividing the emissions by the number of members for each country–industry observation; variable scaled for presentation purposes.

^b Dummy variable is equal to 1 if the average member size in terms of emissions of a country–industry observation is above the median of all member sizes, 0 otherwise.

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

create a dummy variable in which *large member* is equal to 1 if the average firm emissions (as calculated above) are above the median size of all observations. Note that emissions are a well-suited proxy for size in terms of industrial output, and therefore firms with higher emissions tend to be larger firms. This indicator measures whether firms in an industry are in the top 50% in terms of average firm size. An interaction term between this *large member indicator* and the number of members in an industry is then created, which allows us to test simultaneously for member size and potential interaction between member size and number of members. Column 2 of Table 6 shows the results for both the dummy and the interaction term. The main results remain robust while the interaction term is not significant, suggesting that it does not affect the outcome variable. As a final related test, the number of emissions of each country–industry pair as direct control variable is included as shown in Column 3 of Table 6. Neither the coefficient on emissions nor the one on number of firms is significant (likely because both variables are highly correlated with a correlation coefficient of 0.87), whereas the results for the other variables remain robust. All in all, these findings tend to eliminate other alternative explanations, enhancing the validity of the results.

Variable construction and unobserved firm heterogeneity

In the analysis it is assumed that an allowance surplus (a positive AG measure) is the result of an over-allocation on part of the regulator rather than a disproportionate reduction of emissions by the respective industrial sectors. The argument is that this over-allocation is the outcome of political strategy efforts that allow industries to capture larger allowance rents created within the EU ETS. Extensive informal interviews and conversations with regulators, policy experts, market participants and industry representatives for this research as well as the media reports described in the discussion of the empirical setting suggest support for this argument. The qualitative evidence from these sources supplement the results of the empirical analysis. However, a positive AG measure could potentially be attributed to a substantial emissions decrease rather than an over-allocation of allowances. This concern is addressed by running a robustness check that includes the percentage change in emissions for an industry from the previous year as a control. The results are shown in Column 4 of Table 6. While the coefficient on the emissions change variable is

significant and negative, the coefficients on the variables of interest remain robust. This indicates that year-over-year emissions changes do not alter the main thrust of the findings.

Another concern to be addressed is the potential problem of unobserved heterogeneity across country–industry pairs. This issue can be circumvented for the time-variant independent variables (executive ideology, election year indicator and probusiness regulatory score) by estimating Eq. (1) with country–industry fixed effects. The results using AGDeviation_Industry as the dependent variable are shown in Column 5 of Table 6 (this variable is useful as it particularly measures the deviation of AG from the industry average across countries). The coefficients on all three variables are robust, indicating that the findings are valid even when controlling for unobserved characteristics of country–industry pairs.¹⁰

Additional considerations of robustness

While the arguments in the study focus on testing the direct effects of the relationships of interest, there may be interaction effects between industry characteristics and country-specific variables. Since the size of an interest group might amplify the susceptibility of government actors to collective political strategy concurrently with certain political factors, I also test for potential interactions between the number of firms in an industry and the country-specific independent variables. However, estimations including such interaction terms indicate that, while the main effects remain significant, the interaction terms are not significant. Another potentially important interaction might exist between industry mobility score and government ideology (since a relocation threat could be stronger with a left-leaning government in power). The empirical test for this shows no significance for the interaction term with results for other variables remaining consistent. It appears that, even though the independent variables play important separate roles in affecting rents derived from the government, they do not have interactive effects.

Finally, additional robustness checks conducted include an alternative measure for the relocation threat measure that uses an approximation of export intensity (exports divided by emissions for each industry) instead of total number of exports. Estimations using this measure confirm the findings obtained with the main relocation threat variable (results are available on request). A final additional robustness check tests for the

importance of a sector in the national economy in terms of contribution to overall emissions in the country. The results for all variables remain significant and robust while the coefficient on the new control is not significant.

DISCUSSION AND IMPLICATIONS

This study examines political strategy efforts by industry groups within the context of new climate change regulations in a cross-country and multi-industry setting. By combining insights from the economic theory of regulation with the international business and corporate political strategy literatures, this article bridges these research streams in a novel way to make several contributions to extant research in international business.

First, the study highlights how collective political strategy can distort government policies and how these distortions vary across countries as a function of different political and regulatory characteristics. The strength of this study is that these distortions are directly measured, allowing us to assess their variation across countries and highlight how cross-country differences can impact the effectiveness of new regulations. Theoretically, this finding is important since collective political strategies can shape government policies more strongly than individual firm-level strategies, potentially leading to larger distortions of regulations from the ideal “public interest” baseline. Across industries and years, regulators awarded a surplus of 18% in emissions permit rents, indicating that on average the regulations were not sufficiently stringent to create a binding cap on emissions over the period of 2005–2012. That the extent of these distortions is partially a function of the country-specific context suggests that simplified models of collective political strategies that ignore cross-country differences are unable to account for important influences on their outcomes.

In particular, the findings show that traditional left-leaning (i.e., social democratic) parties awarded larger rents to industries. In the case of the EU ETS, the interests of a core constituency of these parties (i.e., the unions) align very closely with the goals of the firms the members of the unions work for, which leads to an outcome that might be unexpected, given the conventional wisdom that left-leaning parties are more hostile to business interests. However, as the results suggest, this does not have to be the case if the interests of businesses overlap with objectives from groups that traditionally support

social democratic parties. Interestingly, the results imply that other left-leaning interest groups (e.g., environmentalists) that usually advocate for more stringent environmental regulations were not as effective in influencing left-leaning governments as traditional labor organizations. This finding is especially worth highlighting, as it points to the tension government actors face when confronted with conflicting demands from interest groups that are aligned with them ideologically. More broadly, the result indicates that many government actors have heterogeneous preferences that are closely tied to their political ideology. The effect of political ideology on the size of rents captured by industries in the analysis suggests that these ideological preferences can play an important role when interest groups and firms engage with government actors. Rather than considering these actors as homogenous group, the findings suggest that a more nuanced approach to analyzing the behavior of government actors is warranted when examining their responsiveness to corporate political strategy.

The study further shows that the type of prevalent bureaucratic regulatory system in a country can reinforce or impede preferences of government actors to be responsive to collective political strategy efforts. If the regulatory system is perceived to be more pro-business by participants of the economy, interest groups are able to capture larger government rents. In this case, government actors working within this system can award rents to interest groups more easily. In contrast, if the institutionalized regulatory system is perceived to be more hostile to business interests, the propensity of government actors to award larger rents can be mitigated. This is an indication that the assumption behind most existing studies on corporate political strategy of government actors being a monolithic, uniform stakeholder ignores important cleavages that can exist within the government, and that are relevant for the outcomes of political strategy.

The analysis also indicates that the electoral cycle can affect the susceptibility of government actors to political strategy efforts. During election years when demands from multiple voter constituencies and interest groups are more salient, government actors seem to be reluctant to appear being captured by interest groups. As a result, they award lower rents to industry groups when elections are taking place, which can restrain some of the propensity to award higher rents because of a pro-business regulatory system or of ideological preferences. One implication of this finding is that election

years can introduce a cycle for collective political strategy outcomes that can move between interest groups being able to influence government actors more easily to broader concerns by the entire public taking precedent during election seasons. An important caveat for this implication is that the effect of the electoral cycle is likely to be more pronounced in countries with political systems marked by a relatively high degree of transparency and with an electorate that can demand accountability from government actors as is the case in the EU.

In addition, the analysis shows that industries differ in their ability to obtain rents from government actors across countries in the EU ETS and that the group-based political efforts suffer from collective action problems. Those interest groups that have fewer members were favored during the emissions permit allocation process, a finding that is consistent with prior work on interest groups (Mitchell & Munger, 1991; Olson, 1965). Moreover, the findings indicate that the threat of relocation of production to countries outside the EU by industry groups influenced the size of rents industries could capture. The collective political strategy efforts were more effective for those industries that could credibly threaten to shift production more easily (i.e., those that had a substantial target market outside the EU). While there are many different strategies interest groups can deploy to engage with political actors, using potential threats to remove employment and economic production can be a psychologically powerful tool for collective political strategy (Wilson, 1995). Even if the threats ultimately do not materialize, the results suggest that as long as the threat is sufficiently credible, it can influence the decision making of government actors. In light of the fact that relocation threats are often prominently deployed by managers when new environmental regulations are introduced (as confirmed by several qualitative expert quotes in Tables A1 and A2 in the “Appendix”), the study provides empirical insights on the implications of using this type of political strategy.

This research also makes a distinct empirical contribution by examining a novel and unique institutional context. The European Union Emissions Trading Scheme (EU ETS) is the first multinational regulatory program for greenhouse gases in the world and as it only began in 2005, it is not yet well researched. Moreover, as many policy makers in other countries are using the EU ETS as a template for their own programs, it is essential to advance our knowledge on the interaction between corporate

entities and such regulatory programs. As climate change is becoming more salient for policy makers and managers around the world, especially after the historic UN climate conference in Paris in 2015, interest group efforts targeted at greenhouse gas regulations have intensified. Due to the importance of these regulations in addressing climate change, it is essential to improve our understanding of the factors that make policy makers susceptible to political strategy efforts by these interest groups.

While this research highlights the policy distortions in the EU ETS as a result of collective political strategy, the analysis does not suggest that the EU ETS has failed, as is sometimes asserted in media reports. Indeed, regulators in the EU ETS can be credited with several important successes, including the establishment of a credible price for carbon which reached more than EUR 30 at its peak and the development of a complex administrative structure for the measurement and verification of emissions. Even my own findings show that – despite distortions that were caused by collective political strategy – several industries (such as combustion and refining) faced a shortfall of permits in multiple years, forcing them to reduce emissions or buy permits on the market. Moreover, the program is continuously being modified based on early lessons learned during Phases 1 and 2 of the EU ETS, particularly in light of the expected longevity of the EU ETS as part of the EU’s climate policy.

Limitations and Future Research

This study will hopefully spur further studies on the effect of cross-country differences on collective political strategy, especially within the context of international climate policies. Multinational companies (MNCs) in particular often engage in collective political strategy to obtain economic rents that they would not be able to capture through traditional market strategies (e.g., subsidies, trade protection, tax breaks etc.). MNCs also took on a leading role in organizing and advancing industry-based collective strategy efforts in the EU ETS as contemporary reports in the media and by environmental activist groups corroborate (CEO, 2010b; Greenpeace, 2011). Indeed, qualitative evidence from ex-post news reports indicates that especially MNCs were able to capture substantial economic rents as a direct result of over-allocation of emissions permits from regulators. For instance, 10 companies in the iron and steel and in the cement sectors alone were estimated to have reaped \$4.4 billion USD in rents due to a surplus in EU

allowances (Roos, 2010; Sandbag, 2010). This indicates that examining group-based political strategy as an option for firms to enhance their economic performance can therefore improve our current conceptualization of corporate strategy in an international context. It also elevates the importance of MNCs in the potential distortion of government regulations, with corresponding implications from a societal, ethical and managerial perspective. Since MNCs operate across borders and have the choice to engage in collective political strategies in different countries, their role in distorting regulations to their advantage deserves more attention than it has currently received.

Future research could also address some of the limitations of this study and elaborate on additional aspects of collective political strategy in different countries. First, due to the scope of the EU ETS, the analysis is limited to countries in the European Union. While one of the strengths of using the EU ETS as empirical setting is that it is the first and largest multi-national emissions trading program in the world, the sample does not include any industry groups in developing and least developed countries. As such, the empirical findings and conclusions drawn are based on analyzing countries that are institutionally and politically more developed on average than countries in the developing world, especially with regard to levels of prevalent corruption. Countries in the EU on average exhibit lower incidence of bribery of government officials than many developing countries. In such countries, the prevalent bribery pressures could lead government officials to be even more receptive to demands from interest groups, especially in economies that are less open and more inward-looking (i.e., where inefficiencies and corruption are a self-perpetuating cycle).¹¹ Future research could extend this analysis by examining collective political strategy across a different sample of nations that also includes developing countries. While this is currently not possible within the context of emissions trading due to data constraints, other policy arenas where data can be collected could be used for that purpose.

Second, and related to the above point, while the EU ETS constitutes a novel empirical setting that provides the opportunity to observe rents that are distributed by political actors directly, the study is focused on political strategy aimed at environmental regulations to address climate change. While greenhouse gas regulations are an ever more important type of environmental regulations, there are

other related policies. These include, for example, renewable energy subsidies, fuel standards for cars and energy mix mandates that are also subject to collective political strategy efforts. It would be fruitful to pursue future research avenues in this direction as well. Future studies can further extend our understanding of this issue by examining different regulatory areas in which firms also regularly engage in collective political strategy, such as chemicals regulations, food safety regulations or regulations for genetically modified organisms.

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NOTES

¹The rents relevant for this study are those that firms and interest groups can receive through government actors. Examples include rents that are facilitated by policies such as tariffs, quotas, voluntary export restraints, agricultural subsidies, desired government regulations (or removal of regulations) and tax breaks (Mueller, 2003).

²One permit/allowance is the right to emit one ton of CO₂.

³There is a stream of work mostly in environmental and energy economics that focuses on leakage by firms in response to emissions regulations (e.g., Fischer & Fox, 2012; Fowlie, 2009).

⁴In the European context, the traditional left-leaning parties consist mostly of parties that follow a social democratic or similar ideology rather than some of the newer Green Parties.

⁵There is an additional category for voluntary Opt-Ins, which was eliminated from my sample because of missing data and because those installations were not covered mandatorily like those in the other nine sectors.

⁶This variable is therefore time-invariant. The number at the end of 2012 represents the maximum number of firms in the period 2005–2012 due to how the data was processed and released in 2012.

⁷The rankings based on the export data are as follows: (1) Combustion, (2) Coke Ovens, (3) Glass, (4) Roasting and Sintering, (5) Bricks and Ceramics, (6) Cement and Lime, (7) Paper, (8) Iron and Steel and (9) Refining.

⁸In robustness checks, this variable is also coded as a dummy variable for each ideological category in order to estimate the model on the complete sample. Results (available on request) are robust.

⁹The estimation presented in Table 4 is aimed at testing the effect of the relocation threat measure on the size of rents directly. Additional specifications with country-fixed effects and standard control variables yield robust results (omitted here).

¹⁰The country–industry fixed estimation is a widely used approach for causal inference that accounts for potential time-invariant omitted variables (Angrist and Pischke, 2008), thereby alleviating potential concerns about omitted variable bias. Moreover, the analysis also is unlikely to suffer from simultaneity since the independent variables are largely given exogenously to the dependent variable.

¹¹Interestingly, the findings for H4 indicate that in countries where there is less corruption (i.e., such as in the EU), a pro-business regulatory system can facilitate the award of larger rents absent bribery channels that might exist in developing countries.

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APPENDIX

See Tables A1 and A2.

Table A1 Selected qualitative expert statements

Name of Interviewee, title and area of expertise	Quote on collective political strategy in the EU ETS
<p>Mr. Cedric Bleuez: CEO and Founder of Carbon Market Data (CMD)</p> <p><i>Mr. Bleuez is an expert on the EU ETS and European carbon markets as the company he founded (CMD) provides comprehensive data and consulting services on cap-and-trade programs around the world (including on the EU ETS). He has deep knowledge of various aspects of the EU ETS, including firm compliance and trading behavior, the relevant regulatory frameworks and the functioning of carbon markets. Prior to founding Carbon Market Data he worked as consultant at several companies in the carbon management, climate change and sustainability areas. Mr. Bleuez holds a Master in Environmental Engineering from Griffith University in Australia and an MBA from the École supérieure de commerce de Lille in France</i></p>	<p>"During the process of allowance allocation in the EU ETS, industry groups engaged in strong political strategy efforts to obtain as many emissions permits from regulators as possible. This behavior occurred in Phases 1 and 2 of the EU ETS and has continued to this day. Often, large multinational companies have taken a lead in these efforts"</p>
<p>Dr. Claudio Marcantonini: Deputy Director of the Climate area at the Florence School of Regulation at the European University Institute (EUI)</p> <p><i>Dr. Marcantonini has deep expertise on climate policy in the European Union. He is the Deputy Director of the Florence School of Regulation-Climate at the European University Institute (EUI). For his work at the EUI, he regularly interacts with EU regulators, carbon market experts, practitioners and academics, and organizes important events on the EU ETS also in collaboration with the European Commission. Dr. Marcantonini holds a PhD in Physics from MIT and a Degree in Physics from the University of Perugia. In 2010 he was consultant at the OECD Nuclear Energy Agency where he worked on the competitiveness of nuclear power under carbon pricing. Dr. Marcantonini joined the EUI in 2011 as member of the THINK project which advised the European Commission on energy policy. Since 2012, he has worked at the Florence School of Regulation-Climate on analysis of European climate policy</i></p>	<p>"Within the EU ETS, firms have collaborated with other companies in their industries to lobby for more emissions permits. These group-based lobbying activities take place within industry associations that regularly engage with regulators on behalf of their members. The outcomes of the emissions permit allocation have differed across countries and industries. In particular, during the debate on the choice of allocation method, industry groups have regularly highlighted the risk of relocating production to countries outside the EU because of the carbon price imposed in the EU ETS, an argument that is often referred to as "carbon leakage". They regularly used this argument to lobby for more emissions permits"</p>
<p>Mr. Anthony Mansell: Director of Policy and Research at Climate Advisers</p> <p><i>Anthony Mansell is Director of Policy and Research at Climate Advisers, a policy research firm working to deliver a strong low-carbon economy. Mr. Mansell leads the firm's work on the intersection of carbon markets, aviation, and forestry policy. Previously, he was international fellow at the Center for Climate and Energy Solutions, where he specialized in international carbon markets and climate finance. He also helped deliver the Toward 2015 Dialogue, an award-winning series of conversations with chief climate negotiators to discuss the substance of the Paris Agreement. From 2011 to 2014, Mr. Mansell was Deputy Director of the International Emissions Trading Association, representing over 150 companies to promote the use of carbon markets to reduce emissions cost-efficiently</i></p>	<p>"Determining how to allocate emissions allowances is inherently political. Therefore, industry groups engaged in lobbying activities to influence the allocation of emissions allowances, especially in the early phases of the EU ETS (Phase 1 and 2)"</p>

Table A2 Examples of qualitative expert statements continued

Name of Interviewee, title and area of expertise	Quote on collective political strategy in the EU ETS
<p>Dr. Mary Jean Van Vliet-Bürer: Senior Research Fellow at the Ecole Polytechnique Federal de Lausanne in Switzerland</p> <p><i>Dr. Van Vliet-Bürer is an expert in emissions trading, climate and energy policy as she has worked in the field of sustainability with a focus on climate and energy issues at the intersection of technology, policy, and economics since 1998. She started her distinguished career working on emissions trading for several organizations, including the United Nations Environment Program (UNEP), the United Nations Conference on Trade and Development (UNCTAD) and the International Emissions Trading Association (IETA). After that, she became a Transportation Policy Analyst at the National Resource Defense Council (NRDC) where she helped ensure the passing of vehicle CO2 standards in California. She later obtained her PhD in Economics in 2008 from the University of St. Gallen and worked in the area of sustainable finance when she joined the Investor Network for Climate Risk (INCR). In 2009 she also became a Scientific Officer for the UN's Intergovernmental Panel on Climate Change (IPCC). Dr. Van Vliet-Bürer holds a PhD in Economics from the University of St. Gallen in Switzerland and a Master of Engineering from UCLA</i></p>	<p>"Within the EU ETS permit allocation process, it is my understanding that industries lobbied to obtain more emissions permits relative to other industries. In my view, these political influence efforts played an important role in the differential treatment of industries by regulators during the allocation process. Moreover, because individual EU countries had asked for autonomy in allocating permits, the outcomes of allowance allocation also differed across countries. The original decision to allocate allowances for free to the affected industries (instead of auctioning them off) was partly instituted to overcome corporate opposition to the EU ETS. This may have invited the strong lobbying efforts we observed. Free allocation of allowances, in a sense, encourages a political process where those interest groups that more successfully influence government actors can get an advantage"</p>
<p>Mr. Pierre Guigon: Environmental Specialist at the World Bank</p> <p><i>Mr. Guigon is an Environmental Specialist at the World Bank, where he supports climate change policy development in emerging economies. He is a member to the Secretariat of the Partnership for Market Readiness (PMR) which is a global US\$130 million trust fund of the World Bank which provides grant funding and technical assistance to 18 of the largest emerging economies to build domestic policy, regulatory and institutional readiness for GHG mitigation and pilot innovative carbon pricing instruments. Before joining the World Bank, Mr. Guigon served as a Business Development Manager with exchange Group NYSE Euronext (Bluenext) where he was charged with new product development and regulatory affairs for environmental commodities. He also worked as an Analyst with the Climate Task Force of the French State-owned Bank Caisse des Depots (CDC). Mr. Guigon co-authored the World Bank's State and Trends of the Carbon Market 2012 and published several other articles on climate policies. Pierre holds a Master of Agronomic Engineering from AgroParisTech and a Master in Economics from the Paris Institute of Technology</i></p>	<p>"The EU was the first region in the world that introduced a large-scale, comprehensive regulatory program for greenhouse gases. In Phases 1 and 2, the EU delegated the authority of allocating emissions allowances to individual member states, which led to cross-country differences and lack of consistency in the allocation process. One important argument discussed repeatedly by industry representatives during their engagements with regulators concerned the issue of carbon leakage. As we recently outlined in a World Bank report on leakage, the carbon leakage arguments "[...] can be inflated by some stakeholders to capture windfall profits[...]. Additionally, concerns about carbon leakage are often at their most prominent when the introduction of a new carbon pricing policy is being considered. [...] This may result in inflated concerns about the potential for carbon leakage." While it is natural to get lobbying from interest groups whenever a new regulatory program for greenhouse gases is introduced, the process can be vulnerable to capture by certain groups"</p>

ABOUT THE AUTHOR

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Patnaik's main research and teaching interests include global strategy, business and the environment, climate change, environmental economics, non-market strategy and international political economy.

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