Research Note

Differentiation in Environmental Treaty Making: Measuring Provisions and How They Reshape the Depth–Participation Dilemma

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Abstract

In this article we measure, describe, and demonstrate the importance of differential treatment for developing countries in multilateral environmental agreements (MEAs). So far, we argue, quantitative research on differentiation has been minimal due to data constraints and the complex nature of relevant provisions. In response, we offer a way of relieving this constraint, exploiting the fact that MEAs with differentiation typically identify distinct sets of "developing country" parties. After describing the data collection process, we show that differentiation is surprisingly uncommon, appearing in only 6 percent of MEAs, and disproportionately appears in larger, more recent agreements. We then test a key conjecture about differentiation by revisiting the debate on the depth–participation dilemma. We demonstrate, specifically, how it conditions this relationship. When MEAs do not differentiate, greater depth reduces participation; when they do, the relationship is reversed, making it possible to sustain high levels of both. This result helps to reconcile conflicting findings in earlier studies and has important policy implications.

Differential treatment is a widely discussed feature of international environmental agreements. It can be defined as a specific type of arrangement between states, usually reflected in treaty provisions, that recognizes distinct sets of parties—typically, "developed" and "developing" countries—and asymmetrically divides

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rights and responsibilities across them (Honkonen 2009; Rajamani 2006). It manifests in different ways: as distinct obligations, as variable modes of implementation, and as targeted assistance (Rajamani 2006, 94). Yet, in each case, it represents a departure from the more general principle of sovereign equality. Largely because of this, specific instances have often been lightning rods for controversy. The principle of common but differentiated responsibilities and respective capabilities (CBDR-RC)—arguably the most well-known example of differential treatment—has, for instance, been one of the most frequently debated features of the United Nations Framework Convention on Climate Change (UNFCCC). For some, it is the ultimate expression of climate justice—an official acknowledgment of the vast inequalities pervading global environmental politics (Soltau 2009). For others, it is something altogether different: a dysfunctional relic that has seared a North–South divide into the heart of the climate regime, constituting its "greatest weakness" (Depledge and Yamin 2009, 443).

Curiously, despite the high level of controversy surrounding differential treatment, research has been limited in an important way. There are, today, many qualitative studies of differentiation within individual regimes. The literature on CBDR-RC is vast, and many have explored differentiation in specific domains, such as in the ozone and climate regimes (Biermann 1997; Castro and Kammerer 2021; Pauw et al. 2014; Pauwelyn 2013; Thompson 2020). But relatively less work looks at these arrangements from a quantitative perspective, and key hypotheses have gone unexplored as a result. Within the field of global environmental politics, for example, quantitative researchers have evaluated theories about numerous aspects of international treaties, including their legal form, duration, escape clauses, institutional arrangements, and much more beyond (Mitchell et al. 2020). Yet, important exceptions aside, differentiation has not featured prominently.[1] Our understanding of the drivers, dynamics, and impacts of differentiation has therefore been constrained, and it is unclear whether findings from qualitative studies and relevant formal models generalize when we consider a large number of cases.

One reason why differentiation has not been investigated extensively in quantitative research on environmental treaty making is because data on how it manifests in agreements remain limited. At present, we have information on numerous dimensions of environmental treaties. The International Environmental Agreements Database (IEADB), in particular, has served as the starting point for many studies that have carefully measured various aspects of institutional design, such as those described earlier (Mitchell et al. 2020). These efforts have made it possible to move beyond case studies and toward "large-*N*"

1. This is also true of the literature on treaty making beyond the environmental realm. Koremenos (2016), for instance, has explored many features of international agreements, but differentiation has not been a major object of study. While her work has examined "asymmetries of control," which is somewhat similar, since weighted voting rules do "differentiate" between members, this is not the type of differentiation with which we are concerned. Only recently has this begun to change as scholars like Ella (2020) have sought to correct this oversight.

analyses of institutional variation. Accordingly, we have learned a great deal about how treaties are made, how they evolve, and how they matter. Generally, though, these efforts have not extended to provisions for differentiation. So far, the most significant has been that undertaken by Breitmeier et al. (2006). Yet, their resource—the International Regimes Database (IRD)—only covers a small sample of agreements across twenty-three regimes, and differentiation has not featured extensively in published work that has built on the IRD. Ultimately, without suitable measures, it has been challenging to study them using quantitative tools.

In this Research Note, we describe one way of relieving this constraint, we shed new light on historical patterns of differential treatment, and we show how the data we collect can be used to evaluate a crucial but thus far untested conjecture about how these provisions matter. In the first section, we discuss our data collection strategy, which relies on the IEADB and especially the 1,300-plus multilateral environmental agreements (MEAs) it contains.[2] Within this set, we exploit use of the term *developing countries*, and equivalent language, to track instances of differentiation and produce a list of agreements with these provisions (see the online Appendix). The second part of the article then draws a comprehensive picture of these agreements, offering several new insights. We show, specifically, that they are older than commonly supposed, dating back to the early 1960s, but that nearly 75 percent of the MEAs offering differential treatment have appeared in the increasingly ambitious set of environmental treaties that have been signed since the 1990s. They are also surprisingly infrequent, appearing in only 6 percent of agreements, but are particularly common in larger ones that bring together more diverse groups of states. As such, they appear to be used quite selectively.

Why does differentiation disproportionately appear in larger, newer, more ambitious MEAs? We argue that differential treatment has played an important role in these agreements. We illustrate how this is so in the final section by revisiting the debate on the depth–participation dilemma. The theoretical logic behind the dilemma is intuitive, and it has been the focus of numerous studies. Interestingly, though, empirical evidence that it exists has been largely missing. We show—in line with the key expectation from the formal model advanced by Gilligan (2004)—that the trade-off is conditioned by the scope for differentiation in an agreement. Specifically, by extending a prior quantitative analysis by Bernauer et al. (2013), we demonstrate that when there are no provisions for differentiation, greater "depth" indeed reduces participation. However, when such provisions are present, it becomes possible to sustain high levels of both. This powerfully illustrates the work that differentiation performs in these agreements and how it interacts with other elements of institutional design, and it

2. As discussed later, we follow IEABD's definition of an international environmental agreement (IEA): "an intergovernmental document intended as legally binding with a primary stated purpose of preventing or managing human impacts on natural resources." MEAs are the subset of IEAs with three or more parties.

indicates that further research exploring these dynamics would be rewarding. Future studies on how states choose between alternative approaches to differentiation, how differentiation evolves within regimes, and how this shapes state behavior are likely to be particularly productive.

Measuring Differentiation for Developing Countries

Much has been written about differential treatment, particularly in the environmental realm. Legal scholars like Rajamani (2006) have extensively investigated the complex rules that divide environmental obligations asymmetrically across states (see also Alam et al. 2015; Honkonen 2009; Magraw 1990). Scholars in international relations (IR) have explored the politics surrounding these provisions too, focusing especially on a few particularly prominent cases. In global environmental politics, for example, the principle of CBDR-RC has been a major focus of inquiry, especially within qualitative studies of the climate and ozone regimes (Biermann 1997; Castro and Kammerer 2021; Ella 2017; McGee and Steffek 2016; Prys-Hansen and Franz 2015; Thompson 2020). But, in IR, relatively few have taken a quantitative approach that looks across regimes to understand these provisions. While many scholars have explored different elements of treaty design and ratification using such tools (Koremenos 2016; Mitchell et al. 2020)—and though there are, certainly, some key exceptions, such as Breitmeier et al. (2006) and Ella (2020)—differentiation has largely remained on the sidelines. Correspondingly, important hypotheses, such as Gilligan's (2004) conjecture about how differentiation can "break" the harsh logic of the depth–participation dilemma, have not been explored systematically.

This omission is surprising given the controversy that has often surrounded differential treatment. It is understandable, however, in view of the limited data that exist on this dimension of treaty design. Even basic quantitative information about these provisions has often been difficult to come by. In contrast with many other treaty provisions (Mitchell et al. 2020), we still only have illustrative lists of treaties with differentiation, such as the seventeen prominent examples compiled by Rajamani (2006, 119–121), and smaller samples of these agreements within specific regimes, such as those in the IRD. One of the key reasons for this, we argue, is because differentiation can take a variety of forms. In practice, it can include, first, unequal burden sharing with respect to central obligations, such as the quantitative targets under Kyoto; second, differences in their implementation, such as the extended schedules and varying reporting requirements in the UNFCCC; and third, targeted financial or technical assistance to help specific groups of states comply with global rules (Rajamani 2006). This variation in the way differentiation manifests in agreements makes it challenging to track and compare these provisions.

That said, one overlooked feature of treaties with differentiation is that they typically single out a distinct set of "developing" parties. Indeed, they often

explicitly recognize "developing countries," or employ similar or related terms, to highlight their unique needs and priorities. This terminology is relatively standardized, provides an explicit rationale for deviating from the principle of sovereign equality, and is used to allocate unique rights and obligations to particular countries (French 2000; Magraw 1990; Rajamani 2006). While there are treaties that have "implicit" norms affording some level of differential treatment, or that may rely on other kinds of flexibility mechanisms (like treaty reservations) as a substitute, agreements that clearly identify "developing country" parties generally do so because they intend to give them special legal consideration.[3] The presence of such terms, therefore, sends a strong signal that an agreement includes provisions for differentiation of one kind or another.

Here, we leverage this feature to measure differential treatment in a more systematic and efficient way than has been possible so far. To do so, we make use of the IEADB, which is the most complete database of its kind (Mitchell et al. 2020). In it, an environmental agreement is defined as "an intergovernmental document intended as legally binding with a primary stated purpose of preventing or managing human impacts on natural resources." This constitutes a purposefully broad understanding of what is considered "environmental," ensuring that agreements dealing with many issues are included.[4] At the same time, the IEADB is restricted to agreements that are binding under international public law and that operate differently from environmental "soft law" (Boyle 2021). Thus, nonbinding agreements, such as the 1972 Stockholm Declaration on the Human Environment and the 1992 Rio Declaration on Environment and Development—though important—are excluded.

Presently, the database includes approximately 4,000 treaties, most of which are bilateral in nature. We focused on the 1,305 MEAs it contains—the subset most relevant to this study. This means, in practice, agreements that have three or more parties. Our analysis proceeded, first, by conducting an automated search to identify all the MEAs pairing the word "developing" with "country/countries," "state(s)," "member(s)," "parties(s)," or "partner(s)."[5] Because some MEAs include special responsibilities for "developed countries" or "industrialized states," we filtered the documents for these terms too. The initial output was a smaller selection of 250 "candidates," which contained at

3. Note, however, that some of these may be less relevant to environmental treaties. Treaty reservations can, to a degree, offer states the ability to "self-differentiate." Yet Koremenos (2016, 163) has shown that the use of reservations is relatively low in environmental agreements. This may be because efforts to govern environmental problems are likely to be jeopardized by free riding, and policy makers have a strong incentive to write provisions for differentiation into the text of an agreement when distributional issues are a concern. Rather than leaving this up to individual states, exceptions are addressed explicitly.
4. Others who have made extensive use of the database have sometimes removed treaties, like the Agreement Establishing the World Trade Organization, that seem to exceed these boundaries (Morin et al. 2018). We opted to leave these in to maintain consistency with the IEADB's coding. But, in practice, removing these makes no difference to the findings we present.
5. Interestingly, while we also searched for other frequently used terms, such as "Third World," "underdeveloped countries," and "Global South," these were not found in any MEA.

least one use of these pairs of terms. But this only indicated when these words were present. The approach did not tell us whether they were connected as a single logical expression or whether the text indeed granted special treatment to distinct groups of states. Thus, an extra step was necessary: the manual exclusion of "false positives."

To do so, we examined each agreement where the relevant terms appeared and assessed whether they were indeed used to grant special obligations, privileges, or considerations through a concrete injunction. Most cases that fell short were instances where "developing" was used as a verb or in an organization's name. This process also revealed, though, additional instances where the terms were used in a purely descriptive way and did not obviously result in special treatment. Examples included treaties that mentioned developing countries in a preambular paragraph without a clear injunction to act. Possibly, such uses signal cases of implicit differentiation that is not specified in a legal text (Magraw 1990; Rajamani 2006). However, we took a conservative approach and excluded these agreements. Following these exclusions, the agreements that remained were ones that clearly led to differentiation for developing states—typically, by assigning different obligations, varying modalities for implementation, or providing targeted assistance.

Did this approach identify all instances of differential treatment? No doubt, the "universe" of cases is larger. We focused on agreements where differentiation for developing states was made explicit in a legally binding text. But differentiation can appear in soft law or may operate through "contextual norms" that shape how provisions are later interpreted (Magraw 1990). Some agreements may also use idiosyncratic terms. However, there is some reason to think it performs well overall. One way to judge the validity of our approach is to compare our data set with the extant sources mentioned earlier. Looked at this way, we find that our technique identifies the majority of agreements. In total, 90 percent of those in Rajamani's list show up in our data set, for instance, and, notably, the cases our approach failed to identify (like the World Heritage Convention) are ones where implicit differentiation is thought to occur (Magraw 1990; Rajamani 2006). Our measure is also very strongly correlated ($\varphi = 0.82$, $p < 0.001$) with the dichotomous measure of differentiation within the forty-four treaties included in the IRD.[6] Thus, while our approach may not recover every instance of differentiation, we can be confident that it captures the most explicit and prominent cases.

Patterns of Differentiation in Environmental Treaties

As noted already, basic quantitative information about the historical frequency of these provisions and the types of agreements in which they appear has often been

6. For this calculation, we have only included agreements in the IRD that also appear in the IEADB. Note that in cases where coding has "diverged," we have not attempted to exclude or include cases.

Table 1
MEAs With and Without Differentiation

	Total	*With Differentiation*
All MEAs	1,305	81
Original agreements	511	52
Protocols	228	12
Amendments	566	17

difficult to obtain. Before moving to the analysis, we therefore present some basic descriptive statistics, demonstrating that differentiation has appeared in a unique set of MEAs. Indeed, our first key finding is that very few agreements differentiate between parties. Of the 1,305 MEAs we examined, only 81 have these sorts of provisions (see Table 1). Of these, 52 are "original" agreements and 29 are amendments or protocols. This is equivalent to 6 percent of all MEAs, 10 percent of all original agreements, and 4 percent of all amendments/protocols. For many, this may be somewhat surprising given the amount of attention these provisions have attracted. As discussed, differentiation has long been a source of controversy. But this controversy clearly centers on a narrow set of agreements—ones with a particular suite of design characteristics that are particularly relevant to the depth–participation dilemma, as we discuss later.

Second, we find that differentiation is somewhat older than earlier studies have suggested. The literature on international environmental law often refers to the 1972 Stockholm Declaration on the Human Environment as the first agreement in which differentiation appears and the 1982 United Nations (UN) Convention on the Law of the Sea as the first "proper" MEA with provisions for differentiation (Pauw et al. 2014; Rajamani 2006). The ozone regime is also often noted as being important for the principle of CBDR-RC, in particular (Pauw et al. 2014; Rajamani 2006; also see Biermann 1997). This has led many earlier studies to associate the emergence of differentiation with broader calls for a New International Economic Order within the UN system (Williams and Montes 2016, 115–116). No doubt, this was an important period, as we discuss. We find, however, that the very first differentiated MEA—the 1960 Statute of the Intergovernmental Oceanographic Commission (IOC)—predates these agreements by more than a decade.

While the practice is therefore older than previously thought, our third finding is that most of these agreements are more recent. Almost 200 MEAs were concluded between the end of World War II and the signing of the IOC Statute, and none of these had provisions for differentiation. Even in the period immediately after, while the number increased, such provisions were deployed in only a few treaties (see Figure 1). The 1970s–1980s were indeed important, since the number of MEAs differentiating between states began to pick up during this period. But it was only in the 1990s—a period of particularly ambitious environmental

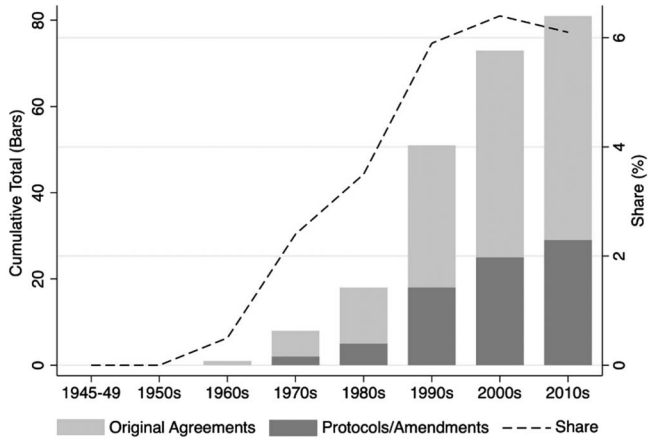

Figure 1
MEAs with Provisions for Differentiation, 1945–2020

treaty making—that they started to increase significantly. Between 1945 and 1989, only 5 percent all MEAs included these provisions. In the 1990s, 11 percent (and 15% of original agreements) did. And, in total, 75 percent of all the MEAs with provisions for differentiation have appeared since this time.

Differentiated agreements have, therefore, primarily appeared in so-called new-generation MEAs—where "depth" may be proportionately greater. Yet, within this set of MEAs, we also find that differentiation has primarily been utilized in agreements with a specific membership profile. As shown in Figure 2, many MEAs are small: 39 percent have been ratified by 10 or fewer states, 41 percent have between 10 and 100, and only 20 percent have more than 100

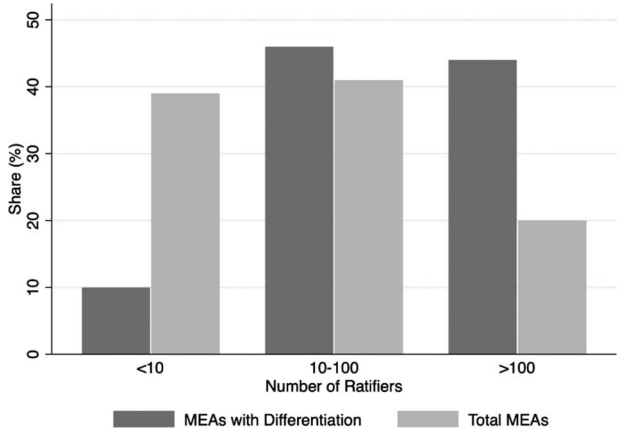

Figure 2
Number of State Ratifications, 2020

(Mitchell et al. 2020). In contrast, we find that differentiated MEAs are larger: 44 percent have been ratified by more than 100 states, 45 percent are medium sized, and only 11 percent have 10 or fewer ratifiers. Furthermore, while only 6 percent of all MEAs differentiate, as noted, these provisions appear in nearly 30 percent of those that include more than 100 ratifications. Thus, they not only appear in more recent and arguably more ambitious agreements but are disproportionately used in those that involve larger groups of states, where there may be starker economic, environmental, and ideological differences between parties. In agreements where there may be fewer such differences—for example, smaller treaties between similarly positioned states within a single region—and where levels of ambition are lower, they have been used relatively less.

Analysis: Revisiting the Depth–Participation Dilemma

The selective use of differential treatment suggests that it performs an important function in environmental treaties. In what follows, we examine how this is so—and demonstrate the value of our data—by analyzing how differentiation reshapes the depth–participation dilemma. This is especially useful, as noted, because our data allow us to evaluate an important but thus far untested conjecture advanced by Gilligan (2004). The literature on the dilemma is interesting, overall, because while the theoretical logic underlying the trade-off is intuitive, there is virtually no empirical evidence showing that it exists. The basic idea, partly grounded in work by Downs et al. (1996), is that when an agreement is more demanding, participation should shrink, since more countries find it costly to comply. If so, this suggests that large-scale cooperation is problematic. Agreements with significant participation are likely to be those that ask little of members, and deeper ones should only attract smaller groups. So far, though, pessimism seems unwarranted, since many agreements appear to combine these features fairly successfully (Kahler 1992). Slapin and Gray (2014) have even found a positive relationship, suggesting that they often go together.

A key question has been why this is. One suggestion by Bernauer et al. (2013) is that other design features can incentivize participation. By facilitating compliance, by providing dispute settlement mechanisms, and by creating secretariats that can help build capacity, they argue that compliance costs can be offset, leading to more participation. Their cross-sectional study finds little evidence of a trade-off and provides support for their claims. However, they are not the first to have advanced such an argument. In 2004, Gilligan developed a formal model showing that the trade-off only holds when states set policies at an identical level. When an agreement sets policies at different levels, the relationship is attenuated. Theoretically, Gilligan's argument is sound. Furthermore, there is some qualitative work that supports his idea. Biermann (1997) has shown, for instance, how important differentiation has been for bridging the gap between developed and developing states in the ozone regime, one of the most successful MEAs, and Grubb et al. (1999, 84) have explained

how moving away from a "flat-rate" commitment under Kyoto was essential for keeping states on board while shifting away from a "lowest common denominator target." Thus far, however, his model has not been systematically tested in quantitative work on the depth–participation trade-off. Bernauer et al.'s (2013) study cites Gilligan's work, for instance, highlighting differentiation as an example of the features they have in mind, but does not explore its impact explicitly.

Our data can be used to evaluate Gilligan's idea—deepening our understanding of participation-inducing design features to which Bernauer et al. call attention—since the kind of differentiation on which we focus constitutes a particularly powerful way of enabling variation in commitments. To do so, we revisit Bernauer et al.'s (2013) analysis, which uses the IEADB and assesses predictors of higher participation, measured via MEA ratifications. They look, specifically, at the set of MEAs that are "open," with no restrictions on participation, and where state diversity is likely to be a uniquely relevant consideration—approximately 200 agreements. They then include separate indicator variables for the three dimensions of "depth" on which they focus: quantitative targets, monitoring arrangements, and enforcement mechanisms. Added to this are measures of the participation-inducing features they identify: general provisions for assistance, dispute settlement mechanisms, and the presence or absence of a secretariat. Finally, they include controls for problem type, issue area, and so on.

To assess Gilligan's (2004) model, we have modified Bernauer et al.'s study somewhat. First, by adding together their three separate indicators of depth, we created a single continuous measure, *Depth*. Agreements with all three features establish "deep" commitments, those that have none are "shallow," and there is variation between these poles. This captures the idea of greater or lesser depth, since agreements that combine quantitative targets, monitoring, and enforcement are likely to be the most stringent; those that lack one or the other, or all, will be less so. As Koremenos (2016) has shown, agreements with quantitative targets are much more likely to address problems characterized by free riding, which, in turn, require strong monitoring and enforcement arrangements to sustain cooperation. When all three are combined, therefore, cooperation is likely to be especially meaningful, and adjustment costs may be correspondingly high, all other things being equal. Second, we have added a dichotomous variable that measures *Differentiation*. This indicates whether an MEA in their data set is one we identified as offering differential treatment. Since Gilligan's (2004) model suggests that the depth–participation relationship is *conditioned* by differentiation, we expect an interaction effect between these variables. When differentiation is not present, deep commitments should be associated with lower participation; when it is, high levels of both should be possible.

The results, presented in Table 2, confirm these expectations.[7] Model 1 shows the bivariate relationship between *Depth* and the outcome, *Ratification*.

7. Replication materials for the statistical analysis are available at https://www.developingcountries.info/projects-6, last accessed September 21, 2022.

Table 2
Regression Results

	(1)	*(2)*	*(3)*	*(4)*
Variable				
Depth	−0.0988 (0.0817)		−0.200** (0.0925)	−0.204** (0.0923)
Differentiation		0.760*** (0.204)	0.147 (0.433)	0.0864 (0.431)
Depth × Differentiation			0.349* (0.200)	0.453** (0.196)
General Assistance				0.239 (0.226)
Dispute Settlement				0.509*** (0.142)
Secretariat				−0.330 (0.207)
Global Public Good				−0.578*** (0.203)
Global and Domestic Good				−0.497 (0.400)
Pollution				−0.185 (0.192)
Species				−0.531*** (0.199)
Nuclear				−0.0395 (0.241)
Habitat				−0.412** (0.193)
Age				0.0166*** (0.00600)
Constant	3.615*** (0.148)	3.290*** (0.0922)	3.613*** (0.157)	3.842*** (0.328)
Observations	213	213	213	211

Robust standard errors in parentheses.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.

Estimated by negative binomial regression, as in Bernauer et al.'s study, it demonstrates that while these are negatively related, the coefficient is not significant—a null finding exemplifying the puzzle in this literature. Model 2 shows the relationship between *Ratification* and *Differentiation*. The coefficient, in this case, is positive and significant. This makes sense given that differentiated agreements tend to be larger. Model 3 includes both component variables plus the interaction term. Here, we find that *Depth* is negatively related with *Ratification* and statistically significant when there is no differentiation (i.e., *Differentiation* = 0). *Differentiation* is positive but no longer significant, indicating that when an agreement is shallow (i.e., *Depth* = 0), there is little evidence that it affects participation. Crucially, though, the interaction term is significant and positively signed. This indicates that *Depth* and *Ratification* are increasing when agreements differentiate between parties. Finally, Model 4 demonstrates that these results hold after introducing additional variables from Bernauer et al.'s (2013) study, including measures of the participation-inducing features they identify and various controls. Most of these perform as they do in their study, showing that the features to which they call attention continue to be important.

To make these results more concrete, in Figure 3 we present marginal effects estimates and 95 percent confidence intervals derived from model 4 for a set of key values. On the left side, we show how treaty ratification is predicted to vary when differentiation is high and low and when commitments are shallow. As before, this reveals that differentiation makes little difference to the outcome. Ratifications are marginally higher when a treaty offers differential treatment, but both are predicted to have a relatively large number of ratifications, aligning with the idea that when agreements are not very demanding, they can induce high participation. The right side shows the effect of differentiation when commitments are "deep," that is, *Depth* = 3. In this case, the expected

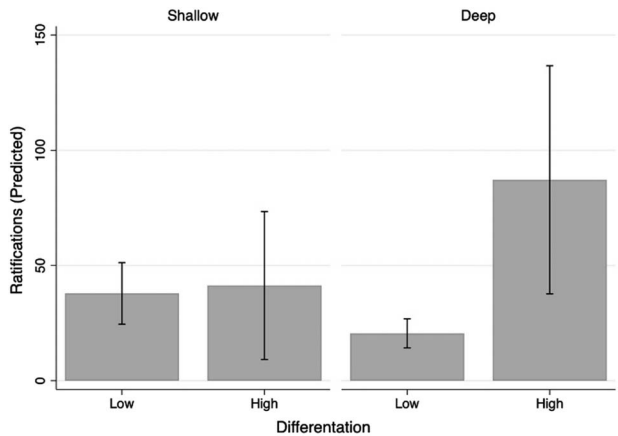

Figure 3
Marginal Effects Estimates

number of ratifications drops by 50 percent when *Differentiation* = 0. Again, this confirms the expectation from Gilligan's (2004) model that depth and participation are negatively related when state policies are set at similar levels. Ratifications then rise when commitments are deep and an agreement offers differentiation. Substantively, the change is quite large—more than double the ratifications expected when commitments are shallow.

These results have important implications. Most obviously, they show that differentiation has a powerful effect on state behavior, significantly affecting the prospects for deep cooperation between larger, more diverse groups. From a policy perspective, this is a valuable insight that helps to explain why policy makers have heavily relied on these provisions throughout a particularly ambitious period of environmental treaty making. But additionally, these results help reconcile two puzzles in the literature on these dynamics. First, if the depth–participation dilemma is indeed conditioned by differentiation, as we find, this may explain why earlier studies have not discovered evidence of it. If the trade-off is expected to appear only in specific circumstances, which have not been accounted for statistically, it should be relatively unsurprising that earlier studies do not recover the corresponding relationship. Second, this may help to explain why some, like Kahler (1992) and Slapin and Gray (2014), have found the opposite: that depth and participation sometimes go together. Generally, this has been taken as evidence against the trade-off. But this is not so puzzling—or damning—once we recognize the work differentiation may be doing. Where present, it can short-circuit the depth–participation dilemma, as Gilligan (2004) has suggested, making it possible to have high levels of both.

Conclusions

Our aim in this Research Note has been to shed new light on differentiation in international treaty making—how often it occurs, when it does, and how it matters. This design feature has been of considerable interest to scholars but has been challenging to study due to data constraints. We have proposed one way of relieving these constraints, presented evidence of the frequency of these provisions, and demonstrated their impact on state behavior. Our results show that differentiation is used infrequently, but strategically, appearing in newer treaties involving larger groups of states. Overall, it appears to play an important role by helping countries to reconcile their differences and achieve deeper cooperation than would otherwise be possible. From a methodological perspective, we also demonstrate how important it is to account for these provisions in our analyses and how doing so can reconcile conflicting conclusions reached by earlier researchers.

For these reasons, it will be important to devote further attention to differential treatment. Here, we have illustrated how differentiation reshapes the depth–participation dilemma and confirmed a key untested conjecture, but there are grounds for thinking that differentiation has complex relationships

with other aspects of institutional design and state behavior. On the institutional design front, differentiation may condition choices about other flexibility mechanisms, the legal form of an agreement, and how regimes evolve over time. In terms of state behavior, where differentiation is not available, states may introduce their own forms of flexibility, such as treaty reservations or contextual norms that shape how agreements are implemented. Future researchers may also find it useful to subset our data, exploring how states choose between various forms of differential treatment and how these matter in different contexts. In short, we believe there is a rich set of questions about these provisions that requires careful investigation and that the answers to them may hold important insights for policy makers seeking to resolve environmental challenges fairly and effectively.

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