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Institutional Effects on State Behavior: Convergence and Divergence

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We develop a new typology for examination of the effects of international institutions on member states' behavior. Some institutions lead to convergence of members' practices, whereas others result, often for unintended reasons, in divergence. We hypothesize that the observed effect of institutions depends on the level of externalities to state behavior, the design of the institution, and variation in the organization and access of private interests that share the goals of the institution. We illustrate these propositions with examples drawn from international institutions for development assistance, protection of the ozone layer, and completion of the European Union's internal market. We find that significant externalities and appropriately designed institutions lead to convergence of state behavior, whereas divergence can result from the absence of these conditions and the presence of heterogeneity in domestic politics.

States frequently choose to institutionalize their interactions with one another. This empirical pattern has been reflected in theories of international politics, which have struggled to understand the logic of international institutions. The recent research agenda on institutions has concentrated on establishing that international institutions could have an influence on state behavior. Institutionalist work attempting to show that institutions "matter" gave rise to a strong response from those who discount both the logic and empirical validity of institutionalist claims (Mearsheimer, 1994–95). Our paper addresses one important empirical criticism, arguing that in order to identify institutional effects accurately we need a more finely grained set of expectations about what effects institutions should have and under what conditions they should have these effects. The first generation of rationalist models of institutions aimed primarily at establishing an existence proof: finding situations in which institutions had observable effects on state behavior. Too much of this work relied on single cases and counterfactual arguments, leaving itself open to charges of selection bias and other empirical problems.

We argue that accurate identification of institutional effects requires that we recognize that different types of institutions should have different effects under specified conditions. In other words, researchers require a typology of institutional effects and theoretically grounded hypotheses about the conditions under

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which we should observe them. We offer a typology of convergence and divergence effects, hypotheses about when we will find these effects, and evidence from three issue areas to establish the plausibility of both the typology and our hypotheses.[1] Although this evidence cannot be taken as definitive proof of our hypotheses, it does strongly suggest that the typology is a valuable addition to the institutionalist research program. Studies of patterns of convergence and divergence can fruitfully supplement studies of international cooperation.

The first section of this paper develops the argument for considering variation in institutional effects as an important test of the institutionalist research program. The second section argues that simple models of externalities and collective action in complete-information settings lead to predictions of divergence or convergence of member state behavior. The third section specifies our hypotheses more fully, allowing for incomplete information and bringing in considerations of institutional design and domestic politics. We argue that convergence will occur when the cooperation problem states are trying to solve involves substantial externalities to state behavior and when the institutions states craft have adequate mechanisms to overcome these collective dilemmas. Divergence effects, in contrast, are likely to be observed only when externalities are minimal, enforcement mechanisms are weak, and states exhibit significant variation in the organization and power of interest groups attentive to the issues covered by the international institution. A branching model, asking first about externalities, summarizes our expectations about institutional effects.

The fourth section of the paper provides empirical examples of convergence and divergence effects. International attempts to reduce destruction of the ozone layer and the European Union's (EU's) attempt to complete the internal market illustrate convergence effects. In both cases it is easy to identify strong externalities to state behavior, and in both, states have constructed enforcement mechanisms appropriately designed to overcome the collective-action problems created by these externalities. In contrast, the example of development assistance demonstrates that international institutions can contribute to divergence of member state behavior. In this case, states recognize few externalities to their behavior, and the institutions they create have inadequate or nonexistent enforcement mechanisms. We might expect that in such cases institutions would make no difference (i.e., that they would not lead to any observed variation in state behavior). Yet we see that in some states, the creation of formal institutional standards and norms of behavior have served as tools that have increased the influence of domestic interest groups that supported the institution's agenda. In these states, the institution did lead to a change of state behavior, whereas member states that lacked these organized groups were resistant to institutional norms. The result was divergence of behavior, as some members moved closer to the norms established by the institution whereas others showed no response.

Institutional Effects: Cooperation, Compliance, and Effectiveness

Numerous studies over the last two decades have searched for, and sometimes identified, institutions that have had a causal effect on the behavior of their member states. However, such studies have been less persuasive than an institutional theorist might wish. One reason is that researchers have not thought in a sufficiently differentiated way about institutional effects. They have primarily attempted to show that institutions sometimes matter through demonstration of individual examples where outcomes are difficult to understand without taking into account the role of institutions. Although this work has made a major contribution, it suffers from too heavy a reliance on counterfactual argument,

[1] For an initial presentation of this typology, see Martin and Simmons, 1998.

selective choice of cases, and an inability to explain why institutions sometimes have intended effects and sometimes do not. Empirical and theoretical progress requires that we develop a more nuanced picture of institutional effects and specify conditions under which we expect to observe alternative effects. This agenda requires that we develop a typology that moves beyond the focus on cooperation, compliance, and effectiveness that characterizes existing work.

Much of the empirical work by institutionalists attempts to show that cases exist in which institutions encourage cooperation, influencing states to cooperate in circumstances in which they would otherwise find cooperation difficult. The dependent variable in this research agenda is international cooperation. Studies of compliance, or whether international institutions are effective, have drawn from the same analytical framework. Empirical research has found instances in which institutions seem to lead states to behave in a more cooperative manner than they otherwise might have. Institutions have enhanced patterns of cooperation in issues including military force levels (Duffield, 1992), oil pollution (Mitchell, 1994), and economic sanctions (Martin, 1992a). Studies of compliance with international agreements on environmental issues (Victor, Raustiala, and Skolnikoff, 1998a) and international regulatory agreements (Chayes and Chayes, 1995) further the agenda of studying the effects of institutions while maintaining a focus on cooperation, compliance, and effectiveness as dependent variables.

These studies suffer from a number of methodological flaws that have led skeptics to challenge their validity. Many rely heavily on counterfactual analysis rather than observable patterns of variation across actual cases. Some do not control adequately for alternative explanations, particularly changes in patterns of interests. Few empirical studies specify the conditions under which institutions should have the predicted effects. The search to find cases that allow researchers to show that "institutions matter" leads to selection bias in favor of cases where institutional effects would be most pronounced. Few of these studies take the problem of institutional endogeneity seriously. These failings, particularly the last, allow skeptics to argue that since institutions are obviously endogenous—they do change in response to changes in structural variables and often serve as agents of state interests—they are epiphenomenal. In other words, the causal significance of institutions remains inadequately demonstrated.[2] This identification of endogeneity with epiphenomenality is a mistake, but overall the criticisms of empirical studies are telling.

These problems of empirical studies have needlessly undermined the promise of institutionalist theory. We propose that one way to begin addressing these problems is to develop a more discriminating dependent variable (i.e., a typology of institutional effects). Effects of institutions typically have been treated as a single, dichotomous variable: cooperation or no, compliance or its lack. This crude dichotomization of the vast variety of state behavior has perhaps obscured as much as it has revealed.

Relying on the standard definition of cooperation—resolution of collective-action dilemmas—also forces us to assume that all institutions are designed to confront similar problems of collective action and market failure. Studies asking whether institutions are effective or whether states comply likewise assume that the goal of institutions is to overcome a specific kind of collective-action problem. Focusing on cooperation thus fits uncomfortably with the notion, highlighted by those who consider variation in institutional design, that different institutions are designed to solve different problems. If institutions confront a variety of problems, forcing all instances of institutionalized interaction into a

[2] See Mearsheimer, 1994–95, and, for a response, Keohane and Martin, 1995.

category called "cooperation" is unlikely to highlight most interesting patterns of variation.

A further difficulty with the emphasis on cooperation–no cooperation as the only relevant dependent variable is that it does not provide a language in which to assess possible unintended, even perverse, effects of institutions. Policy analysis is replete with examples of such effects. Peacekeeping operations may induce combatants to put off finding permanent resolution to their disputes. The European Monetary Union (EMU) could allow undisciplined members to forgo fiscal stringency. Such unintended and undesired effects of institutions constitute one of the major normative, as well as theoretical, charges against modern institutionalist theory (Gallorotti, 1991). Yet the language of cooperate–do not cooperate does not provide us with the necessary tools to explore this darker side of possible institutional effects.

The typology of effects we propose does not provide a complete response to all these weaknesses of existing theory and research. But it does identify a start. We shift the focus away from cooperation to an analysis of variation in state behavior. Some institutions lead to convergence of state behavior; others lead to divergence. Some have no effect at all. This typology allows us to specify conditional hypotheses about variation in institutional effects. The concept of convergence, as explained below, is consistent with traditional emphasis on market failure problems and cooperation. Highlighting the possibility of divergence, however, allows us to assess unintended effects more accurately. It also provides a lever for bringing the actions and influence of organized domestic interests into models of institutions, something that institutional theory has been prompted to do for years (Haggard and Simmons, 1987; Moravcsik, 1997).

From a methodological standpoint, the typology developed here provides a guide to more precise measurement of institutional effects. Variation in state behavior is measured prior to institutional creation and after. Change in variation then provides an indicator of institutional effects and a dependent variable that can be used to test alternative theories. Changes in the mean, although not the focus of this paper, remain important as measures of cooperation. Our approach provides a tool for a more rigorous research agenda that responds to criticisms of selection bias and distinguishes between different types of institutional effects. This framework allows us to move away from counterfactual analysis by providing concrete measures of state behavior for comparison at different points in time or across different institutional settings. It directs our attention away from process tracing to consideration of variation in outcomes. It allows us to specify conditional hypotheses rather than the broad and undifferentiated claim that "institutions matter." It also opens an avenue to addressing institutional endogeneity, as the hypotheses specified below take into account variation in institutional design, recognizing that it responds to structural challenges but in an uneven manner.

Externalities and Convergence or Divergence

We propose that studies of institutional effects should concentrate directly on patterns of member state behavior. The particular outcome variable that institutions might influence depends on the specific problem being addressed. Environmental institutions are designed to limit emissions of pollutants. Trade institutions are designed to limit protectionist barriers. Development aid institutions are designed to change flows of development aid. Empirical studies of institutional effects should directly examine these outcome indicators. One particularly fruitful way in which to do this is to ask whether state behavior on these dimensions tends to converge or diverge as the result of institutional action. In this section, we analyze the impact of externalities on the likelihood of convergence or divergence. We do so using simple games that treat states as rational and unitary and that neglect informational problems. In the next section we build on the analysis of externalities by adding the complexities of incomplete information and domestic politics to the model.

Most international institutions are designed to influence issue-specific, observable measures of state behavior. Informal institutions may not clearly specify what measures of state behavior should change. For example, APEC (the Asia-Pacific Economic Cooperation forum) has set no specific targets for member state behavior. Yet even in this case we can specify that member states of APEC generally intend their efforts in this forum to gradually reduce barriers to exchange among them. Thus, protectionist barriers are the target variable for APEC. In more formal settings, specifying the target variable is more straightforward. The World Trade Organization and North American Free Trade Agreement set precise standards of state behavior that can be used as indicators of whether states are living up to their commitments. Development aid institutions, such as the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), establish targets for the flow of development aid from member states to developing countries. Military alliances agree on standards of military spending. The point is that when we focus on a specific international institution and ask whether it has an effect on state behavior, a promising place to begin will be member state agreements on targets, floors, ceilings, or other standards for their behavior.

Cooperation could perhaps be operationalized by how close states come to these targets and the extent to which the targets require them to change former patterns of behavior. One common descriptive statistic is the average or mean level of state behavior. Measuring cooperation could involve looking at changes in this average. However, asking only about average state behavior obscures some potentially intriguing institutional effects. Another statistic relevant to the overall pattern of state behavior is a measure of variation or diversity in that behavior, such as a standard deviation or variance. Our approach to specifying institutional effects directs attention away from changes in the mean to changes in the standard deviation. We do not intend to imply that changes in the mean are uninteresting. However, because such changes have already received extensive attention in studies of cooperation, we concentrate here on the more novel idea of measuring the standard deviation.

Thinking about changes in the variance or standard deviation of state behavior means asking whether institutions might contribute to convergence or divergence in patterns of behavior. Convergence means a reduction in the standard deviation; divergence means an increase. Average state behavior (the mean) tells us only the central tendency of observed behavior. It thus hides much potentially valuable information about the overall pattern of behavior, information that can be recovered by looking at changes in the standard deviation. In particular, we need to know about more than just the central tendency if we are interested in bringing domestic politics into our analysis, allowing for the possibility that different types of states respond to institutional incentives differently. The mean cannot tell us whether different states are responding differently to institutional incentives. Measuring convergence or divergence tells us whether all or only some member states are responding as expected.

In order to begin thinking about the overall pattern of member state behavior, consider some very simple standard games. In order to clarify the logic of convergence and divergence, we begin by focusing only on the level of externalities that characterize different types of interactions among states. The games illustrated in Figure 1 are differentiated from one another by the level of external-

High Externality

Coordination

	A	B
A	4, 3	1, 2
B	2, 1	3, 4

Prisoners' Dilemma

	A	B
A	3, 3	1, 4
B	4, 1	2, 2

Low Externality

	A	B
A	2, 1	2, 2
B	1, 1	1, 2

FIG. 1. High- and low-externality games.

ities or interdependence.[3] The top panel of Figure 1 shows two paradigmatic examples of high-externality games, a coordination (battle of the sexes) game and a prisoner's dilemma (PD).[4] These are the situations considered in most studies of international institutions, such as those regulating trade, the environment, or choices of technical standards. The bottom panel shows a low-externality game, one in which the payoffs to each state are not affected by the choices made by the other. An example of a low-externality game could be the choice of labor standards in a situation of low factor mobility among countries. With low mobility, policy choices by one state are likely to have minimal consequences for others.

Consider first the coordination game. A typical coordination problem involves high positive externalities, in that states can benefit from choosing the same course of action. Figure 1 shows a simple coordination problem, where states have only two possible courses of action, A or B. Payoffs are ranked from 4 (the best) to 1 (the worst), with the payoff to State 1 listed first. State 1 (which chooses the row) prefers A, whereas State 2 (which chooses the column) prefers B. However, positive externalities are present in that both states strongly benefit from choosing the same course of action. This full-information game results in two pure-strategy equilibria: one where both states choose A, and one where both choose B. Outcomes where states choose different courses of action are not equilibria, since both states have an incentive to change their choice in order to coordinate with the other state.

[3] Thomas Schelling (1980) refers to situations that involve externalities to state behavior as problems of interdependent decision.

[4] Snidal (1985) and Stein (1983) draw on a similar set of games to develop propositions about institutional design.

This coordination game shows in the most direct way the logic of convergence in the presence of high externalities. It might represent a choice of technical standards, such as standards for high-definition television or railway gauges. Because of the presence of multiple equilibria, the exact outcome cannot be predicted. However, we can make one clear prediction from this exercise: states will converge on one particular outcome. Diversity of state behavior, with each state using a different standard, is not persistent in this setting. Thus, convergence should characterize such positive-externality coordination settings.

Consider next the logic of the PD. Here we also expect a tendency toward convergence, but through a slightly more complex logic than in the coordination case. In a single-shot, simultaneous-move version of the PD, there is only one equilibrium, because both states have dominant strategies to defect. Mutual defection (the BB outcome in Figure 1) represents convergence in its most trivial form.

Allowing for repeat play of the PD opens a wide range of additional equilibria, including mutual cooperation (AA in Figure 1). For our purposes, what is important about equilibria in the iterated PD is the highly interdependent nature of state choices. Choosing to cooperate is always, regardless of the particular punishment strategy that states choose, contingent on the other state's ongoing cooperation. Outcomes where one state defects and the other cooperates (AB or BA) may occur for a round or two, for example, if states are using a forgiving strategy of reciprocity. But defection will eventually lead to punishment in the form of reciprocal defection by the other state. If the punishment strategy is effective it will lead the initial defector to return to a cooperative strategy, as will the punishing state. Thus, effective punishment strategies lead to convergence on the cooperative outcome in this simple iterated PD.

If the payoff from short-term defection is too high or the shadow of the future too short, punishment will not be effective in returning states to a cooperative equilibrium. In this case, states will converge on the noncooperative equilibrium. By examining the logic of punishment through reciprocity, we can see that any outcome will be characterized by converging behavior on the part of rational unitary states. To make this logic a bit more concrete, think of the PD as an exercise in lowering barriers to trade. The A choice represents reduced barriers to trade, whereas choice B means maintaining high barriers. If trade is a PD, states gain from mutual reductions but prefer to cheat and impose high barriers if they can get away with it. If their interaction is repeated over time, they can reap the benefits of low barriers to exchange by threatening to return to the high-barrier outcome in the case of cheating by the other state.[5] The logic of the repeated PD relies on reciprocity as an enforcement mechanism. Reliance on reciprocity should show up behaviorally as convergence of state behavior.

In the simplest PD, behavior should be absolutely uniform: all defect or all cooperate. In practice we do not observe such uniformity, even in situations with some negative externalities. Even before states agree on a particular cooperative equilibrium, they generally show some heterogeneity in their behavior. It seems likely that the level of heterogeneity is related to the level of externalities that characterize the issue: very high externalities, as in our simple PD, should minimize heterogeneity even when states are all defecting. Though we allow for initial heterogeneity in state practices, we claim that high externalities should create a tendency to convergent state behavior in the presence of complete information.

[5] Bagwell and Staiger (1999) present a model of international trade as an iterated PD that emphasizes the role of reciprocity.

The bottom panel of Figure 1 shows a game without the high externalities that characterize the games in the top panel. In contrast to the previous analysis, here the payoffs to states are not interdependent. Each has a dominant strategy, with state 1 preferring A and state 2 preferring B. Perhaps state 1 is a rich, industrialized country with stringent protections and benefits for labor (choice A), whereas state 2 is a developing country that cannot afford to provide such protections. If factors are not mobile between these two states, their payoffs should not depend much on the choice that the other makes about its treatment of labor. With high externalities, we do not expect outcomes AB or BA to be stable. In contrast, the only equilibrium in the low-externality game shown here is AB.

Low externalities thus provide the necessary conditions for divergent patterns of state behavior. Of course, if all states happen to prefer the same course of action, behavior will converge even if externalities are low. Thus, low externalities are only a necessary, not a sufficient, condition for divergence. But we expect that low externalities combined with diverse state preferences will lead to divergence. One insight emerges from this analysis: that we will have to pay attention to the sources and nature of state preferences in low-externality environments. In contrast, when externalities are high, states' behavior will be much more responsive to that of other states, drawing our attention away from the domestic to the international level. We summarize this insight in the next section in our branching model of institutional effects.

Now that we have introduced the logic of convergence and divergence, let us make the distinction between them a bit more formal. Our typology concentrates on the level of variation in state behavior with respect to target outcome variables, such as aid expenditures or levels of trade protection. Prior to creation of the institution, states generally exhibit some level of variation with respect to the target variable. They have varying levels of trade protection; some spend more on development aid than do others.[6] One useful way to measure the effect that an institution is having on its members' behavior is to ask whether, after the institution is in place, this variation increases, decreases, or remains the same. If the variation increases, the institution is having a divergence effect, as it has led to increased divergence in state behavior.[7] If variation decreases, the institution could be credited with having a convergence effect.

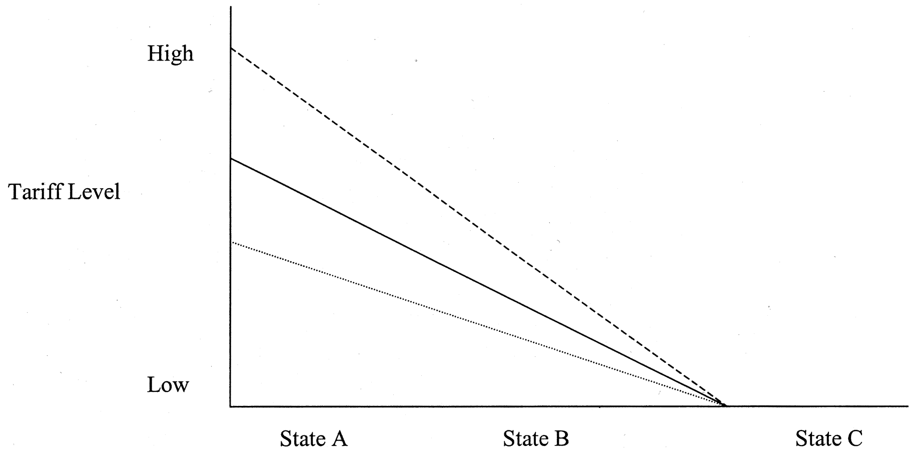
It is of course possible that an institution would have a constant effect on all member states' behavior, shifting it by an equal amount. The variance would thus remain the same, but the institution would nevertheless have an effect, changing the mean. Looking for changes in the mean will be especially important when states exhibit little initial variation in their behavior. A constant effect is associated with standard ways of thinking about international cooperation.

To highlight the innovative aspects of our approach to institutional effects, we will not concentrate on constant effects here. We wish to draw attention to the fact that state behavior prior to institutional creation is typically heterogeneous. Looking only at the average of state behavior does not allow us to measure heterogeneity and how it changes. It is important to emphasize that we are not suggesting that convergence or divergence are alternative measures of cooperation. They are, instead, additional conceptions of possible effects on state behavior. Convergence does not necessarily equal institutional "success," nor divergence "failure."

Figure 2 illustrates divergence and convergence effects. Assume that the outcome variable of interest for this institution is tariff levels. Prior to creation of

[6] As discussed above, in the presence of very high externalities we may not see this initial heterogeneity of state behavior.

[7] Of course, the institution itself can be credited with this effect only after controlling for other potential explanatory variables. This ceteris paribus clause holds throughout the following discussion.



Note: The solid line indicates tariff levels prior to institutional creation. The dotted line indicates a convergence effect, as States A and B's tariff converge to the level of State C's. The dashed line indicates a divergence effect, as institutional creation leads States A and B to increase their tariff levels.

Fig. 2. Divergence and convergence effects.

the institution, State A has high tariffs, State B intermediate tariffs, and State C low tariffs. This situation is represented by the solid line. The relevant question for institutional effects is how variation changes once the institution is created. The dotted line illustrates a convergence effect. Here, States A and B have both lowered their tariffs. The slope of the line is now shallower than it was before, indicating less variation in state behavior. If we were to measure the standard deviation of member state tariffs, we would find that it had decreased since institutional creation. This is an example of a convergence effect.

The dashed line, in contrast, illustrates an instance where States A and B have increased their tariff levels after institutional creation. Perhaps the institution was improperly designed so that it motivated import-competing groups in these countries to organize and thus had the unintended effect of increasing levels of protection in the already more protectionist countries. Here, we see that the slope of the line is steeper, indicating divergence of state behavior. A measure of standard deviation or other measure of variation in tariffs would increase in this example, showing a divergence effect.

For clarity, we draw one further distinction. Figure 2 illustrates a strong divergence effect. The effect of the institution on some states is the opposite of that intended. This could result from mobilization of anti-internationalist forces in reaction to institutional rules or practices with which they disagree. The possibility of strong divergence effects is intriguing and not out of the question empirically. For example, we may see such a reaction in the United States as the inefficiency and practices of some UN bureaucracies lead to mobilization of isolationist forces in Congress and a declining contribution by the United States to the United Nations. However, perhaps a more common pattern would be a weak divergence effect. This could result if an institution had the intended effect on the behavior of some member states, but no effect on that of others. A weak divergence effect is shown in Figure 3. We develop hypotheses about weak and strong divergence effects together, since both are likely to result from differential mobilization of domestic interest groups and both are stable outcomes only when externalities are low.

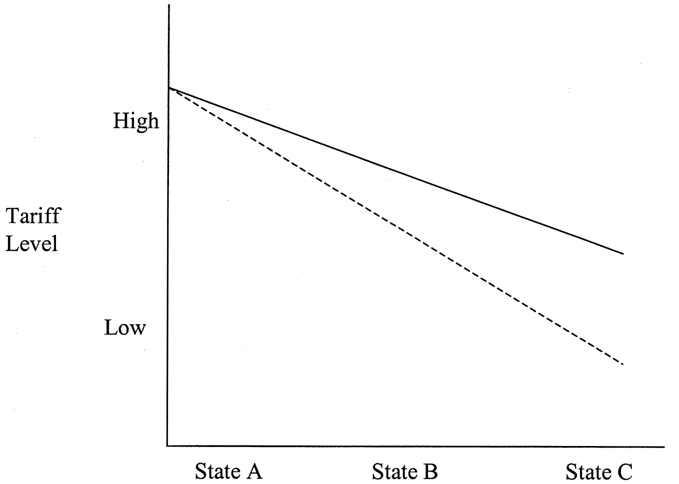


FIG. 3. Weak divergence effect.

In the highly simplified world of 2 × 2 games and complete information, we do not need to consider institutions in order to develop expectations about convergence or divergence of state behavior. These tendencies follow directly from the presence or absence of externalities in states' interactions with one another. However, actual interaction between states is far more complex and involves persistent problems of bargaining and enforcement, bringing in a role for institutions that we consider in the following section. This typology of divergence and convergence effects allows the institutionalist research program to move forward in a progressive manner by allowing for clearer specification and testing of hypotheses about the effects of institutions on state behavior.

Hypotheses: The Role of Institutional Design and Domestic Politics

In the previous section, we argued that issues that involved high externalities to state behavior should produce a tendency toward convergence. Extending our analysis to low-externality situations, we suggested that divergence of state behavior may also sometimes be a stable outcome. Moving toward expectations about the conditions under which international institutions are likely to enhance patterns of convergence or divergence requires that we introduce informational concerns and bring domestic politics into the picture. We do so here. Our overall explanatory framework is a branching model. If externalities to state behavior are high, we expect patterns of behavior to be determined more by the design of international institutions than by domestic factors. If externalities are low, we expect domestic politics to play a more determinative role.

When states are in a PD situation they can realize high benefits from joint movement to a cooperative outcome. However, in spite of these incentives to convergent behavior in a situation of negative externalities, states also face the temptation to renege. Thus convergence to a cooperative equilibrium is far from automatic. Instead, states need to craft mechanisms that will allow them to implement effective strategies of reciprocity. These mechanisms center around the necessity for accurate, prompt information about other states' behavior. Contractual theory has drawn attention to the role of international institutions in providing information and allowing for effective punishment of those who renege. Monitoring of state behavior is an essential component of any attempt to overcome a PD. If states anticipate that they can renege without discovery, they will do so. Without effective monitoring, institutions are unlikely to have any substantial effect on state behavior in a situation of negative externalities.

The functions that institutions perform to assist states in overcoming coordination problems differ from those they perform in a PD but are still concentrated on the provision of information. The type of information that states need to deal effectively with coordination problems is not the monitoring of state behavior that is essential in the PD (Martin, 1992b), since states face no incentives to renege on a cooperative outcome. Instead, they need to resolve bargaining problems to settle on a particular equilibrium. Bargaining problems are also in large part about information, such as the reservation point, costs of holding out, and patience of each player. International institutions, by providing an ongoing forum for overlapping, dense sets of negotiations, enhance the quality of such information about one's bargaining partners. In coordination, information provision is essential to effective solution of collective dilemmas. If international institutions do anything at all, they should provide this information.

Because the type of information necessary to resolve collective-action dilemmas depends on the particular dilemma, the nature of institutions that will most effectively provide information varies from issue to issue. In PD situations, institutions will be most effective if they provide timely and accurate information about member state behavior. An "appropriately designed" institution in a PD situation will have strong monitoring capacities, allowing members to implement enforcement strategies. An appropriately designed institution in a coordination situation, in contrast, will facilitate bargaining by encouraging a dense network of relations among state officials. Hypothesis 1, below, uses the term "appropriately designed." Whether an institution is designed appropriately can be determined ex ante, using the criteria just specified.

The logic of externalities and benefits from convergent state behavior minimizes the explanatory leverage of domestic factors. When externalities to state behavior are high, governments have incentives to coordinate their behavior regardless of precise domestic arrangements. Domestic groups may mobilize and pressure governments to shirk their international commitments. However, such outcomes will be unstable internationally because of the high level of externalities that states will bear as a result of uneven compliance with cooperative agreements. If we observe that member state behavior within an institution is converging, it means that states are adopting similar policies regardless of their particular domestic configurations. Thus, domestic politics has little explanatory power when externalities are high.[8]

Overall, the logic of externalities and information leads us to the following hypothesis, H1, about the conditions under which we should see international institutions leading to convergence of state behavior. (All hypotheses and subhypotheses are stated with the usual "all else equal" clauses and in probabilistic terms.)

H1: *Convergence Effects.* **International institutions will more likely result in convergence of member state behavior when the following two conditions are met:**

1a. States recognize substantial externalities to their behavior. These may take the form of costs for reneging on cooperative agreements or of coordination problems.

[8] If states have similar preferences in a low-externality situation, their behavior is likely to converge. However, convergence in this case cannot properly be called an institutional effect, unless institutions have somehow fundamentally changed preferences. By putting the analysis of externalities first in our branching model, we clarify when convergence might be an institutional effect, rather than a coincidence.

1b. Institutions are designed adequately, having either monitoring mechanisms in place that allow for enforcement of cooperative behavior or procedures that facilitate negotiation, depending on the underlying collective-action problem.

If institutions are created in response to collective-action dilemmas, and these dilemmas induce convergence in the behavior of rational actors, why would institutions ever lead to divergence? When we recognize that some institutions address issues where the externalities to state behavior are small or nonexistent, and that member states can exhibit a great deal of variation in their propensity to comply with these institutions' standards because of variation in their domestic politics, divergence of state behavior emerges as a potentially stable institutional outcome. We argue that we are most likely to observe divergence when the organization and access of domestic interest groups varies across member states.

Studies of international institutions have recently gone beyond the traditional focus on collective-action dilemmas to consider social issues such as human rights, development aid, and labor standards (Moravcsik, 1995; Keck and Sikkink, 1998). Institutions in these new issue areas often have purely aspirational goals. That is, they set standards for their member states and work through a long-term process of persuasion to encourage movement toward these standards. The goals are aspirational in that there are no enforcement mechanisms specified and in that member states do not expect that failure to meet these standards will result in any punishment from other members or the institution itself.

Institutions with such purely aspirational goals are classically "weak" institutions. Two prominent questions emerge about them. First, why do states create and join them? Second, by what causal mechanisms might they influence members' behavior? In response to the first question, a condition for joining a weak institution must be the absence of any significant externalities. In the presence of externalities, states will bear high costs from attempting to cooperate when inadequate monitoring and enforcement mechanisms are in place. However, when externalities are minimal, the potential costs associated with other members' reneging are not high. On many social issues, actors aspire to move to higher standards of behavior, but divergence in the performance of states has few direct cross-border effects. Consider the example of development aid. Some modest benefits may result from coordination of donor policies in this area. However, since the amount of development aid is small in relation to donor budgets and the potential benefits of coordination are far in the future, uncertain, and not of great magnitude, the externalities associated with failure to coordinate aid policies are not high. This situation has resulted in the creation of an institution that sets goals but with little prospect of enforcing penalties for failure to comply with these goals.

In spite of the lack of incentives to coordinate behavior and weak institutions, researchers have argued that aspirational institutions do have effects on the policies of some states. They point to the actions of private groups, particularly nongovernmental organizations (NGOs) or domestic interest groups, in using internationally agreed-upon standards to raise public awareness and pressure governments to move toward compliance. Keck and Sikkink (1998) find that NGOs with principled beliefs have made a difference in the policies of governments on various social issues. NGOs exercise influence by using international agreements, such as human-rights conventions, to generate publicity about government policies and to mobilize grassroots pressure on governments to change. Gurowitz (1999:415) finds a similar dynamic in a study of immigration policy in Japan, where explicit international norms led to the mobilization of domestic actors and changes in Japanese policy.

However, there is a great deal of variation in the capacity of such groups and in their ability to influence state policy. When private organizations are severely repressed by their governments, as for example was the case with Guatemalan human-rights organizations during the 1970s, they have little opportunity to use international norms as a mechanism for generating pressure on the government for policy change (Martin and Sikkink, 1993). In such cases, there is little reason to expect weak institutions to effect any change in government policies. At the same time, governments that are not completely resistant to these international norms and are relatively open to pressure from organized interest groups can be persuaded to move in the direction of international norms. Moravcsik (1995) finds this is the case for European human-rights regimes, as Martin and Sikkink (1993) find in the case of Argentina in the 1970s.

Thus, weak institutions that express aspirational goals in the context of minimal externalities and variation in the organization and access of private groups to member governments can result in a pattern of divergence of state practice. Some members will move toward institutional goals; others will exhibit no effect of these goals on state practice. In the previous section, we argued that the lack of significant externalities created the permissive conditions for divergence of state behavior. By adding the activities of domestic interest groups to the picture, we specify when divergence is most likely to occur.

Above, we introduced a distinction between strong and weak divergence effects. The preceding discussion has focused on weak divergence effects, which result when institutions have the desired effect on only a subset of member states. A strong divergence effect would be more extreme, with an institution having the opposite of the desired effect in some subset of states. In either case, however, the logic of divergent effects on different member states results from differential mobilization and influence of domestic interest groups within member states and requires low externalities. The logic of divergence is summarized in the following hypothesis, H2.

H2: ***Divergence Effects.* International institutions will more likely result in divergence of member state behavior when the following two conditions are met:**

2a. States do not recognize substantial externalities to their behavior.

2b. Member states exhibit variation in the organization and access of relevant interest groups to government policymaking.

The purpose and effects of institutions in low-externality situations have received little attention in the literature. One obvious question is why such institutions exist in the first place. Our presumption concentrates on the role of powerful domestic actors. Typically, aspirational institutions reflect the agenda-setting powers of ambitious, well-organized private actors.[9] It therefore seems empirically accurate that aspirational institutions adopt "high" standards of behavior, since these groups hope to use the persuasive power of institutions to "improve" the practices of states. The assumption that aspirational institutions set high standards, rather than just codify the central tendency of current state behavior, is essential to our proposition that they can lead to divergence.

Figure 4 summarizes our explanatory framework. It can be summarized as a branching model. The first variable is the level of externalities to state behavior. If externalities are substantial, we then ask whether international institutions have been adequately designed (as defined above) to address collective-action problems. If the answer is yes, we expect a pattern of convergence. If no, we

[9] See Lumsdaine (1993:46) on the role of private interests in putting development aid on the international agenda.

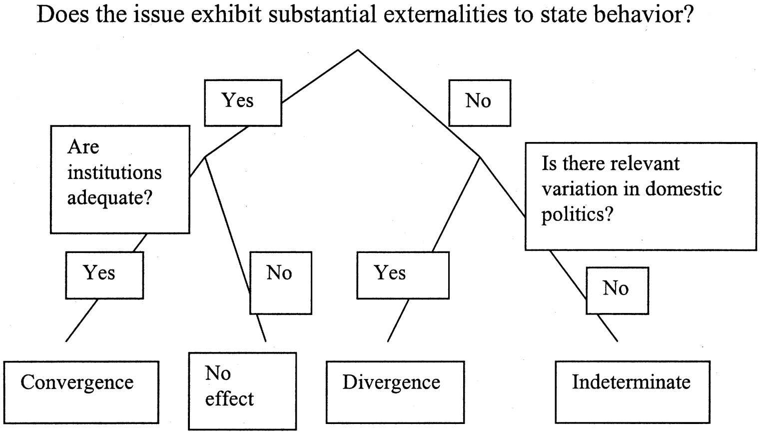


FIG. 4. A branching model of institutional effects.

expect institutions to have little effect on state behavior. If externalities are not high, we ask about variation in domestic structure. If there is little variation in domestic structure, we have indeterminate predictions; it is not at all obvious what institutions might do in such cases. If we have substantial domestic variation in a situation of minimal externalities, we have the necessary conditions for a pattern of divergence. Developing a rigorous test of these hypotheses would require measures of the level of externalities appropriate to a variety of issue areas as well as measures of the adequacy of institutional mechanisms and the behavior of states. In order to establish the plausibility and value of our typology and these hypotheses, we turn now to examples that are illustrative of convergence and divergence effects.

Empirical Illustrations

The examples discussed below are selected to maximize the variation in the level of international externalities to state behavior. We review three cases: the establishment of the Single European Market (SEM) within the framework of the EU, international cooperation to limit stratospheric ozone depletion, and development aid cooperation among OECD countries. The first two issues exemplify high negative externalities to divergent state behavior. Trade liberalization in Europe can be described in terms of a PD. Although cooperation among states to establish a common market would increase the welfare of each player, there are strong incentives to renege and to maintain barriers. Such opportunistic behavior generates high negative externalities for states that abide by the agreement.

Similarly, the efforts of a subset of countries to eliminate ozone-depleting substances (ODSs) will be dwarfed if other states release such compounds. The continued emission of ODSs can ultimately result in the destruction of the ozone shield. A unilateral reduction of the use and production of ODSs furthermore entails economic externalities. It will impose disproportionate costs on the chemical industry in the state that undertakes such reductions, undermining its economic welfare and international competitiveness.

Contrary to international trade and environmental cooperation, development aid coordination is characterized by low externalities. The increase or reduction of official development assistance (ODA) allocations by any single industrialized country would not affect other OECD members in any significant way. Perhaps improved coordination among donors could increase the volume and efficiency of financial assistance to developing states, contributing to their growth and to closer economic integration with the industrialized world. The collective benefits of such coordination, however, are likely to be small and uncertain.

Thus, we have chosen examples that can be clearly identified as high- or low-externality issues. Our case selection allows us to probe the plausibility of the theory of institutional effects elaborated here. In the instance of international cooperation on development aid, the effect of international institutions on state behavior is likely to be one of divergence. In contrast, the effect of international institutions in the issue areas characterized with a significant level of negative externalities is expected to be one of convergence, provided that the institutions have been designed to supply information and to allow for enforcement.

Institutions for Development Aid

The late 1950s and early 1960s marked the beginning of a coordinated international effort to channel financial assistance to developing countries. At this time, there was increasing concern in industrialized democracies about poverty in third-world states and strong leadership by the United States in support of development aid initiatives. The OECD and its Development Assistance Committee (DAC) emerged as the center of donor cooperation to improve the flow of aid for development.

The DAC defined a set of goals for industrialized countries. These included increasing the volume of aid, equitable contributions by DAC members, softening the financial terms of aid, and redirection of aid to poorer states. To further the goal of equitable and increasing contributions by member countries, the organization adopted specific targets for aid volume. The target was initially defined as 1% of national income for total aid flows, later changed to 0.7% of gross national product (GNP) annually (OECD, 1985).

Despite the fact that the OECD has adopted a specific numeric target, there are no sanctions against members who fail to comply with it. The rules advanced by the organization are viewed as guidelines and aspirations rather than as firm and enforceable standards.[10] Any effect of the institution does not stem from improving the contractual environment to facilitate compliance with a clear set of rules.

The DAC seeks to increase compliance with the 0.7% target by providing information and exerting informal pressure on member states. The organization publishes periodic reviews of the foreign-aid policies of members and annual statistics on aid volume, allocation, and performance. This information serves as a basis for criticism, exchange of experiences, and international pressure for improved performance (OECD, 1985:43). Reference to a specific, mutually agreed-upon target is instrumental in the exercise of "shaming" and peer pressure. As one former DAC chairman points out: "it was clearly necessary to have a uniform statistical procedure year after year to discourage retrogression in the total volume and quality of aid and to encourage increased effort" (OECD, 1985:47).

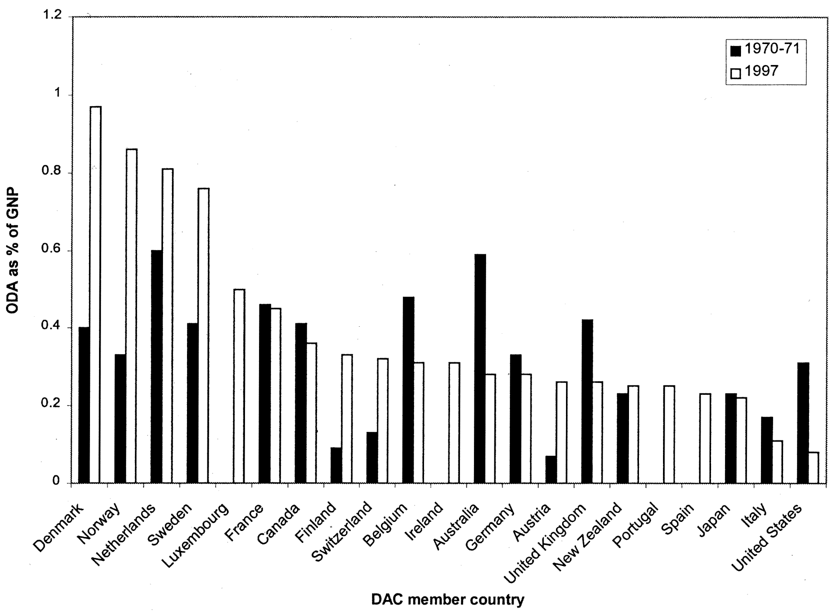
The OECD also strengthened development aid bureaucracies and their capacity to influence and execute national programs. The adoption of an international target for the volume of aid and the availability of compliance information have been used as ammunition by domestic supporters of development assistance, enhancing their ability to pressure the government. The OECD target

[10] Ruggie (1983:435–436, n. 17) qualifies the development aid regime as a "quasi-regime" for the following reasons: "(1) it was fully understood by donor countries that certain norms, particularly those concerning the quantity of aid (0.7% of GNP for ODA, for example), represented aspirations rather than commitments; (2) the various component parts of the would be regime were almost completely unrelated; and (3) the compliance mechanisms were few and weak."

provides a focal point for domestic political bargaining: "Aid authorities in the countries below the one percent level found the simple numbers very helpful in their internal efforts to raise aid budgets" (OECD, 1985:47).

The DAC seeks to advance a set of aspirational goals in the context of minimal externalities to divergent behavior by member states. What has been its effect on state behavior? Studies of the evolution and effectiveness of the regime conclude that its influence on governmental policies can be understood only in conjunction with other factors such as domestic concern, economic prosperity, and foreign-policy interests (OECD, 1985; Lumsdaine, 1993). Total ODA from DAC states has grown continuously, raising the level of total aid from $6.9 billion in 1970 to $28.6 billion in 1984 and $56.8 billion in 1996 (OECD, 1985:175; OECD, 1997:A11). In this generally upward trend, a shrinking U.S. contribution has been compensated for by an increase in aid from "new donors," most significantly the Nordic countries and the Netherlands. Despite the rise in the total flow of aid, however, the level of aid, measured as a percentage of GNP, has not changed dramatically. Nor did the OECD succeed in its goal of promoting "equitable burden sharing" and national convergence with the 0.7% of GNP target.

There are persistent differences in the performance of OECD countries with respect to compliance with the target of 0.7%. The pattern of ODA performance of DAC member countries over time approximates a divergence effect (see Figure 5). Since the 1970s, only four DAC countries—Denmark, the Netherlands, Norway, and Sweden—have consistently complied with and surpassed the 0.7% target. Figure 5 also indicates that the most significant positive change in national ODA allocations, measured as a percentage of GNP, occurred in these four countries. In 1960–61, the Netherlands, Denmark, Sweden, and Norway spent an average of 0.17% of GNP for foreign aid, with the average rising to 0.85% in 1997. At the same time, the performance of the United States has deteriorated



Sources: OECD statistics: ⟨http://www.oecd.org/dac/htm/dacstats.htm⟩; OECD, 1985.

FIG. 5. ODA performance of DAC countries through time (net ODA, measured as percentage of GNP, 1970–71 and 1997).

dramatically, with 0.56% of its GNP allocated to development assistance in 1960–61 and merely 0.08% in 1997. Some former colonial powers exhibit a similar decline in ODA allocations. The volume of development assistance has dropped from 0.56% of GNP in 1960–61 to 0.26% in 1997 for the United Kingdom, and from 0.82% of GNP in 1960–61 to 0.31% in 1997 for Belgium.

As discussed above, a quantitative measure of the degree of divergence in member state behavior is the standard deviation of the target variable. The ODA standard-deviation figures show an interesting trend, lending further support to our divergence hypothesis.[11] The standard deviation of ODA among DAC countries began at a high level, 0.40, in 1959. A process of convergence occurred over the next 15 years, with the standard deviation bottoming out at 0.14 in 1974. After 1974, the standard deviation gradually rose to 0.29 in 1983 and has held fairly stable since. These figures indicate that the 0.7% OECD target, set in 1969 and intended to be implemented by 1975, reflected a preexisting process of convergence. However, once the target was in place, it stimulated divergence.

The international standards established by the development aid regime found fertile ground in some OECD countries but had little impact in others. The overall result was a weak divergence effect. The degree of domestic support for the norms and principles advanced by the institution provide an important clue to understanding these divergent responses. Where strong domestic concern about international poverty and inequality existed, the OECD helped magnify that concern and translate it into specific development aid commitments. In societies with little organized support for redistributive programs at home and abroad, DAC targets had little influence. Case studies of development aid policies in Sweden and the United States reveal contrasting responses to the OECD development aid norms.

The international volume target is described as "a most influential guide" in the evolution of Swedish ODA policies, reinforcing domestic commitment and support (Ohlin, 1973). In the early 1960s, the official development program in Sweden was relatively weak and barely established. By 1975, Sweden was the first country to reach the 0.7% target. The rapid change in Swedish development aid policies was initiated in 1968 by the Social Democratic government. In its activist position, the government relied on strong public support and the involvement of private organizations that already had considerable experience in channeling private assistance to third-world countries. The reference to a specific numerical target for volume of aid helped domestic supporters to advance and sustain the leading position of Sweden. As Steven Hook (1995:98) observes:

> Consistent with the targets articulated by the United Nations and the DAC, the Swedish government pledged to raise ODA appropriations until they reached 1 percent of Swedish national income. This target, officially adopted in 1968 and achieved in 1975–1976, became the focal point of ongoing domestic debate. . . . Communists and Liberal Party leaders advocated a more aggressive aid program, whereas members of the Moderate and Centrist parties generally argued for more modest appropriations.

Even after the Swedish Parliament decided to abandon temporarily the 1% of GNP commitment in 1995, domestic supporters of development programs have been able to refer to the OECD "level of shame" target to muster a commitment by the government that "the aid budget volume will not be allowed to fall below 0.7 per cent of GNP" (OECD, 1996:33).

In contrast, the United States has been vocal in disagreeing with OECD development aid standards. Despite the United States' leadership role in establishing

[11] Data on standard deviations are from Van der Veen, 1998:ch. 7.

the international regime, the specific norms and targets advanced by the DAC have had little influence on U.S. development aid policies. Analysts attribute the limited resonance in the United States to the absence of a tradition of redistributive spending, the dominance of laissez-faire ideology, and the lack of strong organized support for overseas assistance (Lumsdaine, 1993; Hook, 1995). U.S. development assistance policies in the immediate postwar period were often justified as another means of advancing the national interest and the "geopolitical objective of communist containment" (Hook, 1995:121). With change in U.S. foreign-policy strategies, its international aid programs fell considerably below the OECD targets. U.S. policy on ODA reflects that toward other international organizations where the United States has not played a role in setting international targets: it is not strongly influenced by these targets, which are perceived as having been set by "outsiders."

The cases of the United States and Sweden suggest that the effect of development aid institutions on donor states' policies ultimately depends on domestic concern about overseas poverty and the capacity of domestic groups to use international standards to strengthen their country's commitment to international aid programs. Lumsdaine (1993:216) advances this argument in a more comprehensive study of the development aid regime through the 1980s. Lumsdaine's study finds that countries with the "strongest domestic commitment to eradicating poverty, and the strongest public interest in international poverty, were those which had the most vigorous foreign aid programs."

In some cases, international regimes tend to magnify domestic preferences that are in line with the goals promoted by the regime but have a negligible role in states where no such preconditions exist. Divergence driven by domestic concerns can persist because the externalities to state policy are minimal. The aid case also highlights the point that divergence by no means implies the "failure" of institutions but can signal partial "success."

Convergence toward a Single Market in Europe

The Single European Act (SEA), signed by the heads of state of the European Community (EC)[12] in 1986, set the objective of establishing a free economic zone in Europe. This ambitious political project was based on the proposals of the European Commission White Paper, presented to the European Council in 1985. The White Paper outlines specific steps that states should take to create a common market free from barriers to the flow of people, goods, and services (Commission of the European Communities, 1985). The SEA reflected to a large extent the interests of member states, and most importantly, of the three big players (Britain, Germany and France) in further internal trade liberalization. Under the pressures of growing global interdependence, the SEM presented a strategy that would best advance the welfare and competitiveness of the EU (Moravcsik, 1998, 1991).

The goal of completing the SEM has commanded the support and commitment of EU members. Despite this similarity of state preferences, however, national governments are often tempted to avoid or delay the application of internal-market regulations. The risk of opportunism is a problem for completion of the internal market, as for many other instances of international cooperation (Lake, 1999:52). Implementation failures can result from pressure by domestic interests seeking protection from foreign competition or governmental priorities that are not congruent with supranational objectives (Bronckers, 1989). Opportunistic behavior is associated with significant negative externalities. Failure to adopt

[12] Since the ratification of the Maastricht Treaty (1992), the European Community has been referred to as the European Union. The paper uses both terms, depending on the period being discussed.

internal-market regulations will delay and disturb the functioning of the single market, undermining the efforts of the countries that do comply with the regulations. It will impose costs on export-oriented businesses and may give the laggard countries an unfair competitive advantage. The adverse implications of asymmetrical compliance with White Paper directives are summarized by Colchester and Buchan (1990:132):

> Uneven implementation of EC rules could distort competition across the market quite as much as having no rules at all. . . . If some states enforce EC law punctiliously, while others either fail to get EC decisions onto their statute books or pay scant attention to them, there could be a backlash from the virtuous states, leading to bureaucratic tit-for-tat, and a "single market" sliding back into an anarchy of covert protectionism rather as the Common Market did in the 1970s.

Under such conditions, it is not surprising that the states of the EU have delegated significant authority to institutions to ensure adequate monitoring that would facilitate the application of single-market directives. Starting with the adoption of the White Paper in 1985, the European Commission has been instrumental in speeding up the completion of the internal market:

> The white paper greatly facilitated agreement and implementation of the internal market by providing transparency and standardization. Its directives made clear what each government committed itself to do, thus reducing the fear that some states would be doing more than others. The Commission, under the direction from the Council and the EP [European Parliament], contributed to the transparency of the process by agreeing to publish semi-annual reports on the progress of the white-paper directives (Martin, 2000:171–72).

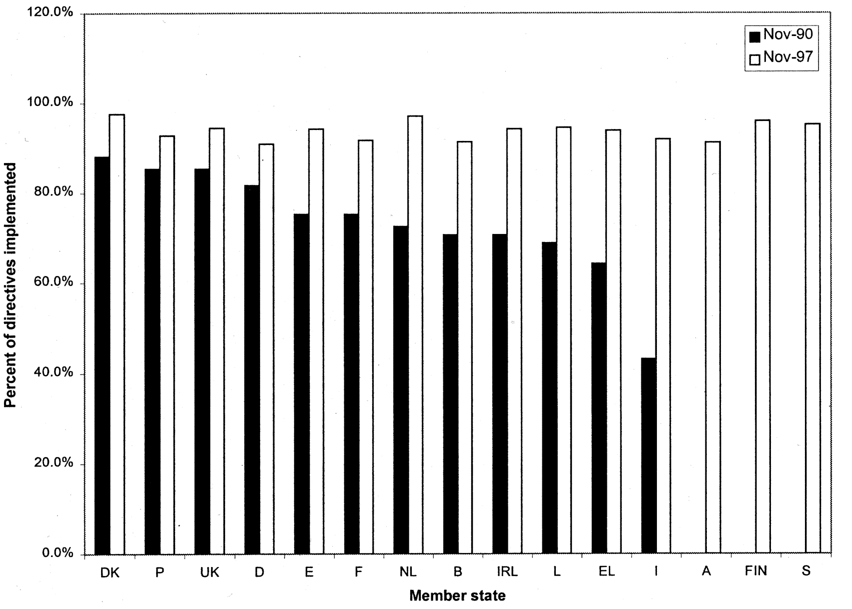
Mounting concern about delays in the implementation of the single-market regulations has motivated even greater activism on the part of European institutions.[13] The Single Market Action Plan, proposed by the commission and adopted in 1997, outlines initiatives for greater transparency and the simplification of single-market rules as well as for strengthening monitoring systems. Member states are required to notify the commission of timetables for implementing all outstanding single-market directives and to designate oversight centers for resolving single-market problems on a bilateral basis. The commission intensified its direct monitoring by the publication of a semi-annual "Scoreboard" that highlights any discrepancies between the political commitments of member states and their actual performance. It identifies members with the worst and best records and monitors the economic impact of single-market regulations (European Commission, DGXV, 1997a, 1997b, 1997d).

The Single Market Action Plan also requires that states set up clearly identified contact points for citizens and interested businesses. Under the plan, the existence of such contact points, details of how to get in touch with them, and information about the main enforcement structures must be widely advertised to citizens' and business groups (European Commission, DGXV, 1997b, 1997c). The commission also advanced a proposal for a regulation to establish a rapid-intervention mechanism. Infringement of this regulation could lead, within a short time, to a referral to the European Court of Justice (European Commission, DGXV, 1997a).

[13] Single Market Commissioner Mario Monti provides the following rationale for undertaking quick action for improved compliance with single-market directives: ". . . violations of the free movement of goods can seriously disturb the orderly functioning of the Single Market and cause major damage to economic operators. I am therefore convinced the all measures at the disposal of Member states have to be implemented, as the credibility of the Single Market is at stake" (European Commission, DGXV, 1997a:1).

Through these mechanisms, the institutions of the EU monitor and provide information on the application of internal-market directives. Such information has facilitated the decentralized enforcement of single-market rules through domestic courts and procedures. It has also magnified the direct international pressure for compliance with the provisions of the White Paper. Thus, the institutions of the EU have contributed to a trend of progressive convergence of the behavior of member states toward the adoption of single-market regulations. Data on the rates of transposition of White Paper directives confirm this effect. In 1990, the variation in the level of implementation ranged from a low of 43% in Italy to a high of 88.1% in Denmark, with a rate of 73.4% for the EU as a whole. In 1997, the range of variation had decreased, with a low of 91.4% for Belgium, a high of 97.6% for Denmark, and 93.8% for the EU as a whole (see Figure 6). Furthermore, a press release from February 1998 concludes that the recent move to increase pressure for greater compliance "has proved to be very effective": there has been a 20% improvement since November 1997 in the rate of transposition of single-market directives, narrowing the transposition gap even further, with a low of 92% for Belgium and a high of 97.7% for Finland (European Commission, DGXV, 1998). The standard deviation of the target variable in this case provides a quantitative measure of the trend of policy convergence among EU members. In 1990, the standard deviation in the level of implementation by EU countries was 12.12. The standard deviation dropped considerably to 5.02 in 1994 and 2.14 in 1997 (even with the addition of new member states).

The SEM case supports the hypothesis that in the presence of significant externalities to divergent state behavior and adequate mechanisms for monitoring and enforcement, the institutional effect is likely to be one of convergence. Furthermore, the case demonstrates that if such an effect does not materialize



Note: DK = Denmark, P = Portugal, UK = United Kingdom, D = Germany, E = Spain, F = France, NL = Netherlands, B = Belgium, IRL = Ireland, L = Luxembourg, EL = Greece, I = Italy, A = Austria, FIN = Finland, S = Sweden.
Source: European Commission, DGXV, 1998.

FIG. 6. Implementation of EU internal-market directives through time.

initially, there should be strong incentives to strengthen the compliance and monitoring procedures of the institutions so as to stimulate a change in state behavior toward greater convergence over time.

International Institutions to Save the Ozone Layer

An article by Molina and Rowland (1974) first described the likely impact of the environmental externality associated with the use of a particular class of chemical substances. The authors posited that chlorofluorocarbons (CFCs) released into the Earth's atmosphere are decomposed in the stratosphere, releasing significant amounts of chlorine, which could lead to stratospheric ozone depletion. The destruction of the ozone shield would expose the Earth to higher levels of ultraviolet radiation, with a number of harmful effects on ecosystems and human health, including a discernible increase in nonmelanoma skin cancer. Since this seminal work, there has been a growing scientific consensus on the ozone-depleting potential of CFCs and other dangerous chemicals (Benedick, 1998; Parson, 1996). Edward Parson (1993:28) describes two broad stages in the scientific development of the ozone issue: "about ten years of confusion and concern, with newly discovered information frequently revising estimated risks both up and down; then, since 1985, a period of convergence in the basic science coupled with new observations that give steadily increasing grounds for concern."

During the early stage "of confusion and concern," when the threat was perceived as relatively small and uncertain, only the Nordic countries demanded strong controls. These proposals met with little support on the part of other influential actors: the United States, Japan, and the EU. As a result, the Vienna Convention for the Protection of the Ozone Layer (1985) stated a general commitment to cooperation in research and control of ODSs but did not include any specific regulatory mechanisms (Oye and Maxwell, 1995).

A growing scientific consensus against ODSs, the ability to resolve contractual problems, and the lack of strong resistance on the part of big chemical firms all contributed to an agreement on controlling ODSs in Montreal in 1987. The Montreal Protocol committed industrialized countries to 50% cuts in CFC production and use by 1999 and a freeze of halons at 1986 levels by 1993. Following stronger scientific evidence, the London (1992) and Copenhagen (1994) amendments to the Protocol provided for the full phase-out of CFCs by 1996 and of halons (except for essential uses) by 1995 and added new chemicals to the list of regulated substances. The obligations of developing countries that are parties to the Montreal Protocol under Article 5 were delayed by 10 years.[14] The London amendment provides for technology transfer and the establishment of a Multilateral Fund to facilitate the implementation of commitments in Article 5 countries.

The consensus about the harmful effects on human health of ODSs required institutional mechanisms to ensure convergent behavior toward their elimination. The institution created to house these mechanisms also had to deal with possible economic externalities that might result from the content of the international agreement or uneven compliance with its requirements. It was critical to set up the rules of the regime in such a way as not to allow any country's industry to gain a competitive advantage and to ensure against opportunistic behavior (Oye and Maxwell, 1995).

The Montreal Protocol creates transparency of state interaction through the requirement that parties report annual data on production, exports, and imports of controlled substances. It provides for regular reviews of policies and treaty provisions, establishing a mechanism for iterated interaction that would allow

[14] Since these countries are covered under Article 5 of the Montreal Protocol, they are often referred to as "Article 5 countries."

states to demonstrate their commitment repeatedly, reducing the uncertainty about one another's action and intentions. The provision of restrictions on trade with nonparties in regulated substances and related products further affect states' interest in participation in the internationally negotiated strategy to save the ozone layer. Finally, the financial transfers channeled through the Multilateral Fund and the Global Environmental Facility provide positive incentives and enhance the capacity of developing countries and East European states to meet their commitments. An interlinked compliance and review system contributes to the protocol's effectiveness and has evolved gradually in response to implementation challenges.[15]

Through a variety of mechanisms, institutions for saving the ozone layer have been instrumental in creating incentives for states to commit to significant reductions in ODSs:

> The control measures enacted in 1987 and 1990 clearly increased everyone's willingness to undertake national controls. Even the activists were willing to go further with confidence that their measures will be reciprocated. Not even the most activist governments made serious, costly reductions until the treaty was signed. . . . For nations that formerly resisted the treaty, the enactment of formal controls also gives incentives to join: the confidence that they will not be placed at a competitive disadvantage by joining, and the desire to avoid trade sanctions and isolation (Parson, 1993:66–67).

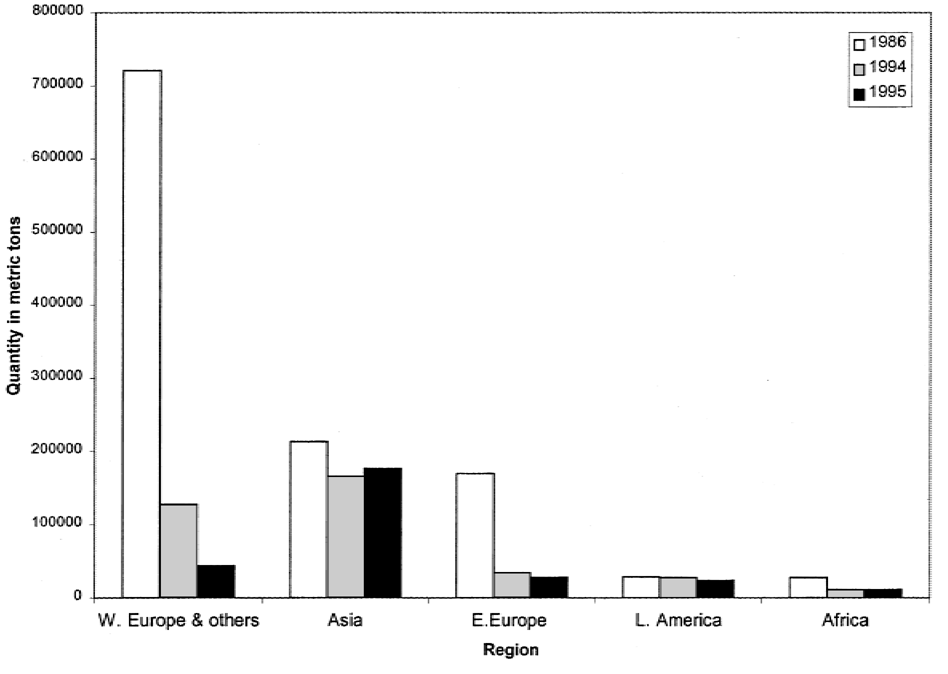
During the 13 years since the signing of the Montreal Protocol, there has been significant convergence of state behavior toward achieving the reductions prescribed by the treaty and its amendment (Jacobson and Brown Weiss, 1998; Victor, Raustiala, & Skolnikoff, 1998b; Parson, 1996). Data on the production and use of CFCs and halons for 1995 indicate that all industrialized countries have significantly reduced the consumption and production of these substances (UNEP, 1997). Russia and the other transitional countries, which faced significant political and economic turmoil recently, constitute an important exception to the trend of convergent behavior.[16] In Article 5 countries, levels of both production and consumption have increased since 1986, as the protocol allows, but have remained small relative to the pre-1986 levels of consumption of the industrialized world (UNEP, 1997).

The reduction in the use of ODSs in industrialized states has drastically decreased the diversity in production and consumption patterns between Article 5 and non-Article 5 parties and across regions of the world (see Figures 7 and 8). We can calculate the standard deviation of production and consumption of CFCs and halon for all members, measured in metric tons, on the basis of data from the United Nations Environment Program.[17] All figures show a strong pattern of convergence, comparing 1986 to 1994, even as new member states join the protocol. The standard deviation for production of CFCs decreased from 88,000 to 12,000, and that for halons decreased from 81,000 to 4,000. The standard deviation for consumption of CFCs decreased from 46,000 to 10,000; the figure

[15] For instance, the explicit linkage between financial transfers from the Global Enviornmental Fund (GEF) and Multilateral Fund (MLF) and the official Non-Compliance Procedure has been essential for dealing with some implementation problems, such as poor data reporting on the part of developing countries and compliance failures in East European states (Victor, 1998). See Green, 1998, for a detailed description of the system for implementation and review in the ozone regime and an analysis of its effectiveness, and Victor, 1998, for an analysis of the use and effectiveness of the Non-Compliance Procedure.

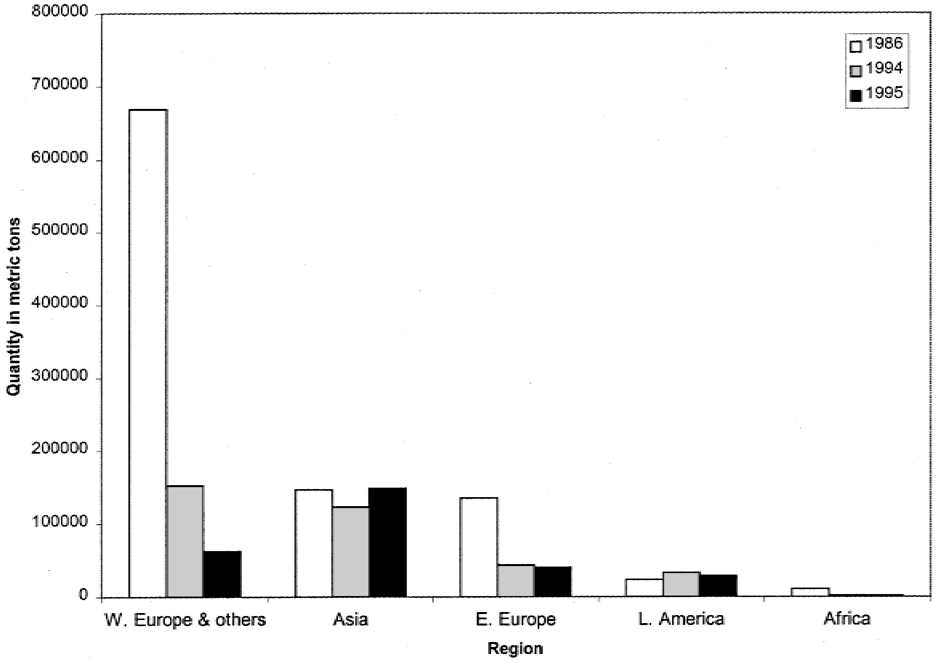
[16] There has been some decrease in the production and use of ozone-depleting substances in these countries as well, but mainly as a result of a general economic downturn.

[17] Data from http://www.unep.ch/ozone/, accessed August 5, 1999.



Source: UNEP, 1997.

Fig. 7. Consumption of ozone-depleting substances (CFCs and halons) over time, by region.



Source: UNEP, 1997.

Fig. 8. Production of ozone-depleting substances (CFCs and halons) over time, by region.

for halons decreased from 33,000 to 2,600. These data illustrate a convergence effect in an exemplary form.

The implementation history of the Montreal Protocol supports the proposition that in the face of significant negative externalities (in this case both environmental and economic) and strong institutions, the effect on state behavior is that of convergence over time. The future realization of the targets of the international treaty will, furthermore, provide an additional and more difficult test of this hypothesis. The capacity-building and redistributive mechanisms embedded in the protocol to ensure the participation of developing countries may need to be significantly strengthened to ultimately achieve the goal of global phase out of ODSs.

Conclusion

Do international institutions have significant effects on the behavior of their member states? If so, under what conditions and through what causal mechanisms? These questions have generated a dynamic research program on international institutions. However, empirical attempts to demonstrate institutional effects and test propositions about when and how they occur have been hampered by the lack of a careful conceptualization of how to identify and measure institutional effects. Institutionalists' understanding of effects has been constrained to a focus on international cooperation that may hide as much as it reveals.

We propose a new typology of institutional effects as an additional mechanism for improving the quality of empirical research on international institutions. We suggest that some institutions lead, as intended, to convergence of state behavior. This pattern is most likely to emerge when states create institutions in response to standard collective-action dilemmas and when states delegate to these institutions adequate monitoring capabilities to allow for effective enforcement. On the other hand, we observe that some institutions have led instead to divergence of members' behavior. We argue that such an effect is most likely to obtain when the issue area is not characterized by significant externalities to state behavior and members demonstrate variation in the organization and access of private interests that favor the goals of the institution.

Our intention in this paper is to outline a new research agenda and to provide some conceptual tools for pursuing this agenda. Studies of convergence and divergence should not be seen as substitutes for studies of cooperation, compliance, and effectiveness but as additional dependent variables of interest. We provide preliminary evidence relevant to our two hypotheses. The example of development assistance illustrates a divergence effect. This issue meets the conditions that we identify for divergence effects, with low externalities and diverse organization of private interests in member states. In contrast, the issues of protection of the ozone layer and completion of the internal market in the EU are classic PD-type situations with high externalities in which fairly strong institutions have been created. Both have resulted in convergence of member state behavior. Our hypotheses can be summarized in a branching model that first asks about the level of externalities to state behavior, then concentrates either on the design of international institutions or on domestic interest groups. Measuring and explaining variation in member state behavior promises to be an important tool for testing alternative theories of international institutions.

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