

Research Proposal

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June 2004
MERIT/UNU-Intech Doctoral Programme

Proposed Title

Thinking About Technology Policy in the WTO Era: Is the multilateral trade regime learning about innovation?

Abstract

The multilateral trade regime set out by the World Trade Organization creates barriers to the adoption of a broad range of policies that developing countries have traditionally used to upgrade national innovative capacity. But the multilateral trade regime is not a static system: its rules are renegotiated continuously between member states in a *sui generis* process of state-to-state bargaining. The literature has so far failed to theorize the nature of the policy process at WTO. The proposed research will explore the policy dynamics of the WTO rule-making system using a learning-based explanatory framework. It will identify key participants in the WTO rule-making system and map their causal and normative beliefs on the impact of innovation and technology policy on economic development. Following Sabatier (1999) and Jenkins-Smith (1991), the research will seek to identify the *advocacy coalitions* at work on the rule-making system, and to characterize the *epistemic communities* at their core. The goal will be to propose a theory of the WTO rule-making system that stresses the roles of new technical information, persuasion and policy-learning.

"Politics finds its sources not only in power but also in uncertainty - men wondering what to do. Policy-making is a form of collective puzzlement on society's behalf. "

-Hugh Hecllo, 1972

Research aim

Researchers are increasingly sensitive to the importance of appropriate policies to aid technology transfer and local innovative capacity in the process of economic development. However, views differ sharply on what constitutes appropriate technology policy (Rodriguez & Rodrik 2000, Hausman & Rodrik 2004). Policies praised by some are considered so wrong-headed by others that they have been banned at the multilateral level, as part of the agreements that launched the World Trade Organization in 1995. Innovation-related matters play an ever larger role in trade negotiations, while questions about development have moved center-stage, even lending its name to the latest round of multilateral trade negotiations - the Doha, or "Development" Round.

But how does the WTO rule-making system decide which technology-relevant policy spaces are to be closed to developing countries, and which are to be opened? How does the system "think" about that question? The proposed research will examine the way participants in the WTO rule-making system understand the roles of innovation and technology policy in the process of economic development, and how their causal and normative beliefs on the subject shape the rule-making process.

In contrast with the standard neorealist approach that "presumes that a state's self-interests are clear and that the ways in which its interests may be most efficaciously pursued are equally clear" (Haas 1992) the proposed research will question the processes of agenda-setting and problem-conceptualization within the WTO rule-making system. Using qualitative methods to capture and measure system participants' beliefs and understandings, the proposed research will explore the connection between the "inner world" of policy-making elites and the trade regime that multilateral negotiations configure.

Drawing on the complementary literatures on Advocacy Coalitions and Epistemic Communities, the research will analytically describe (map) the belief systems of the system's participants and track the evolution of those beliefs over time, or policy learning.

In keeping with Hecló's (1972) idea of policy-making as "a form of collective puzzlement", the research will seek to measure the impact of new specialist knowledge on system participants' beliefs. It will explore how policy actors assimilate new knowledge on the links between innovation, technology policy and development, and it will seek to determine under what circumstances this process of policy learning can alter their policy preferences and, ultimately, the policy outcomes at the WTO level.

The overall goal of the proposed research will be to develop a framework for understanding the WTO rule-making system on technology policy issues that emphasizes the role of "persuasion, knowledge and learning as motivating factors in the process of policy change" (Schlager and Blomquist 1996).

Research context

For a generation now, economic researchers have increasingly centered their attention on innovative capacity as a critical determinant of national economic performance (Freeman 1997, Lundvall et al. 2002). Writing from an institutionalist perspective, this school has focused on the National System of Innovation as a key explanatory factor for economic performance. Researchers working within this tradition have put forward increasingly sophisticated formal alternatives to the standard neoclassical model of economic development and growth, emphasizing the role of innovation and technological change (Nelson and Winter 1982, Metcalfe 1994, 98, Silverberg and Lehnert 1993).

Though first formulated to account for the performance of developed economies, the innovation system approach was quickly adopted by scholars interested in development (Lundvall et al 2002, Edquist 1997). A number of studies persuasively credits firms' innovative capacities and the institutional structures that support them for the superlative economic performance of several of Asia's Newly Industrialized Countries (Lall 1997, 2001, Kim 1993, 1999, Johnson 2004.) Others have used the insights of the NIS framework to account for the relative under-performance of Latin American economies since the 1970s (Katz 2001, Katz & Stumpo 2001, Cassiolato 2003, Palma 2003.)

The innovation system approach sees firm competitiveness as a function of the knowledge intensity and

innovative capacity of firms. Knowledge-intensity and innovative capacity, in turn, are seen as largely determined by the institutional context firms operate in. As Mytelka and Barclay (2004) put it, "Underlying the system of innovation approach is an understanding of innovation as an interactive process in which enterprises in interaction with each other and supported by institutions and a wide range of organizations play a key role in bringing new products, new processes, and new forms of organization into economic use" The approach emphasizes the multiplicity and variety of the institutional linkages that foster innovative behavior in firms. These include knowledge-rich forward and backward linkages, as well as interactions with universities and public research institutes, financial institutions, government regulatory agencies and near-by firms.

A series of policy proposals stem logically from this heterodox understanding of competitiveness and development. "Conceptually, the innovation system approach acknowledges the role of policies, whether tacit or explicit, in setting the parameters within which actors make decisions about learning and innovation. It recognizes that innovation is not the outcome of a unique policy, but a set of policies that collectively shape the behavior of actors" (Mytelka and Barclay 2004). In contrast with the standard recipes arising from the neoclassical tradition, innovation system scholars are skeptical of claims that market forces, on their own, show an inherent tendency to launch developing countries on a path to ever-rising productivity and development. Instead, they argue policy matters, so states must implement active and selective technology policy instruments designed to foster firms' innovative capacity.

In the developing world, such policies include measures to ease and hasten the transfer of new technologies from developed to developing country firms. The policy mix also includes measures to foster dynamic networks of small firms through local content requirements on foreign firms, as well as technology-transfer requirements on foreign entrants, targeted R&D subsidies and other industry-specific technology policies. Some variant of this policy mix was implemented in each of the Asian NICs. Many obstacles stand in the way of successful implementation of such a policy mix in the developing world today. The proposed research will focus on one: the trade regime set out in World Trade Organization rules.

Trade analysts working from the Innovation System perspective warn that significant portions of the international trade regime managed by the World Trade Organization is incompatible with much of the policy agenda outlined above (Corrales et al. 2003, Singh 2003). The implication, then, is that the WTO regime constitutes a structural impediment to the development of the world's poorest countries.

Many parts of the WTO regime have been questioned in this regard. The Trade Related Investment Measures (TRIMs) agreement is designed to prohibit discriminatory or trade-restricting performance requirements, effectively bars access to a wide range of policy tools that states might otherwise use to increase the knowledge intensity of firms' forward and backward linkages (Corrales et al. 2003, UNU-Intech 2003). The Agreement on Subsidies and Countervailing Measures bans all industry or firm specific subsidies, closing the way to infant industry protection policies that are seen as particularly important tools to aid enterprise development, clustering and network effects, technology, knowledge and innovation policies, as well as policies for enhancing marketing and design capabilities (Corrales et al 2003, Singh 2003, Hausmann and Rodrik 2004).

In a similar vein, the agreement on Trade Related aspects of Intellectual Property Rights (TRIPs) closes spaces for compulsory licensing to aid the rapid diffusion of new technologies, the 1994 GATT agreement further restricts the use of infant industry protections, and the Agreement on Agriculture restricts some subsidies as well as other mechanisms to provide incentives for firms to improve their performance. Moreover, the current negotiations on the so-called Singapore Issues (Investment, Competition Policy and Trade Facilitation) threaten to introduce new restrictions on developing countries' spaces for implementing critical technology policies. (Corrales et al. 2003)

Taken as a whole, the WTO regime appears to substantially restrict the spaces for technology policy making available to developing countries as they attempt to implement an innovation-system based package of policy reforms. In effect, the current multilateral trade regime is rooted in a series of causal and normative beliefs that are strongly inimical to the use of targeted technology policies to improve national innovative performance, seeing such policy interventions as likely merely to "get prices wrong" and thereby interfere with the market's allocative efficiency. Measuring just how prevalent such views

are today, and to what extent they have become contested and open to change will be a central goal of the proposed research.

The WTO regime must not be seen as a static, unchanging entity. In fact, the current round of multilateral negotiations has seen considerable debate on many technology policy-relevant issues as they impact the developing world, under the broad rubric of Special and Differential Treatment (SDT.) The 2001 Doha Declaration pledges to make SDT provisions "stronger, more precise, more effective and more operational." IISD (2003), Corrales (2003), and Singh (2003) see the SDT debate as the key to enshrining new rules that expand the menu of technology policy options open to developing countries.

From an innovation system perspective, developing countries are likely to face substantial constraints in their ability to implement appropriate technology policies unless the Doha Round yields a substantially expanded scope for SDT that allows for active technology policy interventions. Proponents of the innovation systems approach therefore have powerful reasons to study the rule-making process as it unfolds in the Doha Round. At stake is the possibility of adopting the policy agenda suggested by the innovation system approach.

Research approach

Breaking with the dominant strand of research into decision-making in the international arena, the proposed research will adopt a learning-centered analytical framework, rejecting the central features of the dominant Neorealist tradition of international relations. As Levy (1994) explains, "neorealist theories emphasize the rational and efficient adjustment to changing structural incentives, whereas learning theorists emphasize significant variations in individual responses to structural changes deriving from variations in cognitive structures, beliefs, and processes."

Neorealists see the individual as a rational, maximizing agent with perfect information and unlimited computational abilities - a model borrowed from the canon of neoclassical economics. "Realists maintain that institutions are basically a reflection of the distribution of power in the world. They are based on the self-interested calculations of the great powers, and they have no independent effect on state behavior." (Mearsheimer 1995.) By contrast, learning theorists rely on psychologically-derived models of the individual as boundedly rational (Simon 1986, Foss 2002).

Designed largely to explain matters of war and peace, the neorealist approach assumes that states' interests are readily apparent to policy actors. Haas (1992) argues that traditional research approaches "ignore the possibility that actors can learn new patterns of reasoning and may consequently begin to pursue new state interests." Burstein (1991) agrees that, in technically complex issue areas marked by uncertainty about the likely outcome of policy initiatives and where knowledge specialists have a plausible claim to expertise, it cannot be assumed that actors know what is in their state's best interest.

Arguing that the multilateral trade regime is marked precisely by such technical complexity and uncertainty, the proposed research will adopt an alternative approach centered on identifying the process whereby actors in the WTO rule-making system come to identify their states' interests.

As Putnam (1988) puts it, "domestic politics and international relations are often somehow entangled, but our theories have not yet sorted out the puzzling tangle." The proposed research will seek to sort out this tangle by drawing on two separate but complementary strands of the literature.

1. The Advocacy Coalition Framework (ACF) sees actors as instrumentally rational, but draws more heavily on work in cognitive and social psychology than in economics. The framework "does not assume that that actors are driven primarily by simple goals of economic/political self-interest." (Sabatier 1998) Instead, it focuses attention "on the inner world of individuals [and on] the structure and content of their belief systems." (Schlager and Blomquist 1996). Instead of assuming individuals' preferences, ACF analysts develop and test empirically verifiable hypotheses concerning actors' belief systems.

The ACF attempts to account not just for belief systems, but also for how they change over time. Sabatier and Jenkins-Smith, who first developed the framework, emphasize the importance of adopting a time horizon of a decade or more in order to capture meaningful shifts in policy dynamics. Following Hecló (1976), advocates of the framework are especially concerned with "policy learning" - the way actors in the

policy system adapt and, less often, change their belief systems to incorporate newly discovered technical and scientific knowledge.

2. The Epistemic Communities Approach (ECA). Unlike the ACF, the Epistemic Communities Approach was originally developed to account for instances of international cooperation, particular on scientifically or technically complex matters. On particularly contested areas of policy, the ECA argues, marked by uncertainty and plausible claims to technical expertise by technical elites (Sebenius 1992) state actors may have no direct or readily apparent way to know what "their" interests are, let alone judge the likely outcomes of various policy option. When faced with such problems, decision-makers will seek to "discover" their interest by turning to scientists and technical experts for interpretation. On given areas of technical dexterity, groups of experts who share particular causal and normative beliefs will form Epistemic Communities - "networks of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (Haas 1992). Participants in such networks share normative and causal beliefs about their issue-areas, share standards for the validity of new knowledge, and share a given policy enterprise with regard to their areas of professional competence.

There is important conceptual overlap between the concept of an epistemic community and that of an advocacy coalition. Both take as the unit of analysis human groups brought together by ideas about the world, and by a desire to see those ideas crystalize into a given set of policies.

Yet there are also important differences: whereas Sabatier and Jenkins-Smith have carefully developed a precise methodology for carrying out ACF studies, Adler and Haas (1992) describe the ECA as a "methodologically pluralist" approach, reconcilable with a variety of specific research methodologies.

The advocacy coalition concept is certainly broader, including not only scientific and technical experts but also citizen activists, journalists, and state decision-makers. With their privileged claim to be able to generate scientific knowledge, epistemic communities might be considered the technical knowledge kernels of an advocacy coalition.

The concepts were developed to explain different levels of policy making. Advocacy coalitions are normally cited within a national policy-making context, whereas epistemic communities "are not in the business of controlling societies; what they control is international problems." (Adler and Haas 1992) What's more, the notion of competition between coalitions is a basic tenet of the advocacy coalition framework, while competition between Epistemic Communities is not a feature of the ECA.

Due to the peculiarities of the WTO system, the proposed research will seek to include aspects of both the ACF and the ECA. Although the WTO is a multilateral entity that reaches decisions on the basis of state-to-state negotiations, many of its rules concern matters traditionally governed by national economic policy. Domestic political actors - actors that may form part of given advocacy coalitions in the national context - have much at stake in the outcome of WTO negotiations (Gereffi 2003, Katz 2001).

Based on a highly complex and contested explanatory model developed by academic economists, World Trade and the multilateral regime that reglements it are certainly areas marked by uncertainties and plausible claims to technical expertise. Yet it's clear that not all of the economists and experts at work on the system share a set of causal and normative beliefs about the role of technology policy and innovation in economic development. In other words, there are a multiplicity of expert-networks working on and shaping the debate about the international trade regime. Instead of the domain of a single Epistemic Community, the multilateral trade regime is an arena of competition between Epistemic Communities.

The ACF holds that in order to make the policy, coalitions need to win the debate first. What it means to "win" such a debate, what the necessary and sufficient conditions for a coalition to be successful are subjects of intense debate in the literature. Sabatier (1999) advances two specific hypothesis to account for major policy change. The first - that policy change is unlikely so long as the advocacy coalition that instituted the current policy remains in power within a jurisdiction - is not directly applicable to a transnational negotiating setting devoid of a central state jurisdictional authority. The second - that policy change is unlikely in the absence of significant perturbations exogenous to the policy subsystem - will be examined in detail (Sabatier 1999).

But there is no reason to think this is the only, or even the main, avenue for policy change. A number of alternative hypotheses postulate that policy-change may be endogenous to the policy-making system. Hall (1993) likens the theoretical bases of given economic policy regimes to scientific paradigms, and explains certain shifts in policy-making as stemming from Kuhnian paradigm shifts in underlying causal models. Sabatier and Hunter (1989) agree that causal perceptions are "most susceptible to change over time because, unlike abstract normative orientation, they are susceptible to modification on the basis of experience and evidence," adding, in line with Kingdon (1984), that "elite perceptions of causal relationships can play a critical role in the selection of policy alternatives to which they accord serious consideration" (Sabatier and Hunter 1989). Other suggested explanations for policy system dynamics include "backlashes" against existing policies, policies that generate undesired outcomes and thereby generate an impetus for change, and path dependent policies (Fenger and Klok 2001).

By tracking actors' beliefs as they move through the Doha Round, the research will seek to adjudicate between these competing theoretical accounts of the determinants of policy-change. How do participants in the WTO rule-making system assimilate new technical information into their causal understanding of the link between innovation and development? How open to falsification are their understandings of the underlying causal mechanisms? What role does persuasion play in the evolution of policy-actors' belief systems? Is there an identifiable backlash against the policies of the dominant coalition? Is there evidence that previously established rules have yielded undesired outcomes that, in themselves, produce an impetus to policy change?

Proposed methodology

The proposed research will employ qualitative methods to question the WTO rule-making system participants' causal and normative beliefs about the innovation-technology policy-development nexus. It will track the changes in these belief systems over time through a research strategy that has been carefully developed and extensively applied in the literature on Advocacy Coalitions.

Though qualitative in nature, the research methodology developed by Advocacy Coalition Framework advocates has been consciously designed to meet scientific standards of falsifiability. The approach relies on a series of research avenues designed to capture (map) policy actors' beliefs of the key causal mechanisms in the policy areas they are engaged in. Three data-gathering strategies are dominant in the literature:

1. Textual analysis of documents and/or statements by policy actors that set out their understanding and beliefs about the policy-area under discussion (Jenkins-Smith, et al. 1991) This method is especially valuable as a means of capturing past beliefs.
2. In depth interviews of policy actors using open or semi-open questionnaires. (Sabatier & Hunter 1989)
3. Attitudinal surveys of policy actors, methodology to capture causal beliefs. (Sabatier & Hunter 1989)

The proposed research will employ all three strategies. It will begin by identifying a small nucleus of key informants active in the WTO rule-making system and compiling a broader list of policy actors for subsequent study. An attitudinal survey will then be produced to examine actors' causal and normative beliefs about the role of technology and innovative activity in economic development. These will be compared with views revealed through close textual analyses of actors' past policy pronouncements, and the differences between policy views at different times will be used as a proxy for policy-learning.

The proposed research will follow Sabatier & Hunter (1989), who develop a methodology for identifying membership in a given Advocacy Coalition by coding system's participants' beliefs through attitudinal surveys and looking at the "distance" between various members' beliefs. It will then use more open questioning to seek to identify each coalition's policy core beliefs as well as its criteria for validation.

As the Doha Round negotiations advance, follow-up surveys may be administered to track the evolution in policy actors' conceptualizations of the key causal relationships in economic development. By capturing system participants' views at several different points in time, the proposed research will be well placed to capture and describe the nature of the policy-learning at play.

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