



Literature Review

After more than ten years of theoretical and empirical assessment work at the CEC, it has become clear that neither the dire pre-NAFTA predictions of *a race to the bottom* nor the promise of automatic environmental improvements have been realized. However, we still know very little about the linkages, positive or negative, between increased trade liberalization in the services sector and environmental impacts. Furthermore, we do not know whether capital investment in services-related infrastructure, technological improvements, and regulatory responses are sufficient to offset any increased pressure on infrastructure and the environment of the three countries by the growth in our economies.

This document aims to present a brief overview of current literature on the environmental effects of service sector trade liberalization.

Assessing the Environmental Effects of Services Trade Liberalization: A Methodology OECD

[http://www.oilis.oecd.org/oilis/2000doc.nsf/LinkTo/com-td-env\(2000\)123-final](http://www.oilis.oecd.org/oilis/2000doc.nsf/LinkTo/com-td-env(2000)123-final)

This document was prepared for the Joint Working Party on Trade and Environment (JWPTE), as part of the OECD work program on trade and environment. This methodology on assessing environmental effects of liberalizing trade in services was developed in response to the JWPTE's request to complement the 1994 OECD Methodologies which were developed to address environmental effects of liberalizing trade in goods. While it was discussed, and subsequently refined, at JWPTE meetings in 2000 and 2001, the text is de-classified under the responsibility of the Secretary-General of the OECD.

Services Trade Liberalization: Assessing The Environmental Effects OECD

This paper was presented at the Commission on Environmental Cooperation's Symposium on Understanding the Linkages between Trade and Environment in October 2000.

http://www.cec.org/programs_projects/trade_environ_econ/pdfs/andrew.pdf

Although services are not precisely defined and the relevant economic data are rather poor, the WTO Secretariat estimates that international trade in services now constitutes some one-third of total

international trade. Barriers to these international flows involve a host of national regulations, licensing requirements, approval procedures, ownership conditions, etc. With the signing of the Marrakech Agreement establishing the WTO in 1994, the General Agreement on Trade in Services (GATS) established a multilateral framework under which Members make horizontal and sector-specific commitments to free up these barriers. Using a somewhat different approach, the NAFTA also set up a system of commitments for liberalizing services trade amongst the three North American members. Whilst generally recognized as a modest beginning, GATS 2000 in Geneva is now addressing a whole host of general rules and sector-specific issues to further liberalize these streams of international trade. Only relatively recently has analytical work begun addressing the environmental impacts of services at the national level. Services and services delivery have many characteristics that distinguish themselves from extractive and manufacturing industries. Such differences mean that new approaches are useful in assessing their environmental impacts—both the positive as well as the negative effects. Impacts vary greatly according to services sector but many services activities lead to air, water and soil pollution and have implications for natural resource inputs as well as the production and disposal of wastes. Given the relationship between goods and services, it is also necessary to trace the goods used in the supply and consumption of services.

Despite the significance and growth of services trade, little attention has been paid to this sector in past environmental reviews of trade liberalization agreements. For example, despite the wide-ranging provisions in NAFTA on services trade and the comprehensive nature of the Final Analytic Framework for Assessing the Environmental Effects of NAFTA, the potential environmental effects of North American services trade were not addressed explicitly. This paper reports on work in progress in the OECD Secretariat, which has been mandated by the OECD Joint Working Party on Trade and Environment to develop its 1994 Methodologies—sometimes considered the “grandfather” of environmental review methodologies but which, like others, was essentially designed to address trade in goods. The Secretariat’s views on such a methodology to address environmental effects of services trade liberalization (focusing on the GATS) include the need to combine past approaches. Due to the relative complexity of the GATS compared to other trade liberalization frameworks and the limited resources for such environmental reviews, it will be essential to be practical and selective. Thus a first approach might: a) build scenarios on possible degrees of liberalization under GATS 2000; b) proceed sector-by-sector, due to the varying environmental effects of individual services sectors; c) stress screening of sectors according to the significance of the positive and negative environmental effects; and d) include regulatory effects assessment, including attention to provisions on domestic regulations.

Environment and Trade: A Handbook

2nd Edition, IISD, UNEP

http://www.iisd.org/pdf/2005/envirotrade_handbook_2005.pdf

Commonly defined as “anything you can’t drop on your foot,” services might initially appear so intangible as to not raise environmental concerns. In truth, the production, distribution and consumption of many services have large ecological footprints, and other services by their nature involve environmental remediation or protection. As such, regulating services in the public interest is fundamental to sustainable development.

Transportation services—everything from trucking food to shipping steel—are important sources of greenhouse gases and other air pollution. Uncontrolled tourist development threatens some of the world’s most sensitive ecosystems. Waste management and disposal services must be carefully regulated to avoid significant environmental impacts, while other “environmental services” such as water distribution, sewage and sanitation are critical to human health.

Until the mid-1990s, there were few rules governing how national and local governments regulated services. Outside the European Community, international trade rules dealt almost exclusively with goods. This changed when rules governing trade in services were negotiated in the NAFTA (1994), the WTO’s General Agreement on Trade in Services (GATS) (1995) and a number of subsequent regional trade agreements.

The scope of these services treaties is immense. They apply to all government measures (national and sub-national) affecting “trade in services,” which is defined to include all the different ways (or “modes”) that a service can be delivered internationally. These include: “cross-border” (e.g., international consulting services); “consumption abroad” (e.g., tourism); “commercial presence” (i.e., foreign direct investment) and “natural persons” (e.g., engineers working abroad).

The rules governing services trade are broadly similar across the various agreements. There are *non-discrimination* rules to ensure that government measures treat foreign services and suppliers no less favorably than local ones. Some treaties ban certain *performance requirements*: conditions requiring foreign service suppliers to purchase locally, transfer technology or train locals. There are also *market access* rules prohibiting numerical limits on service transactions or service suppliers in committed sectors. Other rules prohibit *monopolies* in committed sectors.

Each of these rules potentially conflicts with certain environmental protection measures. There may be legitimate environmental reasons for governments to favor local suppliers. In Denmark, special taxes and subsidies favoring wind energy produced by local cooperatives helped overcome political opposition to wind energy and resulted in rapid growth in this sector. Government measures *requiring* foreign investors to transfer state-of-the-art environmental technology, or train locals to use it, can accelerate the uptake of such technology in developing countries. Numerical limits on service activity can be environmentally essential where ecosystems are under stress, but are discouraged as market access barriers. Finally, public monopolies can play an important role in providing public interest environmental services. For example, establishing waste collection monopolies can allow municipal governments to consolidate the waste stream, reduce waste and increase recycling.

Proponents of services trade treaties stress the rules’ flexibility and the ability of governments to phase-in coverage and exempt certain non-conforming measures, thereby preserving legitimate policy measures. They also point out that the treaties’ general exceptions allow otherwise inconsistent environmental protection measures if governments can demonstrate that they are *necessary* to protect “human, animal or plant life and health.”

Governments do have a one-time opportunity to protect non-conforming measures when they make services commitments, by compiling a list of carveouts. This, however, requires an unrealistic amount of foresight into exactly what measures may be needed to respond to future environmental challenges. In practice, it is also very difficult to successfully invoke general exceptions. Trade dispute settlement panels

are able to second-guess regulators by arguing that they could have used less-trade-restrictive measures. Critics contend that the restrictions and legal uncertainty stemming from the new services rules may together result in chilling environmental policy-making and regulation. A number of post-NAFTA regional and bilateral trade negotiations, particularly those concluded with the United States and the EU, have broadened the reach of services treaties by addressing services.

GATS mandates successive rounds of negotiations to expand the treaty. These talks are part of the WTO Doha Round negotiations. The “built-in” GATS agenda includes creating rules on subsidies, safeguards, and government procurement in services. Significant negotiations are also underway to flesh out the meaning and scope of GATS obligations on *non-discriminatory domestic regulation*. GATS Article VI.4 commits members to negotiating a necessity test requiring domestic regulations to be “no more burdensome than necessary” to achieve their objectives. Future rules along these lines could affect important environmental measures such as licensing (e.g., waste disposal permits) and standards (in everything from water quality and silviculture to pipeline safety standards).

The Doha negotiations also involve special talks on liberalizing trade in environmental goods and services (environmental goods are discussed in Section 5.11). If the results make environmental protection and remediation technologies available more widely and cheaply, then the benefits could be substantial. The challenge, both in this area and in wider services negotiations, is to craft agreements and the respective commitments that foster the potential benefits of services liberalization, while at the same time preserving the flexibility for governments to regulate effectively in the public interest.

Environmental Implications of the Foodservice and Food Retail Industries

Davies, J. Clarence (Resources for the Future) and Konisky, David

Paper provided by Resources for the Future in its series Discussion Papers with number dp-00-11, 2000.

<http://ideas.repec.org/p/rff/dpaper/dp-00-11.html>

The growing size and importance of service sector industries in the U.S. economy raises questions about the suitability of the current environmental management system to deal with perhaps a changing set of environmental concerns. This paper analyzes the environmental impacts associated with the activities undertaken and influenced by two service sector industries—foodservice (e.g., restaurants) and food retail (e.g., grocery stores). This paper is not a definitive analysis of the magnitude of the environmental effects of these industries, but is intended to be a comprehensive survey of the types of environmental implications—positive and negative—of these two service sectors. The foodservice and food retail industries are components of a larger industrial system, the food marketing system that extends from the production of food to the marketing of food products to consumers. The US foodservice industry comprises an estimated 831,000 individual establishments, employs an estimated 11 million people (about 8.6% of the U.S. workforce), and is expected to have total sales of \$376 billion in 2000. The U.S. food retail industry encompasses approximately 126,000 grocery stores, employs approximately 3.5 million people (about 2.7% of the U.S. workforce), and had sales totaling \$449 billion in 1998. For this analysis, we use a simple conceptual framework that segregates the environmental impacts of these industries into three categories: direct, upstream, and downstream. We conclude that, while the direct environmental impacts (e.g., energy use, solid waste generation; air and water emissions; food safety concerns; refrigerants) of

these industries are important to recognize and address, opportunities also exist for these industries to address their upstream and downstream environmental impacts

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Environmental Implications of the Health Care Service Sector

Davies, J. Clarence (Resources for the Future); Lowe, Adam

Discussion Paper 00-01

October 1999

www.rff.org/Documents/RFF-DP-00-01.pdf

This report analyzes the environmental effects associated with activities undertaken and influenced by the health care service sector. It is one part of a larger study to better understand the environmental effects of service sector activities and the implications for management strategies. Considerable analysis has documented the service sector's contribution to domestic economic conditions, yet little analysis has been performed on the broad impacts service firms have on environmental quality. For this study the authors developed a framework to examine the nature of service sector industries' influence on environmental quality. Three primary types of influence were identified: direct impacts, upstream impacts, and downstream impacts. In addition, indirect impacts induced by service sector activities include their influence over settlement patterns and indirect influences over other sectors of the economy. In their initial analysis, the authors noted that many functions performed in the service sector also are commonly found in other sectors. The impacts of these activities have been analyzed separately from those unique to the health care sector, as they present different challenges. Health care is one of the largest US industries, employing one in nine workers and costing one in seven dollars generated in the economy. Functions performed in the industry that are common in other sectors include: transportation; laundry; food services; facility cleaning; heating and cooling; and photographic processing. Activities unique to the health care industry include: infectious waste generation and disposal; medical waste incineration; equipment sterilization; dental fillings; ritual mercury usage; x-ray diagnosis; nuclear medicine; pharmaceutical usage and disposal; and drinking water fluoridation. The industry has considerable leverage upstream on its suppliers, which is important to managing risks from the use of goods commonly used in the industry, including: mercury-containing products, polyvinyl chloride plastics, latex gloves, and syringe needles. The authors identified a number of areas for potential environmental management initiatives: controlling emissions from on-site "production" type functions; mercury use; the environmental consequences of infection control measures; pollution prevention through substitution of alternative health care services; and research and data collection.

Trade in Services: A Review

Rashmi, Banga

Global Economy Journal, 2005, vol. 5, issue 2, pages 3

http://econpapers.repec.org/article/bepglecon/5_3A2005_3A2_3A3.htm

Services sector has emerged as the largest and fastest-growing sector in the world economy in the last two decades, providing more than 60 per cent of global output and, in many countries, an even larger share of employment. Not only has the services sector grown in terms of its share in global output and employment, its share in total trade has also grown rapidly in this period. The growing importance of services sector and the corresponding rise in its role in integrating the world economy has led to a stream of literature that examines different aspects of trade in services.

This paper undertakes a selective review of both theoretical as well as empirical studies on trade in services. It identifies some of the conceptual issues in this area, e.g., whether theories of trade are relevant for services, what are the important barriers to trade in services, and how are these barriers measured. The main objective of the paper is to provide policy insight and future areas of research in trade services.

Preliminary Assessment of the Environmental and Social Effects of Trade in Tourism

WWF International, Discussion Paper, May 2001

http://www.wwf.org.uk/filelibrary/pdf/trade_and_tourism.pdf

In February 2000 member governments of the World Trade Organization (WTO) entered into a new round of multilateral negotiations on services, mandated by the General Agreement on Trade in Services (GATS). Tourism is expected to be in the forefront of these negotiations. It is one of the world's largest industries and has acquired an important position in global trade. For developing countries in particular, tourism is considered a valuable export because of its contribution to foreign exchange, investment and employment opportunities. Little is known about the environmental and social effects of liberalizing services. Given the pace of globalization and the growing importance of services trade, there is a clear case to be made for developing a better understanding of how further liberalization of service related activities could impact the environment and social well-being in countries engaged in that trade. Travel and tourism is a priority sector for assessment because of its broad economic, environmental and social implications throughout the world, and its place in current WTO negotiations.

This study aims to identify and assess potential environmental and social effects of trade and trade liberalization in the tourism sector. Specifically, it seeks to determine the role played by trade and trade liberalization policies in supporting or constraining opportunities for sustainable development in the tourism sector. The main objectives of the study are: To develop a preliminary framework for assessment of the potential environmental and social effects of services liberalization, particularly in the tourism sector. To contribute to a better understanding of the linkages between trade, liberalization and sustainable development in the tourism sector, seeking to identify both positive and negative impacts of

that trade on the environment and social well-being. To provide a concrete illustration of how a sustainability assessment might be undertaken in practice as applied to a specific region (the case study selected is the Mediterranean coast of Turkey, which has witnessed rapid and large-scale tourism development over the last decades). To develop preliminary recommendations, based on the likely effects of trade-induced tourism on sustainable development, that suggest further areas of work that will contribute to an improved understanding of the linkages between trade in tourism services and sustainable development. Given the innovative nature of this research, this study faced several challenges and thus is subject to limitations. The following three stand out.

1. Very little work exists on assessing the environmental or social effects of services liberalisation in general, and tourism in particular. This research is therefore both exploratory and preliminary. It suggests an outline for an assessment framework (as opposed to a full-fledged sustainability assessment) and provides only an indication of potential environmental and social effects.
2. This study was subject to severe time constraints, which limited possibilities for in-depth and detailed application of the framework to the case study; the latter is therefore presented as a scoping exercise. It is intended to illustrate how the framework might be applied in a preliminary fashion and used to test, refine, and elaborate the hypotheses and analytical questions proposed. It also provides a rationale and some guidance to support a full-scale sustainability assessment in the region in the future.
3. Important data limitations were encountered in undertaking this study. There is a paucity of reliable and comprehensive data, and of uniform definitions for services and tourism. This makes it difficult to assess the degree of liberalization achieved under GATS.

Despite these limitations, the findings and results of the study provide a sound basis for additional work on sustainability assessment in the context of trade in tourism services, and for the application of assessments to specific regions. There is also room to expand this sectoral research to include other services sectors such as transportation, thereby further enhancing a growing expertise on the assessment of the environmental and social effects of liberalizing trade in services.

This study identifies five ways through which changes in the services sector, brought about by liberalization, can be linked to sustainable development.

1. Supply and Structure

This set of issues deals with how liberalization policies affect the provision and structure of tourism trade. Liberalization facilitates market access for foreign suppliers, foreign establishment (especially TNCs) and investment. The environment and society may be impacted by these structural changes in different ways. For example, access to technology and distribution systems can be facilitated and environmental standards and training of personnel increased. On the other hand, leakage and a loss in market share can diminish profits of local suppliers, and thus drain potential resources for environmental and social protection in tourism destinations.

2. Development and Practice

The links described in this category focus on the nature of tourism development resulting from liberalization processes. Foreign investment and increased market access for foreign suppliers can

result in a rapid expansion of tourism development, thus negatively impacting environmental and social pressure points. On the other hand, if tourism development is not dependent on one single source (such as a beach), revenues will be less seasonal and potentially more diversified.

3. Physical infrastructure

These issues address the infrastructure requirements needed to support the development of tourism services (such as roads, airports or waste treatment facilities). Environmental and social effects depend on whether existing infrastructure can accommodate the increase in scale following liberalization, and if it benefits local populations. Technology transfer is an important issue to consider in this category as liberalization processes can facilitate the development of, and access to, more environmentally friendly technologies.

4. Organizations and institutions

This set of issues determines to what extent local populations benefit or not from trade in tourism (through, for example, employment, training and education). It includes issues such as the impact of foreign personnel on the local workforce and whether local populations are involved in decision-making. Environmental and social protection measures might flow from a well-developed network of social organizations. Conversely, stress can arise when a rapid inflow of migrant workers overwhelms the environmental and social structure of the area.

5. Government and policy regulation

The liberalization of tourism services can have important regulatory effects through impacts on domestic regulatory regimes. International obligations may, for instance, undermine national environmental and social policy objectives. Important issues to consider include the existence of effective planning procedures, the nature of environmental, social and fiscal regulations, as well as the overall economic regulatory framework of the tourism destination country.

The main conclusions and recommendations of the study are divided into two general categories. The first addresses the liberalization of tourism services and its impacts on sustainable development. The second considers the development and implementation of sustainability assessment for trade in services and suggests areas for further work.

1. The liberalization of tourism services and sustainable development

The impacts on sustainable development of liberalization of tourism services can be both positive and negative. Positive effects include economic benefits from increased foreign direct investment (FDI), increased revenues from spending of foreign tourists, and increased employment and business opportunities. The export of tourism services can provide governments with additional income and incentives to protect natural resources and develop appropriate social infrastructure and networks. However, leakage of profits is an important concern when assessing tourism's potential for foreign exchange. This suggests that much of the economic benefit remains in, or flows back to, originating countries and companies, while the environmental and social impacts are felt principally in destination countries.

Environmental and social effects in the tourism services sector are largely related to the liberalization of foreign investment and foreign establishment. Next to Mode 2 (consumption abroad), Mode 3

(commercial presence) is the mode of supply of tourism services that may have the most important impacts. Mode 4 (movement of natural persons), which is currently the most restrictive mode in tourism services, may also have important social effects, particularly in developing countries.

Linkages between liberalization of tourism services and sustainable development are dependent on a number of factors. These can include infrastructure, regulations and institutions in place in destination countries. The degree of liberalization and foreign investment incentives in place is likely to play an important role with respect to the type and significance of the effects observed. However, the economic impacts of liberalization commitments in tourism services are difficult to assess due to data limitations at both national and international levels. Furthermore, countries can be more liberal in practice than is reflected in their schedules of commitments under GATS.

Liberalization of tourism services is primarily an act of domestic liberalization. Because a country does not have to rely on the interest of trading partners to open its market, tourism is a relatively easy sector to liberalize. Under GATS, it is the sector with the highest level of commitments. The direct impact of GATS on domestic regulations raises questions about the regulatory power of governments and the compatibility between obligations under GATS and domestic policy objectives. The role of domestic regulations and their interaction with trade policies are likely to be of particular significance.

Trade in tourism services is characterized by important imbalances in the share of business and distribution channels between tourist originating and receiving countries. Much of the economic and political power in the tourism industry is held by developed countries. Anti-competitive practices, such as restrictions on the movement of persons, limit the potential benefits of liberalization, particularly for developing countries.

2. The development and implementation of sustainability assessments: general lessons

Developing definitions. The lack of consensus on the various sub-sectors that make up “tourism services” makes it difficult to define the scope of an assessment framework. It is also difficult to establish precisely those effects that stem from GATS and those which might be induced by other dynamics at the national and international level including, for example, other liberalization processes, macro-economic policies, or domestic regulatory frameworks.

Data requirements. There is an urgent need to develop better statistics on services trade. Existing data collected is insufficient to enable governments to assess the environmental and social effects of past market-access commitments or benefits from services exports.

Increasing analytical capability, including cross-sectoral linkages. Despite the limited research and information available on the impact of liberalizing trade in services, a better understanding of the interactions between services liberalization and environmental and social change is needed (e.g., by conducting case-studies on specific tourism projects in different geographical locations). Tourism is not the only sector where further and more detailed work should be carried out. Other priority services sectors include, for example, transport and construction services.

Developing appropriate and effective policy recommendations. The results of the assessment need to be used to develop appropriate and effective policy recommendations enabling a more sustainable environment for current tourism services liberalization. Such recommendations should focus, in particular, on evaluating and internalizing environmental and social costs associated with tourism, mitigating negative effects on cultural diversity and increasing the 'social carrying capacity' of host countries.

The role of competition policy. The relationship between competition policy and trade policy should be further addressed and potential impacts on sustainable development examined.

The role of investment. The extent to which GATS works like an investment agreement is an important issue for further study. The rules in GATS have implications on investment, specifically through commercial presence commitments (Mode 3). Further work is needed to examine the sustainability implications of investment provisions in GATS in different sectors, including tourism.

Discussion paper on the environmental effects of services trade liberalization WTO

World Trade Organization / Committee on Trade and Environment
WT/CTE/W/218 3 October 2002

<http://docsonline.wto.org/DDEDocuments/t/wt/cte/w218.doc>

In 2002, the WTO Secretariat prepared a study on the effects of services trade liberalization on the environment. This paper looks at three selected areas (tourism, land freight transport (inter-urban) and environmental services) and briefly considers the horizontal issue of how to assess environmental effects of services trade liberalization.

Will Free Trade in Electricity between Canada and the US Improve Environmental Quality

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Presented at the North American Symposium on Understanding the Linkages between Trade and Environment, Washington, DC
October 11, 2000

http://www.cec.org/programs_projects/trade_environ_econ/pdfs/Plagiann.pdf

Ontario and the eastern United States share a common airshed and heavily interconnected electricity systems. In addition, the electricity generation mix is very different in Canada and the United States, resulting in significantly different air emission profiles. Studies have shown that US emissions sources have a significantly larger impact on Canadian air quality than Canadian emission sources do on the United States. As a result, any change in coal-fired electricity generation in the United States could affect the air quality in Canada.

Both countries have made significant reductions in emissions and regulatory trends indicate that further reductions will be required in the near future. With the opening of electricity markets in both countries, environmental regulatory policies will influence the flow of electricity across the borders.

The impact of NAFTA on trade in electricity is difficult to quantify. The trade of electricity between Canada, Ontario, in particular, and the United States has been very volatile over the last decade. Two major factors have determined the size of electricity trade with the United States at various times limited excess supply of power for exports from Canada and limited access to the electricity markets in both countries, since utilities continued to be regulated.

Based on the results of this study, the impact of free trade in electricity between Ontario and the United States is not expected to affect the air quality in Ontario if both countries follow through with their plans to implement tighter NO_x emission standards (NO_x SIP Call). In the short-run, however, if open access takes place before the SIP Call comes into effect, the emissions could increase—adversely affecting the air quality in Canada and the United States.

Based on the analysis above, the following policy considerations are proposed:

- The environmental regulations should take into consideration differences and potential impacts of air emissions between the two countries.
- The regulatory systems in Canada and the United States should continue to converge by harmonizing air emissions standards. This would help ensure that electricity generators compete on a level playing field as the electricity markets open to competition.
- The emissions trading programs should be harmonized in order that the generators in both countries are able to take advantage of opportunities for cost-effective emissions reductions.
- The two countries should establish a process for harmonizing the development of new environmental regulations, such as those concerning mercury emissions and long-term targets for SO₂ and NO_x emission reductions, as they address the issue of PM₁₀ and PM_{2.5} particulates in the coming years.

The definition of environmental provisions (i.e., renewable portfolio standards or emission portfolio standards) proposed to enhance cleaner technologies need to be harmonized to ensure a level playing field in the electricity markets.

Relationship between Wastewater Treatment and NAFTA

Kornylak, Vera, Arizona Center for Law and Public Interest

Presented at the North American Symposium on Understanding the Linkages between Trade and Environment, Washington, DC

October 11, 2000

http://www.cec.org/programs_projects/trade_environ_econ/pdfs/Kornylak.pdf

This project examined the effect of NAFTA on the number and type of Clean Water Act violations at three wastewater treatment facilities along the Arizona-Mexico border. This study also focused on the relative availability of information regarding environmental compliance in Mexico and the United States.

Discharge monitoring reports were collected for up to ten years from three wastewater treatment plants, the City of Yuma, Figueroa, the Nogales International Wastewater Treatment Plant, and the Bisbee Mule-Gulch Plant. The number and types of Clean Water Act violations were then tallied from the discharge monitoring reports. The study revealed the importance of open government in monitoring environmental compliance and concluded that both the United States and Mexico could improve public access to government information. Furthermore, the data collected revealed that NAFTA does not appear to have impacted directly the number or type of wastewater treatment plant violations at the three plants. Finally, the data make clear that both the Nogales and Bisbee Plants are in need of upgrades, although it is unclear when or how such repairs will occur. A further study, incorporating more complete data from Mexico and the United States, is necessary to evaluate fully NAFTA's effects on wastewater treatment along the Arizona-Mexico border.

Measuring Services Trade Liberalization and Its Impact on Economic Growth: An Illustration

Mattoo, Aaditya, Randeep Rathindran and Arvind Subramanian
August 2001

<http://www.ictsd.org/issarea/stsd/Resources/Docs/Mattoo1.pdf>

A spate of empirical cross-country studies by Dollar (1992), Sachs and Warner (1995), Ben-David (1993), Edwards (1998) and Coe et al. (1997) suggests that the impact of liberalization of trade in goods on the long run rate of economic growth is positive, although a recent paper (Rodriguez and Rodrik (1999)) questions the robustness of the results. While the state of the debate seems to be in ferment, it is surprising that comparable analysis depicting the impact of services trade liberalization on economic growth is more sparse.

In our view, if liberalizing trade in goods, which typically accounts for less than half of GDP in most countries, and even less than a third of output in the industrial economies, can affect *economy-wide* growth, then there should be comparable gains from liberalizing services that are becoming increasingly tradable and that account for a large and growing share of output in most countries.

The paper has three purposes. First, it explains how the impact of liberalization of service sectors (hereafter "services trade liberalization") on output growth differs from that of liberalization of trade in goods (hereafter "goods liberalization".) Second, it suggests a measure of the openness of a country's services regime. Such openness measures are constructed for two key service sectors, basic telecommunications and financial services. Finally, these openness measures are introduced in cross-country growth regressions à la Barro (1997) and Sachs-Warner (1995, 1997) to test whether the openness of the policy regime in services has an impact on long run economic growth.

We reach three broad conclusions. First, services liberalization is different from trade in goods because the former involves factor mobility and leads to scale effects that are distinctive though not unique. Second, it is possible to construct policy-based rather than outcome-based measures of openness for the services sectors that capture these differences. Third, there is some econometric evidence—relatively

strong for the financial sector and less strong but nevertheless statistically significant for the telecommunications sector—that openness in services influences long run growth performance. Our estimates suggest that countries with fully open telecom and financial services sectors grow up to 1.5 percentage points faster than other countries. These results, however, need to be refined by incorporating more information in the construction of indices of openness and testing whether they hold for other services sectors.

Services in a Development Round: Three Goals and Three Proposals

Mattoo, Aaditya

Policy, Research working paper; no. WPS 3718, 2005

http://econ.worldbank.org/external/default/main?pagePK=64165259&theSitePK=469382&piPK=64165421&menuPK=64166093&entityID=000016406_20050916102354

The benefits of services trade reform are huge but services negotiations in the World Trade Organization (WTO) are making little progress. A proximate cause is the current negotiating process, based on an inertial request-and-offer approach rather than a set of goals that would give direction and momentum to the negotiations. The paper suggests that WTO members should consider: (1) locking in the current openness of cross-border trade for a wide range of services; (2) eliminating barriers to foreign investment either immediately or in a phased manner where regulatory inadequacies need to be remedied; and (3) allowing greater freedom of international movement at least for intra-corporate transferees and for service providers to fulfill specific services contracts. A deeper problem is that WTO members have sought to negotiate market access in services without adequately addressing concerns that the General Agreement on Trade in Services (GATS) commitments limit regulatory freedom unduly and unpredictably, that regulatory institutions in many countries are too weak to cope with liberalized markets, and that there is no provision for the regulatory cooperation that is necessary for successful liberalization, particularly of temporary labor mobility. Three types of actions are needed: (1) at the current stage of its development, the GATS must focus primarily on disciplines for measures that discriminate against foreign services and providers, rather than on politically sensitive and legally complex rules for nondiscriminatory measures; (2) a credible assistance mechanism must be established to help developing countries make the regulatory improvements needed for successful liberalization; and (3) where necessary, WTO members should make access commitments on labor mobility conditional on the fulfillment of specific conditions by source countries—to screen services providers, accept and facilitate their return, and combat illegal migration.

Regional Agreements and Trade Services - Policy Issues, Volume 1

Mattoo, Aaditya and Fink, Carsten;

Paper provided by The World Bank in its series Policy Research Working Paper Series with number 2852 in 2002

<http://ideas.repec.org/p/wbk/wbrwps/2852.html>

Every major regional trade agreement now has a services dimension. Is trade in services so different that there is need to modify the conclusions on preferential agreements pertaining to goods reached so far? The authors first examine the implications of unilateral policy choices in a particular services market. They then explore the economics of international cooperation and identify the circumstances in which a country is more likely to benefit from cooperation in a regional rather than multilateral forum.

Quantifying the Impact of Services Liberalization in a Developing Country

Konan, Denise Eby; Maskus, Keith E
Department of Economics, University of Hawaii,
June 2002

<http://www.etsg.org/ETSG2004/Papers/konan.pdf>

Every major regional trade agreement now has a services dimension. Is trade in services so different that there is need to modify the conclusions on preferential agreements pertaining to goods reached so far? The authors first examine the implications of unilateral policy choices in a particular services market. They then explore the economics of international cooperation and identify the circumstances in which a country is more likely to benefit from cooperation in a regional rather than multilateral forum.

Liberalizing Trade in Services: A Survey

Hoekman, Bernard, World Bank and CEPR
World Bank Policy Research Working Paper 4030, October 2006

http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2006/10/06/000016406_20061006151055/Rendered/PDF/wps4030.pdf

Since the mid 1980s a substantial amount of research has been undertaken on trade in services. Much of this is inspired by the WTO or regional trade agreements, especially the EU, but an increasing number of papers focus on the impacts of services sector liberalization. This paper surveys the literature, focusing on contributions that investigate the determinants of international trade and investment in services, the potential gains from greater trade (and liberalization) and efforts to cooperate to achieve such liberalization through trade agreements. There is increasing evidence that services liberalization is a major potential source of welfare gain, and that the performance of service sectors, and thus services policies, may be an important determinant of trade volumes, the distributional effects of trade, and economy-wide growth. Relatively little research has been done on the political economy of services trade and investment policies and the implications for the design of international cooperation – whether trade agreements or development assistance. This is an important lacuna given the extensive efforts that are invested by governments in the pursuit of such cooperation, both bilateral and multilateral.

The Productivity Effects of Services Liberalization Evidence from the Czech Republic

Arnold, Jens, Beata S. Javorcik, Aaditya Mattoo

April 25, 2006

http://ipc.umich.edu/edts/pdfs/czech_services_april25.pdf

While there is considerable empirical evidence on the impact of liberalizing trade in goods, the effects of services liberalization have not been empirically established. This study examines the link between services sector reforms and the productivity of manufacturing industries relying on services inputs. The results, based on firm-level data from the Czech Republic for the period 1998—2003, show a positive relationship between services sector reform and the performance of domestic firms in downstream manufacturing sectors. When several aspects of services liberalization are considered, namely the presence of foreign providers, privatization and the level of competition, we find that allowing foreign entry into services industries may be the key channel through which services liberalization contributes to improved performance of downstream manufacturing sectors. As most barriers to foreign investment today are not in goods but in services sectors, our findings may strengthen the argument for reform in this area.

Modeling Distribution Services and Assessing Their Welfare Effects in a General Equilibrium Framework

Bradford, Scott and Alexandre Gohin

Review of Development Economics, 2006, vol. 10, issue 1, pages 87-102

<http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-9361.2005.00302.x>

Most international trade models fail to account for the fact that almost all goods must pass through the distribution sector. The authors compare different approaches to modeling distribution within an Applied General Equilibrium framework and find that such modeling may significantly affect trade opening simulations. They also predict large potential gains from streamlining distribution. For instance, a 10% reduction in Japan's final goods distribution margins would benefit it as much as worldwide free trade would. They also find that, compared to trade opening, reducing margins leads to smaller inter-sectoral production shifts and thus may engender less political opposition. Copyright © 2006 The Authors; Journal compilation © 2006 Blackwell Publishing Ltd.

Liberalizing Trade in services

Vastine, J. Robert

<http://www.cato.org/pubs/journal/cj19n3/cj19n3-7.pdf>

Beyond the Smokestack: Environmental Protection in the Service Economy

Saltzman, James, Duke University - School of Law
UCLA Law Review, Vol. 47, No. 2, Pp. 411, 1999

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=203011

When our pollution control statutes were drafted in the 1970s, smokestack sources sat squarely in these laws' regulatory cross hairs. Over the past few decades, however, manufacturing's relative importance has declined while the service sector has ascended to the point where services now dominate America's economy, comprising 75% of GNP and 80% of employment. Yet consideration of services remains almost entirely absent from environmental law and policy scholarship. This article addresses the implications for environmental protection of the service sector's ascent.

Commentators have suggested that the ascent of services provides an important path toward sustainable development. Part I of the article examines the phenomenon of deindustrialization, analyzing statistics on employment, productivity, and economic activity over the last three decades to describe the relative fortunes of the service and manufacturing sectors. It also explores the physical implications of these findings and demonstrates two key findings at odds with common wisdom. First, despite the undeniable growth of services in employment and economic activity, manufacturing in America has not declined. Indeed in absolute terms we are manufacturing more than ever before. Second, while there is indirect evidence of an "environmental bonus" from the growth in services and other facets of the information revolution, improvements in material intensity have been offset by increasing levels of economic activity. In fact, a plausible interpretation of the data suggests a counter-thesis, a correlation between the rise of services and increased resource consumption.

Part II considers how best to reduce the environmental impacts of specific services, delineating two categories of services with distinct implications for law and policy. "Smokestack services" include operations with large physical plants such as utilities and hospitals that emit significant quantities of air pollutants or solid waste. Traditional strategies for controlling industrial sources of pollution go to the very core of environmental protection but they often match poorly smokestack services. "Cumulative services" such as fast food chains and dentist offices do not cause significant environmental harm at the level of individual operation but collectively have important impacts. They pose the challenge of a nonpoint source world, where the universe of diffuse sources threatens to overwhelm command-and-control regulation. Appropriate regulatory and non-regulatory instruments are analyzed in each category.

Part III employs a fundamentally different type of approach, focusing not on the impact of the services themselves but on their ability to reduce environmental impacts throughout product life-cycles. Such "leverage services" act as a funnel through which products, electricity and financing must flow to end users. They raise intriguing possibilities for environmental protection because, while not necessarily causing significant environmental impact in their immediate activities, their commercial links provide a uniquely effective fulcrum to leverage environmental improvements upstream and downstream in the life-cycle. This presents a novel vision of environmental protection, moving from a narrow focus on production and disposal to energizing the web of commercial relationships.

Trade in International Maritime Services: How Much Does Policy Matter? Volume 1

Fink, Carsten; Mattoo, Aaditya; Neagu, Ileana Cristina

http://econ.worldbank.org/external/default/main?ImgPagePK=64202988&entityID=000012009_20040204152855&pagePK=64210502&theSitePK=544849&piPK=64210520

The authors consider how service liberalization differs from goods liberalization in terms of welfare, the level and composition of output, and factor prices within a developing economy, in this case Tunisia. Despite recent movements toward liberalization, Tunisian service sectors remain largely closed to foreign participation and are provided at high cost relative to many developing nations. The authors develop a computable general equilibrium (CGE) model of the Tunisian economy with multiple products and services and three trading partners. They model goods liberalization as the unilateral removal of product tariffs. Restraints on services trade involve both restrictions on cross-border supply (mode 1 in the GATS) and on foreign ownership through foreign direct investment (mode 3 in the GATS). The former are modeled as tariff-equivalent price wedges while the latter are comprised of both monopoly-rent distortions (arising from imperfect competition among domestic producers) and inefficiency costs (arising from a failure of domestic service providers to adopt least-cost practices). They find that goods-trade liberalization yields a gain in aggregate welfare and reorients production toward sectors of benchmark comparative advantage. However, a reduction of services barriers in a way that permits greater competition through foreign direct investment generates larger welfare gains. Service liberalization also requires lower adjustment costs, measured in terms of sectoral movement of workers, than does goods-trade liberalization. And it tends to increase economic activity in all sectors and raise the real returns to both capital and labor. The overall welfare gains of comprehensive service liberalization amount to more than five percent of initial consumption. The bulk of these gains come from opening markets for finance, business services, and telecommunications. Because these are key inputs into all sectors of the economy, their liberalization cuts costs and drives larger efficiency gains overall. The results point to the potential importance of deregulating services provision for economic development.

The Impact of Liberalizing Barriers to Foreign Direct Investment in Services - The Case of Russian Accession to the World Trade Organization

Jensen, Jesper; Rutherford, Thomas; Tarr, David;
Policy, Research working paper; no. WPS 3391, 2004

http://econ.worldbank.org/external/default/main?ImgPagePK=64202988&entityID=000012009_20040909153130&pagePK=64210502&theSitePK=544849&piPK=64210520

The authors use a computable general equilibrium model of the Russian economy to assess the impact of accession to the World Trade Organization (WTO), which encompasses improved market access, tariff reduction, and reduction of barriers against multinational service providers. They assume that foreign direct investment in business services is necessary for multinationals to compete well with Russian business service providers, but cross-border service provision is also present. The model incorporates productivity effects in both goods and services markets endogenously through a Dixit-Stiglitz framework. As a result, the estimated gains from WTO accession are much larger than would be obtained from a

typical model with perfect competition. The ad valorem equivalent of barriers to foreign direct investment have been estimated based on detailed questionnaires completed by specialized research institutes in Russia. The authors estimate that Russia will gain about 7.2 percent of the value of Russian consumption in the medium run from WTO accession and up to 24 percent in the long run. They estimate that the largest gains to Russia will derive from liberalization of barriers against multinational service providers. Piecemeal and systematic sensitivity analysis shows that their results are robust.

Services Trade Liberalization from Developed and Developing Country Perspectives

Adlung, Rudolf (2000), in Sauv , Pierre and Robert M. Stern, eds., **GATS 2000: New Directions in Services Trade Liberalisation**, Washington, DC: Brookings Institution Press and Center for Business and Government, Harvard University, pp. 112-131.

WTO New Round: Sustainability Impact Assessment Study (Phase One Report)

Kirkpatrick, C., Lee, N. and Morrissey, O.,

<http://www.sia-trade.org/wto/Phase1/phaseonerpt.PDF>

WTO New Round: Sustainability Impact Assessment Study (Phase Two Report)

Colin Kirkpatrick and Norman Lee

<http://siteresources.worldbank.org/SOCIALANALYSIS/Resources/sia.pdf>

WTO New Round: Sustainability Impact Assessment Study (Phase Three)

<http://www.sia-trade.org/wto/Phase3A/frontpage3A.htm>

Environmental Implications of the Tourism Industry

Davies, T. and S. Cahill. 2000.

Discussion Paper 00-14. Resources for the Future. Washington, DC

This report analyzes the environmental impacts of the tourism industry, which is the third largest retail industry in the United States, behind only automotive dealers and food stores. In 1998, travel and tourism contributed \$91 billion to the U.S. economy, supporting 16.2 million jobs directly and indirectly. While extensive research has documented the significant economic impact of such service industries as tourism, little has been written about their effect on environmental quality.

This study uses a framework developed from the industrial ecology literature to assess the impacts of the tourism industry on the environment. Three categories of impact are discussed: direct impacts, including impacts from the travel to a destination, the tourist activities in and of themselves at that destination, such as hiking or boating, and from the creation, operation, and maintenance of facilities that cater to the tourist; "upstream" impacts, resulting from travel service providers' ability to influence suppliers; and "downstream" impacts, where service providers can influence the behavior or consumption patterns of customers.

We have identified impacts from tourist-related transportation, including aircraft, automobiles, and recreational land and marine vehicles; tourist-related development, tourist activities, and direct impacts of the lodging and cruise industries. Although the direct impacts of the lodging and cruise industries and impacts of tourist-related transportation were not very significant, we found on the other hand that tourist activities can have significant impacts, depending on the type and location of activity. Tourist-related development can also have significant cumulative impacts on water quality and the aesthetics of host communities. Opportunity for upstream and downstream leverage within the tourism industry is considerable. Hotels can exert upstream influence on their suppliers to provide environmentally sound products, such as recyclable toiletries. Similarly, the cruise industry can use its leverage to convince suppliers to improve the environmental quality of shipboard products. Opportunity for downstream influence exists as well. Travel agents can influence where and how a tourist travels, and tour operators can educate tourists about ways to minimize their impact on the environment.

The fragmented nature of the tourism industry is not conducive to regulation that encompasses all aspects of the industry. Therefore, educational efforts aimed at supporting existing regulations and encouraging environmentally responsible behavior where no regulations exist seem most promising as a management scheme. These educational efforts should be framed in accordance with the targeted audience (i.e., tourists and industry sectors). Tourists may be more receptive to educational initiatives that focus on the environmental benefits of altering their behavior, while industry sectors are more likely to be responsive to educational efforts that emphasize cost savings and an improved public image.

Canada's Environmental Assessment Framework for Trade Negotiations

<http://www.dfait-maeci.gc.ca/tna-nac/env/env-ea-en.asp>

EU Trade Issues/SIA

http://ec.europa.eu/trade/issues/global/sia/index_en.htm

http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127947.pdf

http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127974.pdf

NAFTA for the Next Generation: Lessons Learned and Challenges Ahead

Kirton, John

<http://www.envireform.utoronto.ca/publications/john-kirton/march9-2004.pdf>

Presentation for a Workshop on “Regionalism in the 21st Century: A Canada-ASEAN Dialogue as Part of an Opening up of New Cross-Pacific Linkages,” at the ASEAN Secretariat, Jakarta, Indonesia, March 9, 2004.

**Canada-US Trade and the Environment:
Regimes, Regulatory Refugees, Races, Restraints and Results**

Kirton, John

<http://www.envireform.utoronto.ca/pdf/Kirton/Vancouver.pdf>

Paper presented at the conference on “Rethinking the Line: The Canada-U.S. Border,” October 23–25, 2000, The Waterfront Centre Hotel, Vancouver, British Columbia, sponsored by the Policy Research Secretariat. The authors expresses his gratitude for the contribution of Alan Rugman² and Julie Soloway³, who collaborated in the initial research on which this paper is substantially based. This paper forms part of the research being conducted under the SSHRC-funded Strategic Grant for a project on “Strengthening Canada’s Environmental Community Through International Regime Reform” (EnviReform), based at the Centre for International Studies, University of Toronto.