Trade Agreements, Competition, and the Environment: Gridlock at the Crossroads

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In the 1980s, few agricultural economists, particularly from the Southern Region, published works on international trade or the globalization of the world economy. The initiation of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1986 stimulated such writings as the Southern Agriculture in a World Economy series by the Southern Region Extension International Trade Task Force (Rosson et al.). An even smaller number of agricultural economists were writing on policy linkages between trade and the environment. An early effort to remedy this situation was the Workshop on Linkages between Natural Resources and International Trade in Agricultural Commodities (Sutton).

Now in the mid 1990s, it has become clear that the U.S. economy is an integral part of a larger world economy. The recent passage by Congress of the North American Free Trade Agreement (NAFTA) was certainly one of the major news events in 1993. NAFTA marked the first time that economies as divergent as those of the U.S. and Mexico formed a free trade area (FTA). It was also the first international agreement that explicitly linked the reduction of trade barriers to environmental issues.

Throughout the postwar (WWII) period until the 1980s, the U.S. was one of the staunchest supporters of multilateralism, or the

global integration of the world economy. In the 1980s, however, the U.S. changed its position towards regionalization in both the geographical and preferential senses (Bhagwati 1992). At the same time, environmental groups, through political action committees, gained influence in Congress. Accordingly, the U.S. has become much more likely to link trade with environmental issues through bilateral or regional agreements.

This paper attempts to apply economic issues of multilateralism. rationale to the regionalization, and environmental concerns. It is a traditional Neo-classical approach, which attempts to utilize existing economic knowledge on these topics to conceptualize and address these issues. We begin with a brief discussion of the merits of multilateralism versus regionalization and how the two might cause differences in environmental quality. This is followed by a discussion of the issues involved in linking trade with environmental policy. Comments are then made on externalities and distortions. Views are then offered concerning the increased willingness of countries such as the U.S. to influence behavior in other countries through trade policies or sanctions. comment on pollution source and make suggestions concerning payment. Finally, a southern perspective on trade and environmental issues is offered along with concluding remarks.

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GATT or NAFTA: Does It Matter?

Congress passed NAFTA in November 1993, and by December a GATT agreement was Previously, the U.S. was among the reached. world's strongest supporters of GATT and its nondiscriminatory, multilateral trade philosophy. However, in the late 1980s and 1990s the U.S. actively sought to form inherently discriminatory integration arrangements such as the Canadian-U.S. Free Trade Agreement and NAFTA (Bhagwati 1992; Preeg; Sung). Earlier in the 1980s the U.S. formed an FTA with Israel and unilaterally granted preferential treatment to selected Caribbean Basin countries (Fairchild et al.). Questions arise as to why the U.S. shifted its policy toward FTAs and what effects this policy shift will have on the environment.

It is generally accepted that the initial shift in U.S. policy towards bilateral and regional trade agreements was a reaction to counter the reluctance of the former European Community, now the European Union (EU), to negotiate the lowering of trade barriers, especially in agriculture and services (e.g., Bhagwati 1992; Ow-Taylor; Young). In essence, negotiating NAFTA was originally a political tactic designed to force the EU to negotiate in the Uraguay round of GATT.

The formation of NAFTA to counter the EU leads one to ask whether the world's environment will benefit more from a trading system based on multilateral agreements that espouse free trade as the ultimate goal, or one based on regional trading blocs? It is our opinion that multilateral agreements based on the Most Favored Nation (MFN) principle (Article I of GATT) will lead to a more efficient allocation of resources and a higher quality world-wide environment than will regional blocs. The MFN principle insures that trade among member nations is nondiscriminatory because it requires tariffs on any particular commodity to be the same and independent of source.

One might ask why we hold this opinion when FTAs and Custom Unions (CUs), many of which are sanctioned under Article XXIV of GATT, also lead to freer trade albeit among members. The main reason is that FTAs and CUs discriminate against nonmembers and violate GATT's MFN

principle. Although FTAs and CUs lower tariff barriers and lead to trade creation (increased trade) among members, they divert trade because tariff rates on goods from nonmembers are now higher than those on members' goods (Meade; Viner).

Trade creation is usually considered welfare enhancing while trade diversion is considered welfare reducing because of effects on Trade creation increases welfare resource use. because the FTA or CU encourages members to produce according to their comparative advantages Thus, inefficiently relative to other members. produced domestic goods within the CU or FTA are replaced by goods produced more efficiently by However, the reallocation of other members. resources based on comparative advantage is only partial, because higher tariff rates applied to nonmembers divert trade away from lower-cost higher-cost nonmember goods to member Whether or not world welfare is production. increased or decreased depends on whether trade creation is greater than or less than trade diversion. According to Meade, economic welfare would most likely increase if the partner countries are similar and competitive but potentially complementary or dissimilar.

When trade diversion outweighs trade creation, world welfare and the environment are less well off than before integration. Trade is diverted away from lower-cost production and replaced by higher-cost production, and therefore more resources are consumed in the production process. Even when trade creation outweighs trade diversion, resources are wasted compared to the free trade situation where all trade and production is based on comparative advantage. Production based on comparative advantage can increase output for a given amount of resources (Kreinin).

Another issue concerning trading blocks, including CUs and FTAs, is whether or not they inherently lead to and increase the pace towards multilateral free trade. This has become an important issue given the proliferation of trading blocks in most regions, including North and South America, Europe and Asia. Some argue that regional trading blocks are a step in the right direction towards world-wide free trade based on the ideas that a trade block is better than nothing, and that the experience may produce momentum for

multilateral free trade (e.g., Deardorff; Namkung; Schott). Others, including ourselves, would argue that trading blocks do not necessarily lead to or increase the pace towards multilateral free trade (e.g., Bhagwati 1992; Kim; Ow-Taylor; Sung). First, we believe that trade diversion impacts are not fully considered. Second, we feel that regionalism may divert attention from multilateralism and thus actually slow the movement towards a more open global trading system. If the process is slowed, then resource-wasting production remains in place longer than without the trading block, and environmental degradation is exacerbated when compared to multilateral trade agreements leading to free trade. Certainly, this is an area which deserves further analysis.

To close this section we want to briefly mention the possible political, nontrade effects of regionalism versus globalism. Whether regional or global agreements on trade are reached, neither seem to preclude purely environmental agreements that may be either good or bad. One might argue that proximity and bilateralism may make environmental agreements more feasible. example, during the NAFTA negotiations, the U.S. made it clear that pollution on the U.S.-Mexico border was unacceptable. Less mention of air pollution in Mexico City was made. On the other side, global agreements on the environment might minimize the probability of a more powerful county dictating environmental regulations that are based on its income level and values but are inefficient and suboptimal based on the other country's income and values. It would also seem to lessen a country's ability to use environmental issues as a means to justify protectionism. We will return to these issues.

Trade, Growth, and the Environment

Environmental action groups are increasingly insisting that international trade be linked with environmental regulations. Often they insist that trade policy be used to influence the behavior of other sovereign nations concerning pollution, food safety, and resource use. Potentially, this view can be extremely disruptive to world trade and can actually lead to a worsening of the environment.

Certain economists (e.g., Brown; Ritchie; Shrybman), as well as environmental action groups, consider international trade to be ecologically harmful and undesirable. Some (e.g., Daly) also believe that if all countries were self-sufficient, the environment and the utilization of natural resources would be improved relative to a world with a more open flow of traded goods. Most economists would consider this view to be incorrect. One assumption often made is that trade tends to increase production (correct) which always leads to increased pollution and environmental damage (incorrect). If this view were correct, any impetus to growth, whether via increased trade or domestic demand, would lead to a worsening of the environment.

First, let us consider the effects of growth on the environment. Evidence seems to suggest that as a poor country initially increases its production, pollution increases, but as incomes rise, pollution eventually decreases (Grossman and Krueger). The reason is that, in an economic sense, environmental quality is a luxury good. Therefore, as nations become richer they have the means and are willing to spend more on environmental quality.

If environmental quality is a luxury good, then we would not expect all countries to desire or choose the same level of environmental quality. Poor countries would rationally be willing to accept more pollution than richer countries. Coercing all countries to institute identical environmental regulations would actually be distorting and would diminish world welfare.

Another reason why certain countries are more willing to increase pollution is that their environment may have a greater capacity to assimilate the pollution than the environment in other countries (Butler). The same argument holds for regions within the U.S. An example is the case of dairy production in the Southwestern U.S. and in South Florida. In South Florida, large diary herds exist on the north shore of Lake Okeechobee, and there is mounting evidence that they are the largest contributor to pollution in the lake. If the pollution is unabated, it could lead to the death of the lake. The Southwestern U.S. (e.g., New Mexico and West Texas) with a much different environment and aquifer system can better absorb the waste from dairies than can South Florida, and with less harm to its environment. Shifting milk production away

from South Florida to the Southwestern U.S. has the potential to increase overall environmental quality.

Next. consider the view that self sufficiency in production and consumption leads to a more benign impact on the environment than does free trade. It is relatively easy to refute this view both theoretically and empirically. The most attractive result of free trade is that production is allocated among nations according to each country's comparative advantage. By reallocating resourceuse to meet this end, the world can produce more goods with the same amount of resource use. Thus, free trade relative to self-sufficiency is resource saving. Effectively, self sufficiency policies lead to inefficient use of resources and cause unnecessary resource waste in the production of a given quantity of goods. Empirically, evidence seems to support the hypothesis that countries with open economies in terms of trade have cleaner industries and higher environmental standards than countries with more closed or self-sufficient economies (Birdsall and Wheeler; Wheeler and Martin). Countries with extremely closed economies such as Eastern Europe and the former Soviet Union have much worse, not better, environments than countries embracing freer trade.

Externalities and Distortions

Externalities exist and are often found in markets for natural resources used as inputs into production or in pollution from production processes. This is generally the case when property rights to natural resources are not specifically assigned. If so, the private cost of production or consumption can be less than social cost, and some type of action is warranted to equate the two costs.

A discussion of externalities quickly takes us into the realm of distortions and the theory of second best, an area well represented in the international trade literature (e.g., Bhagwati 1971; Johnson). The message of this literature is that the first-best solution to a distortion or externality is to go directly to the sector of the economy where the externality or distortion exists and to equate marginal private costs to marginal social costs via a tax-cum-subsidy. For example, if an externality exists such that an industry pollutes more than what is considered socially optimal, the industry should be taxed according to its pollution level until the

socially optimum level of pollution is reached. Alternatively, the industry could be subsidized to reduce pollution to the socially optimum level. A production tax-cum-subsidy on output would be suboptimal in this case and second best. It would distort production. A third-best solution would be to use trade policy to address the problem. For example, an import tariff or export tax would distort prices not only in the production sector but also in the consumption sector (Bhagwati 1971). Thus, if an industry in a country pollutes the environment more than what is desirable, the application of trade instruments by that country or trade sanctions by other countries is certainly not the most efficient method to correct the problem.

When a distortion or externality exists in the production sector, the first-best policy is a tax-cum-subsidy on output. If the output of a product is subsidized, output would be greater than optimal and so would any pollution generated from the production process even if the private cost of pollution were equated to its social cost (i.e. no distortions or externalities in the elimination of waste). It might be tempting in this case to tax pollution instead of removing the production subsidy, but this would be second best because it would cause the private cost of polluting to be greater than its social costs, and the distortion to production would still exist.

In the case of diary production in the U.S., the government subsidizes output which leads to over production and additional pollution. Consider the dairy industry in South Florida. improbable, it is possible that diary producers are paying the social cost of eliminating their waste. However, since their production is subsidized, they produce beyond the optimal level. Thus, pollution is greater than it would be without the subsidy. Some environmental groups and regulatory bodies would be inclined to address the problem by taxing pollution or by regulating pollution. This would not address the distortion in production. Furthermore, if the cost of waste elimination were correctly priced, it would add another distortion into the system. The appropriate policy would be to remove the production subsidy.

When an externality exists in factor markets, the appropriate and first-best policy is to use a tax-cum-subsidy in that market. From a

societal perspective, if timber is under priced and thus over utilized by the furniture industry, a government could place a tax on timber or it could use a subsidy to pay producers to use timber optimally and efficiently. Taxing the output of furniture would lower timber usage, but it would be a second-best policy because it does not correct the factor market distortion, and it introduces a new distortion in the production of furniture. A thirdbest solution would be for the government to place an export tax on furniture. Now consider whether a self-sufficiency policy through import tariffs would reduce timber usage and remove the externality. Under certain conditions it could lower timber usage in a particular country. But even if it did, it would be a third-best policy because it introduces new distortions in both the production and consumption sectors and does not remove the externality in the timber market.

To see this, consider a small country which exports and imports different types of furniture. If it were to levy import tariffs to pursue a selfsufficiency policy, the domestic price of furniture would rise relative to its export price, since it cannot affect world prices. Producers would have an incentive to shift resources away from producing export furniture and to the production of more furniture for the domestic market. Consumers would lose and producers would gain. However, resources would not be used efficiently because the externality in the timber market would still exist. Secondly, producers shift out of more efficient, export production (production based on comparative advantage) towards production of furniture for the domestic market in which it has a comparative disadvantage.

If the country were fully employed, the self-sufficiency policy not only fails to correct the factor market externality but also causes production of inefficient, resource-wasting industries to increase. Furniture exports and their foreign exchange earnings would decline, and there would be intense pressure to overvalue the country's currency, further discouraging furniture exports and encouraging import substitution. If the country were not fully employed, the self-sufficiency policy might have little effect on export production but would increase furniture production for the domestic

market. This would increase, not decrease, timber usage, and the externality would still remain in place.

Political Realities

It is often argued that the U.S. and other rich countries should use trade policy to force low-and middle-income countries to preserve their natural resources and to lower their pollution. Many support this view because of competitive issues, others because they believe that, short of war, trade is the most effective leverage a country has to force swift compliance from another country.

The first view is, in our opinion, mainly a protectionist argument. To those who hold this view, the holy grail is a level playing field, and neither is obtainable. Although possessing the holy grail might be desirable, world-wide harmonization of production techniques, labor laws, and environmental regulations is not; it would be utterly distorting. Because complete harmonization is unobtainable, protectionists can use this issue to increase trade barriers (Bhagwati 1993b) and, as we have argued above, harmonization would not be environmentally optimal.

The latter argument is a much older one. In the extreme, these policies have historically been used in conjunction with warfare to conquer or force concessions from the weaker party. For example, trade sanctions were used effectively in this country to influence the outcome of the Civil War when the Union blockaded Confederate ports and sealed off trade. Today, trade policy is still used for similar and often noneconomic reasons. Examples of sanctions and embargos continue to proliferate.

Thus, trade policy is often used to force the values of one country onto another. Since it is common practice for the U.S. to use trade policy for noneconomic reasons, it is not surprising that environmental groups view trade policy as an effective and appropriate tool to coerce a noncomplying country to adhere to mandated environmental regulations.

We fully appreciate that the purpose of most trade sanctions is not to address economic but rather political issues. Arguing the merits of using

trading policies for geopolitic purposes is beyond the scope of this paper. However, we do want to comment on what economic theory has to say about a rich country using trade policy to pressure another less powerful country to address an environmental externality.

Consider the small country discussed above. Suppose the country refuses to correct the externality in the timber market. What would be the outcome if the U.S. increased tariffs against that country? Would the externality be addressed directly?

The first question is quite complex but the answer to the second is that the externality would still remain. In fact, the U.S. policy might have little repercussion on the country. If the country's share of furniture exports in total world exports of furniture were small, the most likely effect would be a shift in trade flows but not necessarily a change in For example, another exporting trade volume. country might divert its exports from other countries to the U.S., while the targeted country would replace the exports diverted to the U.S.. unilateral decision by the U.S. to use trade policy to alleviate the externality would be ineffective. An example would be the U.S. grain embargo against the USSR in response to the Soviet invasion of Afghanistan (U.S. Department of Agriculture).

If the trade policy does have an effect, it will cause production and consumption distortions in the U.S. and the other country. It may or may not save timber resources. If it were effective, the price of the type of furniture exported by the noncomplying country to the U.S. would increase. This would stimulate increased production of this type of furniture in the U.S. which would increase U.S. timber demand, unless substitution away from other types of furniture occurred. If the U.S., due to a comparative disadvantage, used more timber in producing this type of furniture than the small country, world timber use could actually increase as a result of the policy.

Pollution Source and Payment

Practioners and those familiar with economic literature concerning pollution and environmental externalities must be aware that we, until now, have not made the distinction between

local pollution and global pollution. Examples of local pollution are the pollution of a lake internal to one county such as Lake Ockeechobee in the U.S., air pollution in Mexico City, or pesticide pollution in Tennessee. Examples of global pollution are the pollution of Lake Superior, acid rain in Canada caused by factories in Gary, Indiana, and pesticide pollution that enters the Rio Grande in the U.S. but causes damage in Mexico. Externalities are also often categorized in this manner.

A growing consensus in the international community is that local pollution is a local problem, and the international community has little justification to exert pressure for these local problems to be remedied. Global pollution is treated differently. Many believe that the international community should exert pressure and punishment on countries producing global pollution. Again, the general consensus seems to be that the pollutor must pay to clean up global pollution. Producers of local pollution would also bear the cost of a restoration, but it is up to their discretion whether or not local pollution is addressed.

We believe that the distinction between local and global pollution is somewhat contrived. Brazil's burning of the rain forest deep in its own territory could be considered local pollution. especially if smoke from the burning is not reaching other countries. However, the rain forests do more than provide timber in that they convert carbon dioxide into oxygen, act as a filtering system to improve the quality of air, and are a depository for many different and unique species of plants and animals. We believe that all pollution is and should be considered global. What should be done depends on the type of pollution, its impact, and the type of environment in which it occurs. Less emphasis should be placed on national borders to determine whether or not and how pollution should be handled.

We also believe that the "pollutor-should-pay" rule does not lead to optimal, global environmental quality. Even when a poor country evaluates the cost of pollution according to its social costs and according to its income level, an externality may still exist in that it does not evaluate it at the world's social costs. This leads us to conclude that rich nations should assist in paying for environmental quality in poorer countries, if the

citizens of richer countries value it more. Rich countries should bear part of the cost of preserving the rain forests wherever they are located. If rich countries do not do so, poorer countries may be unable, or rationally unwilling, to bear the cost of bringing environmental quality up to the standards desired by rich countries.

If the "pollutor-pays" principle does not lead to a globally optimal solution, what type of institutions would? It has been suggested that GATT become GATTE and be expanded to include international environmental agreements. This may improve the global environmental dialogue, but as we argue above, if linked to trade, environmental actions may not improve the environment.

We suggest a new institution be created and named the World Environmental Bank (WEB). It could be structured along the lines of the World Bank where member countries contribute according to their willingness and ability to pay. It should, however, be separate from the World Bank with its emphasis on development and growth for the same reason it should be separate from GATT. mission should be to deal directly with pollution and environmental externalities. It should not just be a regulatory body such as the Environmental Protection Agency in the U.S., or a rules-clearinghouse such as GATT. WEB should use its expertise to identify environmental problems, evaluate impacts and externalities, mobilize members to deal with the problems, and use its funds to help pay for a remedy to the problems. If a country, such as Costa Rica, were cutting its rain forest more than what was globally desired, WEB should add its funds to those of Costa Rica to ensure that its rain forests were preserved at the globally-desired level.

A Southern Perspective on Trade and Environmental Issues

Southern agriculture has a long, rich and turbulent history of international trade. The importance of international markets and the strong ties between agriculture and the world economy have been a fact of life for Southern agriculture for over two hundred years. Conflicts over trade restrictions associated with Southern commodities were a major contributing factor to both the American Revolution and the Civil War.

International trade has continued to provide vital markets for Southern agricultural products, and U.S. trade policy decisions have helped shape the region's agriculture (Paggi et al.).

Harris and Benson note that the South is probably the most trade-oriented and trade-sensitive region of the nation. As such, the South has a sizable stake in international trade policy as well as other governmental policies which affect the region's ability to compete in both domestic and export markets. The economic health of Southern agriculture is dependent on specialty crops in which the region has a production advantage based on climatic conditions. These crops include tobacco, cotton, rice, peanuts, sugarcane, citrus and other fruits, certain vegetables, catfish and pine timber Thus, the ability to (Harris and Benson). successfully "farm the weather" is vulnerable to increased competition which is often the result of international trade agreements designed to create more open trade.

Harris and Benson further note that for many of the nationally produced commodities, including food and feed grains and diary, much of the Southern region represents marginal production. Generally, production costs per unit of output are higher in the South. Therefore, these commodities have been subject to significant production adjustments in response to price changes, in particular wheat and soybeans (Harris and Benson).

The Southern region is both sensitive and vulnerable to environmental policies which are linked to production and trade. Lower levels of soil productivity and a more hostile production environment result in situations in which viable production systems depend on chemicals to a relatively greater degree. Thus, the impact of environmental policies may be greater in the particularly in Southern region, sub-sectors dependent on chemical inputs to economically viable production levels of acceptablequality output. The fruit and vegetable industries provide dramatic examples (see Knutson et al.).

Being a producer of regional specialty crops and a high-cost producer of many nationallygrown commodities, Southern agriculture is particularly sensitive to policy changes which result in lower prices or higher costs of production, processing and marketing. Therefore, many producers in the region are vulnerable to forces that change their ability to compete in domestic and export markets. Both trade policies manifested through trade agreements and environmental policies articulated through government intervention are major forces of change which are expected to continue. Thus, potentially lower prices (at least in the short run) associated with freer trade, combined with higher costs associated with more restrictive environmental regulations, create a link between international trade, the environment and competition. In addition, the trend towards utilization of international trade agreements for environmental policy purposes further strengthens the link.

We would argue that both U.S. and Southern agriculture are at a crossroads composed of international trade policies and environmental policies. We have several concerns. First, it seems that there are no speed limits as we approach this intersection, and both policy paradigms seem to be on a fast track. Second, it appears that there are no stop signs at the crossroad, not to mention a traffic light. While we are not necessarily predicting a fatal collision for agriculture, the risk of a wreck is certainly increasing. Third, as if the potential impacts of these two policy forces on agriculture were not enough to occupy our attention, the use trade policy attempts to to achieve environmental objectives, particularly with respect to externalities, have created a gridlock at the crossroad.

Concluding Remarks

We certainly acknowledge the existence of externalities environmental associated production agriculture, both domestically and internationally, but suggest that externalities may be even less subject to quantification and measurement than the economic impacts of proposed trade agreements. We are not anti-environment and applaud attempts to identify sources of pollution and measure their impacts on the environment. Externalities should be addressed with targeted policies rather than broad or misdirected policies which may create further distortions. international trade policies and agreements to address negative environmental externalities is not an efficient approach.

Attempts to solve problems created by negative environmental externalities through the use of international trade policy should not come as a surprise. Trade policy has been and continues to be used by governments to accomplish political and social, as well as, economic objectives. Examples include sieges, sanctions and embargoes as noted previously. Often, economic issues are not at the core of the debate, but rather a peripheral consideration.

The economic impacts on U.S. agriculture or a specific sub-sector are often ignored or eclipsed by larger political, social, or environmental concerns. Moreover, agriculture remains one of the most difficult sectors on which to reach agreement in the international trade arena. The addition of environmental constraints to international trade agreements in an attempt to impose our environmental values on other countries or to achieve a "level playing field" would result in eliminating the major benefits of trade.

We are entering an era of compromises between commercial agriculture as it once was and environmental policies based on an ideal world with few economic realities. The outcome of these compromises will change the face of agriculture as we know it. These changes will have implications for the economic viability and competitiveness of some sub-sectors of U.S. agriculture. Further, the use of international trade agreements to address the environmental externalities associated with agricultural production in other countries. particularly in the Western Hemisphere, will likely continue in the near term.

We agree that the total cost of resources utilized in commercial agriculture should be considered in determining costs. We also understand the need to develop social optima to guide environmental policy, but are concerned about how this is accomplished. The process could be enhanced if the total cost and impacts of environmental rules and regulations were estimated and publicized. An interesting test for the appropriateness of estimated socially-optimal environmental policies could be found in consumer reaction to the abandonment of our long-standing cheap food policy. Perhaps Joe Sixpack and his cousin Bubba would be interested in the relationship between government-determined social optima in the environmental arena and the price of food in the local grocery store.

While international trade agreements may cause some stress for selected subsectors, it will be environmental rules and regulations which put agriculture at risk. However, we are not defending agriculture, nor suggesting that it be immune from economic or environmental realities. We are simply suggesting that the full impact on producers, consumers, and the environment of broadly written policies, with inflexible rules and regulations, be estimated ex ante and that this information be available to policy makers, regulators, and the public.

We must bridge the widening gap which exists in our profession between traditional agricultural economists and natural resource economists on the subjects of environmental quality and regulation. Since neither branch of our profession has all of the answers and we are

running out or time, we need to work together to find answers to these critical questions.

We run the risk of standing on the sideline and watching another major issue become a crisis, with no meaningful input from economists. We must get the divergent views within our profession on the same page, if we are to be part of the solution.

We doubt that there will be general agreement, or even agreement within our profession, on the best solution to the increasing gridlock at the crossroads between trade and environment, or even on whether a solution exists. Our intention has been to provide a perspective on the situation and potential solutions. We believe that our profession needs to sharply focus its attention on the gridlock. The emerging crisis now visible in Southern agriculture should serve as a wake-up call for all of U.S. agriculture and the agricultural economics profession.

References

- Butler, A. "Environmental Protection and Free Trade: Are They Mutually Exclusive?" Federal Reserve Bank of St. Louis *Economic Review* (May/June 1992): 3-16.
- Bhagwati, J. N. "The Case for Free Trade." Scientific American, November 1993a, pp. 42-49.
- Bhagwati, J. N. "Trade and the Environment: The False Conflict." Revised text of the Bradley Lecture delivered in Washington, D.C., February 9, 1993b.
- Bhagwati, J. N. "Regionalism and Multilateralism: An Overview." Presented paper at a World Bank Conference, Washington, D.C., April 2-3, 1992.
- Bhagwati, J. N. "The Generalized Theory of Distortions and Welfare." In Trade, Balance of Payment, and Growth: Papers in International Economics in Honor of Charles P. Kindleberger, ed. J. N. Bhagwati, R. W. Jones, R. Mundell, and J. Vanek. Amsterdam: North Holland Publishing Co., 1971. Chapter 12.
- Birdsall, N. and D. Wheeler. "Trade Policy and Industrial Pollution in Latin America: Where Are the Pollution Havens?" In *International Trade and the Environment*, ed. P. Low, World Bank Discussion Papers 159. Washington, D.C.: World Bank, 1992.
- Brown, W. "Trade Deals a Blow to the Environment." New Scientist 1742 (November 1990): 20-21.
- Daly, H. E. "The Perils of Free Trade." Scientific American, November 1993, pp. 50-57.

- Deardorff, A. V. "NAFTA and APEC: Complementary or Competitive?: Comments." In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993. pp. 99-101.
- Fairchild, G. F., M. Paggi, and J. L. Seale, Jr. "The Caribbean Basin: An Initiative or Not?" In Southern Agriculture in a World Economy, ed. C.P. Rosson, III, H.M. Harris, and G.A. Benson, Southern Rural Development Center No. 106-9. Mississippi State: Southern Rural Development Center, 1988.
- Grossman, G. M., and A. B. Krueger. "Environmental Impacts of a North American Free Trade Agreement." In *The Mexico-U.S. Free Trade Agreement*, ed. P. M. Garber. Cambridge, MA: MIT Press, 1993.
- Harris, H. M., Jr., and G. A. Benson. "Southern Agriculture in a World Economy." In *Southern Agriculture in a World Economy*, ed. C. P. Rosson, III, H. M. Harris, and G. A. Benson, Southern Rural Development Center No. 106-1. Mississippi State: Southern Rural Development Center, 1988.
- Johnson, H. G. "Optimal Trade Intervention in the Presence of Domestic Distortions." In *Trade, Growth, and the Balance of Payments: Essays in Honor of G. Haberler*, ed. R. Caves, H. G. Johnson, and P. B. Kenen. Amsterdam: North Holland Publishing Co., 1965. Chapter 11.
- Knutson, R., C. Hall, E. Smith, S. Cotner, and J. Miller. *Economic Impacts of Reduced Pesticide Use on Fruits and Vegetables*. Park Ridge: American Farm Bureau Research Foundation, September 1993.
- Kreinin, M. E. *International Economics: A Policy Approach*, 6th ed. New York: Harcourt and Brace Jovanovich Publishers, 1991.
- Meade, J. E. The Theory of Custom Unions. Amsterdam: North Holland Publishing Co., 1956.
- Namkung, K. A. "Economic Implications of NAFTA for East Asia." In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993. pp. 78-81.
- Ow-Taylor, C. H. "NAFTA: East Asian Perspectives." In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993, pp. 195-218.
- Paggi, M., J. L. Seale, Jr., and G. F. Fairchild. "U.S. Trade Policy and Southern Agriculture." In Southern Agriculture in a World Economy, ed. C. P. Rosson, III, H. M. Harris, and G. A. Benson, Southern Rural Development Center No. 106-3. Mississippi State: Southern Rural Development Center, 1988.

- Preeg, E. H. "NAFTA: Free Trade Area or Emerging Bloc?: Comments." In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993. pp. 29-31.
- Ritchie, M. "GATT, Agriculture and the Environment: The U.S. Double Zero Plan." *The Ecologist* 20 (December 1990): 214-20.
- Rosson, C. P., III, H. M. Harris, Jr., and G. A. Benson, ed. *Southern Agriculture in a World Economy*. Mississippi State: Southern Rural Development Center, June 1988.
- Schott, J. J. "NAFTA: Free Trade Area or Emerging Bloc?" In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993. pp. 9-24.
- Shrybman, S. "International Trade and the Environment: An Environmental Assessment of GATT." *The Ecologist* 20 (January 1990): 30-34.
- Sung, K.-J. "Post-NAFTA GATT: Whither Multilateralism?" In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993. pp. 33-50.
- Sutton, J. D., ed. Agricultural Trade and Natural Resources: Discovering the Critical Linkages. Boulder: Lynne Rienner Publishers, 1988.
- U. S. Department of Agriculture, Economic Research Service. *Embargoes, Surplus Disposal, and U. S. Agriculture*. Agricultural Economic Report Number 564. Washington, D. C.: U.S. Government Printing Office, 1986.
- Wheeler, D. and P. Martin. "Prices, Policies and the International Diffusion of Clean Technology: The Case of Wood Pulp Production." In *International Trade and the Environment*, ed. P. Low, World Bank Discussion Papers 159. Washington, D.C.: World Bank, 1992.
- Young, S. "NAFTA: Free Trade Area or Emerging Bloc?: Comments." In AFTA after NAFTA: Proceedings of the Symposium in Princeton, NJ, September 2-3, 1993, by the Department of Economics, the Center for International Studies, and the Woodrow Wilson School, Princeton University, and the Korea Economic Institute of America. Academic Studies Series Joint Korea-U.S. Academic Symposium, vol. 4. United States: Korea Economic Institute of America, 1993. pp. 25-28.