The Combined Success of the International Tropical Timber Agreements

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Introduction

The improvement of international environmental regimes is a delicate science that is slowly being mastered through a complicated and costly process of trial and error. Differences in regime effectiveness are influenced by multiple variables, including politics, regime structure, scope, and power and number of actors involved. Only through comparison and analysis of different regimes and counterfactuals can the effectiveness of environmental treaties be determined. In a world with no international authority to enforce compliance of international law, regime design is the only way to improve the environment on a global level. Once evaluated, the specific parts of a regime that made it successful can be adopted and applied to future international agreements.

The 1983 International Tropical Timber Agreement (ITTA), and its successor in 1994, attempted to further conservation of tropical timber for the use of future generations. As less developed countries do not have the monetary resources to conserve and properly manage their forests alone, tropical timber is slowly disappearing as these nations struggle to drive their economies forward, which degrades the environment in the process. "The establishment of methods to manage tropical timber resources as renewable resources is essential to sustained economic improvement for much of the world's population, as well as to halting the environmental damage caused by rapid deforestation" (Sand 1992, 105). The ITTA's attempted to slow further deforestation of tropical timber forests in producing member countries, and I will be researching whether this goal was actually met by either of the treaties, and if so, which was more effective and why.

The 1983 and 1994 ITTA's will be evaluated on the conservation of producing nations' tropical timber resources from 1990 to 2002. Success will be measured by a decline in exports over the time period examined, implying a reduction in deforestation. Worldwide tropical timber data are only available from 1990 to 2002, which means that the effect the 1983 treaty had on tropical wood exports of member countries from entry into force in 1987 until 1989 can only be hypothesized. As a result of these missing data, for this study the affects of the 1983 treaty will be attributed to any changes in tropical wood exports between 1990 and 1997, and any from 1997 to 2002 to the 1994 agreement. The year 1997 is the point when a change in behavior as a result of the 1994 treaty can be seen as the 1994 treaty did not actually enter into force until 1997. The main indicators of success of each treaty will be based on comparison of members to non-members, and behavior before and after 1997. Non-members will represent the counterfactual, or what would have happened if the treaty had never been negotiated. My analysis will conclude that both the 1983 and the 1994 ITTA's succeeded in fulfilling their objectives, but differences in regime structure and design made the 1994 agreement an improvement over the 1983 ITTA, and re-motivated member countries to conserve their tropical timber resources further.

Background and Definitions

The 1983 ITTA was signed in November 1983 and was scheduled to enter into force in 1985. "However, because of a dispute over the location of the Secretariat, which was finally given to Yokohama, Japan, the treaty did not begin operations until 1987" (Weiss 1998, 117). The treaty states that the agreement "shall remain in force for a period of five years after its entry into force unless the Council, by special vote, decides to extend, renegotiate or terminate it…" (1983 Treaty text Art.42). The treaty did, in fact, remain in force for five years and was extended until 1992 when renegotiations began for the successor agreement (Weiss 1998, 118). Signatures of countries to the 1994 agreement began in 1994, but the treaty did not officially enter into force until January 1st, 1997 (Ecolex).

In both treaties "Tropical timber" means "non-coniferous tropical wood for industrial uses, which grows or is produced in the countries situated between the Tropic of Cancer and the Tropic of Capricorn. The term covers logs, sawn wood, veneer sheets and plywood" (Treaty text Art.2). "Producing member" is defined as "any country with tropical forest resources and/or a net exporter of tropical timber…" (Treaty text Art.2). The International Tropical Timber Council is the highest organizational body and is in charge of dealing with all matters related to implementation and enforcement of the agreements.

Goals

Treaties lay out specific goals or objectives, normally towards the beginning of the document, that member countries desire to meet upon enforcement. The ITTA's are unique in that both attempt sustainable development in the tropical timber market by encouraging market benefits, as well as environmental preservation. This investigation, however,

will be environmentally focused. The specific objectives that I have chosen to focus on in the 1983 treaty are the commitment of the members to:

- Encourage conservation of tropical forests and their genetic resources
- Ensure greater transparency in the international tropical timber market

The specific objectives that I have chosen to focus on in the 1994 treaty are the commitment of the members to:

- Achieve exports of tropical timber products from sustainably managed sources by the year 2000
- Ensure greater transparency in the international tropical timber market
- Provide developing countries with financial resources to enable them to sustainably manage, conserve, and develop their tropical forests

Both treaties identify the conservation of tropical forests, and increased transparency in the international timber market as main objectives (1983 Art.1, 1994 Art.1). The 1994 agreement goes even further by setting a specific date for the achievement of sustainable forest practices in producing member nations, as well as setting up a fund to assist them in achieving this goal.

> In the new treaty, countries producing tropical timber agree to try to export wood only from sustainably managed forests by the year 2000. In return, consumer countries agreed to establish a new fund, the Bali Partnership Fund, to help producer countries meet the objective of sustainably managed forests" (Weiss 1998, 119).

The goals and texts of the two treaties are practically identical, apart from the addition of sustainable forest practices and the Bali Partnership Fund in the 1994 agreement. The renegotiations of the ITTA in 1992 were building upon an already successful treaty by making it more environmentally explicit. The improved agreement "stimulated greater environmental awareness and provided a forum for negotiating a new, more environmentally friendly treaty" (Weiss 1998, 119). The objectives and structure of the 1994 agreement are very similar to the 1983 agreement as a result of its success. If the 1983 ITTA had been unsuccessful the 1994 agreement would have approached the problem in a different manner, however this was not the case. The 1994 agreement helped re-invigorate the commitment of member parties to conserve their tropical timber resources by setting a more tangible goal and aiding them in achieving this goal. I will argue that these goals: greater market transparency, improved tropical forest conservation, and sustainable management of tropical forests in producing countries, were improved by the implementation of the two treaties more than would have been otherwise.

Dependent Variable

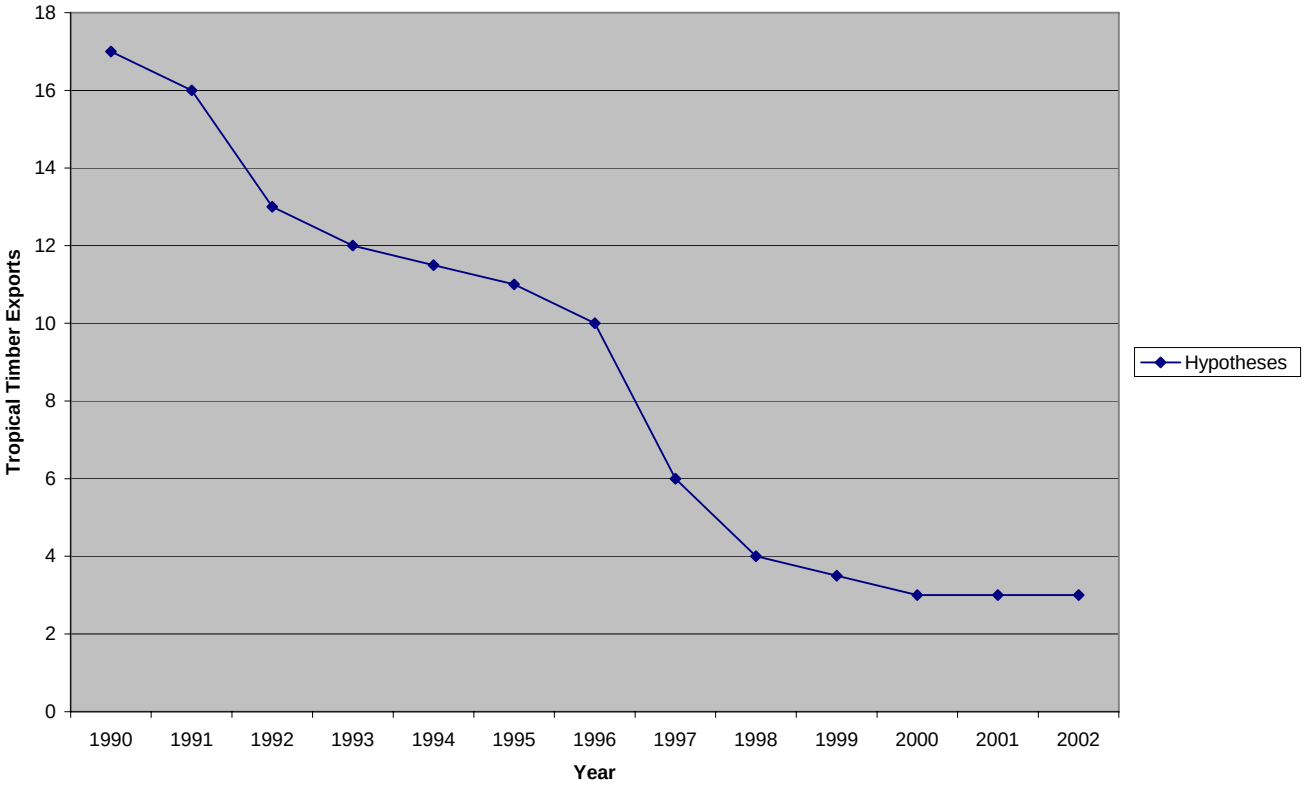
The main dependent variable in the evaluation of whether the ITTA's had an impact on deforestation in member countries will be represented in my analysis by tropical timber exports. An increase in exports would imply an increase in deforestation, while a decrease would imply the opposite. In order to explain if any changes in exports of member countries had to do with the enforcement of the treaty, members will be compared to non-members.

It could be argued that to effectively evaluate the disappearance of tropical forests, deforestation rates should be analyzed, not tropical wood exports. Conceptually, deforestation is what is cared about on an environmental level, but exports are the observable way to evaluate this problem. Deforestation rates are values that are estimated and there is no real way to distinguish whether the deforestation rate applies to all forests in a country, or just tropical forests, as the combination of the two is common. By examining just tropical wood exports, the exact resource that the ITTO (International Tropical Timber Organization) is attempting to manage can be evaluated.

Hypotheses

Considering that the main environmental goal of both of the ITTA's was to conserve tropical forests, exports would be expected to decline after the implementation of the treaties. Without the treaties it can be hypothesized that countries would have continued cutting down their forests at the same rate as before in an effort to continue making monetary gains. Table 1 is a graph of what would have ideally occurred after the implementation of the two treaties.

Table 1: Hypotheses with Treaties



The cutting down of forests would likely have gotten worse before it got better, decreasing slowly as new sustainable methods of logging were adopted by member countries, and then would decrease at an even faster rate in 1997, entry into force of the improved 1994 treaty.

Case Selection

Eight members are compared to eight non-members in this study, and include countries from Latin America, Africa, and Asia: members being Cameroon, the Democratic Republic of Congo, Ivory Coast, Ecuador, Indonesia, Liberia, Malaysia, and Papua New Guinea. The non-members are: Cambodia, The Central African Republic, Fiji, Guinea, Guinea-Bissau, Laos, Nigeria and Vietnam. By examining a large group of members compared to non-members the variation in variables that separate one nation from another are averaged across the eight countries, so they can be eliminated as having an effect. All countries in the study are developing nations, which helps to keep important economic differences constant. Most conclusions will be drawn from data comparing all member states to all non-members, however Malaysia, and the Ivory Coast will be individually analyzed. Malaysia is one of the world's largest tropical wood exporters, and the Ivory Coast is the biggest supplier in Africa, and was the most reluctant country to sign the agreements (Gowers 1985). This means that Malaysia was the "pusher" during negotiations while the Ivory Coast was the "dragger" of the member countries, implying that the Ivory Coast is the actor least likely to comply, and an analysis of its exports can truly prove whether the treaty was effective at changing behavior or not.

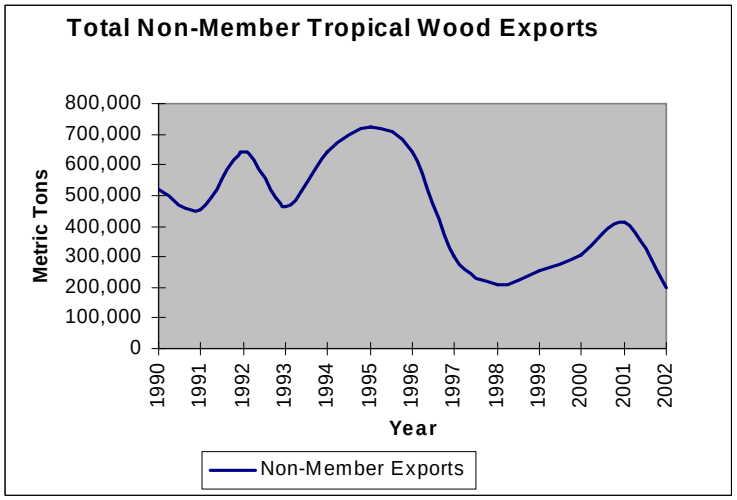
Tropical Timber Exports

Members vs. Non-members

As stated above, tropical timber export data have only been documented since 1990; therefore earlier patterns in exports can only be generally understood based on total deforestation rates. World Bank statistics on annual average change in forest coverage from 1980 to 1989 reveal that deforestation was more pervasive in member countries than non-members throughout the 1980s: the forest coverage of all member countries decreased over the decade, compared to only half of non-members, with the remainder reporting no change (World Bank Atlas 1993). It can be concluded from the deforestation rates that the ITTA's included countries producing tropical timber that were struggling to sustainably manage their forest resources. However, these deforestation rates include all forests and do not expose the trends of just tropical timber as tropical timber data were not available until 1990.

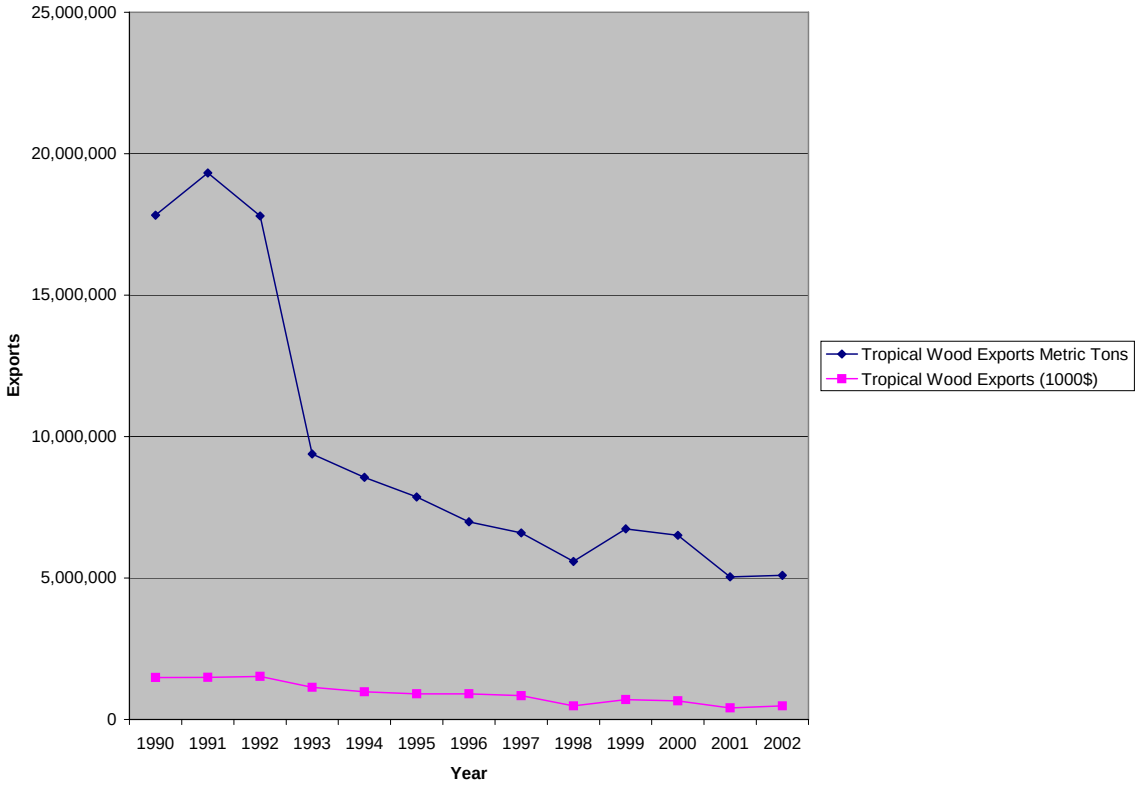
The following analysis specifically examines tropical timber variations between members of the ITTA's, and non-members. Differences between these two groups from 1990 to 1996 will show whether the 1983 agreement slowed tropical timber exports, and from 1997 to 2002 the 1994 ITTA was in force. The non-member graph represents the counterfactual, or, what hypothetically would have happened in all tropical timber producing countries if the ITTA had not existed. Reference Table 2 below.

Table 2: Total Tropical Timber Wood Exports



After a climax in 1992, member exports constantly descend over the time period, showing that the treaties in fact achieved what was hypothesized they would. Environmental problems tend to get worse before they get better after the implementation of a treaty, as it takes time to enforce the new standards of logging, for example, in the case of the ITTA. Exports increased after implementation of the first treaty, and then slowly decreased, and continued doing so after 1997. The treaties therefore decreased deforestation of tropical timber in member countries. From 1994-1996 when non-members were increasing their exports members were exporting much less than they would have otherwise. The graphs show that both members and non-members have the same general trends after 1997: decreasing in 1997, increasing slightly until 2001, and decreasing again. The non-members have more dramatic increases and decreases, however, proving that despite a decrease in world demand for tropical timber exports, the 1994 agreement was successful at getting members to export less than they would have otherwise.

Table 3: Member Malaysia Exports



Malaysia
Reference Table 3.

Of all member countries evaluated, Malaysia was the most compliant and progressive in taking steps to implement sustainable forestry practices of tropical timber.

> In its mid-term review in 1996, only three countries were identified as having potential of achieving the Year 2000 Objective. They were Ghana, Indonesia and Malaysia. Following the wrath of regional currency crises and economic downturn in 1997, the number had been reduced to one country, that is, Malaysia (Business Times Malaysia 1999).

Despite being the leading "pusher" during negotiations of the ITTA's, Malaysia was hit in the late 1990's by the Asian Financial Crisis. Malaysia's decline in exports is thus even more impressive because when a country is struggling financially it is more likely to do anything it can to make monetary gains. Malaysia was in need of boosting its economy, but complied with the ITTA's goal to conserve tropical timber and reduced exports to salvage its forests instead.

Table 4: Member Ivory Coast Tropical Wood Exports

Ivory Coast
Reference Table 4.

The Ivory Coast ratified the 1994 ITTA on January 1st 1997, the date of entry into force, proving their reluctance to become a member (Ecolex). Malaysia, on the other hand, ratified eagerly on the first of March, 1995. Despite the Ivory Coast's reluctance in signing the ITTA's, its behavior matches that of the other complying member countries. This proves that even the "dragger" of the member countries showed improvement in reducing tropical timber exports, meaning the treaties were successful at changing the behavior of both the willing and the unwilling.

Independent Variables
Independent variables that would have an affect on tropical timber exports are: population, poverty and inequality, world market timber prices, transparency in the international timber market, the treaties themselves and their differences, and change in sustainable forest management practices. Through the evaluation of these independent variables it can be concluded whether the treaties, or some other variable, caused the reduction in tropical timber exports from member countries. In order to look at overall differences between members and non-members most of the following charts compare all members to all non-members. The following analysis will show that the treaties succeeded in improving transparency of the international timber market, conserving tropical timber forests, and improving sustainable management of forests by the year 2000.

Rival Hypotheses

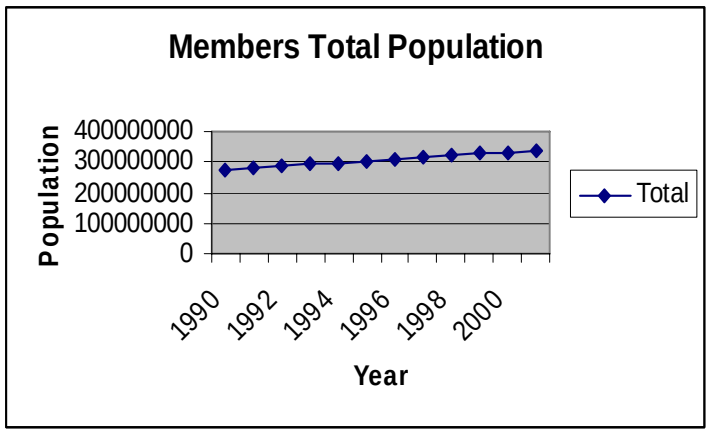
Population

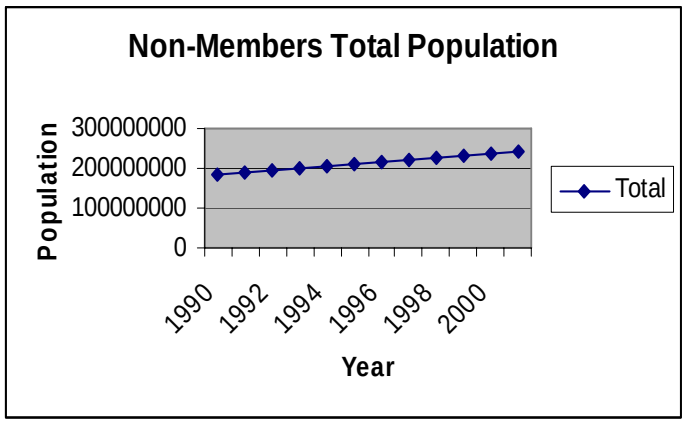
Overpopulation plagues most developing nations. This has been a challenge for the ITTO as countries with a growing population to support are more likely to misuse the environment. In member country Cameroon, for example:

> …future population growth (from an estimated 12.5 million in 1994 to possibly 17 million by the year 2000) will substantially increase the demand for both land to cultivate and fuelwood, thereby placing additional pressure on the forest…In turn, this will have profound implications for the implementation of and compliance with the ITTA (Weiss 1998, 439-440).

Although population does create problems for the ITTA's, growing population cannot be used to explain the difference in tropical timber exports between members and non-members, as population is increasing each year in both groups, as shown in Table 5.

Table 5: Population



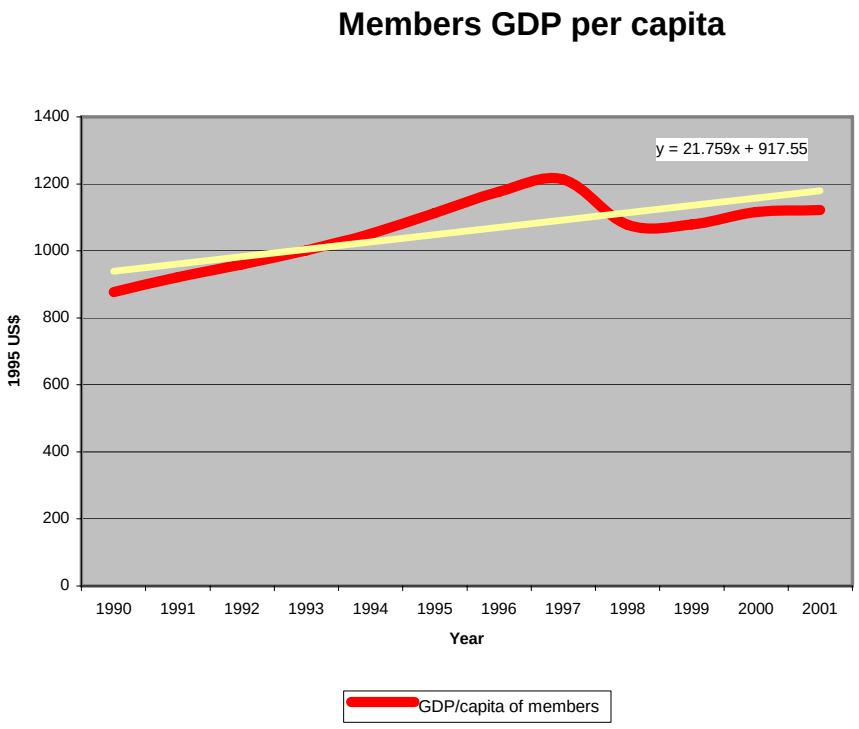


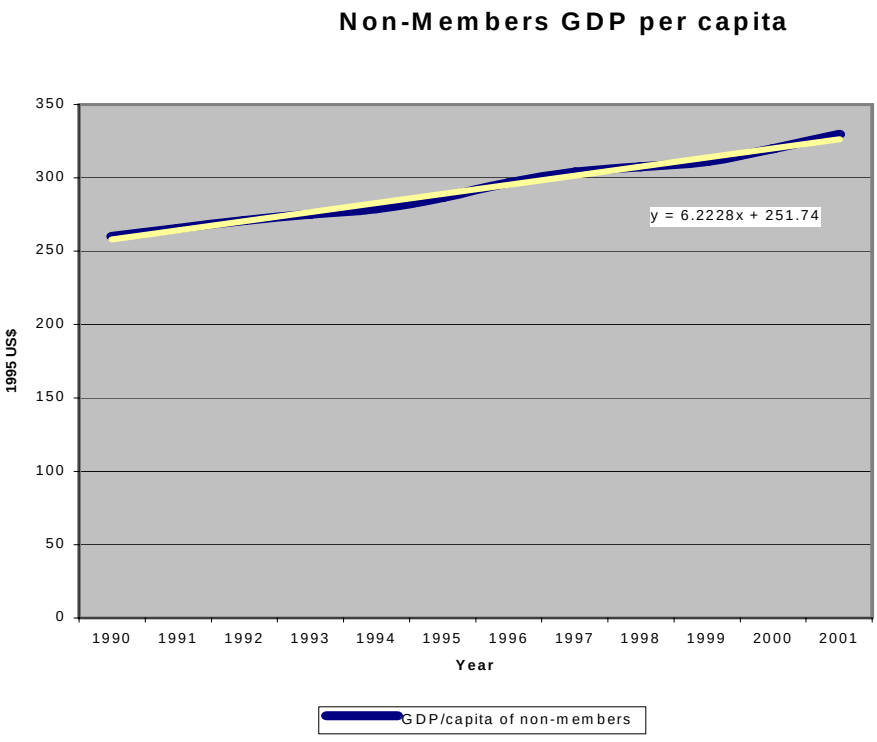
Therefore as population increases in all countries in the study the difference in exports between members and non-members cannot be explained by growing population. Population can therefore be eliminated as an independent variable that contributed to the decrease in tropical timber exports.

Poverty and Inequality

All countries in this study are developing nations; however the degree to which members and non-members suffer from poverty and wealth maldistribution does vary. GDP per capita quantifies the wealth of a nation while controlling for population, and the Gini index measures income inequality within a country (CIA World Factbook). By examining GDP per capita of members and non-members over the time period examined, as well as their Gini index ratings, poverty and inequality can be compared and contrasted between these two groups.

Table 6: GDP per capita





As shown by the trend lines in Table 6, GDP per capita of both members and non-members is increasing overall from 1990-2001, although it is doing so at a faster rate within member countries. The large decrease in tropical timber exports of members in 1998 helps to explain the decrease in GDP per capita that occurred in member countries that same year, however GDP per capita does not explain differences between tropical timber exports of members and

non-members, as GDP per capita is increasing in both groups. Like population, GDP per capita cannot explain the decreased tropical timber exports of ITTA members.

The Gini index uses a scale from 0-100 to quantify the maldistribution of wealth within a given country, with perfect equality equaling zero and absolute inequality being 100 (CIA World Factbook). Gini index calculations were not available for non-member Fiji and members Liberia and The Democratic Republic of Congo; however all remaining countries in each group had been evaluated by the Gini index at some point over the time period examined. The average maldistribution of wealth of members was 44.6, compared to 44.4 among non-members, meaning wealth is equally maldistributed independent of treaty membership, and thus can also be eliminated as an influencing variable. Therefore, neither poverty nor wealth inequality caused the difference in tropical timber exports of members vs. non-members because GDP per capita increased over the time period within both groups, and members and non-members suffer equally from income maldistribution.

World Market Timber Prices

World market timber prices do have an affect on the amount of timber exported by each country; however they cannot explain the difference in exports between members and non-members. This is because all tropical timber exporters, members and non, are affected equally by world market timber prices. Although price is very closely related to exports, it cannot explain the difference between members and non-members. It can, however, help explain the reluctance of member countries to sign the treaty.

The large debate that surrounded the negotiations of the ITTA's was the concern of producing countries that new environmental standards for tropical timber would make their products less competitive on the world market as the price would increase. Producing nations argued that the treaty should cover all types of wood to eliminate market discrimination, however, developing countries won the battle and the ITTA became a treaty that only covered tropical timber. This economic disappointment for producing nations was a victory for environmentalists as the overall decline in exports in member and non-member nations can somewhat be attributed to the forced rise in price that members had to incur to pay the difference of their new environmentally-friendly forest management practices.

Transparency

Both ITTA's aimed to increase transparency in the international tropical timber market. Regime transparency is "the availability of regime-relevant information" or "information regarding the operation and impact of a regime" (Mitchell 1998, 110). Accurate tropical timber export data not only helps to increase market knowledge, but also makes export data available to the public, which in turn encourages countries not to over export. If exports are extremely high in a particular country, NGO's and environmentalists can draw media attention to the behavior of that country. "To effectively alter the behavior of states and substate actors, regimes (or the states that compose them) must either have-or create-information about the activities they seek to regulate and the impact of those activities on the ultimate goals of the regime" (Mitchell 1998, 111).

The existence of worldwide tropical timber trade data is a result of the work of the ITTO and the Council's dedication to compiling statistical data. Tropical timber data were not available before 1990, but are now kept track of yearly as a result of the ITTA's.

> One of the major ITTO tasks is to compile statistical data on the trade in tropical woods. The ITTO publishes an *Annual Review and Assessment of the World's Tropical Timber Situation,* which is prepared by the secretariat and reviewed by a joint session of the three permanent committees (Weiss 1998, 121).

Although some of the data are based on estimates (Weiss 1998, 121), the improvement in the existence of market data is a direct result of the ITTA's. As a result of the ITTA's transparency has improved even in non-member tropical producing countries, but on a much smaller scale compared to member nations. Therefore members felt much more pressure than non-members to report their tropical timber exports and decreased their exports more dramatically as a result. The improvement in transparency of the international timber market was a goal that was successfully met by both of the ITTA's. Regime transparency was an independent variable that played a key role in getting member countries to decrease their tropical timber exports more than they would have otherwise.

Differences in Regime Structure

The changes made to the 1994 treaty made it much more environmentally explicit by setting the goal of achieving sustainably managed resources by the year 2000, while the 1983 ITTA was more trade and market oriented. Though economic factors were still of concern in the 1994 treaty, the environment was made a larger priority. The structure of the 1983 ITTA improved in two key ways after renegotiations: the creation of the Bali Partnership fund to assist producing countries in managing their tropical timber resources, and the explicit goal for sustainable forest practices to be met by the year 2000. Much of the rest of the 1994 treaty text is identical to that of the 1983 treaty, considering that the 1994 agreement was improving an already successful regime.

Both of the agreements are divided into producing and consuming countries of tropical timber, the former of which are generally third world economies, the latter first world. "More than 75 percent of the world's tropical timber output is produced by 24 of ITTO's 51-member countries, while the remaining 27 are consuming nations accounting for more than 95 percent of the world's tropical wood imports" (United Press International 1996). The ITTO succeeded in

getting almost all of the actors involved in tropical timber trade to join the treaty "…the ITTO has succeeded in achieving almost comprehensive membership among producing and consuming countries" (Sand 1992, 106). The differences in regime structure of the 1994 ITTA re-invigorated members by giving them a monetary incentive to want to improve their tropical timber logging practices.

Sustainable Management

Table 7: Sustainable Management

Forest Area under Management Plans: 1980, 1990, 2000

Country/area	**Forest area 2000**	**Area under forest management plans**					
		2000		**1990**		**1980**	
	000 ha	***000 ha***	***%***	***000 ha***	***%***	***000 ha***	***%***
ITTA Members							
Cameroon	23 858	-	-	-	-	-	-
Dem. Rep. of the Congo	135 207	-	-	-	-	-	-
Ecuador	10 557	14	n.s	-	-	-	-
Indonesia	104 986	72*	n.ap.	-	-	40	n.s.
Ivory Coast	7 117	1 387	19	-	-	1	1
Liberia	3 481	-	-	-	-	-	-
Malaysia	19 292	14 020	73	-	-	2 499	12
Papua New Guinea	30 601	5 341	17	-	-	n.s.	n.s.
ITTA Non Members							
Cambodia	9 335	-	-	-	-	-	-
Central African Republic	22 907	269*	n.ap.	-	-	-	-
Fiji	815	-	-	-	-	-	-
Guinea	6 929	112*	n.ap.	-	-	-	-
Guinea-Bissau	2 187	-	-	-	-	-	-
Lao People's Dem. Rep	12 561	-	-	-	-	-	-
Nigeria	13 517	832*	n.ap.	-	-	n.s.	n.s.
Viet Nam	9 819	-	-	-	-	-	-

Note: n.s means non-significative, meaning that the forest area under management is too small to be accounted for.

Note 2: n.ap. means that a percentage could not be calculated because the figure is not a total national figure, as shown by the asterisk note.

*Partial results only. National figure not available.

Table 7 shows forest areas operating under sustainable management programs in 1980, 1990, and 2000. The goal of the 1994 treaty was to achieve all exports of tropical timber products from sustainably managed sources by the year 2000. This somewhat unrealistic goal was not fully met by any of the countries, though improvements were definitely made. Overall, members have more protected areas than non-members: five of the eight members have forests under management in 2000, while only three non-members have forests operating sustainably in the same year. The Central African Republic and Malaysia have similar forest areas; however in 2000 The Central African Republic had an estimated 269 hectares under management, while Malaysia had 14,020. The way these advancements were made was through projects funded and organized by the ITTO that were initially proposed during 1983 negotiations, further strengthened over the 1990's, and sought to include actors outside of the ITTO.

> To strengthen the project proposals presented, in 1989 the Council authorized the establishment of the Expert Panels for Technical Appraisal of Project Proposals, which may include representatives from both the permanent committees and NGOs, such as the World Wildlife Fund. In 1992 the Council decided to publish manuals to assist in formulating projects and in project monitoring, review, and evaluation (Weiss 1998, 121).

Through the implementation of these projects in producing countries, the advancements that were made in sustainable forest practices were made possible.

Overall, however, the achievement of having all producing countries operating under sustainable forest management programs was unrealistic, and not met. “In the end, achieving sustainability in forest management practices will be a continuing process among producer members rather than merely meeting the Year 2000 Objective” (Business Times Malaysia 1999). This is a goal that can be improved, but the advancements that were made within member countries were a result of the ITTA’s. Often utopian goals are set by treaties, and though it is understood that they are not realistically attainable, just giving countries a target to strive towards improves the environment. Sustainable forest management in all member countries by the year 2000 set forth in the 1994 treaty was one of these kind of goals. Though this objective was not met by member countries, more sustainable forest management programs were put in place than would have been otherwise without the treaty.

Conditions

Treaties are more likely to change behavior when conditions to do so are favorable; however, the true test of an environmental regime comes when in spite of unfavorable conditions for compliance, members change behavior. When a country already has incentives and the ability to comply with a treaty, improvement is relatively easy to achieve. The power and objectives of actors involved with each situation complicates full compliance. In the case of the ITTO it was the power and objectives of the International Monetary Fund (IMF) that truly put the treaty to the test. Although the goals of the IMF’s forestry conservation program seemed similar to those of the ITTA’s, the IMF actually had disguised intentions.

The IMF is an international organization that “was established to promote international monetary cooperation, exchange stability, and orderly exchange arrangements; to foster economic growth and high levels of employment; and to provide temporary financial assistance to countries to help ease balance of payments adjustment” (IMF mission statement). The Tropical Forestry Action Plan (TFAP) was a program implemented by the IMF to “support tropical forest conservation” (Rich 1990, 190), which began in 1989 and continued into the 1990’s. The goals of the TFAP were

> …to alleviate pressures causing deforestation in the Third World by mobilizing $8 billion from multilateral and bilateral aid agencies over a five-year period for a variety of forestry and agricultural activities that included the building of forestry and environmental institutions, supply of fuelwood needs, conservation of protected areas and vulnerable watershed regions, and support of forest management for industrial uses (Rich 1990, 190).

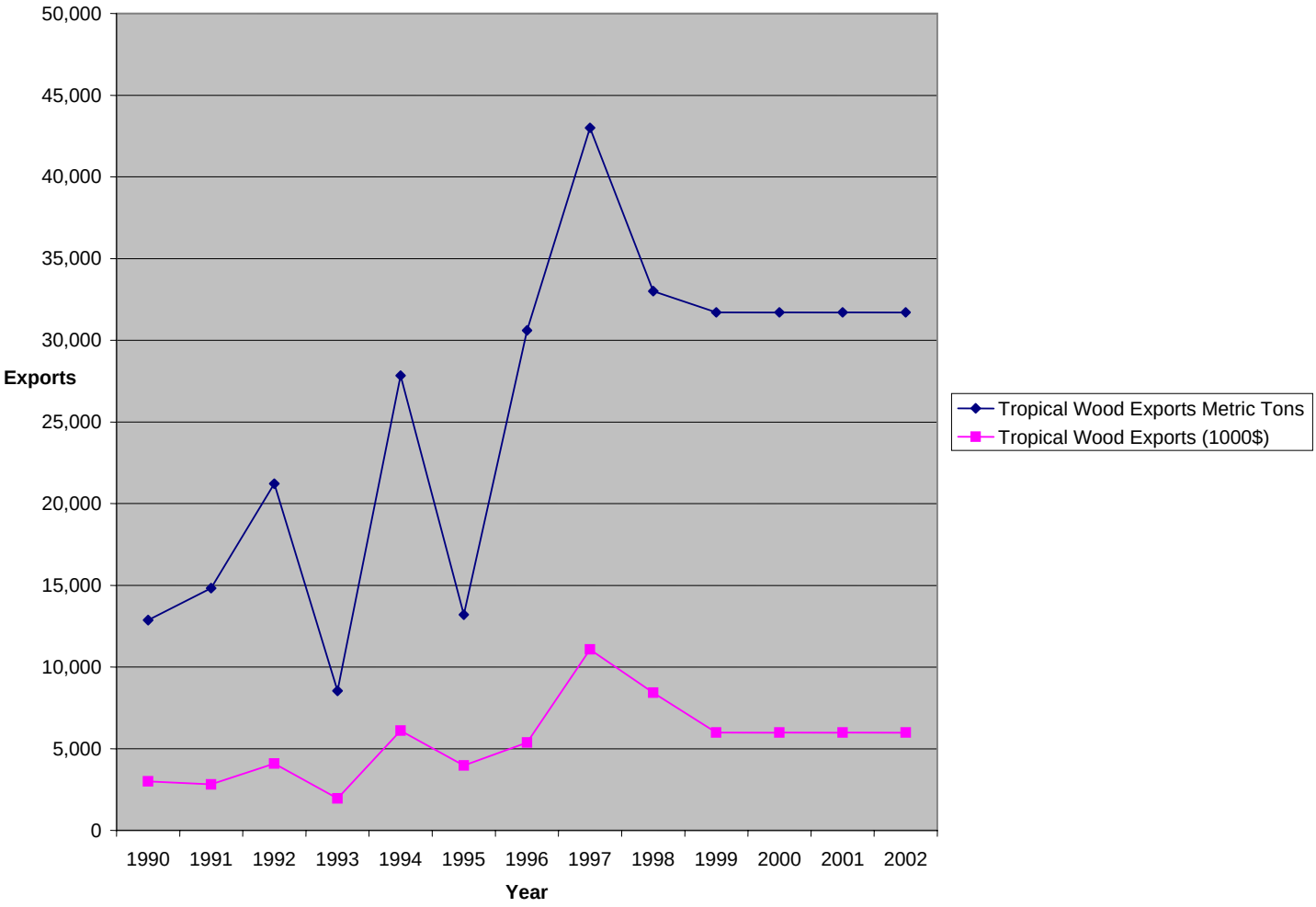
The supposed goals of the IMF project were very similar to those of the ITTA’s but with a much larger budget. The ITTA had a $3.9 million budget in 1994 (Weiss 1998, 91) which pales in comparison to the TFAP’s $8 billion dollar limit. The difference was that the ITTA used its budget to improve the environment, while the IMF did just the opposite.

An extensive study was done to review the effects of the TFAP, led by the World Rainforest Movement. The study found that “the forestry investment proposed would dramatically accelerate the rate of deforestation through increased logging; in no instance was it found that these investments would actually reduce deforestation” (Rich 1990, 191). A case study helps put the actions of the IMF into context. In January of 1989 the IMF approved $23 million of the TFAP’s budget for a forestry and fisheries plan in Guinea, a non-member of the ITTA. An investigation by the World Wildlife Fund International found that

> …the so called “forest management and protection” component of the project actually amounts to a deforestation scheme: the Bank’s money will help support the construction of 45 miles of roads in or around two humid forest reserves totaling 150,000 hectares, of which some 106,000 hectares are still pristine rainforest. Worse, hidden in the fine print of the “management and protection” section of the Bank’s project document is its real thrust: two thirds of the remaining 106,000 hectares of rainforest are to be opened for timber production (Rich 1990, 191).

The outcome of the IMF’s aid to Guinea can be seen on the graph of its exports in Table 8. Instead of decreasing deforestation over the time period and leveling off with lower tropical timber exports as the members of the ITTA did, Guinea increases dramatically over the time period, leveling off at a much higher volume of exports. The IMF caused countries to increase their deforestation rates, which directly contradicts the goal of the ITTA’s.

Table 8: Non-Member Guinea Tropical Wood Exports



Only through an analysis of both a member and a non-member can an accurate counterfactual be hypothesized. Cameroon and Guinea are geographically similar central African nations. Both received aid from the IMF through the TFAP, however, Cameroon was a member of the ITTA while Guinea was not. Table 9 shows that Cameroon's exports were increasing dramatically before 1997, just like Guinea, and then declined enormously after 1997, entry into force of the 1994 agreement.

Table 9: Member Cameroon Tropical Wood Exports

Cameroon gave in to the deforestation-encouraging practices of the IMF in the beginning, but with the implementation of the revised treaty its behavior changed dramatically. This is an example of how the 1994 ITTA re-invigorated member countries to want to improve their environments. The true strength of the ITTA is demonstrated through the comparison of member Cameroon and non-member Guinea; both countries received funding from the IMF that actually induced further deforestation, but member Cameroon complied with its treaty obligations and opted to reduce exports.

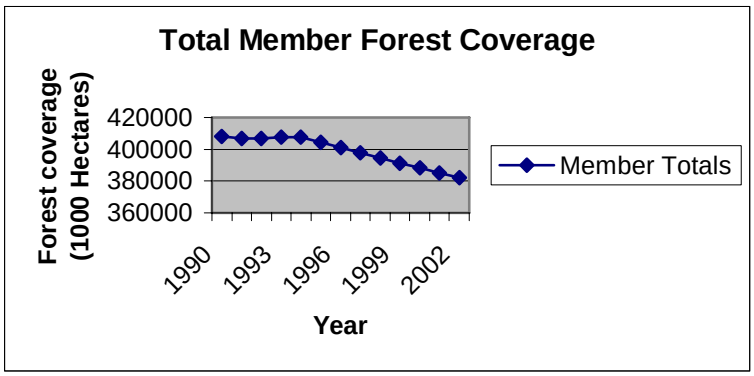
Alternative Explanations

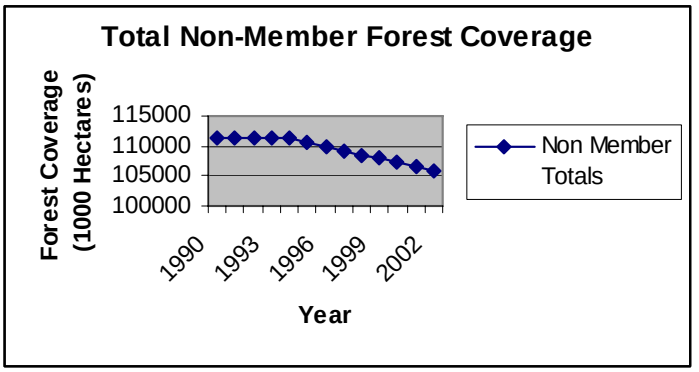
This study has argued that the work of the ITTA's is what caused a larger decrease in deforestation of member countries compared to non-members from 1990 to 2002. However, alternate explanations must be examined as possible contributors to the decline as well. Forest coverage and a decrease in demand for tropical wood are two variables that could have also contributed to the decline in forest exports.

Forest Coverage

Forest coverage in a country is proportionately related to the amount of tropical timber exported. Both member and non-member tropical timber exports are generally decreasing over the time period, despite differences in fluctuations. Forest coverage for all actors is always decreasing as well, as shown in Table 10.

Table 10: Forest Coverage





The overall decline of member and non-member exports must be somewhat attributed to the fact that the amount of timber that can be cut down is decreasing. All nations included in this study are not replanting their forests at the same rate they are logging them, rather at a slower one. A discrepancy in data makes this a difficult variable to evaluate as forest coverage data includes all forests in a country, not just tropical forests. It can be assumed, however, that if all forests were declining, the percentage of tropical forests were as well. The treaty, however, kept members from cutting their tropical timber down as fast as non-members did. Forest coverage is steadily decreasing in both groups, but the treaty slowed the process of tropical timber logging in member countries.

Decreasing Demand

Consumers in today's world are constantly looking to get the best return on their investment. As new environmental restrictions were put on tropical timber, and exports decreased, the price of tropical timber increased dramatically after implementation of the ITTA's. Tropical timber is exotic and expensive normally, and became more so as a result of the treaties. For example in Asean (Association of Southeast Asian Nations) "The forest resources of the region are also one of the richest and most valuable in the tropical world. Asean is the home of the luxury timber teak, tectona grandis. The so-called south-sea timbers, the lauans and merantis, are valued internationally" (Freezailah 1996). These unique costly timbers are desired less and less as manufacturers adopt cheaper alternatives. The decline in demand is another possible explanation for the overall decline in tropical timber exports.

Goal Evaluation

The main environmental goal of the ITTA's - conservation of forests in producing member countries - was met. Greater transparency in the tropical timber market, and an increase in funds for producing countries put forth in the 1994 agreement were accomplished as well. Despite cumbersome advancement in the goal to sustainably manage producing members tropical forests, the progress that was made can be attributed to the creation of the Bali Partnership Fund that was an addition to the 1994 agreement. Lack of progress and participation of producing nations in the 1983 agreement was attributed largely to funding. "There is no provision in the (1983) ITTA to assist developing countries in bearing the expense of sending delegates to meetings and working parties, in order to play a more proactive role in directing ITTO policies" (Sand 1992, 109). The new fund gave producing countries more of an incentive to want to participate and improve forest management, and re-invigorated their drive to conserve tropical timber resources. "Consumers have also agreed to set up a fund, known as the 'Bali Partnership Fund', to aid producers in their efforts to meet forest conservation objectives" (Williams 1994). Giving countries, especially developing countries, a monetary incentive to participate in improving the environment makes compliance with treaties much more likely.

Conclusion

In this study I compared tropical wood exports of members to non-members taking into account, population, poverty and inequality, world market timber price, transparency, difference in regime structure, and sustainable forest management practices, as independent variables that could affect my dependent variable, tropical timber exports, from 1990 to 2002. The role of the IMF as a powerful counter to the conservation of tropical timber was discussed, and forest coverage and decreasing demand were also examined as possible alternate explanations for the decrease in tropical timber exports. However, after careful examination of each variable it can be concluded that as a result of the changes of the ITTA's, member countries exported less tropical timber than they would have otherwise, implying a decrease in deforestation rates.

Unfortunately, treaties that are solely environmentally focused are unrealistic in a world that is increasingly driven by trade and markets. The 1983 ITTA decreased deforestation in producing member countries, and increased market transparency. The 1994 agreement built upon its success and improved what had already been accomplished by the 1983 ITTA with the creation of the Bali Partnership Fund and a goal for sustainable forest management practices. By including both consuming and producing countries of tropical wood, the treaties were able to focus on all aspects of the international market, not just economic or environmental, but both. From an environmental perspective the ITTA's were a success.

The tropical timber industry is a difficult sector to monitor, as changes become very political in countries where economies benefit from environmental degradation. “In many forest-rich countries, land tenure regimes, government forestry agencies, timber concession policies, and taxes and subsidies related to forest land and forest products all serve to strengthen vested interests that benefit from forest exploitation” (Dubash 1999, 2). Despite these obstacles, the ITTA’s were able to change logging practices in member countries and helped to preserve tropical timber for future generations.

References

Business Times (Malaysia). 1999. “Providing market access.” February 2, 1999. New Straits Times Press (Malaysia) Berhad . Section: Pg.4. Lexis-Nexus Academic.

CIA World Factbook. Notes and Definitions, Distribution of Family Income - Gini Index and GDP per capita. (http://www.cia.gov/cia/publications/factbook/docs/notesanddefs.html) Date accessed: 5 May 2005.

Dr. B.C.Y. Freezailah. 1996. “ITTO moves towards sustainable forest management by 2000.” December 7, 1996. New Straits Times Press (Malaysia) Berhad. Section: Saturday forum; Pg. 13. Lexis-Nexus Academic.

Dubash, Navroz K. and Frances Seymour. 1999. The Political Economy of “Environmental Adjustment”: The World Bank as Midwife of Forest Policy Reform. Washington, DC: World Resources Institute.

Ecolex. Treaty signature, ratification, and entry into force data. www.ecolex.org. Date accessed: 30 January 2004.

Food and Agriculture Organization of the United Nations. FAOSTAT Agricultural Data: Forestry Export Data (http://apps.fao.org/page/collections?) Industrial roundwood - Wood in the rough (Non-Coniferous-Tropical). Web site last updated: 2 February 2004. Database accessed: 2 February 2004.

Forest Coverage Data from 1980 to 1994: FAOSTAT Agricultural Data: Land Use (http://apps.fao.org/page/collections?) Forest and Woodland. Web site last updated 22 August 2003. Database accessed 5 February 2004.

Forest Coverage Data from 1995 to 2000: Projected based on the Change Rates shown in the United Nations Food and Agriculture Organization's (FAO) Forest Resource Assessment 2000 (http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=2921&sitetreeId=7949&langId=1). Date Accessed: 4 February 2004.

Forest Trends Management: 1980, 1990, 2000. FAO Forest Resource Assessment 2000. Table 7. Date accessed: 15 February 2004.
http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?geoId=0&langId=1&siteId=2921.

Frances Williams. 1994. “Compromise reached on tropical timber pact.” The Financial Times Limited. January 26, 1994, Wednesday. Section: Commodities and Agriculture; Pg. 34. London, England. Lexis-Nexus Academic.

Frances Williams. 1996. “UN tropical timber pact set to come into effect.” The Financial Times Limited. September 13, 1996, Friday. Edition 3. Sections: Commodities and Agriculture; Pg. 31. London, England. Lexis-Nexus Academic.

Gowers, Andrew. 1985. “Ivory Coast and Brazil lift timber pact hopes.” The Financial Times Limited. March 29, 1985, Friday. Section: Commodities and Agriculture; Pg. 42. London, England. Lexis-Nexus Academic.

International Monetary Fund mission statement. http://www.imf.org/external/about.htm. Date accessed: 8 March 2004.

ITTA Secretariat. International Tropical Timber Organization. *About the ITTO*. ITTA Secretariat (http://www.itto.or.jp/inside/about.html). Document accessed: 30 January 2004.

Keohane, Robert O. and Marc A. Levy. 1996. *Institutions for Environmental Aid Pitfalls and Promise.* Cambridge Massachusetts: The MIT Press.

Mitchell, Ronald. *Sources of Transparency: Information Systems in International Regimes*.” *International Studies Quarterly* 42:1 (March 1998), 109-130.

Rich, Bruce. 1990. “The Emperor’s New Clothes: The World Bank and Environmental Reform.” In *Green Planet Blues: Environmental Politics from Stockholm to Rio*, 2nd edition. Boulder: Westview Press.

Sand, Peter H. 1992. *The Effectiveness of International Environmental Agreements A Survey of Existing Legal Instruments*. Cambridge: Grotius Publications Limited.

United Press International. 1996. “Tropical timber labels to be voluntary.” March 12, 1996, Tuesday. Section: International. Lexis-Nexus Academic.

Weiss, Edith Brown and Harold K. Jacobson. 1998. *Engaging Countries Strengthening Compliance with International Environmental Accords*. Cambridge, Massachusetts: The MIT Press.

World Bank Atlas 1994. 1993. The World Bank. Washington, D.C. Annual average change, forest coverage, 1980-1989.

World Development Indicators 2003 CD ROM. 2003. The World Bank Group. Time Series Query GDP per capita (constant 1995 US$), Gini index, and Total Population. Date Accessed 30 January 2004.

Yearbook of Forest Products. Definitions: Industrial roundwood-Wood in the rough (Non-Coniferous-Tropical). (http://www.fao.org/waicent/faostat/forestry/products.htm#3). Date Accessed: 8 February 2004.

1983 International Tropical Timber Agreement. http://www.uoregon.edu/~rmitchel/TreatyTexts/. Date accessed: 30 January 2004.

1994 International Tropical Timber Agreement. http://www.uoregon.edu/~rmitchel/TreatyTexts/. Date accessed: 30 January 2004.