

INTERNATIONAL ENVIRONMENTAL AND TRADE POLICY (2053K, 1998)

Aim of the course:

- Knowing what the international environmental problems are.
- Understanding the WTO/GATT view on environmental problems.
- Understanding the theoretical background of the WTO/GATT view.
- Understanding the problems of environmental policy in the presence of international capital movements and imperfect competition.
- Learning to think about solving concrete environmental problems without violating GATT/WTO agreements.

Prior knowledge: 2.1 'International trade theory' is strictly necessary. Knowing closed economy environmental economics is advantageous.

The tutorial group proceeds in several steps:

1. Answering questions on details going from page to page.
2. Clarifying the differences with static trade theory and/or closed economy environmental economics.
3. Comparison with and questions on previous papers.
4. Discussion of other problems students come across when reading at home or discussing in the group.
5. Evaluation of the working of the chairman and the group.

Presence is obligatory: missing 25% is the maximum independent of the reason.

The (open book) test will consist of open questions; the grade will depend on that of the test and on participants mutual grading.

Participants mutual grading can be based on: Presence, contribution to raising and answering questions in the group, contribution to making case studies in the group.

Time effort: You are expected to prepare each meeting for 8 hours (16 per week) thus making sure that you

work 20 hours per week on this course.

The chairperson makes sure that this scheme is followed.

Time schedule

6-4 Block opening: Overview, Coase theorem and the equivalence of taxes and subsidies in the closed economy version of the Ricardian model

9-4 and 16-4 Introduction 1: Mäler, K.G., 1990, International Environmental Problems, Oxford Review of Economic Policy, Vol. 6, No.1, 80-108.

20-4: Introduction 2: Greenaway, D., International Trade Policy, Macmillan Education Ltd., London, 1983, pp. 52-64 and GATT: Trade and the environment, GATT-Report.

23-4: The WTO view. GATT : Trade and the environment, GATT-Report.
ALLOCATION OF CASE STUDIES and formation of groups. Search for literature for your case **also but not only** in ESB, The Economist and Greenpeace.

27-4 and 4-5: Trade theoretic foundation of the WTO view. Ricardo und Heckscher-Ohlin model: Pethig, R., 1976, Pollution, Welfare, and Environmental Policy in the Theory of Comparative Advantage, Journal of Environmental Economics and Management 2, 160-169.

7-5: Regulation and Mobile capital: McGuire, M.C., 1982, Regulation, Factor Rewards, and International Trade, Journal of Public Economics 17, 335-354.

11-5: The problem of driving out foreign firms' plants. Horstmann and Markusen model: Markusen, J.R., E.R. Morey, and N.O. Olewiler, Environmental policy when market structure and plant locations are endogenous, Journal of Environmental Economics and Management 24, 69-86.

14-5: Transport costs and international trade. Chamberlain/Krugman model: Soete, L. and T. Ziesemer, Gains from Trade and environmental policy under Imperfect Competition and Pollution from Transport, MERIT Research Memorandum 92-022.

GROUPS HAND IN CASE STUDIES: SOLUTION, JUSTIFICATION, Problems and literature ON 3 A4 pages.

18-5: Case study PRESENTATIONS (10 MINUTES+5 MINUTES DISCUSSION) and final discussion: policy measures for concrete examples.

Thomas Zieseemer, 24-4-1998

INSTRUCTIONS FOR CASE STUDIES

Literature: check ESB, The Economist, Greenpeace, lexica, textbooks, journal articles to be found via cd-rom.

Make sure that you treat the following questions when treating the case you selected:

What is the environmental problem in question?

Have there been any efforts or suggestions to raise tariffs or impose quota in order to solve the environmental problem?

Who would be damaged by tariffs and quota?

Who could tax or subsidies whom to obtain a solution? Think about both, PPP and VPP answers!

Are there other potential solutions like labelling or GEF subsidies?

For the solutions you suggest or discuss: does everybody have sufficient incentive to agree to that solution (everybody must be better off!)?

Are there information problems in your solution? How can they be solved? (Recall the ideas from asymmetric information and the Groves mechanism).

Does your suggested solution answer to all controversies in the literature on your case?

Test on

INTERNATIONAL ENVIRONMENTAL AND TRADE POLICY (2053K, T. Zieseemer)

This test contains 36 yes/no questions and an open question. You will get separate grades for them. The average of both will be the grade on the written test.

For the yes/no question you get grade

10	9	8	7	6	5	4	3	2	1	if you have
36	33	30	27	24	21	17	12	8	4	
-	-	-	-	-	-	-	-	-	-	
34	31	28	25	22	18	13	9	5	0	

correct signs.

Yes/no questions:

Make a '+' sign on the **left** hand side if the following statement is correct and a '-' sign if it is not correct.

1. Coase has shown that where voluntary bargains that exhaust the potential gains from trade are struck among the parties to an externality, an efficient outcome will never be reached.

2. The Coase theorem holds for a small number of participants if transaction costs are absent.

3. In a Coasian world Pigouvian taxes are not just superfluous; they themselves become the source of distortions in resource allocation.

In the **closed** economy version of the **Ricardian trade model** enlarged by an externality from the production of good 1 that decreases utility ... (4-8)

4. ... in the central optimum the marginal rate of substitution does not equal the marginal rate of transformation.

5. ... the Pareto optimal allocation can be reached by introduction of a tax on the production of good 1, or a subsidy for the difference between the production of the polluting good in a no-policy equilibrium and the actual production, ...

6. ... where the subsidy mentioned in statement 5 is larger than the tax mentioned in 5.

7. ... the Pareto optimal allocation can be reached by the introduction of a subsidy for the production or the consumption of the clean good ...

8. ... where the two subsidies mentioned in 7. above are equal.

Considering **unidirectional externalities in the model with one upstream and one downstream country**, ... (9-13)

9. ... the Coase theorem - when all its assumptions hold - guarantees that an agreement will not be reached even if the marginal benefit function intersects the marginal cost function if the former is continuously falling and the latter is continuously increasing in the emissions.

10. ... reaching an agreement as defined by a Nash equilibrium will make both countries better off.

11. ... in a Nash equilibrium of two countries with identical

bargaining power the total gains will not be divided equally between the two countries.

12. ... the mutual compensation principle requires the design of transfers such that the gains from truth telling are proportional to the total gains from emission reductions and the budget is balanced.

13. ... reaching an agreement as defined by a Nash equilibrium requires application of the polluter-pays principle.

When there are regional reciprocal externalities ... (14-17)

14. ... a net benefit function that is concave in the harvest of fish or emission of sulphur will lead to a Nash equilibrium where each country uses more of the common property resource than the Pareto efficient outcome.

15. ... the marginal abatement cost in each country in the acid rain game should be equal to the sum of marginal damages in all countries.

16. ... and the emissions cannot be monitored, countries would have strong incentives to violate the agreement. Technical development may eventually permit satellite monitoring.

17. When there is a production externality a tariff is an inefficient instrument because it introduces a consumption distortion.

18. According to GATT rules, generally speaking, a country can do anything to imports or exports that it does to its own products.

19. It is not possible under GATT's rules to make access to one's own market dependent on the domestic environmental policies or practices of the exporting country.

In Pethig's model ... (20-28)

20. ... the implementation of environmental policies in the closed economy model leads to an equilibrium with an emission charge or price for tradable permits, where the latter is equal to the former.

21. ... if there is no environmental policy specialization of the open economies will be as in the Ricardian trade theory.

22. ... the country which specializes on the production of the labour-intensive good may suffer a welfare loss, if there is no environmental policy.

23. ... a country that specialized in the labour-intensive good

as long as there is no environmental policy will no longer be specialized in this good if it introduces an environmental policy while the other country does not.

24. ... a country that is specialized in the environment-intensive good as long as there is no environmental policy will still specialize on the environment-intensive good after the introduction of an environmental policy of only its own country if this environmental policy allows for a sufficient amount of pollution.

25. ... a country that is specialized in the environment-intensive good as long as there is no environmental policy will specialize in the labour-intensive good if environmental capital is sufficiently scarce after the introduction of environmental standards.

26. ... the introduction of environmental policies in both countries leads to a pattern of specialization as in Heckscher-Ohlin trade theory.

27. ... after the introduction of environmental policies in both countries a country can suffer a welfare loss from trade.

28. ... the slightest difference in countries' environmental controls will lead to different emission prices.

In **McGuire's model** ...

29. ... an attempt to reduce pollution by way of a new tax on the emission of polluting industries could actually be ineffective because the change in pollution flows due to a reduction in one country's emissions may be offset if capital movements increase the other country's polluting output and emissions.

In the model by **Markusen, Morey and Olewiler** ... (30-34)

30. ... a multi-plant market structure is less likely with a high firm-specific fixed costs, F , and low plant-specific fixed costs, G , while a single-plant outcome is more likely with a low F and a high G .

31. ... multi-plant economies of scale result because the fixed costs of a two-plant firm, $2G+F$, are less than the combined fixed costs of two one-plant firms, $2G+2F$.

32. ... firms are likely to serve the other market by exports when the fixed costs of a new plant are high relative to the unit transport costs.

33. ... at critical levels of environmental policy variables, small policy changes cause large discreet jumps in a region's pollution and welfare as a firm closes or opens a plant, or shifts production to/from a foreign branch plant.

34. ... a politician who ignores the change in market structure cannot impose a tax or subsidy that is worse than doing nothing.

35. In the model by Soete and Zieseemer a tax on emissions from transport shifts consumption from foreign to domestic goods and from quantity to more variety of consumption goods.

36. For a shift of taxes on labour to taxes on pollution to benefit low-income earners, three conditions must be met. First, the incidence of the environmental tax should not fall entirely on low-income earners. Second, the environmental tax should yield substantial revenues. Third, revenues should be used to cut taxes that are borne by low-income earners. ... The second condition requires that the pollution tax is not extremely successful in reducing pollution.

Open question:

The polluter-pays principle: Its pros and cons in bilateral negotiations, closed and open economies.

Good luck

Thomas Zieseemer

Earlier versions

Thomas Zieseemer

INTERNATIONAL ENVIRONMENTAL AND TRADE POLICY (2053K)

6-11 Block opening: Overview, Coase theorem and the equivalence of taxes and subsidies in the closed economy version of the Ricardian model

9-11 and 13-11 Introduction 1: Mäler, K.G., 1990, International Environmental Problems, Oxford Review of Economic Policy, Vol. 6, No.1,80-108.

16-11: Introduction 2: Greenaway, D., International Trade Policy, Macmillan Education Ltd., London, 1983, pp. 52-64 and GATT: Trade and the environment, GATT-Report.

20-11: GATT: Trade and the environment, GATT-Report.

23-11 and 27-11: Ricardo und Heckscher-Ohlin model: Pethig, R., 1976, Pollution, Welfare, and Environmental Policy in the Theory

of Comparative Advantage, Journal of Environmental Economics and Management 2, 160-169.

30-11: Regulation and Mobile factors: McGuire, M.C., 1982, Regulation, Factor Rewards, and International Trade, Journal of Public Economics 17, 335-354.

4-12: Horstmann and Markusen model: Markusen, J.R., E.R. Morey, and N.O. Olewiler, Environmental policy when market structure and plant locations are endogenous, Journal of Environmental Economics and Management 24, 69-86.

7-12 and 11-12: Cournot model: Conrad, K., 1993, Taxes and Subsidies for Pollution-Intensive Industries as Trade Policy, Journal of Environmental Economics and Management 25, 121-135.

14-12: Chamberlain/Krugman model: Soete, L. and T. Zieseimer, Gains from Trade and environmental policy under Imperfect Competition and Pollution from Transport, MERIT Research Memorandum 92-022.

18-21: Bovenberg, A.L.: Environmental Taxation and employment, De Economist, Vol. 143, No. 2, May 1995, 111-140.

21-12: final discussion: policy measures for concrete examples

EQUIVALENCE OF TAXES AND SUBSIDIES IN THE CLOSED ECONOMY VERSION OF THE RICARDIAN MODEL

OPTIMUM

$$(1) U(C_1, C_2) + V(E)$$

$$(2) C_1 = F_1(L_1)$$

$$(3) C_2 = F_2(L_2)$$

$$(4) E = P(C_1)$$

$$(5) L_1 + L_2 - L = 0$$

$$_ = U[F_1(L_1), F_2(L_2)] + V[P(F_1 * C_1)] + \lambda(L - L_1 - L_2)$$

$$\partial_ / \partial L_1 = U_1 F_1' + V' P' F_1'(L_1) - \lambda = 0 \quad (6)$$

$$\partial_ / \partial L_2 = U_2 F_2' - \lambda = 0 \quad (7)$$

$$U_1(.) F_1' + V' P' F_1'(L_1) - U_2(.) F_2' = 0 \quad (8)$$

$$a_1 \qquad a_1 \qquad a_2$$

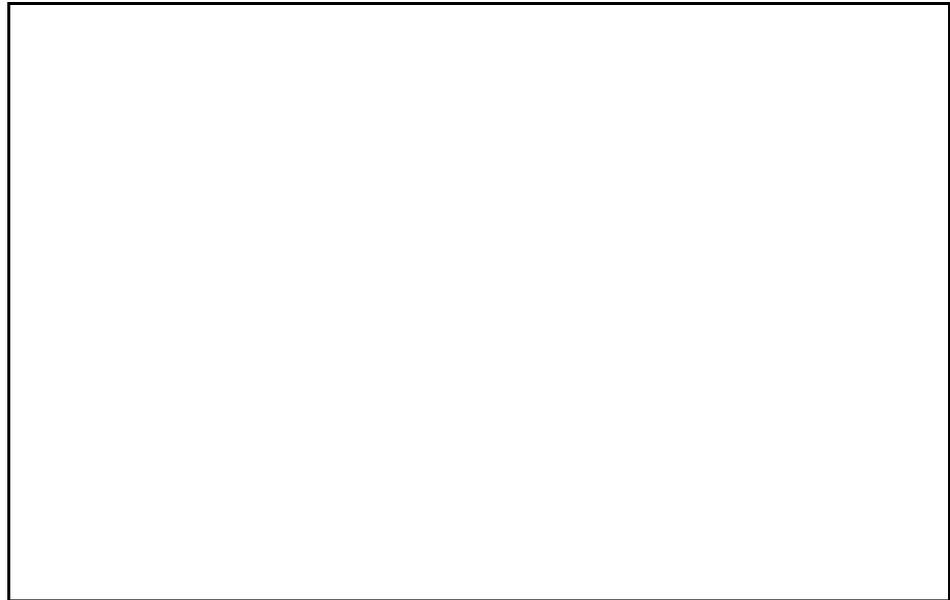
$$U_1[F_1(L_1), F_2(L_2)] a_1 + V' P' a_1 = U_2[F_1(L_1), F_2(L_2)] a_2$$

The marginal utility of L_1 is diminished by $V' P'$.

$$U_1 F_1' + V' P' F_1' = U_2 F_2' \quad (8')$$

$$U_1/U_2 + (V' P')/U_2 = F_2'/F_1' \quad (8'')$$

$$U_1/U_2 = F_2'/F_1' - (V' P')/U_2 \quad (8''') \rightarrow \text{with (5)} \rightarrow L_1^{\text{opt}}, L_2^{\text{opt}}$$



POLICY SOLUTION 1: TAXING PRODUCTION OF THE POLLUTING GOOD

Household: $U(C_1, C_2) + V(E)$

$$(9) \quad P_1 C_1 + P_2 C_2 - wL - \sum \pi_i - T = 0$$

$$(10) \quad U_1 = \lambda P_1 \quad (11) \quad U_2 = \lambda P_2 \quad \Rightarrow \quad U_1/U_2 = P_1/P_2 \quad (12)$$

Firm 1:

$$\pi_1 = (P_1 - t) F_1(L_1) - wL_1 \quad (13)$$

$$\partial \pi_1 / \partial L_1 = (P_1 - t) F_1' - w = 0 \quad (14)$$

Firm 2:

$$\pi_2 = P_2 F_2(L_2) - wL_2 \quad (15)$$

$$\partial \pi_2 / \partial L_2 = P_2 F_2' - w = 0 \quad (16)$$

From (14) and (16):

$$(P_1 - t) F_1' = P_2 F_2' \quad (17)$$

$$(P_1 - t)/P_2 = F_2'/F_1' \quad (17')$$

$$P_1/P_2 = F_2'/F_1' + t/P_2 \quad (17'')$$

Government: $tF_1(L_1) = T \quad (18)$

$$U_1/U_2 = F_2'/F_1' + t/P_2 \quad (19)$$

For $t/P_2 = -(V'P')/U_2$: (19) equals (8''') and figure 1 depicts the equilibrium which is an optimal solution because of the optimal tax.

POLICY SOLUTION 2: SUBSIDIZING PRODUCTION REDUCTION OF THE POLLUTING GOOD

Household: $U(C_1, C_2) + V(E)$

$$P_1C_1 + P_2C_2 - wL - \sum \pi_i - T = 0$$

$$U_1 = \lambda P_1 \quad U_2 = \lambda P_2 \quad \Rightarrow U_1/U_2 = P_1/P_2$$

Firm 1: $\pi_1 = P_1F_1(L_1) + s[C_1^* - F_1(L_1)] - wL_1 \quad (20)$

C_1^* is the market equilibrium value if there is no policy.

$$\partial \pi_1 / \partial L_1 = P_1F_1' - sF_1' - w = 0 \quad (21)$$

Firm 2: as above in (16): $P_2F_2' = w \quad (22)$

Equalizing wages in (21) and (22) yields:

$$(P_1 - s)F_1' = P_2F_2' \quad (23)$$

Dividing by F_1' and P_2 yields:

$$P_1/P_2 - s/P_2 = F_2'/F_1' \quad (23')$$

$$P_1/P_2 = F_2'/F_1' + s/P_2 \quad (23'')$$

$$U_1/U_2 = F_2'/F_1' + s/P_2 \quad (24)$$

$s > 0$ is efficient if it equals t in solution 1 and s/P_2 equals $-(V'P')/U_2$ from (8'''). In that case figure 1 applies again.

POLICY SOLUTION 3: SUBSIDY FOR CONSUMPTION OF THE CLEAN GOOD C_2

$$(P_2 - s)C_2 : U_1/U_2 = P_1/(P_2 - s) \quad \text{or}$$

$$U_2/U_1 = (P_2 - s)/P_1 \quad (25)$$

$$\underline{\text{Firms}} : P_1F_1' = P_2F_2' \Rightarrow P_1/P_2 = F_2'/F_1'$$

Insertion of the last equation into (25) yields

$$U_2/U_1 = F_1'/F_2' - s/P_1$$

with constant F_2'/F_1' the "good value" of s enhances U_1/U_2 to the optimal level. For $P_1 = 1$ the producer price P_2 must be higher now than in all previous cases. Fig. 1 applies only after subtracting s from the price of good 2.

POLICY SOLUTION 4: SUBSIDY FOR PRODUCTION OF THE CLEAN GOOD C_2

$$\underline{\text{Households}}: U_1/U_2 = P_1/P_2 \quad \text{as above}$$

$$\underline{\text{Firm 1}}: P_1F_1' - w = 0 \quad (26)$$

$$\underline{\text{Firm 2}}: (s + P_2)F_2' - w = 0 \quad (27)$$

$$\text{From (26) and (27): } \Rightarrow \begin{aligned} P_1F_1' &= (P_2 + s)F_2' \\ F_1'/F_2' &= (P_2 + s)/P_1 \end{aligned}$$

$$F_1'/F_2' = U_2/U_1 + s/P_1$$

$$\text{or } U_2/U_1 = F_1'/F_2' - s/P_1$$

where the optimal level of s is equivalent to the subsidy for consumption of good C_2 .

ENVIRONMENT AND MODERNE THEORIES OF INTERNATIONAL TRADE (2053K)

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correct signs.

Yes/no questions:

Make a '+' sign on the left hand side if the following statement is correct and a '-' sign if it is not correct.

1. Coase has shown that where voluntary bargains that exhaust the potential gains from trade are struck among the parties to an externality, an efficient outcome will be reached.

2. The Coase theorem holds for small and large number of participants with and without transaction costs.

3. In a Coasian world Pigouvian taxes are not just superfluous; they themselves become the source of distortions in resource allocation.

In the closed economy version of the Ricardian trade model enlarged by an externality from the production of good 1 that decreases utility ... (4-8)

4. ... in the central optimum the marginal rate of substitution equals the marginal rate of transformation.

5. ... the Pareto optimal allocation can be reached by introduction of a tax on the production of good 1, or a subsidy for the difference between the production of the polluting good in a no-policy equilibrium and the actual production, ...

6. ... where the subsidy mentioned in statement 5 is as large as the tax mentioned in 5.

7. ... the Pareto optimal allocation can be reached by the introduction of a subsidy for the production or the consumption

of the clean good ...

8. ... where the two subsidies mentioned in 7. above are of different orders of magnitude.

Considering unidirectional externalities in the model with one upstream and one downstream country, ... (9-13)

9. ... the Coase theorem - when all its assumptions hold - guarantees that an agreement will be reached where the marginal benefit function intersects the marginal cost function if the former is continuously falling and the latter is continuously increasing in the emissions.

10. ... reaching an agreement as defined by a Nash equilibrium can make one country better off and the other country worse off.

11. ... in a Nash equilibrium of two countries with identical bargaining power the total gains will be divided equally between the two countries.

12. ... the mutual compensation principle requires the design of transfers such that the gains from truth telling are proportional to the total gains from emission reductions and the budget is balanced.

13. ... reaching an agreement as defined by a Nash equilibrium requires side-payments from the victim to the polluter.

When there are regional reciprocal externalities ... (14-17)

14. ... a net benefit function that is concave in the harvest of fish or emission of sulphur will lead to a Nash equilibrium where each country uses less of the common property resource than the Pareto efficient outcome.

15. ... the marginal abatement cost in each country in the acid rain game should be equal to the sum of marginal damages in all countries.

16. ... even if emissions can be monitored perfectly but countries can give false information on their true abatement and damage costs, because of the incentives to be a free rider there will be no equilibrium in the acid rain game in which all countries are giving correct information.

17. ... and the emissions cannot be monitored, countries would have strong incentives to violate the agreement. Technical development may eventually permit satellite monitoring.

In Pethig's model ... (18-26)

18. ... the implementation of environmental policies in the closed economy model leads to an equilibrium with an emission charge or price for tradable permits, where the latter is smaller than the former.

19. ... if there is no environmental policy specialization of the open economies will be as in the Heckscher-Ohlin trade theory.

20. ... the country which specializes on the production of the environment-intensive good may suffer a welfare loss, if it specializes on the environment-intensive good and the welfare loss due to the decreased environmental quality overcompensates the welfare gain from the increased quantity of private consumption goods after trade.

21. ... a country that specialized in the labour-intensive good as long as there is no environmental policy will also be specialized in this good if it introduces an environmental policy whereas the other country does not.

22. ... a country that is specialized in the environment-intensive good as long as there is no environmental policy will still specialize on the environment-intensive good after the introduction of an environmental policy of only its own country if this environmental policy allows for much pollution.

23. ... a country that is specialized in the environment-intensive good as long as there is no environmental policy will specialize in the labour-intensive good if environmental capital is sufficiently scarce after the introduction of environmental standards.

24. ... the introduction of environmental policies in both countries leads to a pattern of specialization as in Ricardian trade theory.

25. ... after the introduction of environmental policies in both countries no country can suffer a welfare loss from trade.

26. ... the slightest difference in countries' environmental controls will lead to different emission prices.

In Merrifields model ... (27-28)

27. ... an attempt to reduce pollution by way of a new tax on the output of polluting industries could actually increase pollution because the change in pollution flows due to a reduction in one country's emissions may be more than offset if capital movements increase the other country's output and emissions.

28. ... only the equipment standard strategy has an unambiguous impact on pollution flows.

In the model by Markusen, Morey and Olewiler ... (29-33)

29. ... a multi-plant market structure is more likely with a high firm-specific fixed costs F and low plant-specific fixed costs, while a single-plant outcome is more likely with a low F and a high G .

30. ... multi-plant economies of scale result because the fixed costs of a two-plant firm, $2G+F$, are less than the combined fixed costs of two two-plant firms, $2G+2F$.

31. ... firms are likely to serve the other market by exports when the fixed costs of a new plant are low relative to the unit transport costs.

32. ... at critical levels of environmental policy variables, small policy changes cause large discrete jumps in a region's pollution and welfare as a firm closes or opens a plant, or shifts production to/from a foreign branch plant.

33. ... a politician who ignores the change in market structure cannot impose a tax or subsidy that is better than doing nothing.

In Conrads model ... (34-36)

34. ... if taxes on non-abated emissions are the only instrument available under noncooperative behaviour the Pigouvian tax should be adjusted downward to keep a greater share of the output of rent-earning domestic industries.

35. ... if taxes on non-abated emissions are the only instrument available under cooperative behaviour the Pigouvian tax should be adjusted upward to take into account the positive impact of an increase in a country's output on the other country's revenue.

36. ... if taxes on non-abated emissions are the only instrument available cooperative upward adjustment of the Pigouvian tax leads to an internationally optimal outcome.

Open question:

Discuss the effects of (different kinds of) taxes on the environment and the economy as analyzed in the models of the course.

Good luck

Thomas Zieseemer

ENVIRONMENT AND MODERNE THEORIES OF INTERNATIONAL TRADE

10-4 Blockopening

13-4 Introduction: Mäler, K.G., 1990, International Environmental Problems, Oxford Review of Economic Policy, Vol. 6, No.1,80-108.

Theory

20-4: Ricardo model: Pethig, R., 1976, Pollution, Welfare, and Environmental Policy in the Theory of Comparative Advantage, Journal of Environmental Economics and Management 2, 160-169.

24-4: Mobile factors: Merrifield, J.D., 1988, The Impact of Selected Abatement Strategies on Transnational Pollution, the Terms of Trade, and Factor Rewards: A General Equilibrium Approach, Journal of Environmental Economics and Management 15, 259-284.

27-4: Horstmann and Markusen model: Markusen, J.R., E.R. Morey, and N.O. Olewiler, Environmental policy when market structure and plant locations are endogenous, Journal of Environmental Economics and Management 24, 69-86.

1-5: Cournot model: Conrad, K., 1993, Taxes and Subsidies for Pollution-Intensive Industries as Trade Policy, Journal of Environmental Economics and Management 25, 121-135.

4-5: Chamberlain/Krugman model: Soete, L. and T. Zieseemer, Gains from Trade and environmental policy under Imperfect Competition and Pollution from Transport, MERIT Research Memorandum 92-022.

Policy

8-5 Ecological dumping: Rauscher, M., 1992, On Ecological dumping, Kiel Working Paper No. 523.

11-5: GATT: Trade and the environment, Gatt-Report.

15-5: NAFTA: Hausman, Robert, 1994, reconciling Trade and the Environment: Lessons from the North American Free Trade Agreement, UNEP, Washington

18-5: Repetto, R., Trade and Sustainable Development, UNEP, Washington.

and: Greenpeace versus the Economist: Student paper

22-5: Trade and the environment in ESB: Student paper

Themes for papers

- International environmental problems: Classification and policy effects in models.

Lit.: Mäler, K.G., 1990, International Environmental Problems, Oxford Review of Economic Policy, Vol. 6, No.1,80-108.

Scott Barrett in D. Helm, other

- The GATT view and perfect competition theory of international trade

Lit.: GATT, Pethig, other

Cournot competition with environmental policy

Lit.: Conrad, Ulph others;

- Environmental policy and the theory of factor movements

Lit.: McGuire, Merrifield, Markusen-Morey-Olewiler

- Environmental policy and tax incidence

Lit.: Bovenberg-van der Ploeg, Scandinav. J. 1994,
Bovenberg de Mooij, in : van Ierland 1994.
Bovenberg de Mooij, EJPE, 1995

- Do firms migrate after environmental policy? The empirics

Lit.: see GATT report and others

Information revelation mechanisms in international environmental problems

Lit.: see Mäler;

Environment and international trade: The view of Greenpeace in the light of economic theorizing

Lit.: Greenpeace, other

PROBLEMS/ Case studies

Pollution from international transport:

Additional literature

Examining the Environmental Case Against Free Trade

Cole, Matthew A. / Journal of world trade vol 33 afl 5 p183-196 / 1999

The Trade and Environment Interaction in the WTO -- How Can a "New Round" Contribute?

Torres, Héctor Rogelio / Journal of world trade vol 33 afl 5 p153-168 / 1999

Reflections on the Green Light Subsidy for environmental purposes

Kim, Hyung-Jin / 1999

Toward GATT-proofing environmental programmes for agriculture

Ervin, David E. / 1999

Trade and Environment -- Reconciling the Montreal Protocol and the GATT

Rutgeerts, Ann / Journal of world trade vol 33 afl 4 p61-86 / 1999

Policy instruments in general equilibrium models of international trade and the environment: Justification and effects of one sided and two sided policies

*MAASTRICHT UNIVERSITY
FACULTY OF ECONOMICS AND
BUSINESS ADMINISTRATION*

EXAM

COURSE : International Environmental and Trade Policy

CODE : 2053 K

DATE : 28-5-1998

LOCATION : Geusselt

TIME : 9-12

THIS EXAM CONSISTS OF:

2 Pages (This front page included)

2 Questions

YOU ARE ALLOWED TO MAKE USE OF: everything (open book exam) except for cooperation with others.

PARTICULARS: This exam consists of two questions, both having some sub-questions. Both should be answered by everybody. Each argument will be rewarded by one 'point' or a half. The adequate use of graphs and formulas will also be rewarded by one point or a half, provided they have been correctly interpreted in the text of your test. Translation from 'points' into grades will be made after reading the tests.

Question 1:

Consider the tuna/dolphin case. Answer the following sub-questions.

A) What is the environmental problem in question? Define the externality by telling who affects whom.

B) Have there been any efforts or suggestions to raise tariffs, impose quota or raise other barriers to trade in order to solve the environmental problem?

C) Who would be damaged by tariffs, quota or other barriers to trade in this case?

D) Who could tax or subsidize whom to obtain a solution? Think about both, PPP and VPP answers!

E) Are there other potential solutions? Describe the solution and its problems.

F) For the solutions you suggest or discuss above: does everybody have sufficient incentive to agree to that solution (everybody must be better off!)?

G) Are there information problems in your solution in the sense that there may be problems to control whether everybody is doing what he is expected and has promised to do according to the solution? How can they be solved? (Recall the ideas from asymmetric information and the Groves mechanism).

H) Does your suggested solution answer to all controversies in the literature on your case? Which are the unsolved open issues of your discussion of the case above?

Question 2:

In the general equilibrium models of the course two classes of policies have been considered. i) In one class, one country is assumed to undertake an environmental policy and the other is assumed not to do so. ii) In the second class of models both countries undertake identical or similar policies. Answer the following sub-questions.

A) In which models does only one country set policy measures?

B) In which models do both countries undertake policies?

C) If the policy of both countries is setting an environmental tax, in which case(s) could they equivalently use subsidies (Hint for one of the models: use the fact that under factor-price

equalization you can consider two countries with identical policies as one closed economy (integrated equilibrium).

D) If a policy is undertaken only by one country, which (possibly adverse) consequences do trade models point out to the reader?