Free Trade and the Environment

Nicole Hassoun*

What should environmentalists say about free trade? Many environmentalists object to free trade by appealing the "Race to the Bottom Argument." This argument is inconclusive, but there are reasons to worry about unrestricted free trade's environmental effects nonetheless; the rules of trade embodied in institutions such as the World Trade Organization may be unjustifiable. Programs to compensate for trade-related environmental damage, appropriate trade barriers, and consumer movements may be necessary and desirable. At least environmentalists should consider these alternatives to unrestricted free trade if they do not prevent the achievement of other important moral objectives, can efficiently reduce environmental problems, and institutional safeguards can prevent their abuse.

I. INTRODUCTION

What should environmentalists say about free trade? In this paper, I consider the case for free trade on the assumption that there is an obligation to mitigate environmental problems. Many environmentalists object to free trade by appealing the "Race to the Bottom Argument." This argument is inconclusive, considering some of the empirical evidence regarding free trade's environmental impact. Although there is not enough evidence to decide whether free trade will generally be good or bad for the environment, there is reason to worry about the environmental effects of unrestricted free trade; the rules of trade embodied in institutions such as the World Trade Organization (WTO) may be unjustifiable. Linkage, consumer movements (such as the Sustainable Forestry and Fair Trade Initiatives), and trade barriers may be necessary and desirable. At least, environmentalists should consider these alternatives to unrestricted free trade if they do not prevent us from achieving

* Philosophy Department, Carnegie Mellon University, Pittsburgh, PA 15213. Hassoun is affiliated with Carnegie Mellon's Program on International Relations and the Center for Bioethics and Health Law at the University of Pittsburgh. She writes primarily on political philosophy and ethics and focuses, in particular, on global economic and environmental justice. She is also interested in methodological issues in philosophy and the other social sciences. Her articles have been accepted in journals such as the *American Philosophical Quarterly, Public Affairs Quarterly,* and *Utilitas*. The author thanks Leif Wenar, Darrel Moellendorf, Bill Oberdick, Jason Matteson, Nicholas Weinhold, Michael Goodheart, Luc Bovens, Sarah Wright, Will Braynen, John Farnum, Teddy Seidenfeld, Thomas Christiano, Gillian Brock, Michael Gill, Jerry Gaus, Allen Buchanan, Geoffrey Brenan, and referees for *Environmental Ethics,* John M. Gowdy and Thomas Micheal Power, for helpful comments. Thanks are also due to audiences at the University of Colorado, the University of Delaware, the University of Tennessee, the American Philosophical Association, the University of North Carolina, and especially the Vienna International Summer University at which predecessors to this paper were presented. Finally, the author is thankful for the support she received from the American Association and the Earhart Foundation during the course of the project. She sincerely apologizes to anyone she has forgotten to mention. This essay expands upon some ideas in Nicole Hassoun, "Free Trade, Poverty, and the Environment," *Public Affairs Quarterly* 22, no. 4 (2008): 353–80. This essay's second half also draws on many of the arguments in that paper in considering objections to using trade policy to protect the environment. That paper, however, also considers an argument for free trade from a concern for the global poor.

other important moral objectives, environmental impact assessments suggest they can efficiently reduce environmental problems, and institutional safeguards can prevent their abuse.

II. NORMATIVE FRAMEWORK

The world is beset with serious environmental problems. Climate change is happening.[1] Acid rain, water pollution, desertification, extinctions, and destruction of rain forest are well documented.[2] Many of these problems could have devastating consequences for humans, other species, ecosystems, and even the biosphere.[3]

There are many reasons to care about these problems. Some are anthropocentric or human-based. Others are nonanthropocentric starting from a concern for individual animals or plants,[4] ecosystems or the biosphere.[5] Most environmentalists can agree, however, that a good environmental ethic requires ameliorating environmental problems.

Consider, for instance, how those who are only concerned about sustainable development for humans' sakes might argue. Sustainable development is development that meets the needs of present generations without undermining the ability of future generations to meet their own needs. Environmental problems such as climate change and water pollution impose direct non-negligible risks of serious harm to humans in all generations. Such environmental problems, in virtue of threatening nonhuman individuals, other species, and ecosystems, also indirectly pose risks of serious harm to humans in future generations.[6] Those who are concerned about sustainable development have reason to mitigate environmental problems.

Next, consider how an animal welfare ethicist might argue for mitigating environmental problems. Peter Singer advances what is perhaps the most famous animal welfare theory. According to Singer, what matters is maximizing pleasure and minimizing pain for all sentient creatures.[7] Environmental problems such as desertification and destruction of rain forest impose non-negligible risk of serious

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[1] Stephen M. Gardiner, "The Global Warming Tragedy and the Dangerous Illusion of the Kyoto Protocol," *Ethics and International Affairs* 18, no. 1 (2004): 23–41.

[2] United Nations Environment Program, "Environment for Development" (2008), http://www.unep.org.

[3] Clark Wolf, "Anthropogenic Climate Change and Intergenerational Justice," in *Justice Between Generations*, ed. Axel Gosseries and Lukas H. Meyer (Oxford: Oxford University Press, 2008). Hillary Mayell, "Climate Studies Point to More Floods in This Century," National Geographic News, 30 January 2002, http://news.nationalgeographic.com/news/2002/01/0130_020130_greatfloods.html. Dale Jamieson, "Adaptation, Mitigation, and Justice," in *Perspectives on Climate Change: Science, Economics, Politics, Ethics*, ed. Walter Sinnott-Armstrong and Richard Howarth, *Advances in the Economics of Environmental Resources,* vol. 5 (New York: Elsevier, 2005).

[4] Peter Singer, *Practical Ethics* (Cambridge: Cambridge University Press, 1993).

[5] Arne Naess, *The Selected Works of Arne Naess*, ed. Harold Glasser (New York: Springer, 2005). vols. 1–10.

[6] Gardiner, "Global Warming Tragedy."

[7] Singer, *Practical Ethics*.

harm to many sentient species.[8] So those who care about animal welfare might conclude that there is reason to mitigate such problems.

Third, consider what those who think we must treat all teleological subjects of a life as members of our moral community might say about environmental problems. Tom Regan gives one account of what it means to say we must treat all teleological subjects of a life as members of our moral community. He says a creature is the subject of a life when it has beliefs, desires, perception, memory, identity, a sense of (its own) future, emotions, preferences, interests, the ability to act on and pursue goals, and the ability to fare well or poorly.[9] Regan believes that most year-old mammals have such lives and that being the subject of a life is necessary and sufficient for moral consideration. On Regan's theory, we cannot harm creatures that deserve moral consideration except in self-defense and similarly extraordinary circumstances. Anthropogenic climate change and many other environmental problems impose non-negligible risk of serious harm on teleological centers of a life.[10] So, on Regan's theory, we must mitigate these problems.

Finally, consider an environmental ethic on which we should protect ecosystems and the biosphere for their own sakes.[11] Because environmental problems will almost certainly eliminate some species and reduce biodiversity, such problems will probably negatively impact ecosystems and the biosphere. Even if humans could completely adapt to environmental problems, something that is almost certainly impossible, mitigation, would be necessary to protect many parts of nature that cannot adapt.[12] So those who believe ecosystems and the biosphere deserve moral consideration should agree that we must mitigate environmental problems at least a little.

Many of the environmental ethics canvassed require much more than mitigating environmental problems. We might, for instance, mitigate environmental problems without maximizing pleasure and avoiding pain for all sentient life, respecting teleological centers of a life, or protecting ecosystems and the biosphere. There are also many other environmental ethics on which there is an obligation to mitigate environmental problems. But, because environmental problems are likely to harm humans, other species, ecosystems, and the biosphere, most environmentalists will agree that there is an obligation to mitigate environmental problems.[13] So, in this paper I do not try to find the limit of our obligations or arbitrate between these

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[8] Gardiner, "Global Warming Tragedy."

[9] Joseph Des Jardins, *Environmental Ethics: An Introduction to Environmental Philosophy*, 4th ed. (Stamford Conn.: Wadsworth Publishing Co., 2006), chap. 5.

[10] Gardiner, "Global Warming Tragedy."

[11] Naess, *Selected Works*.

[12] Gardiner, "The Global Warming Tragedy and the Dangerous Illusion of the Kyoto Protocol."

[13] For explicit arguments for this conclusion, see Axel Gosseries, "Cosmopolitan Luck Egalitarianism and Climate Change," *Canadian Journal of Philosophy,* suppl. vol. (2007). Also see Henry Shue, "Global Environment and International Inequality," in *Environmental Ethics: What Really Matters, What Really Works*, ed. David Schmidtz and Elizabeth Willott (New York: Oxford University, 2002).

different theories. I simply assume that, in terms of a sound environmental ethic, there is an obligation to *mitigate* environmental problems.[14]

III. THE ENVIRONMENTALISTS' CASE AGAINST FREE TRADE

Environmentalists often argue that free trade harms the environment. They suggest, for instance, that trade increases production and transportation. Production and transportation, the environmentalists argue, produce waste and use scarce *sinks* (such as the atmosphere) that absorb waste.[15] Although these environmentalists recognize that free trade brings technological change, they hold that new technologies create at least as many problems as they solve. Finally, these environmentalists argue that free trade generates incentives for countries to reduce environmental regulation, thereby creating environmental problems.[16] Most of these claims are, essentially, empirical. The last worry about regulation, however, is backed by an interesting theoretical argument. So, in the next two subsections, I set out and critique this portion of the environmentalists' argument against free trade. I then turn to the empirical evidence regarding free trade's environmental impact.

The Race to the Bottom Argument

Perhaps the most famous argument for the conclusion that free trade will decrease environmental standards is the "Race to the Bottom Argument." The basic idea is simple. Free trade makes it easier for industries to locate in different countries. Countries have different environmental regulations. So companies have incentives to move to countries with laxer regulatory standards. Because countries realize this, and want to retain or attract industry, they have an incentive to reduce environmental regulations. *Ceteris paribus,* these incentives lead companies to move to countries with laxer regulations (a.k.a., pollution havens) and countries to reduce regulations.[17]

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[14] There are important questions about what mix of mitigation and adaptation to environmental problems like climate change is appropriate and who should bear the burden of paying for the necessary changes.In this paper, I am not concerned with these questions, however. For discussion, see n. 13.

[15] Withering attacks on free trade abound in the popular as well as scholarly literature with authors arguing that the benefits of free trade are exaggerated while their social and environmental costs are neglected. See, for instance, Joseph E. Stiglitz, *Globalization and its Discontents* (New York: Norton: 2002).

[16] For some such arguments, see Herman Daly, "Sustainable Growth? No Thank You," in *The Case against the Global Economy and for a Turn toward the Local,* ed. Jerry Mander and Edward Goldsmith (San Francisco: Sierra Club Books, 1996).

[17] A similar argument can be made for investment—insofar as pollution abatement lowers profit, companies in pollution havens may be more likely to attract capital. See Rhys Jenkins, "Environmental Regulation and International Competitiveness: A Review of Literature and Some European Evidence," The United Nations University Institute for New Technologies Discussion Paper Series, Mastricht: United Nations University, January 1998 draft.

Because many companies relocate, they emit more pollution than they would without free trade.[18]

Environmentalists can allow for the possibility that non-trade-related incentives to raise regulatory standards might balance out or even outweigh the incentives free trade creates to lower standards. But, even if standards do not fall, the "Race to the Bottom Argument" implies that free trade will have caused more environmental damage than would have otherwise occurred. If a race is occurring, standards would have been higher without free trade.

Critique of the "Race to the Bottom Argument"

One potential objection to the "Race to the Bottom Argument" starts from the observation that free trade may induce economic growth. This growth may allow countries to avoid downward pressure on environmental standards. When countries are wealthier, they might be able to maintain their current levels of regulation even in the face of competitive pressure. It is even possible that free trade will increase demand for environmental regulation as it increases economic growth.[19] Regulatory standards may start to *rise* if countries can afford stricter regulatory standards as free trade increases their incomes. Countries may even reduce pollution and the severity of environmental problems more quickly with free trade. This is known as the environmental Kuznets curve (EKC) hypothesis.[20]

The "Race to the Bottom Argument" might be correct in asserting that free trade has increased and will continue to increase competitive pressure on industries. But if labor costs swamp the costs of complying with environmental regulations, industries may not respond to incentives to locate in countries with fewer environmental regulations. To survive in a freely trading economy, industries may, instead, have to move to the countries with the lowest labor costs, even if those countries have high environmental standards.

What is actually happening and what will happen in the future as a result of free trade is not clear *a priori*. It is possible that the "Race to the Bottom Argument" is right. But it is also possible that the argument has never been correct.

Furthermore, there are many other potential problems with the "Race to the Bottom Argument." Companies may prefer not to increase pollution, for instance, even in countries with lax regulatory standards. It may be better for companies to

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[18] For further discussion of this argument, see, for instance: Durwood Zaelke, Paul Orbuch, and Robert Housman eds., *Trade and the Environment: Law, Economics, and Policy* (Washington D.C.: Island Press, 1993). Also see Edward Goldsmith, "Global Trade and the Environment," in Mander and Goldsmith, *The Case against the Global Economy*.

[19] There are other explanations for why free trade might lead to falling rather than rising pollution levels too. There may, for instance, be economies of scale in pollution abatement or structural changes that occur in developing country economies with free trade reforms.

[20] E. B. Barbier, "Introduction to the Special Issue on Environmental Kuznets Curves," *Environment and Development Economics* 2, no. 4 (1997): 369–81.

invest in environmentally sound technology at the outset than to face the possibility of having to adapt to rising standards in the future. Alternately, other trade-related incentives may counterbalance the impact of a race if one is happening. Trade might, for instance, yield new technologies that reduce environmental damage. (Although, of course, trade might also yield technologies that increase environmental damage.) The important point is just that the "Race to the Bottom Argument" is not decisive on its own.

IV. FREE TRADE IN PRACTICE

The argument for a race to the bottom provides one mechanism through which free trade might contribute to environmental problems. I have already noted, however, that there are other ways that free trade might contribute to such problems. Free trade might, for instance, increase waste or eliminate scarce sinks simply by increasing the scale of the economy. In this section, I consider some of free trade's other environmental impacts as well.[21]

One of the most extensive studies of trade's impact on the environment is Frankel and Rose's "Is Trade Good or Bad for the Environment? Sorting out the Causality." Frankel and Rose looked for correlations between free trade, SO_2, NO_2, CO_2, deforestation, and energy depletion rates.[22] They found that trade has had a beneficial effect on deforestation, SO_2, NO_2, and energy depletion rates and has had an insignificant negative impact on CO_2.[23]

Grossman and Krueger completed a similar study with similar results.[24] They found evidence that is consistent with the EKC hypothesis: they found that countries

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[21] There are two broad classes of studies that have direct bearing on the case for a race to the bottom in particular. The first set looks at pollution abatement costs and trade flows. These studies were pioneered by James Toby, "The Effects of Domestic Environmental Policies on Patterns of World Trade: An Empirical Test," *Kyklos* 43, no. 2 (1990): 191–209. He finds no impact of regulatory costs on industry location. The second class of studies look at the location of clean vs. dirty industries post liberalization. See Patrick Low and Andrew Yeats, "Do 'Dirty' Industries Migrate?" in *International Trade and the Environment*, ed. Patrick Low, World Bank Working Paper 159 (Washington D.C.: World Bank, 1992). Also see Robert Lucas, David Wheeler, and Hemamala Hettige, "Economic Development, Environmental Regulation, and International Migration of Toxic Industrial Production 1960–88," in Patrick Low, ed., *International Trade and the Environment*, World Bank Working Paper 159 (Washington D.C.: World Bank, 1992). Finally see Muthukumara Mani and David Wheeler, "In Search of Pollution Havens? Dirty Industry in the World Economy 1960–1995," in *Trade, Global Policy and Environment,* ed. Per G. Fredriksson (Washington: World Bank, 1997).

[22] They also look at correlations between free trade and access to clean water.

[23] This is so once instrumental variables are used to capture the impact of income levels and environmental regulation on trade and avoid endogeniety problems. Of course, other factors could explain the correlations they find. See Jeffrey Frankel and Andrew Rose, "Is Trade Good or Bad for the Environment? Sorting out the Causality," *Review of Economics and Statistics* 87, no. 1 (2005): 3–9 (page numbers from the September 2004 draft).

[24] Grossman and Kruger use panel data. See Gene Grossman and Alan Krueger, "Environmental Impacts of the North American Free Trade Agreement," National Bureau of Economic Research Working Paper 3914 (Cambridge: National Bureau of Economic Research, 1991).

emissions of SO_2, for instance, increase until their GNPs per capita are between 4–5,000 U.S. dollars per year.[25] Figure 1 shows an EKC that peaks when countries' GNPs reach about 4,000 U.S. dollars.

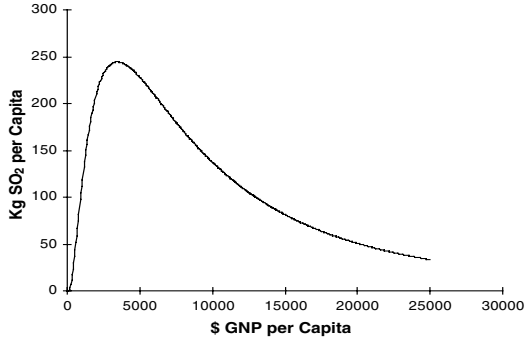

Figure 1. The EKC Hypothesis. Graph from David Stern, "The Rise and Fall of the Environmental Kuznets Curve," *World Development* 32, no. 8 (2004): 1420.

Given that these estimates of the point at which environmental conditions will improve are fairly close to the income level of the average country, one might think this is good news. Perhaps further free trade will start to reduce environmental degradation.

Unfortunately, there are two reasons why this argument is not convincing. First, data for some indicators of environmental quality are not nearly as promising. Sometimes

Air Polution	SO_2	SPM	NO_x	CO	CO2	CFCs
Cole et al. (1997)	$6,900	$7,300	$14,700	$9,900		$12,600
Grossman and Krueger (1993)	$4,107					
Grossman and Kruger (1995)	$4,053					
Holtz-Ekin and Selden (1995)					$35,400	
Moomawand Unruh (1997)					$12,800	
Panayoutou (1995)	$3,000	$4,500	$5,500			
Panayoutou (1997)	$5,000					
Selden and Song (1994)	$10,700	$9,600	$21,800	$19,100		
Shafik (1994)	$36.700	$32,300				

Table 1. Estimated EKC Turning Points for Air Pollutants in U.S. Dollars. Table modified from E. B. Barbier, "Introduction to the Special Issue on Environmental Kuznets Curves," *Environment and Development Economics* 2, no. 4 (1997): 375.

[25] Comparable estimates are given in Theodore Panayotou, *Green Markets: The Economics of Sustainable Development* (San Francisco: ICP Press, 1993).

the projected improvement in environmental conditions only happens at very high average income levels.[26] Consider some estimated turning points for the EKC for different air pollutants in U.S. dollars (Table 1, above).[27]

Second, even if Grossman and Kruger's data are correct, this prediction is mistaken. Most countries have incomes far below average. So, we might use the median income level to better approximate the point at which environmental conditions will start to improve. Figure 2 below shows projected emissions of SO_2 using the EKC and World Bank projections for economic and population growth.[28] According to these projections, emissions of SO_2 are not expected to peak until about 2025. Environmental conditions may not start to improve soon even if the EKC hypothesis is correct.

There are also many reasons to worry about whether the EKC hypothesis *is* right. One worry is that the EKC does not appear to hold in many cases.[29] Several

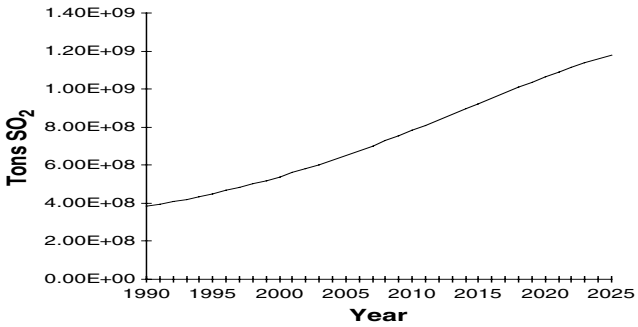

Figure 2. Projected Emissions of SO_2 Using EKC and World Bank Projections. From David Stern. "The Rise and Fall of the Environmental Kuznets Curve," *World Development* 32, no. 8 (2004): 1437.

economists argue that the EKC only holds for local pollutants such as SO_2 and NO_x, not for pollutants such as CO_2 that have far-ranging impacts and are most likely to lead to climate change.[30] Others argue that the statistical basis for historical EKC

[26] Nemat Shafik and Sushenjit Bandyopadhyay, "Economic Growth and Environmental Quality: Time Series and Cross-country Evidence," background paper prepared for *World Development Report 1992: Development and the Environment* (New York: Oxford University Press, 1992).

[27] Amounts expressed in 1985 U.S. dollar purchasing power parity except for Panayotou (1995).

[28] David Stern. "The Rise and Fall of the Environmental Kuznets Curve," *World Development* 32, no. 8 (2004): 1437.

[29] See Steve Charnovitz, "World Trade and the Environment: A Review of the New WTO Report," *Georgetown International Environmental Law Review* 12, no. 2 (2000): 523–41. Also see Håkan Nordström and Scott Vaughan, *Trade and Environment,* World Trade Organization Special Studies 4 (Geneva: World Trade Organization, 1999).

[30] Werner Antweiler, Brian Copeland, and M. Scott Taylor, "Is Free Trade Good for the Environment?" Department of Economics University of British Columbia Working Paper Number 98–11, Vancouver, B.C.: University of British Columbia, 1998.

studies is weak and that growth, as the environmentalist contends, may even be correlated with monotonic increases in overall environmental degradation.[31]

Fortunately, it is not necessary to discuss the technical problems with these studies here.[32] Even granting that the data supporting the EKC are correct, the EKC hypothesis needs further defense. Some argue that the data may be explained by the fact that countries usually start importing pollution intensive goods when their incomes increase. There is some evidence that pollution intensive manufacturing is shifting to developing countries.[33] So, we do not know what will happen when everyone's income increases.[34] Obviously, someone has to produce the pollution intensive goods if they are still consumed.

Significant increases in environmental problems may occur even if environmental conditions eventually improve in all countries. The costs of trade-induced growth may outweigh the benefits. If, for instance, global warming melts the polar ice caps, many ecosystems will be irreversibly damaged. This damage will probably increase the rate of natural disasters and transmission of devastating diseases like malaria.[35] Other species and ecosystems may also suffer.[36]

The empirical evidence on how free trade will impact the environment canvassed here is not conclusive.[37] We lack sufficiently rigorous data to predict whether the net effect of trade-induced growth will be good or bad for the environment.[38] But

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[31] Stern, "The Rise and Fall of the Environmental Kuznets Curve," p. 1423.

[32] Some worry about the quality and representativeness of the data on environmental degradation. Others worry generally about heteroskedacity, endogeneity, and omitted variable bias. For an overview, see ibid, pp. 1419–39.

[33] Vivek Suri and Duane Chapman, "Economic Growth, Trade and the Energy: Implications for the Environmental Kuznets Curve," *Ecological Economics* 25 (1998): 195–208.

[34] See Grossman and Krueger, "Environmental Impacts of the North American Free Trade Agreement." Some also argue that one cannot generalize from what has happened in the past to what will happen in the future for other reasons. The early studies of the EKC use statistical methods that do not support generalization. If studies estimate correlations using fixed-effects models, and GDP is an integrated variable, they must make sure the EKC regressions do not co-integrate to avoid spurious estimates. Few studies completed before 1999 look for co-integration. See Stern, "The Rise and Fall of the Environmental Kuznets Curve," p. 1423.

[35] Jamieson, "Adaptation, Mitigation, and Justice."

[36] Mayell, "Climate Studies Point to More Floods in This Century."

[37] Studies also show that the scale effect is not offset by technological change in some sectors. Evidence suggests that in the agricultural sector, for instance, technological change has not offset the scale effect. See Commission for Environmental Cooperation of North America, "Free Trade and the Environment: The Picture Becomes Clearer," North American Symposium on Understanding the Linkages between Trade and the Environment (Quebec: Commission for Environmental Cooperation of North America, 2002), pp. 26–27.

[38] There is a different way of challenging the "Race to the Bottom Argument" empirically that is also worth mentioning. Several economists have looked at whether industries actually tend to move to low regulation environments from high regulation environments with free trade. Many argue that the impact of environmental regulation on industry location decisions is very small or non-existent. See Toby, "The Effects of Domestic Environmental Policies on Patterns of World Trade: An Empirical Test." Also see Cees van Beers, "International Trade, Environment, and Sustainable Development," in *Economics of Sustainable Development: International Perspectives,* ed. Mario Cogoy and Karl

no matter what the *net* effect of free trade on the environment will be, we can be reasonably certain that free trade will have mixed effects. Some free trade reforms are probably good for the environment, while others are probably devastating for the environment.

Consider how free trade in the energy sector is likely to have mixed impacts. Some energy sources are better for the environment than others. Fossil fuels like coal and oil are some of the dirtiest energy sources contributing a lot to environmental problems like climate change. The World Bank suggested that fossil fuel *consumption* subsidies alone were over 200 billion U.S. dollars in 1992.[39] These subsidies, because they reduce prices, usually increase consumption and pollution. Thus, reducing these subsidies might mitigate many environmental problems.[40] Since other energy sources, such as wind and geothermal, are better for the environment,[41] it would probably be bad if subsidies for alternative energy sources were eliminated.[42]

All other things being equal, the obligation to mitigate environmental problems provides reason to support reforms insofar as they help fulfill this obligation. So, subsequent sections consider some ways of capturing the environmental benefits while avoiding the environmental costs of free trade.

Of course, all other things are not equal. Unfettered free trade might be the best way, for instance, to promote growth or democracy.[43] Thus, the best trade policies may balance environmental improvements against other important moral objectives. But this paper will not consider such tradeoffs.[44] Even if they are necessary, it is important to look for constructive, creative ways of capturing the benefits and avoiding the costs of free trade for the environment. After all, we need to know

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Steininger (Cheltenham, U.K.: Edward Elgar, 2006), p. 16. Other factors are probably much more important than environmental standards on industry location decisions. See Low and Yeats, "Do 'Dirty' Industries Migrate?" Also see Jenkins, "Environmental Regulation and International Competitiveness," pp. 14–16. Researchers have found impacts in some industries and races in some countries, however. See van Beers, "International Trade, Environment, and Sustainable Development." Also see Jenkins, "Environmental Regulation and International Competitiveness," pp. 22–23.

[39] Organisation for Economic Cooperation and Development, "Reforming Coal and Electricity Subsidies," Annex I Expert Group on the United Nations Framework Convention on Climate Change, Working Paper No. 2 (Paris: Organisation for Economic Cooperation and Development, 1997), http://www.oecd.org//env/docs/cc/gd9770.pdf.

[40] If reducing subsidies leads to lower prices and more consumption of coal energy, however, climate change could even increase as a result. See ibid. The details of this particular example are simply meant to illustrate the general point; other examples can be given if this case proves to be a poor one.

[41] Nicole Hassoun, "The Case for Renewable Energy and a New Energy Plan." *International Journal of Environmental, Cultural, Economic and Social Sustainability* 1, no. 5 (2005): 197–208.

[42] Ibid.

[43] Certainly, meeting some other moral objectives may reduce environmental problems. If, for instance, free trade helps the poor then it may also be the best thing for the environment because poor people contribute greatly to environmental problems. See Nicole Hassoun, "Free Trade, Poverty, and the Environment," *Public Affairs Quarterly* 22, no. 4 (2008): 353–80. Still there will probably be times when tradeoffs are necessary. Tradeoffs may also be necessary between meeting different environmental objectives.

[44] Further analysis is also necessary to see when using non-trade-related means of mitigating environmental problems is preferable to using trade-related means.

what ways of reworking the rules of trade or working around them mitigate environmental problems to figure out when (and what) tradeoffs are required. In the next section, I consider some ways of capturing the benefits and avoiding the costs of free trade for the environment.

V. RESTRUCTURING THE RULES OF TRADE

Environmental ethicists do not have reason to support isolationism or unfettered free trade. Rather, they have reason to support policies (protectionist or not) that reduce environmental problems.[45] This seemingly innocuous proposition contravenes international law embodied in institutions like the WTO, however.[46] The WTO makes some provisions for the environment. Article XX of the GATT/WTO agreement suspends the most favored nation and national treatment rules to protect the environment, for instance. But these provisions are not as broad as those suggested here. So, if my conclusions are correct, there is reason to consider changing some of the rules of trade. The WTO might, for instance, require countries benefiting from trade to compensate for trade-related damage to the environment. The WTO might, for example, require trading countries to plant new trees to compensate for the pollution caused by transporting goods long distances.[47]

More radically, the WTO might allow otherwise impermissible trade barriers if they mitigate environmental problems. Consider an example of how a trade barrier might help the environment. Suppose that Japan is the main consumer of a certain kind of hardwood that can only be found in the Amazon. If Japan prohibits imports of this wood, then, ceteris paribus, less rain forest may be destroyed. The environment may benefit.

Even individuals can promote free trade that mitigates environmental problems.[48] Individuals might, for example, buy *Sustainable Forestry Initiative* or *Fair Trade* certified goods.[49] The Sustainable Forestry Initiative certifies that wood products have been sustainably harvested. And, usually, producers must use environmentally friendly production processes to gain Fair Trade certification.[50] Consumer movements

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[45] Such reasons are defeasible. Other considerations may yield conflicting recommendations.

[46] For more information see World Trade Organization, "The General Agreement on Tariffs and Trade (GATT 1947)," Legal texts: GATT 1947 Article XVIII–XXXVIII (Geneva: World Trade Organization, 2006), http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm.

[47] We can use environmental impact assessments for trade reforms to determine both what the likely impact of a reform will be and which compensatory policies are likely to be successful. Some trade agreements investigate the environmental impacts of their policies upon request.

[48] On fair trade, see Mathias Risse, "Fairness in Trade," Harvard University Working Paper (Boston: Harvard University, 2006), http://ksghome.harvard.edu/~mrisse/docs/cv0306.pdf. For critique, see Nicole Hassoun, "Making Free Trade Fair," Carnegie Mellon University Working Paper (Pittsburgh: Harvard University, 2008), http://www.hss.cmu.edu/philosophy/hassoun/papers.php.

[49] There are many fair trade certification schemes. Some are better than others. See http://www.fairtrade.org.uk/about_standards.htm and http://www.transfairusa.org/content/certification/overview.php for examples.

[50] Fair trade coffee is usually shade grown, for instance. Coffee produced in this way is grown under the rain forest's canopy rather than in clearings usually created by burning down rain forests. See

will probably not ameliorate all of free trade's negative effects on the environment. But if many people demand environmentally friendly goods, companies may institute better production standards and, in doing so, greatly mitigate environmental problems. Altering the WTO (and other international organizations) may help the Sustainable Forestry and Fair Trade Initiatives. The WTO might require countries to label goods produced in sustainable ways as Sustainable Forestry Initiative or Fair Trade certified, for instance. But, consumer action is powerful. When U.S. consumers demanded dolphin safe tuna, the tuna-fishing industry changed despite WTO protests.

VI. OBJECTIONS

There are many ways of changing or working around the rules of trade to reduce environmental problems. Because some require changing or working around international trade law, in this section, I consider objections to using trade policy to mitigate environmental problems. In this inquiry, I isolate some of the conditions that must hold for the above proposals to be acceptable.

Taxes and Other Market Reforms are More Efficient than Trade Barriers

Trade barriers such as tariffs and quotas are among the most controversial trade policies. One of the primary objectives of institutions such as the WTO is to encourage countries to reduce trade barriers. Many argue that trade barriers are an inefficient ways of protecting the environment.[51] Tariffs, for instance, are supposed to be less efficient than other taxes because they have a narrow base (tariffs are usually applied to individual commodities).[52] When taxes apply to more goods or people, they are harder to avoid and it is the costs associated with people trying to avoid taxes that make them inefficient. If a tax makes corn more expensive than wheat, people can purchase wheat instead. People have few alternatives to paying a tax on food even if food becomes more expensive than other commodities when it is taxed. It is even harder to avoid a tax on all goods and services. So, the proponent of unfettered free trade might conclude, we should use taxation (or other market reforms) to mitigate environmental problems, not trade barriers.

The proponent of free trade is right that we should consider using taxes and other market reforms to address environmental problems.[53] Global taxation or regulations may be wonderfully effective in protecting the environment. We might follow

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http://www.fairtrade.org.uk/about_standards.htm and http://www.transfairusa.org/content/certification/overview.php for further information.

[51] van Beers, "International Trade, Environment, and Sustainable Development."

[52] Emmanuel Saez, "Direct or Indirect Tax Instruments for Redistribution: Short-Run versus Long-Run," *Journal of Public Economics* 88 (2004): 503–18. Also see James Anderson, "The Relative Inefficiency of Quotas," *Journal of Economic Education* 19, no. 1 (1988): 65–81.

[53] Some such options are mentioned above, for instance.

Thomas Pogge's suggestion to tax natural resources, for instance.[54] Emissions trading schemas like those in the Kyoto protocol are also promising. But which taxes or market reforms are best depends on many things. In theory, trade barriers can be just as good and efficient as taxation (or other kinds of market reforms) at achieving moral objectives.[55] Although we cannot go into the details here, there is a wealth of theoretical and empirical literature in public and international economics on how different trade barriers and other market reforms affect efficiency.[56] Some trade barriers may be more efficient than other means of achieving moral objectives.[57] Finally, even if we granted that, in theory, trade barriers are usually inferior to other market reforms, the economic models used to estimate the efficiency of different reforms are often unrealistic.[58] Political considerations not included in the models may, for instance, tell in favor of trade barriers rather than other alternatives. Developed countries and producers may be more likely to support tariffs than other taxes. Alternately, the only realistic way to get countries to address environmental problems may be to threaten them with trade barriers.[59] Joseph Stiglitz, formerly the chief economist at the World Bank, seems to take this view. He argues that the WTO should allow countries to use trade barriers to sanction the U.S. for not paying the costs of the damage it causes to the environment.[60]

It Is Too Hard To Predict Consequences of Trade Barriers

Those with a libertarian bent might raise a different objection to allowing countries to use trade barriers when doing so will benefit the environment. They might argue that the very suggestion presupposes the possibility of fine-tuned social engineering. It is not clear that we have the knowledge we need to decide whether allowing particular countries to implement particular tariffs will benefit the environment. Moreover, even if it is possible to analyze the prospects for different tariffs to benefit the environment, this analysis may be expensive and difficult. Institutions such as the WTO have enough to do without evaluating every possible tariff. The objector might contend that this objection is particularly pressing in light of the fact that those seeking protection from competition often use the guise of environmentalism to garner support for unfair trade barriers that do not benefit (or even harm) the

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[54] Thomas Pogge, "Severe Poverty as a Human Rights Violation," in Thomas Pogge, ed., *Freedom from Poverty as a Human Right: Who Owes What to the Very Poor?* (Oxford: Oxford University Press, 2006).

[55] Emmanuel Saez, "Direct or Indirect Tax Instruments for Redistribution: Short-Run versus Long-Run," *Journal of Public Economics* 88 (2004): 503–18.

[56] Ibid.

[57] Ibid.

[58] Robert E. Baldwin, "The Political Economy of Trade Policy," *Journal of Economic Perspectives* 3, no. 4 (1989): 119–35.

[59] On this see Daniel Esty, "Bridging the Trade-Environment Divide," *Journal of Economic Perspectives* 15, no. 3 (2001): 113–30.

[60] Joseph Stiglitz, "A New Agenda for Global Warming," *The Economists' Voice*, July 2006.

environment. U.S. firms that want import restrictions on Canadian softwood lumber may be using the environment as an excuse for protectionism.[61] Protectionists seeking profit may even trick environmentalists into supporting environmentally harmful protectionism.

Although there is something to this objection, it is not clear that it is correct. It might not be very expensive or difficult to figure out that some trade barriers will benefit the environment. Some trade agreements provide environmental impact assessments of their policies already.[62] Nor need institutions such as the WTO be responsible for doing the relevant calculations. Perhaps international trade organizations could allow countries to use trade barriers to benefit the environment as long as countries declare their intentions to use these barriers publicly and are prepared to justify their barriers if challenged. Non-governmental organizations and academics might, then, help developing countries that lack the capacity or resources to do the requisite assessment. The details would need to be worked out carefully, and it is important to make sure impact assessments would stay current.

At least, however, if good assessments support using trade barriers to mitigate environmental problems, institutions such as the WTO should allow the barriers. To mitigate the threat of hidden protectionism masquerading as concern for the environment, however, international trade organizations' dispute resolution panels *would* probably have to create standards for judging whether protectionist measures will mitigate environmental problems.[63] Fortunately, there is some sign that this may already be happening for some kinds of environmentally motivated trade policies.[64] In the future, these organizations might even allow protectionism that is *not* environmentally motivated as long as it is best for the environment. Some collusion by those seeking protection from competition and those genuinely concerned about the environment may be best for the environment. It may be possible to educate those who care about the environment so that they can protest against hidden protectionism that does not benefit the environment. It is risky to allow protectionism since it can cause environmental problems. But, the fact that protectionism can hurt the environment does not tell against using protectionism (when possible) to

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[61] Brink Lindsey, Mark A. Groombridge, and Prakash Loungani, "Nailing the Homeowner: The Economic Impact of Trade Protection of the Softwood Lumber Industry," *CATO Trade Policy Analysis* 11 (2006): 1–16.

[62] See World Trade Organization, "Sustainability and Environmental Impact Assessment of Trade Negotiations" (Geneva: World Trade Organization, 2006), http://www.wto.org/english/forums_e/public_forum_e/session_25_num9_e.htm.

[63] Perhaps such panels could also decide whether a trade policy that does help the environment can be justified in light of competing considerations.

[64] If it is difficult it is to tell whether or not trade policies will protect the environment, the WTO might remain skeptical of trade policies not primarily motivated by concern for the environment. There is room here for fruitful policy-relevant research on the conditions under which industries should be allowed to push environmental protection. See Charnovitz, "World Trade and the Environment." Also see Nordström and Vaughan, *Trade and Environment*.

benefit the environment. If restricting imports of Canadian softwood lumber does help the environment, restrictions may be justifiable.

Using Trade Policy to Reduce Environmental Problems is Unjust

Perhaps one could object that using trade policy to reduce environmental problems is unjust. One might argue that because people in different countries have different preferences, resources, and needs, each country should get to decide what it wants to do about environmental problems.[65] Even though some countries are ruled by despots, countries' decisions may require respect. One might suggest that preventing countries from fulfilling their preferences is unjust because it is paternalistic and violates sovereignty.[66] Respecting China's sovereignty, for instance, might require allowing it to set its own priorities even if it foolishly chooses not to protect the environment. Outsiders may not be justified in using trade policy to get China to protect the environment even if it is in China's best interests to do so.[67] The objector might conclude that countries concerned about environmental problems should only address problems within their own borders. Institutions such as the WTO should prohibit trade policy intended to get other countries to protect the environment and countries should refrain from pursuing such policy.

There are at least three problems with this argument. First, using trade policy to protect the environment may not be paternalistic. Such policy may neither be intended to promote other interests of countries nor succeed in doing so. (Some countries might do better to pollute, for instance.) Second, using trade policy to protect the environment may not violate sovereignty. If sovereignty is unlimited, sovereign states should be able to impose whatever trade barriers they want. If sovereignty is limited, it may not violate sovereignty to use trade policy to get a country to protect the environment. Finally, even if using trade policy to mitigate environmental problems is paternalistic and infringes on sovereignty that does not show that such policy is unjust. It may be justifiable to violate sovereignty even if doing so is paternalistic as long as doing so is necessary to mitigate environmental problems. Some theories of justice may support the conclusion that using trade policy to mitigate environmental problems is unjust. But in the absence of such a theory, this objection does not succeed.

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[65] In defense of this argument, see van Beers, "International Trade, Environment, and Sustainable Development."

[66] This argument appears throughout the development literature and is given by all kinds of official organizations. See, for instance, European Union, "Economic Partnership Agreements and Free Trade—Myths and Reality," *EU-Uganda News: A Quarterly News Letter of the Delegation of the European Commission in Uganda* December (2004).

[67] Countries often appeal to the value of sovereignty to justify environmentally destructive practices. For discussion, see Durwood et. al., *Trade and the Environment*.

Allowing Trade Policy to Protect the Environment May Impede Development

Finally, it may harm the global poor to allow countries to use trade policy to get other countries to protect the environment. China and India (as well as the U.S.) are likely targets for such policy. These countries emit a lot of green house gas. But China and India are developing countries. They may be justified in using their resources to foster the development that will eliminate poverty and it may be necessary to increase emissions to do so. If countries such as China and India are forced to protect the environment, they may also have to reduce spending on poverty relief.

This is a serious concern. But even granting that it would be impermissible to require developing countries to protect the environment if doing so impeded development, the objection is not conclusive. The objection only shows that it is impermissible to use trade policy to get developing countries to protect the environment *without also helping them reduce poverty*. Countries imposing trade barriers that impede development but help the environment might implement other policies that compensate for these barriers' negative impacts on the poor. The lesson here is quite general. If using trade policy to protect the environment interferes with other things that matter, it may still be acceptable for a country to use trade policy to protect the environment as long as it compensates for those barriers' negative impacts. The rents countries can gain from imposing some barriers might even be used to compensate for those barriers' negative effects.

VII. CONCLUSION

In this paper, I considered the case for free trade on the assumption that there is an obligation to mitigate environmental problems. I suggested that the "Race to the Bottom Argument" against free trade is inconclusive. I then considered some empirical evidence regarding free trade's environmental impact. Although there is not enough evidence to conclude that free trade will generally be good or bad for the environment, I showed that there is reason to worry about unrestricted free trade's environmental effects. Linkage, consumer movements, and trade barriers may be necessary and desirable. At least these ways of reworking or working around the rules of trade embodied in institutions such as the World Trade Organization deserve serious consideration if they can efficiently reduce environmental problems without interfering with other things that matter.