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Environmental Standards and International Trade in Automobiles and Copper:

The Case for a Social Tariff

by
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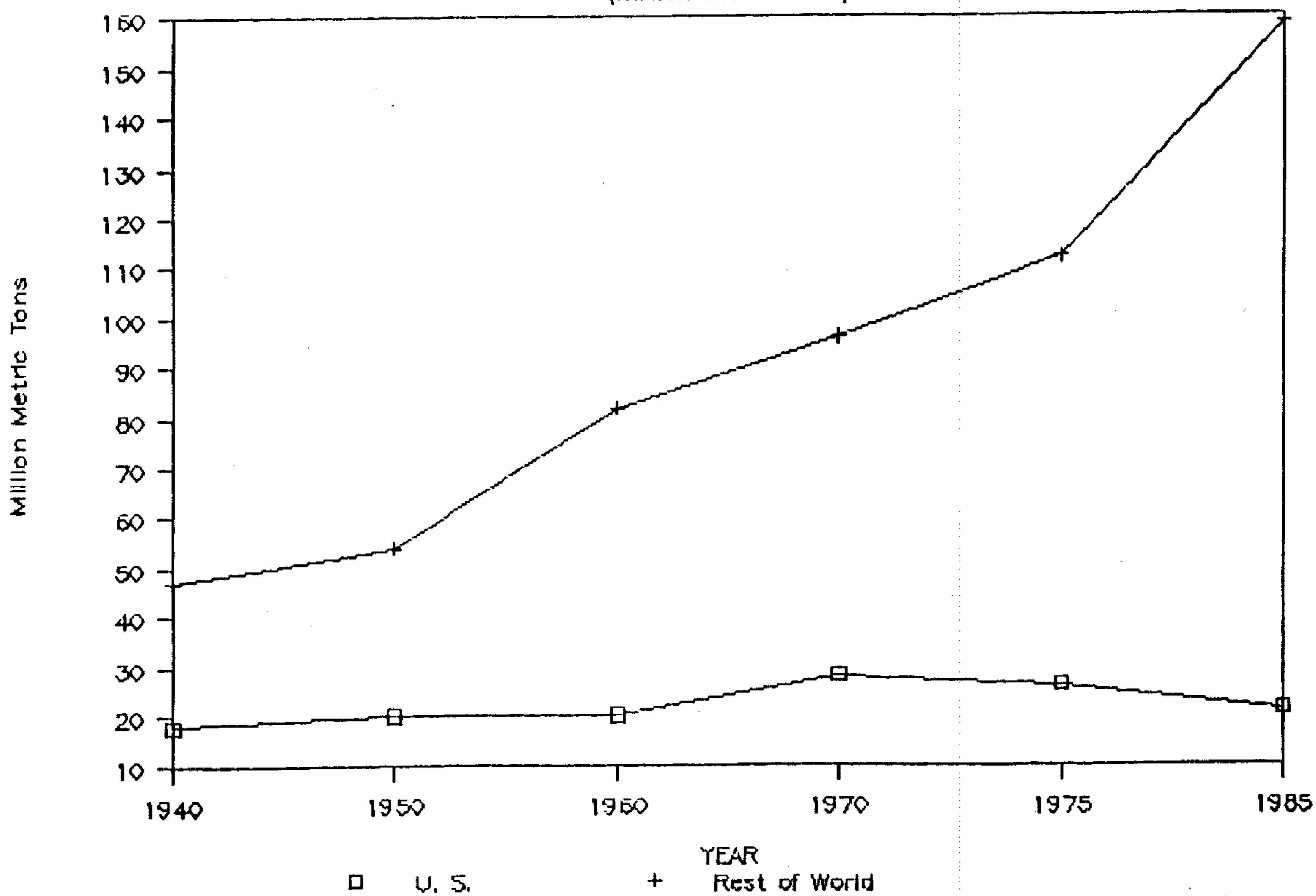
FIGURE 1

GLOBAL SULFUR DIOXIDE EMISSIONS

(million metric tons)



II. TRADE IN AUTOMOBILES AND COPPER

The largest flow of cars, trucks, and buses in world trade is the movement of 4 million vehicles from Japan and Korea to the U.S. This is 9 percent of all of the 45 million vehicles produced in 1986, and 22 percent of all world trade in vehicles.[3]

A typical domestic passenger vehicle consists of 3200 pounds of material. Table 1 indicates the raw materials which must be processed to produce an automobile.

Japan is almost wholly lacking in the mineral and fuel resources needed to produce those automobiles. Table 2 shows Japan's resource dependency in basic resources. This dependency is matched by South Korea and the other newly industrializing countries in East Asia. It seems, then, that Japan's contribution to global pollution is connected to both the supply of raw materials from resource-exporting, developing countries and to U.S. product demands. In other words, a U.S. buyer of a Japanese vehicle is purchasing a commodity linked to environmental protection or worker-safety problems in the countries of origin for the embodied resources.

Copper trade is examined because of its importance as a source of acid rain sulfur emissions in the absence of sulfur control (Table 3). In Northern Mexico and the Southwestern U.S., the ore types result in a smelter feed which generally has one unit of sulfur for each unit of product copper. Consequently, in the absence of sulfur controls, for each ton of copper produced by

TABLE 1

Composition and Weight of Passenger Car

1987

Material	Weight in Pounds
Steels	1775
Iron	460
Plastics, Composites	222
Fluids, Lubricants	183
Rubber	136
Aluminum	146
Glass	86
Copper	25
Lead	24
Zinc	18
Others	103
Total	3178

Notes: Data are estimated for U.S. cars. In 1976, the average was a higher 3761 pounds. The reduction is equal to the lesser amount of steel used now.

Source: Motor Vehicle Manufacturers Association, Facts and Figures (1988), at 74.

TABLE 2

Japan's Resource Dependency for Selected Minerals and Fuels, 1985, units of contained mineral

Mineral or Fuel	Mine Production or Field Output	Consumption of Refined Primary Metal or Fuel	Measure of Resource Dependency
Aluminum (10^3 mt)	0	2814	100.0 %
Coal (10^{12} Btu)	530	3540	85.0 %
Copper (10^3 mt)	43	1172	96.3 %
Iron and Steel (10^3 mt)	212	179,419	99.9 %
Total Petroleum (10^3 barrels)	3929	1,517,676	99.7 %
Uranium (10^3 kg)	7	650	98.9 %

Sources: United Nations, Bureau of International Economic and Social Affairs, Statistical Office, 1985 Energy Statistics Yearbook (New York: United Nations, 1987); U.S. Department of the Interior, Bureau of Mines, 1986 Minerals Yearbook: Area Reports, International, Vol. III (Washington, D.C.: U.S. Government Printing Office, 1988). Compiled by Jess C. Dumagan and Thomas E. Drennen for the Seminar on the Economics of Resource Use, Fall 1988, Cornell University. "mt" means metric tons.

TABLE 3

Major Participants in the World Copper Market

1985, thousand metric tons

	Mine Production	Smelter Production	Refined Total Consumption	Approx. S Control Index
Exporters				
Chile	1356	1089	26	14 %
Peru	385	354	37	0 %
South Africa	204	168	70	39 %
Zaire	502	469	3	76 %
Zambia	520	544	7	70 %
Philippines	226	134	5	0 %
Australia	261	175	124	0 %
Canada	730	494	223	26 %
Group Total	4184	3427	495	32 %
Importers				
German F. D.	1	247	754	95 %
Belgium	0	115	310	na
France	0	7	398	na
United States	1106	1138	1906	90 %
Japan	43	933	1231	98 %
South Korea	2	113	207	51 %
Italy	0	0	362	na
United Kingdom	1	0	347	na
Group Total	1153	2553	5515	89 %
Others	1135	930	1328	na
Market Economy Total	6472	6910	7338	
Sixteen-Country %	82 %	87 %	82 %	

Notes: The table includes all market-economy countries with at least 200,000 metric tons at one or more stages in 1985. Sulfur control index is defined as 1 less the ratio of emitted sulfur to copper production. Stockpile changes are not shown.

Sources: World Bureau of Metal Statistics, World Flow of Unwrought Copper - 1985; Dan Maxim, The International Competitiveness of the U.S. Non-Ferrous Smelting Industry and the Clean Air Act (April 1982), and Air Pollution Requirements for Copper Smelters, United States compared to Chile, Peru, Mexico, Zaire, and Zambia (May 1985); and visits to copper manufacturing plants in the U.S., Mexico, Chile, South Africa, Zambia, and Zaire.

the smelter, one ton of sulfur is emitted into the atmosphere, or passed into the water or land environment. Each ton of sulfur, in turn, will be transformed into two tons of sulfur oxide and three tons of sulfuric acid.[4] The major exporting countries average 32 percent control of sulfur emissions. Those industrial importing countries that smelt copper average 89 percent control.[5]

Sulfur control presumably increases production costs. If this is the case, then an automobile manufacturer that buys lower-cost copper attains a cost advantage related to the absence of pollution control in the refining process. This subject is addressed in greater detail in the fourth section, below. At this point, the relevant generalization is that Canadian and West German manufacturers of automobiles exporting their product to the United States obtain their raw materials from countries with generally less pollution control than is practiced in the U.S., Japan, or Western Europe.

III. IMPORTER COST ADVANTAGES FOR AUTOMOBILES

Table 4 summarizes five types of cost differences between Japan and the U.S. for automobile manufacturing. The most important difference is the estimated cost savings from avoided environmental protection cost. These costs are estimated from I-O (input-output) data summarized in Table 5. The 1982 data for eighty-one commodities were aggregated into the eighteen categories in Table 5.[6] The manufactured commodities (generally industries 16-79) have a total direct and indirect requirements

TABLE 4

Profit Advantage (+) or Handicap (-) for a Japanese Manufacturer

per $15,000 car

Pricing	- $1500
Transport	- $450
Labor Cost	+ $1150
Environmental Costs 10 % on mining (+ $100) 10 % on chemicals, energy, metals (+ $750) 5 % on other manufactured goods (+ $1250)	+ $2100
Net Before-Tax Capital Income Advantage	+ $1300

Notes: All figures rounded to nearest $25. With higher U.S. taxes and benefits, the after-tax advantage is probably much greater. The $1500 pricing differential for cars of the same quality is assumed to be 10 percent of retail price, and is based on the Cole and Yakushiji discussion of marketing and pricing.[8] The higher Japanese transport cost of $450 is also based on their analysis.[9] The labor cost differential of $1150 per vehicle was based upon three different methods of estimating U.S. labor cost per vehicle, each giving an estimate of approximately $3200 per vehicle.[10]

TABLE 5

Total Requirements for $15,000 Car

Commodities	Industry Numbers	Total Requirements Coefficients	Amounts for $15,000 Car
Agriculture and Lumber	1-4	0.00466	$70
Mining and Minerals	5-10	0.06695	$1004
Construction	11-12	0.01657	$249
Transportation	65	0.04889	$733
Trade, Communications and Television	66, 67, 69	0.08847	$1327
Finance	70-71	0.03852	$578
Services	72-77	0.09631	$1445
Other	80-81	0.01842	$276
Manufactured Commodities (totals)		(2.17639)	($32,646)
Textiles	16-19, 34	0.04776	$716
Chemicals, Plastics, Paint	27-30	0.06378	$957
Energy and Utilities	31, 68, 78, 79	0.11045	$1657
Rubber	32	0.05809	$871
Glass	35	0.01286	$193
Metal Products	7-42	0.33216	$4982
Engines	43	0.01107	$166
Machinery	44-50, 52	0.06767	$1015
Computers, Electrical Equipment and Electronics	51, 53, 55-58	0.05315	$797
Motor Vehicles	59	1.36445	$20,467
All Other		0.05495	$824
Total	1-81	2.55518	$38,328

Source: See Note 6.

coefficient of 2.18. Since $15,000 is the current average price of both domestic and imported cars,[7] it is used as the basis for application of the I-O coefficients. It is assumed that smaller environmental costs for developing-country suppliers reduce the costs of Japanese mining, chemicals, energy, and metals by 10 percent. It is further assumed that the same factor is 5 percent for other manufactured commodities. The magnitude of this percentage is critical, and the validity of the percentage assumptions is examined in the following section.

Summing up the entries in Table 4, the Japanese manufacturer has an advantage of about $1300 per vehicle. As illustration, about $1550 is before-tax capital income for the U.S. manufacturer,[11] and the figure may be about $2850 for the Japanese manufacturer. The overall context, then, is that an estimate of $2100 in avoided environmental protection costs is essential to providing for the profitability of the sale of Japanese cars in the United States. The figure may be comparable or greater for a West German car imported into the U.S. It is critical to examine the empirical basis for this estimate.

IV. COPPER: DEVELOPING-COUNTRY POLLUTION

As noted above, most authors have found pollution abatement costs to be generally insignificant for most industries. However, a detailed review of copper production costs gives an estimate of 15 cents per pound as the cost for environmental protection and worker safety.[12] The major items involved are shown in Table 6.

With current production costs in the U.S. at about 65 to 70 cents per pound,[13] these costs are 20 to 25 percent of production costs.

The most comparable figures from other economic studies are on the order of 1 or 2 percent. These are the estimates of environmental protection costs for the nonferrous mining and smelting industries.[14] These studies have used Federal survey data, prepared by the Department of Commerce.

How can these differences be reconciled? There are several possibilities. First, many labor-intensive activities that are part of a production process may not be reported. For example, the labor, fuel, and equipment costs of dust control in a pit mine by use of watering trucks may not be reported. Similarly, collateral protection devices that are a secondary part of production equipment may not be reported. Relevant examples here would be the capital and labor cost of a dust hood on an ore conveyor, or fans and hoods on a grinder.

Second, monitoring and planning activity may be excluded. For example, four excluded kinds of environmental protection expense would be: (a) professional time spent with visitors inspecting protection systems; (b) meteorological monitoring of ambient air quality; (c) environmental planning; (d) time and expense in report preparation and meetings with State and Federal regulatory personnel.

A third omission from survey data is the cost of protection of workers from environmental hazards. All the items in Table 6, Part B are excluded.

TABLE 6

Environmental and Worker Protection Costs in Copper Production

Part A: Environmental Protection Activities and Equipment

a. air and water pollution control for coal burned for power generation
b. bag house on crusher
c. berms for chemical storage
d. covered conveyor
e. primary convertor hoods
f. fugitive emission hoods
g. gas collection fans, electricity
h. hazardous waste control
i. meteorological data and forecasting for possible pollution emergencies
j. monitors for air and water quality
k. PCB control
l. storm catchment reservoir for ten-year storm
m. tailing reservoir and drain
n. tall stack
o. waste oil control and monitoring
p. water discharge plans and monitoring
q. water recycle zero discharge
r. water spray for dust control
s. wet scrubbers
t. acid plant
u. professional environmental protection personnel
v. Federal and State reports and meetings

Part B: Work place Health and Safety Protection Costs

a. personal safety equipment: protective jacket, hard hat, glass, respirator, boots
b. roll cages and cabs on vehicles
c. clean work places
d. lights
e. minimum train crews
f. hearing testing, protection, and monitoring
g. plant air testing
h. radiation monitoring
i. respirator testing
j. training programs
k. mine and industrial safety personnel
l. mine and industrial safety reports and meetings

Sources: Personal interviews, visits to mines and smelters.

A fourth excluded item is productivity loss. When production stops or is slowed because of environmental problems, this is not counted as an environmental expense.

A fifth factor in under-reporting environmental costs may be vintage: current management may not perceive practices which preceded them as protective; current management may focus on environmental practices introduced during their tenure. Examples here may be respirators, or tall stacks.

Finally, interest expense or opportunity cost for investment in protection equipment is not included in the survey data. This could be significant.[15]

Whether or not these six factors are sufficient to account for the difference between my estimate (20 to 25 percent) and previous economic studies (2 percent) is an open question. Certainly field research on environmental protection, worker safety, and productivity should be encouraged.

Differences in sulfur emissions per unit of product copper were shown in Table 3, and account for some of the differences in production costs shown in Table 7. These production-cost differences reflect many factors in addition to pollution control: ore quality, age of facility, profit from other metals or sulfuric acid, and national taxation.

As with automobiles, labor cost differences affect profitability in estimates of copper production cost. Worker costs per pound of copper are shown in Table 8. Given the large differences in environmental protection costs and labor cost between U.S.

TABLE 7

Copper Production Costs

U.S. dollars per pound of refined copper, January 1986

Country	Number of Mines	Net Operating Cost	Taxes	Recovery of Capital	Total Production Cost[1]
Australia	3	58¢	1¢	7¢	66¢
Canada	15	78¢	1¢	12¢	91¢
Chile	9	49¢	1¢	6¢	56¢
India	5	92¢	5¢	11¢	$1.07
Peru	6	55¢	1¢	12¢	68¢
Philippines	9	62¢	6¢	8¢	76¢
South Africa	3	72¢	-	13¢	85¢
U.S.[2]	16	54¢	2¢	11¢	67¢
Zaire	6	37¢	8¢	7¢	51¢
Zambia	8	42¢	7¢	12¢	61¢
Other	37	53¢	5¢	10¢	68¢
Total	117	53¢	3¢	9¢	65¢

Notes:
1 Data may not add to totals shown because of independent rounding.

2 Does not reflect reduced labor rates of new contracts negotiated in June that significantly lowered mine and mill operating costs at affected mines.

Source: U.S. Bureau of Mines (Note 13), at 331.

TABLE 8

Estimated Labor Costs Per Ton Copper

Location	Production per man-year	Wage per hour	Labor Cost per pound
Zambia	8t/my	35¢/h	4¢/lb
Zaire	17t/my	35¢/h	2¢/lb
Palobara, S.A.	33t/my	$1/h	3¢/lb
O'okiep, S.A.	14t/my	$1/h	7¢/lb
Codelco, Chile	44t/my	$1/h	2¢/lb
Phelps-Dodge, U.S.	44t/my	$12/h	27¢/lb
Nacozari, Mexico	na	65¢/h	na

Source: Estimates based upon visits to mines and smelters.

and developing-country producers, it is understandable that domestic production of copper declined while imports have increased.

In 1973, only 9 percent of U.S. copper consumption was imported, refined copper. By 1986, this proportion had grown to 23 percent.[16] Although the demand for copper has been constant for fifteen years at about 2 million tons annually, we now import about 1 million tons embodied in automobiles, consumer electronics, capital goods, plumbing equipment, and so on.[17] Apparently, the U.S. may have increased overall copper consumption, but less smelting is done in the U.S.

This, presumably, is part of the explanation for the growth in sulfur emissions from copper production outside the U.S. The rest of the world has increased its SO_2 emissions from copper production from 5 million tons in 1970 to 12 million tons in 1983. The U.S. reduced emissions from copper from 3 million tons to 1 million over the same period.[18] The global acid rain problem is increasing, as Figure 1 indicated, in spite of U.S. reductions.

In one important respect, the copper data do not support the hypothesis that Japanese cars have lower production cost because of the absence of pollution control in pollution-intensive raw materials. In Table 3, Japan had smelter production equal to 75 percent of its copper consumption, and 98 percent control of sulfur emissions. Consequently, it cannot be argued that imported copper is itself a major component of potential Japanese cost advantage with respect to pollution-control avoidance. A Japanese cost advantage in this area must be found in the importation of other industrial resources, or in the avoidance of environmental protection costs at the mining stage before smelting.

However, the copper data support the concept for two other major automobile exporters, Canada and West Germany. Canada is the second leading exporter of vehicles to the U.S., and Table 3 shows its sulfur control at 26 percent. West Germany, the world's second leading producer and exporter of vehicles, imports 99.9 percent of its copper, and two-thirds of this has been smelted prior to import, primarily in developing countries.

The recent fluctuations in copper commodity markets help protect U.S. copper producers from the effect of the competitive advantage held by developing-country producers. In early 1989, the price has exceeded $1.50 per pound, more than twice average production costs. As long as this worldwide price exists, U.S. producers will continue to prosper. If competitive markets return to the price levels present in the mid-1980s, it would seem unlikely that U.S. production could be internationally competitive at its present production level. Transport costs are inexpensive: intercontinental rates average 4 cents per ton for copper, and less for concentrate.

To the extent that automobile manufacturers in Europe and East Asia have long-term resource contracts based upon economic conditions in the mid-1980s, their acquisition of copper will be at a smaller cost than U.S. manufacturers. As discussed here, these cost differences in copper production arise in different combinations from environmental protection, worker safety, and wage differentials in the resource-exporting countries.

V. A SOCIAL TARIFF

The illustrative subject matter here has been a raw material (copper) and a complex final product (vehicles). Both are consumed and produced on every inhabited continent, and widely traded. Forty percent of all vehicles and seventy percent of all copper are sold in international trade. Several other pollution-intensive commodities are also traded globally. These include metals, petroleum, coal, deforestation products, fruit and vegetable produce, and ordinary metal products such as silverware.

For each, the pollutants affect domestic workers and the public, and have transnational and global effects. We have reasonably firm data on growth in world sulfur and carbon dioxide emissions. We can speculate with some confidence that global accumulations of hydrocarbons, nitrogen oxides, and lower atmosphere ozone are also increasing. There may be growing pollution of world oceans with metals and chemicals, but there are no global data on these two pollutants to confirm or deny the possibility. If current national policies continue, we may confidently anticipate exponential growth in world emissions of pollutants.

Economic theory offers three broad kinds of remedies: bribes or payments from recipients to polluters, taxes or fines on pollution, and regulation of pollution emission.

Ultimately, we can anticipate global agreements on standards for emissions of major pollutants. If these standards are defined on a per capita basis, they will tend to encourage developing countries to "catch up" in terms of higher pollution levels. If international agreements are defined in terms of percentage reductions from current levels, the agreement will tend to hinder developing-country growth by freezing their pollution-intensive industry potential. One likely outcome is some balance between per capita emissions and percentage rollbacks, as with the Montreal chlorofluorocarbon treaty. Some agreements will also consider pollutant emissions per unit of final product, or per dollar of gross domestic product. Ambient air standards are another potential basis for agreement.

In the interim, before global agreements are established, consideration should be given to environmental or social tariffs based upon cost advantages obtained by avoiding commonly available pollution control technologies. If, for example, this tariff is set at 50 percent of the avoided cost, then given the estimates in this paper, imported Canadian copper might have a tariff of up to 7 cents per pound. A Japanese or Korean car might be subject to a tariff of 33 cents per pound.[19]

Several positive consequences of an environmental tariff can be anticipated. First, the funds raised could be used to finance pollution control in developing countries. Second, some part of the tariff funds could be allocated for research on the general problems of transnational externalities and world pollution.

Third, producer resistance to pollution control would be diminished. With a 50 percent tariff, each dollar spent on pollution control in the production of an exported car or refined copper would reduce net income by a lesser fifty cents.

In addition, a social tariff would enhance, in developing countries, the domestic political position of groups advocating environmental protection by indicating the general world support for that position.

Finally, the economic position of producers using modern methods of pollution control would be enhanced rather than eroded.

There are three approaches to such a tariff: global, including the Soviet Union and China; industrial-market economies, meaning Japan, Korea, Australia, Western Europe, and North America; or, finally, implementation by the U.S. The most practical approach is probably to build domestic U.S. support for a GATT agreement covering environmental protection costs.

Should wage levels and worker safety be included in international social tariffs or standard-setting agreements? At some future point in time, the answer will probably be affirmative. But for the present, the need for policies addressing global pollution arising from world trade is evident.

VI. APPENDIX: WAGE AND PRODUCTIVITY CALCULATIONS

In the first method, production worker pay is assumed to equal the average for all employees. In other words, the production worker rate of $20.53 per hour is assumed to be the average for all clerical, sales, managerial, and production workers. This is multiplied by 2000 hours per year, and divided by 13 vehicles per employee. The result is an estimate of $3158 per vehicle.[20] In the second method, an average 1985 motor vehicle industry pay of $31,559 was assumed to be the basis for industry-wide benefits of 29.1 percent for all employees, the I-O value for the auto industry. This was increased by 1.7 percent, the reported increase for production workers in total compensation per hour between 1985 and 1987. Dividing again by 13 vehicles per employee, the result is an estimate of $3187 in labor cost per vehicle, $29 higher than the first method.[21] In the third method, the value-added coefficient (0.331) is multiplied by the ratio of wages and benefits to value added (0.685), and by the $15,000 price. The result of this method is a labor cost per vehicle estimate of $3401.[22]

The estimate of 13 vehicles annually per employee is based upon the U.S. production of 10.906 million vehicles in 1987 with 841,508 employees.[23]

Cole and Yakushiji review several studies of Japanese and American productivity, and cite Japanese studies finding a 10 percent differential, or 14.3 vehicles per employee.[24] Total

Japanese compensation is 70 percent of the U.S. level for production workers.[25]

Taking the median U.S. estimate of $3187 total labor cost per vehicle, and assuming 10 percent greater Japanese productivity and 30 percent lower wages, the result is an estimate of $2028 labor cost per Japanese vehicle.

The arithmetic difference of an $1159 wage differential is rounded to $1150 in the text.

VII. NOTES

1. United Nations Environment Programme, Environmental Data Report (1987), at 12.

2. E. F. Denison, Accounting for Slower Economic Growth: An Update, in J. W. Kendrick, International Comparisons of Productivity and Causes of the Slowdown (1984); Organisation for Economic Cooperation and Development, Environment and Economics (1985), at 61-62; Ingo Walter, Environmentally Induced Industrial Relocation to Developing Countries, in Seymour J. Rubin and Thomas R. Graham, Environment and Trade (1982); Ben Smith and Alistair Ulph, The Impact of Environmental Policies in Developed Countries on the Trade of Developing Countries, in United Nations Environment Programme, Environment and Development in Asia and the Pacific (1982); and H. J. Leonard, Are Environmental Regulations Driving U.S. Industry Overseas?, Conservation Foundation (1984).

3. Motor Vehicle Manufacturers Association, Facts and Figures (MVMA) (1986-1988). Japan and Korea each export more than one-half of their production. In 1986, Japan produced 12.9 million vehicles and South Korea produced 600 thousand.

4. Some fraction of contained sulfur on the order of 3 percent will be held in the smelter slag. The remainder will be airborne.

5. The index is constructed to reflect the amount of SO_2 emitted per ton of copper produced, taking into account ore type and hydrometallurgical processing as well as sulfur control.

6. The coefficients are from Table 4 of the 1982 I-O set, provided by the Bureau of Economic Analysis, Department of Commerce.

7. From 28 Survey of Current Business (November 1987), at 20.

8. Robert E. Cole and Taizo Yakushiji, The American and Japanese Auto Industries in Transition (1984), at 108.

9. Id. at 116.

10. See the Appendix for explanation of wage and productivity calculations.

11. Before-tax capital income is 0.104 of sales. 65 Survey of Current Business (November 1985), at 17, and Table 3 of the 1982 I-O analysis. Cole and Yakushiji (Note 8, at 117) report that the U.S. government tax on labor and capital is $650 higher than the Japanese tax.

12. Based upon actual on-site accounting records for equipment and personnel. Sources withheld to protect confidentiality.

13. U.S. Department of the Interior, Bureau of Mines, Minerals Yearbook (1986) Vol. 1, at 331. See Table 7.

14. Ingo Walter, Environmental Resource Costs and the Patterns of North-South Trade, draft (April 1986), at 16; Carl A. Pasurka, Jr., Environmental Control Costs and U.S. Effective Rates of Protection, 13 Public Finance Quarterly (April 1985), at pp. 167, 168.

15. Historically, there were two Federal surveys. The Bureau of Economic Analysis surveyed business investment in plant and equipment for pollution abatement. The Census Bureau surveyed both operating and capital costs incurred by manufacturing industries. The surveys are being reorganized. These comments are based upon discussions with personnel in the Bureau of Economic Analysis, the Bureau of the Census, and management personnel at mines and smelters.

16. U.S. Bureau of Mines (Note 13), at 303; Copper: A Chapter from Minerals Facts and Problems, Preprint (1985) at 13.

17. Analysis of U.S. imports prepared by Timothy McClive, February 2, 1988, using I-O data on copper content. McClive estimates about 200,000 tons of copper are embodied in imported motor vehicles and equipment annually.

18. See U.S. EPA, National Air Pollution Emission Estimates, and source in Note 1.

19. This is 50 percent of the $2110 per vehicle figure in Table 4, divided by the 3,178 pounds in Table 1.

20. Source is MVMA (1988), at 70. See Note 3.

21. Id., and MVMA (1986) at 69.

22. Sources are 65 Survey of Current Business (November 1985), at 17; and I-O Table 3, as cited in Note 6.

23. MVMA (1988), at 6 and 70.

24. Cole and Yakushiji, cited in Note 8, at 122.

25. MVMA (1988), at 70.

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