

**DOES ECONOMIC ANALYSIS TRULY
SUPPORT FREE TRADE?**

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DOES ECONOMIC ANALYSIS TRULY SUPPORT FREE TRADE?

I. Introduction

When Americans buy foreign made products at low prices, how could they not but benefit? Certainly American workers in a particular industry may lose their jobs, but the economy as a whole will be better off. The benefits of low prices to consumers throughout the entire nation will far exceed the loss of these few workers. Besides those workers, if hard working and willing to retrain, will find work in the growing service and high technology industries. How could the cause of the low price -- whether cheap labor, efficient factories, or environmental abuse -- have any effect on our economy? For one reason or another the foreign manufacturer has an advantage in producing a particular product, and so we benefit from the resulting low price. Supported by both this intuitive argument and most significantly by formal economic analysis, the basic argument in support of free trade is quite strong. However, as more and more U.S. industries falter in the face of foreign imports, more and more is heard an argument for protectionism, largely intuitive: American high-paying manufacturing jobs have gone overseas to be replaced by low-paying service sector jobs. So that the large majority of Americans have had their average income fall quite precipitously; the flight of these good jobs must be stopped.

How to reconcile these two sensible arguments is what this paper is about. First, this paper reviews traditional comparative advantage and factor of production analysis upon which free trade is based. Then, this paper focuses on two central assumptions of traditional trade

analysis -- immobility of capital and equivalency of exports and imports. Finding both of these assumptions largely untrue in the modern world, the thesis becomes that many comparative advantages of the modern world are "simulated comparative advantages" (SCAs) and that traditional trade analysis confirms that free trade is not beneficial when SCAs are present. The idea of SCAs is not new. Neither is the fact that under traditional analysis trade is harmful under such circumstances. However, what is original is, first, the use of traditional analysis to show that free trade is presently harmful, and, second, virtually all arguments for or against free trade as well as the existing patterns of trade are analyzed in light of this thesis.

Whereas the existing literature simply lists this aspect of traditional analysis as just another of the arguments for protectionism. The strand of economic literature developing this aspect of traditional analysis failed to demonstrate or even suggest that it explains much of modern trade patterns even though evidence, including empirical evidence, suggests that large SCAs exist. Finally, this paper concludes that trade analysis has tended to ignore SCAs and other factors because they are difficult to quantify -- a far reaching rationalistic error.

II. The Central Theory of Free Trade

A. Traditional View -- Comparative Advantages and Factor Endowments

1. Table and Examples

Using the Heckscher-Ohlin-Samuelson factor endowments model, traditional trade analysis can be described in the following example. By using one unit of U.S. average factor endowments, the United States could produce 220 bushels of wheat or 200 tons of steel.

Assuming an economy demands nearly the same number of tons of steel as bushels of wheat to function, then the United States may choose to produce 110 bushels of wheat and 100 tons of

steel. Similarly, by using one unit of Japanese average factor endowments, Japan could produce 150 bushels of wheat or 190 tons of steel. Japan may choose to produce 75 bushels of wheat and 95 tons of steel. The United States possesses what is called a comparative advantage in wheat, and Japan possesses a comparative advantage in steel although the United States has an absolute advantage in both. The relative price of steel in the United States is 110 bushels of wheat per ton of steel or $110/100$ (1.1) and in Japan, 75 bushels of wheat per 95 tons of steel or $75/95$ (0.8). Column A of **table 1** represents how the two economies would look if they were autarkik (nontrading economies) and used approximately half their production capacities on each commodity.

Let us introduce international trade into a world of minimal transportation costs. Assuming no economies of scale, the United States could use its production units to produce 220 bushels of wheat, and Japan, 190 tons of steel as seen in Column B of **table 1**. If the world prices were \$1 per ton of steel and \$1 per bushel of wheat, then the United States could sell 100 bushels of wheat in exchange for 100 tons of steel. Both nations would be better off as seen in Column C of **table 1**. Consumption benefits in monetary terms measured by the world price of \$1 can be seen in the last two rows of **table 1**. There is a net benefit to both world welfare and each country's welfare.

Two types of gains cause this welfare benefit. The first gain is the consumption gain, the benefit to consumers from lower prices. For example, before trade the U.S. price for steel was 110 bushels of wheat or 100 tons of steel or $110/90$ (\$1.1). After trade the price consumers had to pay for steel went down to the world price of \$1. The second gain is the production gain "aris[ing] from the allocation of resources away from the direct production of importables in

higher-cost home production to the specialization in the lower-cost production of exportables," (Meier 1980: 62) For example, the production of one unit of U.S. average factor endowments only produced \$200 worth of goods at the world price (\$110 of wheat and \$90 of steel). After the U.S. specialized, it produced \$220 worth of wheat with one unit, an increase of \$20.

In fact, quite a volume of literature revolves around measuring production and consumption gains. To be fair, let us review one of the more striking findings of welfare gain from trade available. Free traders have found the production gain from trade to amount to 24 million dollars in the U.S. textile industry while the consumption gain amounted to over 2½ billion dollars. Their analysis of the U.S. textile industry is as follows:

The driving force in the analysis is the fact that import liberalization would reduce prices paid by consumers. Import prices would decline by the amount by which protection currently boosts prices above the level for world supply. In addition, prices on domestically produced textile . . . products would decline as well.

. . . .

. . . [T]he consumer gain on imports equals, first, the original volume of imports multiplied by the difference between the original and post liberalization import prices. Second, the consumer gains from the fact that an increased volume of imports enters the country

Against these consumer gains, there are losses by producers and the government. The government loses tariff revenues, and domestic producers lose that portion of their "producers' surplus" . . . transferred to consumers. There is another gain in the market of the domestic good, however, equal to the saving of

excessive resources formerly devoted to inefficient production

(Cline 1980: 188 - 190) Based on the above formula of determining the consumer and welfare costs of protection, the costs in 1986 in the U.S. textile industry amounted to (percentage and million dollars):

Total protection tariff equivalent	28%
Percent change in import price from liberalization	-21.9%
Percent change in import volume	29.8%
Consumer costs of protection	2,788
Costs from resource misallocation	24
Change in employment (1,000 workers)	-20.7
Consumer cost per direct job saved (dollars per job)	134,686

(Id. 191). This, then, is basic traditional trade analysis.

2. Implications of Traditional View

What are the implications of this analysis? Since this analysis is so old and so well accepted, the implications are quite large. Many governments all over the world have accepted this analysis. Their regulation of trade is grounded on these underlying economic principles.¹ The large reduction in U.S. tariffs in recent years especially through the General Agreement on Tariffs and Trade (GATT), World Trade Organization as well as the establishment of the European Community and the North American Free Trade Agreement are all based on these principles. Wherever a country's leaders have intellectually accepted the traditional theory of free trade, tariff rates have dropped, for example, the large drop in the average U.S. tariff rate from 27% in 1947 to 5% in 1991. (Batra 1993: 36 - 38) By increasing from 12% of U.S. GNP

in 1947 to 25.3% in 1990, the increase in the volume of trade corresponds with the drop in the tariff rates. (Id. 38) (Although some of the decline in tariffs has been offset by an increase in tariff equivalents especially in recent years. This increase in the tariff equivalents is called a "new protectionism." (Lieberman 1988) (Gray 1986: 15))

Perhaps, then, an economic explanation of why no such benefits result from certain types of trade will have just as much influence.

B. Traditional View and Modern Trade Patterns

Despite the massive benefits expected to enure to the U.S. consumer by lowering tariffs, the U.S. consumer is worse off than he was twenty years ago. (Batra 1993: 20 - 26) Certainly the price of many consumer goods in real terms has fallen much in the past twenty years. So just as free traders predict (for example, Lawrence and Litan 1986: 23), the consumer benefits of free trade are diffused among many consumers. However, the income of most Americans has fallen even more than the decline in consumer prices.² Many explanations exist for this decline of the U.S. middle class. For example, the most frequent explanation is that as the U.S. economy moves into a mature stage, it becomes service rather than manufacturing based. (We will say more on this idea later.) Another theory is that the decline in tariffs and the subsequent decline in manufacturing in large part caused the decline in the U.S. middle class since service sector jobs do not pay as well as manufacturing jobs. Some have developed this theory quite persuasively and pointed out certain questionable assumptions of the traditional view. To one degree or another all such explanations explain the massive changes of the U.S. economy and the decline of the middle class. However, none have proposed an economic model illustrating precisely how the reduction in U.S. tariffs results in a welfare loss to most Americans. **Table 2**

described below proposes to do just that.

How free trade causes a net welfare loss to the United States can be found by questioning two of the assumptions of traditional trade analysis. We will find that two major assumptions are not a part of modern trade patterns. Before detailing those assumptions in the next section, let us now concentrate on changing only one assumption. The elimination of this one assumption alone results in U.S. welfare loss from trade!

This assumption is that exports must equal imports or what this paper calls the "general equivalency principle of trade". The "general equivalency principle of trade" holds that a trade imbalance can only exist in the short run. The imbalance will always be rectified through one of several mechanisms. One mechanism is the product market itself, the amount each country sells to the other will be equal because supply will equal demand. The financial market is another mechanism, if a country does not export as much as it imports, its currency will depreciate. In the traditional view of welfare analysis as seen in **table 1** and in the textile example, these mechanisms are not a factor since it is assumed that the foreign nation will always import from the United States the exact amount it exports to the United States. That is, its imports will rise to the level of U.S. imports. In **table 1**, it is assumed Japan will use its export revenues to purchase products the United States has a comparative advantage in producing. However, if Japan wastes its export revenues somehow, for example, by using artificially low labor costs, then it cannot buy as many U.S. products as would be expected. The undereducated, underhoused, underfed families of underpaid Japanese workers will not be in a position to buy many U.S. products.

Let us view an example using numbers. What if Japan were simulating its comparative advantage in steel production? What if its true steel production per unit of average factor

endowments were 30 less than appeared? In other words, Japan would be using more than one unit of factor endowments to produce 190 tons of steel but exporting a large quantity of steel, a quantity consistent with producing 190 tons per unit. If one average unit of factor endowments consisted of 10 workers, then it is really taking 12 to produce 190 tons of steel. The parenthetical numbers of **table 2** show what true output per unit would be. Japan's internal price of steel is not 0.8 but 0.94 (75/80). It still has a comparative advantage but not nearly as large. So Japan will end up exporting much more steel than it should if world welfare were maximized.

However, to produce each 190 tons of steel, Japan is underpaying its workers because it is using more than 10 workers to produce the 190 tons. These 12 workers must share in the same income as 10 would receive for one unit of output. So Japanese workers would not be in a position to buy as many U.S. products as expected. The situation would look like **table 2**. Japan would still produce 190 tons of steel per apparent unit and sell 100 tons at \$1 per ton. But since Japan's internal cost is \$30 more per unit than appears, it will buy \$30 less per 190 tons of steel produced, only \$70 worth of wheat. Since demand for U.S. wheat has decreased by 30 bushels, the United States will decrease wheat production by 30 bushels per unit to 190. Of the 190, it sells 70 to Japan leaving 120. It must sell 30 more somewhere else to raise the additional \$30 needed to purchase the full 100 tons of steel leaving only 90 bushels of wheat per unit

Figure 1
U.S. Wheat Production, Consumption, and Sales During Simulated Comparative Advantages

220	U.S. Potential Wheat Production per Unit of Average Factor Endowments
<u>-30</u>	Decrease Production Because of Fall in Japanese Demand
190	
<u>-70</u>	Sell 70 Bushels to Japan
120	
<u>-30</u>	Sell 30 Bushels Elsewhere to Raise Extra \$30 for \$100 of Steel
90	Total U.S. Wheat Consumption

of output. See **figure 3**.³

Significantly, the United States welfare is not improved by trade with a wasteful partner; the U.S. economy is even harmed by such a trade since the wheat production industry would suffer an income decline. Eventually, U.S. wheat production would decline, so its comparative advantage would go to waste. Therefore, to answer a question asked in the introduction, yes it does matter to Americans what is the reason for the low price of the imports. Contrary to an intuitive view (Dillon, Lehman, and Willett 1990: 43), a foreign manufacturer selling to the United States at below *real* costs harms U.S. welfare because resources are allocated inefficiently. Of the two gains from trade, the production gain deteriorates quite seriously. Not only is the production gain nonexistent but also a production loss occurs. The U.S. wheat production resources are not being used efficiently; the United States is not even using all of its

wheat production resources. Even the consumption gain is partly a chimera since many consumers no longer have the income to take advantage of lower prices. These inefficiencies result because SCAs make prices meaningless.

If price is to be our guide for buying, selling and investing, then price should tell us something about efficiency. Efficiency should refer to the amount of real resources used per amount of useful product manufactured.

. . . .

Indeed, . . . there is an enormous disparity between the price of a product or service to an individual and the cost of that same product or service to the society as a whole.

(Morris 1991: 28 - 29)

In the textile example, the result of changing this assumption is the same. The textile workers thrown out of work by the imports will not be able to find work in other industries since no demand for U.S. exports will develop. To the extent that foreign textile manufacturers are underpaid, they will not buy U.S. products, e. g., Boeing 747s and wheat. The unemployed U.S. workers will not be able to afford many 747s or much wheat either. So these industries will shrink even more. Therefore, no production gains from trade will exist, rather a loss. Some consumption gains from trade will exist, but they will be much smaller than the estimate since U.S. consumers will not have a large enough income to take full advantage of the lower prices. Instead of a \$134,686 net welfare gain per worker, there will be a net welfare loss from trade.

Japan's artificially low labor costs in the above example are what this paper terms a SCA. A SCA is an artificially low cost of production (or factor of production to put it in other terms).

We will find that modern trade patterns contain three significant SCAs as described in the next section.

III. Simulated Comparative Advantages (SCAs) and Free Trade

Having presented the main claim, the rest of this paper defends and develops this claim by exploring in more detail how SCAs, first, fit into trade analysis, second, fit into modern trade patterns, and, third, fit into context many arguments in favor and against free trade.

A. Trade Theory

Both the existence of SCAs and the resultant welfare loss of trade are consistent with the existing literature. As economists advocating free trade have stated: "Textbook treatments of the gains from trade based on simple models are . . . valuable in demonstrating the possibilities of gains and illustrating how they can come about. It is quite a different matter to take such illustrations as proof that free trade is always optimal." (Dillon, Lehman, and Willett 1990: 26) In other words, trade theory is based on a mathematical model. The results of the model in turn are based upon highly stylized facts. When these stylized facts are changed, even slightly, the results of the mathematical model vary, often greatly. Such is what **table 2** purports to demonstrate. A basic assumption of trade theory was altered with the result that a welfare gain for the United States turned into a loss.

In reality, two assumptions of trade theory are not consistent with modern trade patterns. The elimination of both these assumptions results in a loss from SCA based trade and transfers the loss to the importing country. Eliminating the first assumption, immobile factors of production, makes SCAs more likely; virtually all free traders admit that capital is mobile. But they argue that SCA based trade causes a loss to the exporting country and a gain to the

importing country. However, when we drop the second assumption, exports equal imports, the welfare loss is transferred to the importing nation, as we just saw. After exploring the theoretical framework, we will go on to look at some empirical evidence of modern trade patterns in part B of this section.

1. First Assumption -- Immobile Factors of Production

The first unrealistic assumption is that factors of production are immobile. For example, if a firm in the United States started producing wheat more efficiently through the use of chemical pesticides, then the traditional theory starts with the assumption that the chemical pesticide technology would not be transferred to other countries, Japan in the example. Thus in the **tables** the comparative prices within each country are held constant. If the chemical pesticide technology were transferred to Japan, then the United States may well lose its comparative advantage in wheat production rendering the precise welfare calculations of **table 1** far off the mark.

If such technological factors of production were transferable, then the **table 2** scenario would be the more likely. Technological factors of production being mobile, a technology based comparative advantage would be difficult to maintain. (Meier 1980: 42) (Heller 1968: 6) So as far as manufactured products are concerned, comparative advantages would depend upon only a few relatively immobile factors of production, most notably, labor, the environment (McGaughey 1992: 37), and government. Thus, the pressures on a country to simulate a comparative advantage in one of these three areas would be great as was done with labor in the **table 2** example.

2. SCAs

Let us stop and take a closer look at SCAs before going on to the second unrealistic assumption. Producers mainly rely on three types of artificially low advantages -- labor, environmental, and government. Let us begin with artificially low wages. Is it possible to define a simulated low wage? Some may argue that wages are simply a product of supply and demand, so no wage is too high or too low. Theoretically, a simulated low wage exists and is defined as any wage below a subsistence wage. (Gray 1985: 11) A subsistence wage is that needed to feed, cloth, educate, and house a family at a reasonably acceptable level. By a reasonably acceptable level, reference is made to the particular society. For example, a sixth grade education may be acceptable in one society while a high school education, in another. So even if all economies were paying a living wage, some economies would still have a comparative advantage in certain types of low-skill labor costs. Another economy may have a comparative advantage by having an abundance of skilled labor.

With environmental costs, in most instances, real comparative advantages would be quite small since pollution has basically the same effects everywhere. As far as creating a SCA by disregarding environmental costs of production, based on the estimated large costs of such regulations (U.S. Environmental Protection Agency 1984) (Hazilla & Kopp 1990), production advantages resulting from ignoring environmental costs would also be great.

That governments may create SCAs is well established. International trade treaties address the problem, even the GATT. United States antidumping and countervailing duty laws were established in large part to counteract governmental aid to export industries. Such aid may take the form of a direct subsidy or it may be in a nuanced form, for example, granting tax breaks to industries which export most of their production. Legitimate government based comparative

advantages do, however, exist. That a particular government is better able to promote solid industrial infrastructure is a real comparative advantage.

The effectiveness of governmental SCA policy can be seen in one of free traders' own arguments. A line of free trade analysis points to the added welfare benefits of free trade resulting from free trade's tendency to promote capital formation. "If a liberalization raises the return of capital, it will induce capital formation and thereby raise output more than static effects alone would predict." (Baldwin 1992: 162 - 63) So Governments have all the more incentive to promote SCA based trade. However, since this capital formation gain results from the growth in exports, it will be a net loss for the importing country (the United States in the examples) since production decreases. The fast rise of newly industrialized country industries and the equally fast decline of U.S. industry may be partially explained by this effect of exporting.

Other theoretical costs of protection are also based on the assumption that comparative advantages are real, and so these costs will also disappear or turn into losses in the presence of SCAs. For example, tariffs create efficiency losses for exporting countries and cause an inappropriate amount of foreign investment in the importing country, made "as a means of 'defusing' the protectionist sentiment." (Feenstra 1992: 170)

When critics of free trade argue that the traditional trade analysis is suited only to the raw material and agricultural based trade of years ago, they are saying the same thing as the argument presented here. That countries with warmer climates exported products such as coffee and cocoa while Europe exported wool products and manufactures made sense. (Porter 1990: 12 - 13) The welfare benefits of **table 1** follow from trade in such a situation where the comparative advantages are real.

3. Second Assumption -- Imports Equal Exports

The elimination of the first unrealistic assumption, immobile factors of production, demonstrates how SCAs come about and cause inefficient production. Let us now look at the second unrealistic assumption, the one dropped in **table 2**. The elimination of this assumption will demonstrate how the welfare loss caused by SCAs is borne primarily by the importing country. The assumption modified by **table 2** is that each country's imports will rise to the level of its exports. Each country's exports will equal its imports so that the relative price of each country's product will remain the same. Thus when the United States imports 100 dollars worth of Japanese goods, it is assumed that Japan will import 100 dollars worth of U.S. goods so that currency exchange rates remain the same. However, the "general equivalency principle of trade" allows for trade to be uneven. But, it provides adjustment for uneven trade to be made in the financial markets. When a country does not import as much as it exports, Japan in **table 2**, that country's currency must appreciate, and a net welfare loss to its trading partner results. (Meier 1980: 26)⁴ Thus, welfare loss from inefficient production caused by the SCA is transferred from the exporter to the importer as was seen in the **table 2** discussion. So the interference in market mechanisms caused by SCAs does more damage than free trade advocates claim. It does not allow the welfare loss to rest with the exporter; it can very easily be transferred to the importer. In the next section, III. B. 2., we will explore factual evidence that the U.S. dollar's behavior is consistent with SCAs transferring a loss to the United States.

4. Interference Literature

The SCA phenomenon developed in this paper exists in economic literature under the names of interference, distortion, or market imperfection. (Hazari 1978) (Jones and Neary 1986:

45 - 53) (Krueger 1986: 160 - 166) (Corden 1986: 86 - 100) This interference literature draws the same conclusion reached here; namely, when the normal free trade assumptions are interfered with, a welfare loss may well result from free trade. *Surprisingly, this author has not found a single critic of free trade who cites this literature!* Couched in much more technical language than used here and built upon a more sophisticated analysis, this literature is not very accessible. In addition, this literature is quite theoretical treating a welfare decline from free trade as just another of many outcomes when the assumptions of free trade are varied. That this outcome may be a significant fact of modern trade is usually dismissed based on a small range of empirical evidence only. However, this literature acknowledges that little evidence exists on the effects of interference. (Krueger 1986: 167 - 169) A mayor goal of this paper, then, is to present this theory in an accessible way and to begin demonstrating that such welfare losses are of significance.

Significantly, a paper devoted to demonstrating that free trade results in a welfare gain in a large number of interference cases specifically finds that "subsidies either of production . . . or of trade" do not result in such a gain. (Deardorff 1980: 941)

B. Modern Trade Patterns

Let us leave the theoretical framework of free trade and look at modern trade patterns to determine whether SCAs are in fact a player. We will first review major aspects of present day trade as they relate to the two major assumptions of traditional trade theory questioned above.

1. Evidence of Factor Mobility

The first assumption questioned was that production factors were immobile across country borders. The evidence is overwhelming that many factors of production are highly

mobile, at least between countries with an already substantial production infrastructure. (Lang and Hines 1993: 22) (Morris 1991: 29 - 30) The factors of even high technology production proved surprisingly mobile. Production of items initially developed in the United States is moving overseas. Such items include computers, semiconductors, telecommunications equipment, and analytic equipment. (Committee for Economic Development 1991: 179) Three reasons account for the increase in factor mobility. First, communications have improved greatly, both in cost and availability. Communications are now largely instantaneous. As soon as perceived, the least change of consumption patterns in a major market are often communicated to a production facility on the other side of the globe. (Cohen 1991: 201) Second, the same has occurred to transportation costs. (Sorensen 1989: 165) (McFarland 1985) Goods are transported by ship across oceans at only a few cents per ton, an insignificant cost. (Kendall 1986: 279) (Cohen 1991: 201 - 202) (McFarland 1985) (Contrary, McGaughey 1992: 40) Plane travel has also strengthened the link with distant production facilities.⁵

Third, modern business structure facilitates the free transfer of factors of production. (Lieberman 1988: 129) A multinational corporation by definition has only economic loyalties to a particular country. Governed solely by economic calculations, its production location decisions will be based on the immobile factors of labor, environment, and government. It possesses the corporate, political, and cultural know-how to employ technical production factors in any cultural environment. It has access to an international business structure -- international business standards, experienced lawyers, trade specialists and the like.

2. Evidence of The "General Equivalency Principle of Trade" -- The Monetary Exchange Rate

The monetary evidence at first seems to contradict the thesis of this paper. The "general

equivalency principle of trade" holds that if a country does not export as much as it imports, its currency will depreciate. (Meier 1980: 26) So, the lack of demand for U.S. exports should show up by a substantial decline in the U.S. dollar since 1973. To a large extent, no such decline has occurred. The evidence is deceptive. To begin with, the U.S. dollar has depreciated against major trading partners such as Japan. (International Monetary Fund 1992) But most importantly, cash from non-trade based transactions flows into the United States from several sources. These flows, quite substantial, alleviate the downward pressure on the dollar. They include royalty payments made to U.S. interests (Schlossstein 1984: 120), proceeds from foreign operations of U.S. based corporations, payment for services, and returns on foreign investments. But perhaps most importantly is the massive but immeasurable capital flight into the United States. (Lessard and Williamson 1987) (Maddison 1970: 223 - 224) Internal monetary forces also served to strengthen the U.S. Dollar. "In the United States, . . . a combination of government deficit and private investment in excess of private saving strengthened interest rates and thereby attracted capital from abroad, leading to appreciation of the dollar . . ." (Cooper 1988: 118)⁶ Therefore, the behavior of the U.S. dollar is consistent with trade causing a welfare loss.

3. Evidence of Simulated Comparative Advantages

Having found factual evidence contradicting both the assumption that production factors are immobile and the assumption that U.S. exports will equal imports, let us investigate factual evidence of SCAs. We will review three additional major aspects of present day trade and find that only the last is not wholly consistent with significant SCAs.

a. Labor, Environmental, and Governmental Factors

Having found that most production factors are now quite mobile so that the most

significant immobile factors -- labor, environment, and governmental -- are particularly susceptible to simulation, let us begin by looking for evidence that these three factors of production do in fact vary. In the ongoing argument over the desirability of free trade, others have already ably started the discussion so that only the main points should be made here.

As far as environmental based costs, again many have documented large costs of environmental laws. (U.S. Environmental Protection Agency 1984) (Hazilla & Kopp 1990) Therefore, simulating a comparative advantage by ignoring such great costs is bound not only to be a common practice but also to be resulting in a correspondingly large welfare loss.

The evidence is almost as extensive with labor. Even after giving due consideration to differences in education levels and work customs, that labor costs vary widely from country to country is clear, especially for lower skilled jobs. Instances of the transfer of production facilities to take advantage of variances in labor costs are many. Not even the most adamant free traders seriously dispute the existence of this phenomenon.

The evidence that governments vary the cost of production through SCAs is beyond question. Again even the GATT contains procedures, extensive and much used, for dealing with this problem.

b. U.S. Exports Not in Demand

The absence of demand for U.S. exports is strong evidence in support of the existence of SCAs and of the thesis of this paper. As U.S. tariff rates declined and manufacturing technology became more defused internationally, U.S. manufacturing declined precipitously. The labor, environmental, and governmental factors which remained largely immobile proved dispositive. Production moved abroad to where these costs were lower. The cry became: the United States

will concentrate production in what it has a comparative advantage in; the displaced factory workers, starting with the most intelligent and industrious ones, will find employment in these promising sectors. The high technology industry seemed an obvious place of U.S. comparative advantage. However, foreign demand did not develop. Indeed, nothing guarantees that the demand for high-wage items will increase at the same rate high-wage U.S. jobs are displaced by foreign low-wage jobs. (Lieberman 1988: 142) (Similar, Gray 1986: 87) For example, McGaughey (1992: 24) points to the fact that Mexican income is so low that they cannot afford many U.S. products. This is because "holding down wages, as a means of lowering production costs, limits the size of the market" (Jones 1983: 179) After all, how much need of Boeing 747s and American lawyers does a population making pennies per day have? How much U.S. wheat could such populations buy? Would not they manage to get by on a little locally grown rice? If the low costs of imports were based on true comparative advantages, then demand for U.S. exports would not have faltered.

A related cry became: the U.S. economy is maturing into a post-manufacturing service economy. Others have already pointed out the hollowness of such a theory. (Bonker 1988: 130 & 241) All prosperous economies are based on manufacturing. Service jobs pay much less than manufacturing jobs. So eighty percent of Americans saw their real incomes decline by over 19% from 1973 to 1991 (Batra 1993: 20 - 26), and the decline was by well over 20% when the increase in taxes is considered. (Id. 26)⁷ Revenga (1992: 255) makes a similar finding. Revenga also finds significant empirical evidence that "changes in import prices appear to have a sizable effect on employment and a smaller, but significant, effect on wages. (1992: 257)

c. Intraindustry Trade

A final empirical phenomenon of international trade merits discussion. For several decades now, economists have been trying to reconcile the growing volume of intraindustry trade with trade theory. Intraindustry trade is when a country imports and exports the same type of product, usually manufactured goods. For example, the United States both imports and exports a large quantity of automobile parts. Intraindustry trade has become quite significant especially between developed countries. Its existence seems to suggest that trade is not based on comparative advantages at all.

However, as many have argued, its existence is not at odds with comparative advantage trade theory. The phenomenon results from product differentiation and a species of economies of scale. Producers search for market niches, differentiating their product and creating a greater array for a more discerning consumer market. Since the market for specialized products is smaller, manufactures export to achieve production economies of scale. (Manrique 1987) (Owen 1983: 8 - 9) (Greenaway and Tharakan 1986: 7 - 9) (Ethier 1982) The economies of scale in such production often lie mainly in the marketing phase of the business, not in manufacturing. Lower transportation costs increase the size of the market and so make such specialized production practical. Therefore, to the extent specialization of product lines explains intraindustry trade, only small welfare benefits result from such trade. This is so because the benefits resulting from marketing efficiencies are much smaller than those resulting from manufacturing efficiencies (as discussed in more detail below). Finally, SCAs are behind such trade to the extent that governments subsidize indirectly specialized manufacturing industries.

C. Additional Arguments

Having presented the thesis in terms of trade analysis and having integrated it to the

pattern of present day trade, let us now view the thesis in terms of additional major arguments both for and against free trade. Virtually all these arguments can be profitably analyzed in terms of this thesis. Such an analysis demonstrates that the thesis is a far reaching synthesis of much existing trade theory and so is not a radical departure from existing trade theory.

1. In Favor of Free Trade

Substantially all arguments in favor of free trade stem from the free market philosophy. This philosophy can be stated as the belief that markets free from as much interference as possible are the best means to order economic activity. As an extension of this philosophy, many argue that even the world economy should be free of interference, including tariffs. A smaller number argue that *laissez-faire* is always the best free trade policy. For a discussion of the distinction between the free market and *laissez-faire* philosophies, see Dillon, Lehman, and Willett (1990: 24) and Gray (1986: 15). When confronted with the existence of SCAs, free traders would argue as follows. Market forces would eventually eliminate any SCA on their own. Any SCA could not be carried on indefinitely. The true cost must eventually be paid so that the offending country would eventually suffer from its deception. The alternative, government interference, is too ineffective. It is beyond the means of government bureaucrats to discern and properly counter a SCA.

To present even an outline of the volumes written on both sides of this argument is beyond this brief paper. However, two particularly salient counter arguments merit attention. First, the human costs of such market corrections on a world economic level are too high for most to tolerate. (Gray 1986: 16 - 18 & 82) Economic misadjustments lasting even centuries and deep depressions would result from such corrections. Besides few if any countries would be

willing to make their political interests subservient to increasing the efficiency of the world economy. Inevitably, through government intervention, each country will encourage the highly prized manufacturing jobs. Second, the benefits of a free market do not much exist on an international scale. Especially recently, economists have pointed to the dynamics of relatively autarkic economies, a theme developed in the next section.

In addition to the free market philosophy in general, advocates of free trade often point to specific market mechanisms enhanced by free trade. Such mechanisms work better the larger the market. (Porter 1990: 669) Since free trade increases the potential size of many manufacturers' markets, these mechanisms are necessarily enhanced. The two most prominent instances merit discussion here. The first mechanism is that economies of scale are enhanced. (Porter 1990: 544) For some products, the most efficient production volume for a single manufacturer may be larger than the market of a single country. Or faced with a larger market of several countries, a manufacturer may be able to specialize in only one product line thus economies of scale of specialization are had. The existence of intraindustry trade (discussed above) is evidence of this mechanism.

The response is twofold. Certainly the benefits of many market mechanisms are enhanced by free trade. However, first, a sense of proportion is needed. Just how large are these benefits compared with the costs? To the extent some true economies of scale exist, the benefits will be outweighed by both the risks of SCAs and by the benefits of relatively autarkic economies. Remember, the benefits of such economies of scale are non-existent when based on SCAs. Evidence does exist that the economies of scale resulting from extending a market beyond a national border tend to be quite small. The economies of scale during the

manufacturing phase of a business, the most important phase, are obtained by a surprisingly small factory. (Morris 1991: 30) The efficiencies from the marketing phase of a business tend to dominate in large markets. But marketing efficiencies are thin on social welfare. That a multinational selling soft drinks can produce more effective advertisements has nothing to do with whether it can operate its small bottling plants more efficiently than a small local competitors.

Second, when large potential economies of scale from free trade are discerned, trade could be liberalized for that industry ad hoc. "What is wrong with markets is usually a domestic distortion, best fixed by a surgical policy aimed directly at the source of the market failure." (Krugman 1993: 364) A country could reduce tariffs or enter into a free trade agreement as to a particular industry. The administrative costs and inefficiencies of such a compromise will be less burdensome than the inefficiencies caused by SCA induced trade. Since we know that such trade is common and results in an actual welfare loss.

The second market mechanism enhanced by increasing the size of the market is the antitrust effects. A monopoly in a single country, especially in a small country, is often ended by exposure to free trade. The literature contains several documented examples. The same basic arguments apply here as applied to economies of scale. Keep in mind the size of the benefits at stake here -- the degree that a free market solution to monopolies is superior to a regulatory solution. These potential benefits do not compare favorably with the potential costs of SCA based trade. And again, trade could be liberalized for a particular industry ad hoc.

2. Against Free Trade

As the arguments for free trade tend to revolve around one central theme, the belief in

free markets, the arguments against free trade can be seen in terms of one central theme, the efficiency and humaneness of relatively small economies. The argument presented in this paper concerning SCAs can also be seen in terms of this one central theme. SCAs have been presented thus far as a serious problem so widespread that the costs of free trade outweigh the benefits. To synthesize the concept of SCAs with the major criticisms of free trade, we must look at SCAs as just one serious symptom of the error of encouraging a highly integrated world economy.

Despite the shrinking of the world through communications and transportation, several factors militate in favor of relatively autarkic countries or at least regions. Under such a system trade would be based mostly on natural comparative advantages -- climate and natural resource differences.

In general, the extreme specialization of regions contemplated by free trade advocates may seem logical from a rationalistic approach, an approach based on mathematical formulas. But as soon as the narrow confines of the formulas are left, we note that other less quantitative factors demand to be considered, the social dimension for one. (Compare Dillon, Lehman, & Willett 1990: 28) Focusing on measurable observations of free trade -- the decrease in real consumer prices, the decrease in real production costs, the theoretical economies of scale efficiencies -- free trade analysis is preoccupied with such measurements. The literature grossly discounts any unmeasurable observations "International economists have long known that external economies could provide an argument against free trade. Since we have little empirical evidence on the actual importance of external economies, however, it is difficult to know how important this argument really is." (Krugman 1993: 363)

Some of these unmeasurable external economies of a relatively autarchic economy

appear in the following description of the disfunction of an open economy. A society does not operate well as a mere cog in an international production scheme. The society and its members are bound to become alienated from others. (Id. 30) (Morris 1991: 31) That this alienation occurs can be objectively seen in several ways. To begin with, income distribution becomes quite skewed as a country becomes oriented towards trade. Since many of the long-term benefits of free trade consist of returns on capital, capital holders, a small minority, are the largest beneficiaries. (Batra 1993: 158) Society may cease to function under such a condition. Governments are ill-prepared to remedy the situation; the voice of the increasingly powerful minority dominates the discussion.

For example, as American society has followed this path in recent years, the cry of government and industry alike has been "post-industrial economy." The idea is that the present decline of the middle class is only temporary. If you work hard and retrain, you will be the first to have a good job in the new business climate. As already has been discussed, this shibboleth ignores the fact that no such thing as a post-industrial economy exists, only an increasingly troubled one. The point is not that American society is collapsing but that the present political support for a world economy is irreconcilable with the fact that most Americans are harmed by it. In other words, the U.S. political system is not adjusting for the bias injected into the system by world trade.

This inability of the political system to compensate for the bias caused by free trade offsets another minor argument in favor of free trade. Free traders argue that wars are less likely when countries are integrated economically. This is generally true, but the political instability caused within the countries at least partially offsets this benefit.

Another unmeasurable factor is the development of the individual. As an economy becomes more and more developed and the role of the individual becomes more and more specialized, the individuals become less and less developed. Their limited range of experience coupled with their inability to understand such a complex, highly dependant society has significant negative effects on human development. Who can measure such effects? Asking whether anyone will ever put a number on such a factor misses the point that such a factor is quite large, apparent, and real.

These unmeasurable external economies of autarchy -- the development of the individual and the smooth functioning of society -- are not the only unmeasurable factors ignored by free traders. They also ignore misadjustments in the free trade system itself, SCAs. Just as the positive externalities of autarchy were ignored, these SCAs are ignored. Both are largely unmeasurable. However, recently economists have quantified certain costs at least with rough estimates, most notably the cost of environmental regulations. This particular cost is surprisingly large. Environmental SCAs as well as other less measurable SCAs appear so large that they are causing substantial world welfare losses as per the analysis of this paper. We have ignored these unmeasurable factors long enough.

The basis for the "smallness philosophy" advocated here can be described in terms of ease of communication. In a sense, all the supporting arguments emanate from the efficiency and quality of communication existing only in a small economy. The personal responsibility and accountability felt towards all constituents of a leader are particularly enhanced by smallness of scale. The most obvious example is in the government. The remoteness of government decision makers from most constituents within a country or even within a political subdivision is

magnified by adding an international supranational structure above the national level. Thus when a particular firm within an industry within a geographic political subdivision within a country exports based on a SCA and the negative welfare costs are paid in distant lands, perhaps even spread minutely over many countries, then the chance of the supranational organization responding to the needs of its constituents and correcting the inefficiency is remote indeed. Not only would those directly harmed not be able to reach the distant decision makers, but also the decision makers would not be able to even detect the SCA and its harmful effects.

In the business world, the deterioration of communication is just as strong. The prime example is the link between supply and demand recently broken by free trade in the United States. This link was the driving force behind much of U.S. economic growth for the entire history of the country. (Culbertson 1988: 56 - 59) The link has been so clearly broken that the Keynesian method of government spending to stimulate an economy is ineffectual. The possibility that some type of supranational body could coordinate U.S. economic policy with every other country in the world to make effectual U.S. policy is so remote that no one even suggests it. Such coordination of every major economic policy in the world is ludicrous.

The delocalization of production also harms communications between related industries. Especially recently, economists have documented the "linking industry" phenomenon where rivals and related industries historically gravitate to one region. (Porter 1990: 10 & 131 - 154) But often even unrelated industries sprout up in proximity to established industries. They take advantage of the example and general business know-how already present.

IV. Conclusion

A growing gulf between the two sides of the free trade debate is appearing. Free trade

advocates speak of the growing world welfare benefits from industrial specialization and of the need for Americans to adapt to a post-industrial economy. While critics point to the decline of the middle class, the growing disparity in income distribution, the historic place industry has always played in prosperous economies, and the growing dysfunction of society in general. Relying on the clarity, appeal to common sense, and time tested soundness of trade theory, advocates supply the intellectual foundation of legislation concerning trade. Although some concessions have been made to critics in recent years, the "new protectionism," critics have contented themselves with attacking trade theory, not with a mathematical formula of their own, not with a general theory of trade, but with reference to various pieces of empirical evidence, evidence pointing to the invalid assumptions of trade theory. As fine and perceptive as these arguments are, they seem ineffectual against the clear, time honored, cohesive, mathematical formulas in support of free trade.

What critics have overlooked is a rather technical line of analysis appearing in trade literature, a mathematical analysis which seems at first to deal with just another mainly insignificant permutation of basic trade theory. But this analysis is a mathematical formulation of the critics' arguments! For the assumptions of this analysis fit the facts of present day trade. This analysis serves as a cohesive, synthesizing starting point for a criticism of free trade. It demonstrates that the reason the welfare benefits of free trade seem to be lacking is that they are lacking. For much of the growing volume of trade is not based on comparative advantages but on SCAs. As critics correctly argued, some basic assumptions of trade analysis no longer exist. In the modern world, factors of production move quite freely. So the three main immobile factors -- labor, environment, and government -- are increasingly susceptible to simulation.

It is hoped, then, that this paper will serve, first, to focus the debate on the damage done by less measurable economic factors, especially SCAs, and, second, to start to synthesize the sometimes seemingly irreconcilable criticisms of free trade. Few of the specific arguments of this paper are new, but they are presented in a unified whole as they relate to the SCA phenomenon. Beyond that, the analysis leads to a disturbing view of the dysfunctional nature of a society integrated into an international trade based economy.

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Table 1
Production and Consumption Welfare Benefits of Trade

	A Production & Consumption Before Trade		B Production After Trade		C Consumption After Trade	
	USA	Japan	USA	Japan	USA	Japan
Wheat	110	75	220	0	120	100
Steel	100	95	0	190	100	90
Consumption	\$210	\$170	\$220	\$190	\$220	\$190
Total Consumption	\$380		\$410		\$410	

U.S. domestic price for steel is $110/100$ or 1.1
 Japanese domestic price for steel is $75/95$ or 0.8
 World price for steel is $100/100$ or 1.0

Table 2
Production and Consumption Welfare Loss of Trade When Based on Simulated Comparative Advantages

	D Production & Consumption Before Trade		E Production After Trade		F Consumption After Trade By Simulated Comparative Advantages	
	USA	Japan	USA	Japan	USA	Japan
Wheat	110	75	190	0	90	70
Steel	100	95(80)*	0	190(160)	100	90
Consumption	\$210	\$170(155)	\$190	\$190(160)	\$190	\$190
Total Consumption	\$380(365)		\$380(350)		\$350	

U.S. domestic price for steel is $110/100$ or 1.1

Japanese apparent domestic price for steel is $75/95$ or 0.8

Japanese real domestic price for steel is $75/80$ or 0.94

World price for steel is $100/100$ or 1.0

* The numbers in parenthesis are what Japan can produce per unit of average factor endowments without simulating greater efficiency by using extra labor.

ENDNOTES

1. In fact, when the English economist, David Ricardo, first popularized comparative advantage analysis, the analysis served as the basis of the repeal of grain import tariffs, the English Corn Laws. (Lieberman 1988: 11)

2. Revenga concurs for 1975 to 1985. (1992: 225) For further discussion, see footnote 7 below and accompanying text.

3. The welfare loss need not come about through an absolute change in demand as shown here. It may come about as the monetary exchange rate or world commodity prices change. But the welfare changes would be the same no matter which equilibrium mechanism came into play.

In addition, the precise welfare loss may vary slightly from that shown here since demand for steel in the U.S. would fall as wheat production is reduced.

4. This paper does not cover the more complex case of multiparty trade, however, the same result will be had in those cases.

5. The decrease in transportation costs of recent decades has increased the theoretical gains from free trade since the comparative advantages need not be as large for gains to occur. However, the change in transportation costs has also made it easier to compete through SCAs, so potential welfare losses have also increased.

6. Cooper argues that trade does not cause a welfare loss. However, his observation that high

U.S. interest rates leads to appreciation of the dollar is in accord with this paper.

7. Professor Batra takes these numbers from the "average weekly earnings" statistics put out by the Bureau of Labor Statistics. These statistics cover "production or nonsupervisor workers" and consist of 80 percent of all employees. (See also, Council of Economic Advisers, various years)