

# **INTERNATIONAL TRADE AND INVESTMENT: AN HISTORICAL AND CONTEMPORARY SURVEY OF RESEARCH AND ANALYSIS**



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**Joint Economic Committee  
United States Congress**

**May 2002**

## **Executive Summary**

There is body of research and analysis, which began in the 17<sup>th</sup> and 18<sup>th</sup> centuries and continues to today, that has examined the benefits of international trade and investment. At the government level, faith in these benefits has encouraged many countries to adopt international economic policies that promote greater trade and investment. This paper examines these benefits. A key feature of government policies that promote greater international trade and investment is a commitment to reducing global barriers to trade and investment. This paper will also examine the benefits from reducing these barriers.

The organization of the paper is as follows. Section I outlines the scope of the paper. Section II provides a brief history of international trade relations in the last century. The section introduces some key terms used later and records the motives of U.S. officials instrumental in furthering international trade and investment after World War II. Section III reviews economic research that has established various correlations between international trade and investment and increases in economic growth and income. Section IV considers four ways international trade and investment can increase economic growth and income. These four consist of the following:

- Growth of international trade and investment from trade liberalization.
- Gains in economic welfare from lower trade barriers.
- Changes in the pattern of international trade and investment from comparative advantage.
- Gains in total factor productivity and technology diffusion from greater international trade and investment.

Section V concludes the paper with some observations on international economic policy.

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# **INTERNATIONAL TRADE AND INVESTMENT: AN HISTORICAL AND CONTEMPORARY SURVEY OF RESEARCH AND ANALYSIS**

## **I. INTRODUCTION**

The benefits of international trade and investment are today more widely accepted around the world than at any time in recent history. At the government level, faith in these benefits has encouraged many countries to adopt international economic policies that promote greater trade and investment. A key feature of these international economic policies is a commitment to reducing global barriers to trade and investment.

Yet with worldwide acceptance has also come greater examination of the benefits and costs of international trade and investment. One example is in the growing body of research that has examined the relationship between international trade and investment and economic growth and income. Relying on that research, this paper will consider how international economic policies that promote greater trade and investment can increase economic growth and income. It is assumed throughout that increasing economic growth and income are positive additions to the human condition.

The organization of the paper is as follows. Section II provides a brief history of international trade relations in the last century. The section introduces some key terms used later and records the motives of U.S. officials instrumental in furthering greater international trade and investment after World War II. Section III reviews economic research that has established various correlations between international trade and investment and increases in economic growth and income. Section IV considers four ways international trade and investment can increase economic growth and income. These four ways are: growth of international trade and investment from trade liberalization; gains in economic welfare from lower trade barriers; changes in the pattern of international trade and investment from comparative advantage; and gains in total factor—land, labor, and capital—productivity and technology diffusion from greater international trade and investment. Section V concludes the paper with some observations on international economic policy.

## **II. LOWERING TRADE BARRIERS SINCE 1945**

Although lowering trade barriers has been debated since the 17<sup>th</sup> and 18<sup>th</sup> centuries,<sup>1</sup> the modern era of trade liberalization began in the midst of the tragedy of World War II (1939-1945) when the U.S. and other governments began creating for the first time effective, rule-based

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<sup>1</sup> For an intellectual discourse on the 17<sup>th</sup> and 18<sup>th</sup> centuries debates, see Joseph A. Schumpeter, *History of Economic Analysis* (Oxford University Press, 1974), Part II, chapter 7. Also see Alfred E. Eckes, Jr., *Opening America's Market: U.S. Foreign Trade Policy Since 1776* (The University of North Carolina Press, 1995), pp. 2-4.

institutions to assist in guiding global commerce. Why did American and other allied leaders at the time consider such a global economic system finally worth creating?

In hindsight some might say it was a natural choice, given the worldwide economic despair after World War II and the need to revive war-ravaged economies, especially in Europe. Yet this is from the perspective of the last decade or so, when international trade and investment have enjoyed a wide appeal in national capitals and international organizations; it was not the case in the 1940's. In fact, trade barriers had been steadily on the rise for well over a half-century prior to World War II, after a period of retreat, but never defeat, during the 19<sup>th</sup> century. World War I (1914-1918) and the Great Depression of the 1930's only made the situation worse, prompting countries to enact additional barriers to trade.<sup>2</sup> Moreover, as international trade economist Douglas Irwin has found, the problem was not only the rise of trade barriers, but also a lack of effective international cooperation in the early decades of the 20<sup>th</sup> century. As Irwin writes: "Economic reconstruction following World War I lacked any institutional mechanism to facilitate the reduction of trade barriers that had arisen during the war and had become entrenched thereafter."<sup>3</sup> After 1929, the Great Depression and successive military crises culminating in World War II only made international cooperation on trade even more difficult.

By the 1940's, many in the U.S. and elsewhere came to believe that trade barriers erected in the preceding years and decades had played a part in plunging the world into economic depression and war. At the core of both the wartime and later postwar trade negotiations was a belief that an institutional mechanism for trade was necessary to strengthen global prosperity and create lasting peace. After the calamities and tragedies of the first half of the 20<sup>th</sup> century, peace and prosperity were unquestionable noble aspirations, if not moral imperatives. With the world economy in shambles, an historic opportunity thus presented itself for those who believed in trade liberalization in the Roosevelt and Truman administrations (allied with like-minded British officials<sup>4</sup>) to create institutions that could lower trade barriers and help to revive the global economy.<sup>5</sup>

The institutional mechanism ultimately created in 1948 was the General Agreement on Tariffs and Trade (GATT), which became the World Trade Organization (WTO) in 1995. In

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<sup>2</sup> See below, pp. 5-6.

<sup>3</sup> Douglas A. Irwin, "The GATT's Contribution to Economic Recovery in Post-War Western Europe," National Bureau of Economic Research (NBER) Working Paper 4944, December 1994, p. 1.

<sup>4</sup> See Richard N. Gardner, *Sterling-Dollar Diplomacy in Current Perspective* (Columbia University Press, 1980), chapter VI; D. E. Moggridge, "Economic policy in the Second World War," in *Essays on John Maynard Keynes*, edited by Milo Keynes (Cambridge University Press, 1975), pp. 190-191; R. F. Harrod, *The Life of John Maynard Keynes*, (Avon/Discus Books, 1971), pp. 540-541.

<sup>5</sup> As a key U.S. interdepartmental committee concluded, a trading system that fostered an expansion in the volume of world trade was instrumental to the U.S. achieving its postwar global objectives of full employment, the preservation of private enterprise, and peace. As noted in a December 1943 memorandum of the committee: "In order to create conditions favorable to the fullest possible expansion of international trade, on a non-discriminatory basis, it will be necessary for nations to turn away from the trade-restricting and trade-diverting practises of the inter-war period and to cooperate in bringing about a reduction of the barriers to trade erected by governments during that period." The memorandum concluded that because of the unique strength of the U.S. at the time, "[t]he only nation capable of taking the initiative in promoting a world-wide movement toward the relaxation of trade barriers is the United States." See "Summary of the Interim Report of the Special Committee on Relaxation of Trade Barriers" (December 18, 1943) quoted in Gardner, *Sterling-Dollar Diplomacy in Current Perspective*, p. 102.

addition, at the regional level, there also began a trend in the late 1940's and early 1950's toward trade liberalization. In Europe, several Western European nations created the European Coal and Steel Community in 1951 and the European Economic Community—today the European Union—in 1957, to mention the most successful of the regional initiatives. Because of the policies established during and immediately after World War II, trade liberalization has become an important feature of international economic diplomacy. Through eight GATT negotiating “rounds,” the last being the Uruguay Round (1986-1994), the average tariff for industrial products has been lowered from 40 percent to just 4 percent. During the same period, the number of GATT/WTO members has risen to 144, a significant majority of countries today (there are 189—soon to be 190—members of the United Nations), encompassing more than 90 percent of world trade.<sup>6</sup> As tariffs have fallen, other trade barriers have also been included in trade negotiations, gradually extending the scope and mandate of the GATT/WTO.

### III. INTERNATIONAL TRADE AND INVESTMENT AND ECONOMIC GROWTH AND INCOME

For countries that have adopted international economic policies that promote greater trade and investment, such as joining the WTO or unilaterally reducing trade barriers, evidence suggests that this has generally boosted economic growth and income. For example, according to the Office of the U.S. Trade Representative, from 1994 to 2000 increased exports accounted for approximately one-fifth of U.S. economic growth, and nearly one-third of U.S. growth between 1992 and 1997.<sup>7</sup> For the decade ending in 1999, the Organisation for Economic Co-operation and Development (OECD) reports that “more open” countries achieved double the annual average growth of other countries.<sup>8</sup> Even developing countries have benefited from greater international trade and investment. As the Council of Economic Advisers reported in 1999: “Data from 1974-1985 and 1986-1992 show developing countries with inward-oriented economic policies experiencing less annual growth of GDP [gross domestic product] per capita than those with outward-oriented economic policies.”<sup>9</sup>

Greater international trade and investment have also had a positive effect on income. One study of how international trade affects standards of living found: “The relation between the geographic component of trade and income suggests that a rise of one percentage point in the ratio of trade to GDP increases income per person by at least one-half percent.”<sup>10</sup> (The “geographic component” tends to reflect the natural variations in trade, as opposed to trade variations induced by, say, government policies, therefore establishing a more direct relationship between trade and income.) The Council of Economic Advisers likewise reported in 1998 the

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<sup>6</sup> Statistics from the WTO, Office of the U.S. Trade Representative, and United Nations.

<sup>7</sup> U.S. Trade Representative, “U.S. Membership in the WTO: Supporting American Workers, Farmers, Businesses, Economic Progress and Security,” April 12, 2000, p. 1 and “America and the World Trade Organization,” (no date) p. 10.

<sup>8</sup> OECD *Observer*, “Open Markets Matter: The Benefits of Trade and Investment Liberalisation,” *Policy Brief*, October 1999, p. 2.

<sup>9</sup> Council of Economic Advisers, “America’s Interest in the World Trade Organization: An Economic Assessment,” November 16, 1999, p. 29.

<sup>10</sup> Jeffrey A. Frankel and David Romer, “Does Trade Cause Growth?” *The American Economic Review*, June 1999, p. 394.

results of a study of data from 123 countries between 1960 and 1985. The study “estimated that every percentage-point increase in openness,” where the yardstick for measuring “openness” was imports plus exports as a percentage of a country’s GDP, “was associated with a 0.34-percent increase” in per capita real income.<sup>11</sup> The positive effect that international trade and investment can have on income appears to be independent of income distribution. A study by economists at the World Bank examined income data from 80 countries covering four decades. It found in income data for the poor and per capita income that the poor benefited from “trade openness” the same as the average household—a result that has far-reaching policy implications.<sup>12</sup>

#### **IV. FOUR WAYS INTERNATIONAL TRADE AND INVESTMENT CAN INCREASE ECONOMIC GROWTH AND INCOME**

As studies from the OECD, Council of Economic Advisers, World Bank, and other government institutions and individual economists have shown, scores of countries around the world have achieved higher economic growth and incomes by adopting international economic policies that promote greater trade and investment. Many of the studies demonstrate that greater international trade and investment is correlated or associated with higher economic growth and income; it is also important to demonstrate various ways greater international trade and investment can *cause* them to increase. The remainder of this study will consider four ways greater international trade and investment can increase economic growth and income.

These four ways are: growth of international trade and investment from trade liberalization; gains in economic welfare from lower trade barriers; changes in the pattern of international trade and investment from comparative advantage; and gains in total factor productivity and technology diffusion from greater international trade and investment. Like tax cuts or any other pro-growth policy, these four features raise economic growth and income by stimulating commerce and making it more efficient, reducing market distortions, and boosting labor productivity and capital accumulation.

- **Growth of International Trade and Investment from Trade Liberalization**

Trade liberalization, by lowering and eliminating trade barriers and establishing rules governing trade relations between countries, makes international commerce more stable and less uncertain, and helps to stimulate growth in international trade and investment. As the classical economist David Ricardo wrote *circa* 1817-1821, business people instinctively find international commerce riskier than domestic commerce when confronted with the uncertainty of foreign laws and customs:

Experience, however, shows that the fancied or real insecurity of capital, when not under the immediate control of its owner, together with the natural disinclination which every man has to quit the country of his birth and connections,

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<sup>11</sup> *Economic Report of the President*, February 1998, p. 238.

<sup>12</sup> David Dollar and Aart Kraay, “Growth *Is* Good for the Poor,” World Bank [working paper], March 2000, pp. 1-2, 22-23, 27.

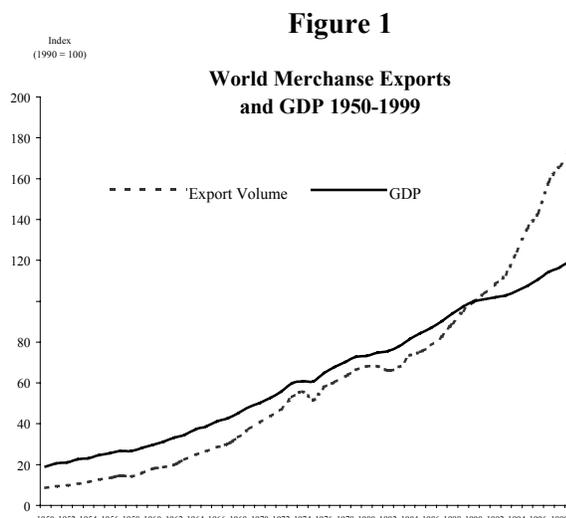
and intrust himself, with all his habits fixed, to a strange government and new laws, check the emigration of capital. These feelings, which I should be sorry to see weakened, induce most men of property to be satisfied with a low rate of profits in their own country, rather than seek a more advantageous employment for their wealth in foreign nations.<sup>13</sup>

After 1948, the GATT assisted in making international commerce more stable and less uncertain not only by lowering trade barriers but also by establishing a growing body of rules governing international trade and investment. The WTO, the GATT's successor, has also begun to make a similar (and potentially more significant) contribution by establishing a more binding international legal framework to redress trade grievances. Consequently, trade liberalization after 1948 has coincided with substantial growth in international trade and investment.

Figure 1 shows the growth in indexes of world merchandise exports and GDP. From 1950 to 1999, the index of the volume of world merchandise exports grew by 19.3 times, compared to 6.3 times for world GDP, while the index of the value of world merchandise exports rose 80 times.<sup>14</sup> Foreign direct investment has been equally robust, increasing roughly 25-fold during the last quarter century or so.<sup>15</sup> Finally, for developing countries, exports rose faster than world trade for every year in the 1990's, except 1998.<sup>16</sup>

Compare these global figures with the economic unstable 1930's, when international economic policies often collectively referred to as protectionist dominated trade relations. Policies of high tariffs and other restrictive trade practices were intended to "protect" countries from the downward spiral of the Great Depression beginning in 1929; in a few instances they were also part of larger foreign and strategic objectives.

The Economic Committee of the League of Nations reported in June 1932 that from the beginning of 1930 practically every country had broadened or raised its tariffs.<sup>17</sup> Nontariff barriers were also widely adopted.<sup>18</sup> Rather than protecting world trade, these practices only contributed to a decline in its volume and value in a rapidly deteriorating international economic



Source: World Trade Organization.

<sup>13</sup> David Ricardo, *The Principles of Political Economy and Taxation* (Dent/Dutton, 1974), p. 83.

<sup>14</sup> See Table II.1 in WTO, "International trade statistics 2000."

<sup>15</sup> *OECD Observer*, "Open Markets Matter: The Benefits of Trade and Investment Liberalisation," p. 2.

<sup>16</sup> WTO, Press/175, 6 April 2000.

<sup>17</sup> Report referenced in H. V. Hodson (1933), "Tariffs and Exchange Control: The Struggle to Escape," in *The Disintegration of the World Economy Between the World Wars*, Volume II, edited by Mark Thomas (Elgar, 1996), p. 197.

<sup>18</sup> *Ibid.*, p. 197.

environment. The volume of world trade fell by about 25 percent from 1929 to 1932, while its value over the same period collapsed to less than 40 percent of its 1929 level. In fact, the decline in trade far exceeded the decline in world production.<sup>19</sup> Figure 2 shows total U.S. trade—exports plus imports—from 1920 to 1938. Note the steep decline in total trade beginning after 1929, and the fact that total trade never rose to its 1929 level, despite a steady, and even accelerating, rebound from 1932 to 1937.

To see the effect that tariff increases had on the volume of international trade in the face of deflation and falling real output, consider the 1930 Smoot-Hawley tariff in the U.S., which increased import duties by about 20 percent.<sup>20</sup> Manufacturing imports were especially singled out for protection, with average customs duties raised to around 45-50 percent.<sup>21</sup> It has been calculated by Douglas Irwin that nearly one-quarter of the 40 percent decline in the volume of U.S. imports occurring in the two years following imposition of the Smoot-Hawley tariff revision can be attributed to it raising even higher the crucial effective tariff rate—the percentage equivalents of specific (fixed dollar amount per quantity) duties which rise with price deflation.<sup>22</sup> During 1930-31, nearly half of dutiable imports carried specific duties.<sup>23</sup>

- **Gains in Economic Welfare from Lower Trade Barriers**

Economic theory has consistently demonstrated that lowering tariffs and reducing nontariff trade barriers can increase economic welfare by lowering the costs of goods and services and thereby allocating resources more efficiently, like a tax cut or any other economic incentive to spend, invest, or save. An allocation of resources is said to be optimal when the prices of goods and services reflect the lowest economic cost of supplying them. Movement toward the optimum increases economic welfare. How are the gains in economic welfare

**Figure 2**



Sources: Joint Economic Committee, U.S. Department of Commerce, and U.S. Bureau of Labor Statistics.

<sup>19</sup> Svenska Handelsbanken (1933), "The Great Trade War," in *The Disintegration of the World Economy Between the World Wars*, Volume II, p. 229.

<sup>20</sup> Douglas A. Irwin, "The Smoot-Hawley Tariff: A Quantitative Assessment," NBER Working Paper 5509, March 1996, p. 18. Named after Senator Reed Smoot (R-Utah) and Representative Willis Chatman Hawley (R-Oregon). Also referred to as "Hawley-Smoot," in deference to Constitutional protocol and precedent, since Hawley was Chairman of the Ways and Means Committee at the time. See Eckes, *Opening America's Market: U.S. Foreign Trade Policy Since 1776*, pp. 103-105.

<sup>21</sup> Paul Bairoch, *Economics and World History: Myths and Paradoxes* (Simon & Schuster/Harvester Wheatsheaf, 1993), p. 5.

<sup>22</sup> Irwin, "The Smoot-Hawley Tariff: A Quantitative Assessment," pp. 7 & 18.

<sup>23</sup> Eckes, *Opening America's Market: U.S. Foreign Trade Policy Since 1776*, p. 106.

measured in international trade? By establishing, first, what the net welfare cost of protectionism is to a country—measuring what consumers, producers, and governments lose and gain through trade barriers—then, second, calculating the net gain in economic welfare from removing these costs.

Consumers derive what economists call a consumers' surplus when they can buy a good or service at a price less than the maximum price they are willing to pay. Producers similarly derive a producers' surplus when the price they can charge for a good or service is higher than the minimum price they are willing to accept. Tariffs, as a rule, raise prices domestically, transferring part of the consumers' surplus to producers and part to the government in added revenues. The loss in consumers' surplus can be shown to be greater than the gains in producers' surplus and government revenues. The difference is a net welfare or deadweight loss.<sup>24</sup> A nontariff barrier, such as a quota, similarly transfers part of the consumers' surplus to domestic producers but also part to foreign businesses, which can now charge higher prices because the supply of the imported good or service is restricted. As with a tariff, there is a net welfare loss to the economy, but the loss tends to be greater than for a tariff since the consumers' surplus that is transferred to government through tariff revenue is instead transferred to foreign businesses through higher prices and other benefits, referred to as quota rents.

For the U.S., it has been estimated in one study that, on average, a \$1 decrease in imports due to protectionism translates into a \$2 decrease in consumers' surplus. For each \$1 lost in consumers' surplus, \$0.49 is transferred to producers, while \$0.11 is deadweight loss.<sup>25</sup> Using these estimates, another study roughly calculates that the total welfare cost to U.S. consumers of import protection in 1996 was \$223.4 billion, or 3.3 percent of GDP. Of this amount, \$109.1 billion was transferred to producers, with a deadweight loss of \$24.5 billion. The remaining amounts consisted of tariff revenues and quota rents (of \$72.8 billion) not captured by the government. (If all these quota rents were transferred to producers in the rest-of-the-world, the net welfare cost to the U.S. economy in 1996 from import protection was \$97.3 billion, or 1.45 percent of GDP.)<sup>26</sup>

Other studies similarly find gains from the removal of U.S. import barriers. The size of the gain varies depending on the model used and the years considered, but is significant. For example, also using 1996 data, the U.S. International Trade Commission, in its periodic report on the effects of U.S. import restraints on the American economy, found a net welfare gain to U.S. consumers of approximately \$12.4 billion from eliminating the most significant import barriers

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<sup>24</sup> For readers familiar with supply and demand curves, consumers' surplus is the area beneath the demand curve, *above* the after-trade equilibrium price; producers' surplus is the area above the supply curve, *below* that price. Through trade, the after-trade equilibrium price of any good is usually below the pre-trade equilibrium price as the supply of it is increased through imports. Being below the pre-trade equilibrium price makes the consumers' surplus greater than the producers' and government's surpluses, other things equal. For a good graphical presentation, see Howard J. Wall, "Using the Gravity Model to Estimate the Costs of Protection," Federal Reserve Bank of St. Louis *Review*, January/February 1999, p. 38.

<sup>25</sup> For a description of this study, see *ibid.*, pp. 39-40.

<sup>26</sup> *Ibid.*, p. 39.

in manufacturing, agriculture, and services. Total elimination of import restraints would yield net welfare gains of nearly \$15 billion.<sup>27</sup>

Global estimates of removing import barriers likewise show significant welfare gains. According to estimates by the WTO, World Bank, OECD, and the World Bank/OECD Development Centre, the global welfare gains from the GATT Uruguay Round, which lowered protectionism, could reach between \$170 billion and \$275 billion a year.<sup>28</sup>

Further global trade liberalization from additional WTO rounds could produce higher global welfare gains, as some of the world's most heavily protected sectors are gradually opened to global competition. For example, a 50 percent reduction in global trade protection in agriculture, industrial products or manufacturing, and services could generate annual global welfare gains ranging from \$385 billion to around \$400 billion, according to studies by the Commission of the European Union and Australian government.<sup>29</sup> Welfare gains from more extensive liberalization of global trade could exceed \$750 billion.<sup>30</sup> One study from the OECD found potential welfare gains from full and global tariff liberalization for agricultural and industrial goods of \$1.2 trillion (3.1 percent of world GDP), with welfare gains to OECD countries of \$757 billion (2.5 percent of GDP) and gains to non-OECD countries of \$455 billion (4.9 percent of GDP).<sup>31</sup>

- **Changes in the Pattern of International Trade and Investment from Comparative Advantage**

In a dynamic, relatively open global economy, countries tend to pursue their comparative advantage. That is, they tend to specialize in trading those goods and services in which they have an advantage in producing, either in terms of efficiency or quality, in exchange for goods and services in which they do not possess a similar advantage, both in absolute and relative terms. Comparative advantage has long been a potential growth-enhancing feature of trade liberalization, since it guides global resources toward their *most productive* uses. It also has an indirect effect in boosting economic growth and income by lowering the opportunity costs associated with producing various goods and services.

**Comparative Advantage in Theory:** To illustrate how comparative advantage can operate consider a simple barter trading system between two adjacent countries. A large river,

<sup>27</sup> United States International Trade Commission, "The Economic Effects of Significant U.S. Import Restraints," Second Update 1999, Investigation No. 332-325, Publication 3201, May 1999, p. 15.

<sup>28</sup> A table containing the range of figures (derived from different models, variants, and base years) can be found in a study by the OECD entitled, "Open Markets Matter: The Benefits of Trade and Investment Liberalisation," p. 107. This is a much larger document than the OECD *Observer* article of the same title referred to earlier in this paper. Hereafter, the larger document will only have OECD preceding the title.

<sup>29</sup> Nigel Nagarajan, "The millennium round: An economic appraisal," European Commission *Economic Papers*, Number 139, November 1999, p. 37 (the figure from this study also reflects an additional agreement on WTO trade facilitation, which would lower transaction costs); Australia Department of Foreign Affairs and Trade, "Review of Australia's General Tariff Arrangements," 28 January 2000, p. 22.

<sup>30</sup> Australia Department of Foreign Affairs and Trade, "Review of Australia's General Tariff Arrangements," p. 22.

<sup>31</sup> OECD Trade Committee, "Non-OECD Countries and Multilateral Trade Liberalisation: A Background Note on Some Key Issues," TD/TC (99) 18/Final, 25 November 1999, pp. 8, 9, 26 (Table 7).

which flows into inland waterways and lakes, separates the countries. The people of each country produce three “consumer” goods: wine, bread, and fish. Initially there is no trade because, say, for military reasons no bridges have been built and boats are forbidden to sail the river. The people within each country must produce all their own wine, bread, and fish. Assume, however, because of sloping terrain and skill, the people in one country are better winemakers but far less skilled at fishing because of fewer inland waterways and lakes. Assume further that the people of the other country, which possesses more waterways and lakes, are better fishermen and, due to grassy, steppe terrain, less proficient at winemaking. Both countries are equally skilled at growing grain and baking bread.

An incentive exists to improve the standard of living in both countries through trade: the better winemakers can exchange some of their wine for some of the fish caught by the better fishermen. Over time, if the river barriers are removed, trade relations allow the people of one country to begin to specialize in wine, while those in the other can specialize in fish. The benefits of specialization are apparent. The country of better winemakers is freed from having to depend on its own waterways and lakes alone for the daily catch, allowing the winemakers to put more of their scarce resources into more vines and grapes. The same applies to the country of superior fishermen, which is freed from having to make all its own wine. By opening their economies to trade, the better winemaking country can obtain fish at lower cost and the country of better fishermen can obtain wine at lower cost. Both countries can enjoy more output with the same level of input as before.

One of the insights of comparative advantage is countries do not even have to be best at producing a good to take advantage of trade opportunities. According to David Ricardo, who first elucidated the concept of comparative advantage, a country that could produce a good cheaply still might want to import the good, if it is even *more* efficient at using its resources in producing another good for export or domestic use. In the extreme case, a country that can produce *everything* cheaply still has an incentive to trade. It is a matter of opportunity cost, scarce resources, and the benefits that come with specialization. At the end of the day, it is relative costs that usually matter. The country with an absolute advantage in producing a good finds that devoting resources to producing that good also has a relative cost, namely the greater quantity of goods it could obtain by trading another good in which it is even more efficient in producing.

In our three-good example above, suppose the better fish-producing country can also grow grain a little more cheaply because of its grassy, steppe terrain. However, given an equal input of resources, the fish it produces is greater than the bread it produces. Consequently, the country may want to import some bread even though it could produce it cheaper than its neighbor. By producing less bread, it frees scarce resources for producing even more fish for export. By producing more fish and less bread, the country can trade the additional fish not only for greater amounts of wine, but also for more bread than it could produce and bake.<sup>32</sup>

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<sup>32</sup> As David Ricardo wrote: “It will appear, then, that a country possessing very considerable advantages in machinery and skill, and which may therefore be enabled to manufacture commodities with much less labour than her neighbours, may, in return for such commodities, import a portion of the corn required for its consumption, even if its land were more fertile and corn could be grown with less labour than in the country from which it was imported.” *Principles of Political Economy and Taxation*, p. 83.

**Comparative Advantage in Practice:** Evidence of comparative advantage in the global economy can be found in Table 1, which lists the top ten broad categories of U.S. manufacturing exports and imports in 1999. Although the U.S. is the leading exporter in world merchandise trade, it also imports large quantities of manufactured goods. This table suggests that American manufacturers do follow U.S. comparative advantage. Conversely, Americans also purchase foreign goods that could be made in the U.S. (note that the top manufacturing imports and exports are mainly within the same categories of goods), indicating other countries are following their comparative advantage.

Further evidence of comparative advantage can be found in the factor intensity composition of U.S. exports. Technology-intensive manufacturing in 1999 accounted for over half (57 percent) of U.S. exports, with an additional 18 percent in human capital-intensive manufacturing, while unskilled labor-intensive manufacturing only comprised 7 percent of U.S. exports.<sup>33</sup> This reflects the comparative advantage the U.S. has in technology and skill versus the rest of the world and the comparative disadvantage in terms of total, and unskilled, labor supply. Researching U.S. comparative advantage between 1980 and 1995, one study found the U.S. has a “temporally stable and ubiquitous” comparative advantage in differentiated producer goods and comparative disadvantages, generally, in standardized producer and consumer goods.<sup>34</sup> Differentiated goods tend to require more technology-intensive manufacturing, whereas standardized goods tend to require more labor-intensive manufacturing and lower unit costs to be competitive.

| <i>Exports</i>                               | <i>Imports</i>                               |
|--|--|
| Electrical Machinery, Apparatus & Appliances | Motor Vehicles                               |
| Motor Vehicles                               | Electrical Machinery, Apparatus & Appliances |
| Transport Equipment                          | Office Machines and ADP Equipment            |
| Office Machines and ADP Equipment            | Articles of Apparel and Clothing             |
| Power Generating Machinery                   | Miscellaneous Manufactured Articles          |
| Miscellaneous Manufactured Articles          | Telecommunications Equipment                 |
| General Industrial Machinery                 | Power Generating Machinery                   |
| Telecommunications Equipment                 | General Industrial Machinery                 |
| Professional Scientific Instruments          | Nonmetallic Minerals                         |
| Machinery Specialized                        | Organic Chemicals                            |

Source: U.S. Department of Commerce

Another study, from economists at the Economics and Statistics Administration of the U.S. Department of Commerce, sampled U.S. manufacturing plants over 1987 and 1992. They

<sup>33</sup> Trade statistics from the International Trade Centre UNCTAD/WTO (Geneva, Switzerland).

<sup>34</sup> See J. David Richardson and Chi Zhang, “Revealing Comparative Advantage: Chaotic or Coherent Patterns Across Time and Sector and U.S. Trading Partner?” NBER Working Paper 7212, July 1999.

found a positive and significant association between the current use of advanced technologies and future exporting, interpreting this association “as evidence that these two activities are linked by the market niche served by American exporters.”<sup>35</sup> The authors suggest this “is indicative of the United States’ comparative advantage in high-tech products (which require advanced technologies for their manufacture).”<sup>36</sup>

Additional evidence of comparative advantage in the global economy can be found in “the flying geese formation” in East Asia.<sup>37</sup> In that region, Japan tends to produce and export new goods earlier than other Asian countries. Like the U.S., it has a comparative advantage in technology and human capital-intensive manufacturing, which in 1999 comprised 87 percent of its exports,<sup>38</sup> and are evidence of the skill and capital needed to develop new goods. As these goods become standardized and profit margins fall, production and export of them moves to the so-called four tigers of Asia—Hong Kong, Korea, Singapore, and Taiwan—where labor costs are comparatively lower. Then, for similar reasons, production and export moves to Malaysia and Thailand, and then on to Indonesia. In the meantime, Japan develops and exports other goods, and the product cycle begins again.<sup>39</sup> The comparative advantage found in “the flying geese formation” has been responsible in large part for the high and growing competitiveness of East Asia over the last few decades.<sup>40</sup>

Comparative advantage operating in Asia can be found also in the factor intensity composition of China and India’s exports. China’s huge population of 1.3 billion has a comparative advantage in unskilled labor supply: 41 percent of its exports in 1999 were in labor-intensive manufacturing, but only 30 percent in technology-intensive manufacturing. India also has a huge population of a little over 1 billion, but is less developed and more agrarian, with an estimated 67 percent of its labor force engaged in agriculture versus 50 percent for China. Consequently, India in 1999 had a different pattern of exports: 33 percent were in labor-intensive manufacturing, 21 percent in natural resource-intensive manufacturing, and 19 percent in primary products.<sup>41</sup>

- **Gains in Total Factor Productivity and Technology Diffusion from Greater International Trade and Investment**

Ultimately, it is difficult for any economy to increase its rate of growth and income without increases in total factor productivity, in particular labor productivity. For most OECD countries, growth in labor productivity accounts for at least half of their growth in per capita

<sup>35</sup> J. Bradford Jensen and Nathan Musick, “Trade, Technology, and Plant Performance,” Economics and Statistics Administration, U.S. Department of Commerce, ESA/OPD 96-4, April 1996, p. 10.

<sup>36</sup> *Ibid.*, p. 11.

<sup>37</sup> See Andrew K. Rose, “Dynamic Measures of Competitiveness: Are the Geese Still Flying in Formation?” Federal Reserve Bank of San Francisco *Economic Letter*, Number 97-17, May 30, 1997.

<sup>38</sup> Trade statistics from the International Trade Centre UNCTAD/WTO.

<sup>39</sup> Rose, “Dynamic Measures of Competitiveness: Are the Geese Still Flying in Formation?” The careful reader will ask, *where is China?* Rose finds China to be an anomaly in “the flying geese formation,” more competitive than its traditional position behind Indonesia and requiring further research.

<sup>40</sup> *Ibid.* Also see Anne O. Krueger, “Trade Policy and Economic Development: How We Learn,” NBER Working Paper 5896, January 1997, pp. 23-26 for a discussion of East Asian trade policies since the 1950’s.

<sup>41</sup> Trade statistics from the International Trade Centre UNCTAD/WTO; population statistics from Central Intelligence Agency, *World Factbook 2000*.

GDP; for many, it accounts for considerably more than half.<sup>42</sup> Greater international trade and investment play important roles in raising total factor productivity. As the OECD reports: “Productivity levels tend to be highest in industries that are exposed, through imports, exports and foreign direct investment, to substantial competition from world-class producers.”<sup>43</sup>

**Exports:** The increase in productivity for countries that promote greater international trade and investment is statistically significant. For example, one study found that U.S. plants producing for export had labor productivity 40 percent higher than in equivalent non-exporting plants, and had productivity growth nearly three times the national average from 1986 to 1994.<sup>44</sup> Another study, from economists at the U.S. International Trade Commission, found in a sample of 13 OECD countries, using data primarily from 1980’s, and including 17 manufacturing sectors: “The share of exports in output is nearly always positively associated with productivity growth, after controlling for initial productivity, research effort and (where appropriate) growth in capital per worker.”<sup>45</sup>

Higher levels of productivity in the export-oriented sectors tend to occur because firms producing for export generally are more productive in the first place and can take advantage of the opportunities trade liberalization affords them to enter export markets and expand production.<sup>46</sup> By entering export markets and increasing production, these firms reallocate employment and increase productivity; this type of reallocation in the U.S. manufacturing sector accounted for more than 40 percent of total factor productivity growth in the sector from 1983 to 1992.<sup>47</sup>

Higher productivity in the export sector can also be measured in the wage levels of export-oriented jobs. It is a general rule in economics that when productivity rises, real wages also rise because output per worker is increasing. Therefore wages in export-oriented jobs should be higher than average wages in an economy, reflecting higher productivity. The Council of Economic Advisers reported in 1998 that goods export jobs tended to pay wages approximately 12.5 to 18 percent higher than other jobs.<sup>48</sup> Higher wages appear to occur in export sectors irrespective of the level of economic development. In Mexico, salaries in the export sector have been typically 30 percent higher than in the domestic market, despite a 10 percent fall in average wages for the majority of industrial workers beginning in the early 1990’s.<sup>49</sup> Even when skill levels are taken into account by adjusting for the skill-premium in wages, the Council of Economic Advisers reported in 1998 that U.S. wages were higher across

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<sup>42</sup> Andrea Bassanini, Stefano Scarpetta, and Ignazio Visco, “Knowledge, Technology and Economic Growth: Recent Evidence from OECD Countries,” *How To Promote Economic Growth in the Euro Area* (150<sup>th</sup> Anniversary Conference of the National Bank of Belgium, Brussels, 11 and 12, May 2000), p. 7.

<sup>43</sup> OECD, “Open Markets Matter: The Benefits of Trade and Investment Liberalisation,” p. 25.

<sup>44</sup> Figures in *ibid.*, p. 28.

<sup>45</sup> Nancy Benjamin and Michael J. Ferrantino, “Trade, Trade Policy, and Productivity Growth in OECD Manufacturing,” Office of Economics Working Paper No. 98-3-A, U.S. International Trade Commission, Revised November 1998, p. 13.

<sup>46</sup> See Andrew B. Bernard and J. Bradford Jensen, “Exporting and Productivity,” NBER Working Paper 7135, May 1999.

<sup>47</sup> *Ibid.*, p. 23.

<sup>48</sup> *Economic Report of the President*, February 1998, p. 241.

<sup>49</sup> Figures cited in *The Washington Post*, September 17, 2000, p. A22.

the board in export-oriented industries. The wages of unskilled workers were approximately 7 percent higher in export-oriented industries than in the rest of the economy, and the wages of skilled workers were approximately 5 percent higher.<sup>50</sup>

**Imports:** Imports also play an important role in elevating productivity and growth levels. For example, statistics for the G-7 countries<sup>51</sup> from 1992 to 1997 suggest that trade deficits were positively associated with growth in GDP and employment; conversely, trade surpluses were negatively associated with growth in GDP and employment.<sup>52</sup>

In fact, it can be shown that whereas exports have a tendency to concentrate productivity gains in export sectors imports can actually stimulate domestic productivity. One study of over 100 U.S. manufacturing industries in the 1980's found that a higher share of imports in domestic consumption was associated with a positive and statistically significant effect on subsequent total factor productivity growth.<sup>53</sup> In another study, growth in competing imports from 1970 to 1985 in the Japanese electrical machinery sector was estimated to have raised productivity by about 35 percent in that sector.<sup>54</sup> There is a similar relationship between domestic and foreign capital. One study found using cross-country data for the period 1960-1985: "The ratio of imported to domestic capital goods in the investment sector has a significant positive effect on the per capita income growth rates across countries, in particular, in developing countries."<sup>55</sup> Finally, a study of the manufacturing sector in the United Kingdom (UK) from economists at the Bank of England and Oxford University found significant "productivity convergence" occurring between the UK and the U.S. through "international openness." The authors note: "In total manufacturing, UK TFP [total factor productivity] rose from approximately 52% of the U.S. level in 1970 to about 61% in 1990."<sup>56</sup>

Thus imports themselves can raise economic growth and income in at least two ways. The first way is basic to economics (and also constrained by broader considerations of national security and international law): foreign competition can encourage domestic producers to improve their productivity in order not to lose out to foreign producers. The second way is that trade liberalization increases the opportunity for world innovators to expand globally so that almost every country eventually benefits from innovation. Therefore, at a deeper level, it can be said that imports are much more than goods and services. They convey crucial knowledge to domestic producers and workers, which can increase their productivity and raise their incomes.

## V. CONCLUSION

This paper has outlined how greater international trade and investment can increase economic growth and income. Its objective, in part, has been to survey scholarly research to

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<sup>50</sup> *Economic Report of the President*, February 1998, p. 241.

<sup>51</sup> United States, United Kingdom, France, Canada, Italy, Germany, and Japan.

<sup>52</sup> See *Economic Report of the President*, February 1999, p. 260, Charts 6-7 and 6-8.

<sup>53</sup> See Robert Z. Lawrence and David E. Weinstein, "Trade and Growth: Import-Led or Export-Led? Evidence from Japan and Korea," NBER Working Paper 7264, July 1999, p. 22.

<sup>54</sup> *Ibid.*, p. 20.

<sup>55</sup> Jong-Wha Lee, "Capital Goods Imports and Long-Run Growth," NBER Working Paper 4725, April 1994, p. 19.

<sup>56</sup> Gavin Cameron, James Proudman, and Stephen Redding, "Productivity Convergence and International Openness," Bank of England, 1997, p. 57.

provide a better understanding of how countries benefit from following international economic policies that promote greater international trade and investment.

In general, public policy often has to catch up with economic reality. It is similar to astronomers viewing light emanating from a distant star or planet: because of space and time, the flashes of light they actually see began their travels years earlier. Economic policy makers are now in the position of astronomers. They can see the light of unprecedented world economic growth, which began following World War II, followed by the light of economic research, which has explained how international trade and investment has increased this economic growth. However, to continue to see the light of economic growth, economic policy, like a telescope, must be pointed in the right direction, as it has been since the 1940's.

The world today is arguably more integrated than at anytime in history. Even communist and former communist countries that were once closed societies today follow international economic policies that promote greater international trade and investment. By any measure this has been one of the most remarkable achievements in the post-Cold War world, one hoped for by the original designers of the international economic system some 60 years ago. If the benefits of greater international trade and investment were not real, this would simply not have occurred. These benefits have also had an influence in developing countries, where the model of a more closed economy was once popular with economic development theorists and with local officials educated by them.

Greater international trade and investment cannot solve all of the world's economic ills. Other factors, many non-economic in nature, are equally important, but which carry costs that also have to be properly understood and considered. Moreover, the criticism that legalistic "trade agreements" can be oversold has its merits, and such agreements should be subjected to a rigorous analysis of costs and benefits. The analysis must also consider whether all signatories to a trade agreement can, and ultimately do, comply with its rules.

Yet the popular slogan "trade not aid" is a good indication that the benefits of international trade and investment have climbed to a level of recognition, even a level of moral esteem, once occupied solely by the benefits of development aid. As John Maynard Keynes confessed before the Liberal Summer School at Cambridge University in 1925, one does not have to believe in all aspects of free trade to accept the economic arguments for reducing and eliminating barriers to the movement of goods, services, and capital that have been presented in this paper. As Keynes said:

There were always two arguments for Free Trade—the *laissez-faire* argument which appealed and still appeals to the Liberal individualists, and the economic argument based on the benefits which flow from each country's employing its resources where it has a comparative advantage. I no longer believe in the political philosophy which the Doctrine of Free Trade adorned. I believe in Free

Trade because, in the long run and in general, it is the only policy which is technically sound and intellectually tight.<sup>57</sup>

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<sup>57</sup> John Maynard Keynes, "Am I a Liberal? (1925)," *Essays in Persuasion* (W. W. Norton & Company, 1963), p. 326. As the international relations scholar F. S. Northedge of the London School of Economics wrote: "The case for British free trade was never shaken until the fearful economic whirlwinds which struck world commerce in 1929-1932." *The International Political System* (Faber and Faber, 1976), p. 87.