

Article

NAFTA: Testing Ricardo's Theory of Comparative Advantage by Empirical Evidence Pre-and Post NAFTA

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“Today everything comes under the laws of competition and the survival of the fittest, where the powerful feed upon the powerless. As a consequence, masses of people find themselves excluded and marginalized: without work, without possibilities, without any means of escape.” Excerpt from Pope Francis’ Evangelii Gaudium 2013¹

The scene was the boardroom of Mega Corporation (hereinafter Mega). Mega manufactured auto parts in Pleasantville, Tennessee. Its workforce consisted of 900 blue-collar and 20 white-collar full-time employees. Mega’s plant was over 30 years old. The CEO and board were deciding between building a new, state-of-the-art plant in Tennessee, and moving production to Mexico, where hourly labor costs and manufacturing costs (including fringe benefits) were \$6.23 per hour, compared to the \$37.74 per hour² they paid manufacturing workers in the US.

Clarence Smith, Mega’s CEO, observed, “After taking account of severance pay to Pleasantville blue collar workers, the low Mexican wages would make Mega competitive in the world market again. Workers here make too much. I move that we relocate in Mexico. Any discussion?”

Board member, Sam Jones, asked, “Clarence, have we made any long-term commitments to our blue collar workers? I wouldn’t want to pull the rug out from under them. Most have mortgages, kids in school, and live from paycheck to paycheck.”

“Oh they know their jobs are at risk,” Smith answered. “But most have second jobs or spouses that work. Also, they will collect

¹ Holy Father Francis, *Apostolic Exhortation Evangelii Gaudium of the Holy Father Francis to the Bishops, Clergy, Consecrated Persons and the Lay Faithful on the Proclamation of the Gospel in Today’s World*, VATICAN (2013), http://w2.vatican.va/content/francesco/en/apost_exhortations/documents/papa-francesco_esortazione-ap_20131124_evangelii-gaudium.html.

² See *Competitiveness in Manufacturing*, U.S. BUREAU OF LABOR STATISTICS, 30 (2012), available at <http://www.bls.gov/fls/chartbook/2012/section3.pdf>.

unemployment benefits. Speaking of benefits, if we relocate to Mexico, corporate profits will increase by over \$1 million a year, year after year.”

Sam Jones saw the opportunity to redeem himself. “In light of that,” said Jones, “I move that the CEO and CFO who devised the move to Mexico each receive \$250,000 bonuses. Any objections?” The Mega board of directors approved both the relocation to Mexico and the executive bonuses.

“Where’s Daddy?” asked Mary Foster.

“He’s at work, honey,” replied Mary’s mother, Julie.

“But it’s dinnertime. I thought he went to work in the morning and came home at dinnertime?” said Mary.

“Oh, he does. He makes auto parts at Mega Corporation but that’s his first job. Daddy now has two jobs. He is a waiter in a restaurant from 5 p.m. until 11 p.m. so he can make enough money to pay the bills. Since Mega Corporation dropped health insurance for its employees, Daddy had to buy health insurance from the state health insurance exchange,” replied Mary’s mother.

“But when will I see Daddy?” asked Mary.

“We’ll see him on weekends before noon. Daddy’s second job means he waits on tables on weekends when customers give big tips, so he can’t be with us Saturday and Sunday afternoons and most nights, but we will see him Saturday and Sunday mornings,” answered Mary’s mother.”

“Daddy works a lot, doesn’t he, Mommy?” asked Mary.

“Yes, he does. But don’t forget, honey, he works for a company that provides jobs for its workers. Mega respects its workers and appreciates their work for the company. His job at Mega pays the mortgage and taxes on our house.”

“Look, it’s Daddy. He’s come home early to eat dinner with us,” said Mary.

Mary’s father entered the house and stared at Mary and Julie. “The plant is closing. I’ve lost my job at Mega, along with all the other workers.”

Introduction

The *Economist* magazine has asserted that the dominant principle of contemporary economics is comparative advantage,³ which is seen as the theoretical underpinning of international trade.⁴ Although contemporary economists often ignore David Ricardo’s contribution,⁵ he

³ See *The Economics of Free Trade*, THE ECONOMIST, Sept. 22, 1990, at 16-18.

⁴ JAMES GOLDSMITH, THE TRAP 15-16 (1994).

⁵ See JOSEPH STIGLITZ, GLOBALIZATION AND ITS DISCONTENTS index (2002) (where no mention of David Ricardo can be found in the index of this book on economic globalization).

is credited with having developed the doctrine of comparative advantage over 150 years ago.⁶ When Ricardo developed the doctrine, he made a rational, but not empirical, defense of this theory. This paper aims to determine whether the North Atlantic Free Trade Agreement (hereinafter NAFTA) experience provides empirical support for the theory of comparative advantage.

NAFTA⁷ has been in effect since 1994—almost a generation. It was controversial even prior to its taking effect⁸ and was a major issue during the 1992 United States presidential election. NAFTA is a free trade agreement⁹ among Canada, Mexico, and the U.S., which came into effect in the United States on January 1, 1994.¹⁰ NAFTA has six objectives,¹¹ the major one being (and the focus of this paper) the elimination of trade barriers (thereby enhancing trade in goods and services among the parties).¹² Moreover, the North Atlantic Free Trade Agreement Implementation Act¹³ reiterates the Agreement's objectives. Politicians commenting on NAFTA objectives have identified other factors, arguably implicit in reducing trade barriers, such as economic growth, more equality, greater environmental protection, and ensuring peace.¹⁴ As such, it could be said that NAFTA is founded on the philosophy that free trade improves the living and employment standards

⁶ See DAVID RICARDO, *THE PRINCIPLES OF POLITICAL ECONOMY AND TAXATION* 131-161 (3d ed. 1821).

⁷ North American Free Trade Agreement, U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (1993) [hereinafter NAFTA].

⁸ See ROSS PEROT WITH PAT CHOATE, *SAVE YOUR JOB, SAVE OUR COUNTRY: WHY NAFTA SHOULD BE STOPPED—NOW!* Hyperion (1993).

⁹ The Case-Zablocki Act, 1 U.S.C. § 112(b) (1972) (stating that NAFTA is styled an "agreement" rather than a "treaty." Executive agreements with other countries are authorized by the President's executive authority and do not require 2/3 Senate approval as do treaties under the U.S. Constitution article 2, section 2. However executive agreements signed by the President become law once signed by the President or his/her representative without Senate approval, although the President must notify the Senate of such executive agreement within 60 days of its signing).

¹⁰ The North American Free Trade Agreement Implementation Act, Pub. L. No. 103-182, 107 Stat. 2057 (1993).

¹¹ NAFTA, *supra* note 7, at §102.

¹² *Id.* (Other NAFTA objectives include the promotion of conditions of fair competition within the free trade area, the increase of investment opportunities within the area, the provision of adequate and effective protection of intellectual property in each Party's territory, provision for dispute resolution, provision for a framework to implement and enforce the agreement, and provision for expanding the agreement).

¹³ The North American Free Trade Agreement Implementation Act, Pub. L. No. 103-182, 107 Stat. 2057 (1993).

¹⁴ See Remarks on Signing the North American Free Trade Agreement Implementation Act, 29 WKLY COMPILATION OF PRESIDENTIAL DOC., 2511, 2548 (1993) (where President Clinton stated.... I believe we have made a decision now that will permit us to create an economic order in the world that will promote more growth, more equality, better preservation of the environment, and greater possibility of world peace ...).

of those living in nations adhering to its free trade philosophy.¹⁵ Therefore, NAFTA is a candidate to test Ricardian trade ideas.

NAFTA is a good candidate to test Ricardo's comparative advantage for three reasons: first, NAFTA has a small number of member nations;¹⁶ second, considerable data is available to test whether the NAFTA nations have registered quantifiable gains following NAFTA's passage;¹⁷ and third, free trade has become a shibboleth, but because NAFTA is seen as a job-killer in the U.S. and as undermining environmental goals, there needs to be close scrutiny of NAFTA's effects on its members' economies to see if it lives up to its objectives.¹⁸

Following the discussion of Ricardo's theory of comparative advantage, there is a demographic profile of the three NAFTA nations in 1993 (the year preceding NAFTA's taking effect) and 2012, following nineteen years of NAFTA's existence.¹⁹ Later there is a discussion of trade among NAFTA nations before and after NAFTA came into effect, to determine whether NAFTA has achieved its major goal. Other areas that NAFTA would logically affect are Gross Domestic Product (GDP), per capita GDP and the purchasing power parity of NAFTA citizenry, unemployment levels, inflation, GINI indices, and manufacturing hourly wages. Each will be examined.

A major criticism of international trade is that it exacts human and environmental costs. To address environmental and labor concerns, the NAFTA nations adopted two "side" agreements—one on environmental matters, and the other regarding labor issues.²⁰ These side agreements are

¹⁵ *Id.* at 2549. (Now we must recognize that the only way for a wealthy nation to grow richer is to export, to simply find new customers for the products and services it makes ... But we know that over the long run, our ability to have our internal economic policies work for the benefit of our people requires us to have external economic policies that permit productivity to find expression not simply in higher incomes for our businesses but in more jobs and higher incomes for our people).

¹⁶ There are three NAFTA nations—Canada, Mexico, and the U.S. Compare this with the General Agreement on Tariffs and Trade (GATT), which has over 150 member nations.

¹⁷ See *infra* notes 23-47 and others providing a plethora of information about nations.

¹⁸ *But see*, Daniel Griswold, *By Every Reasonable Measure, NAFTA Has Been a Success*, CATO INSTITUTE (2002), available at www.cato.org/publications/commentary/every-reasonable-measure-nafta-has-been-success; *contra*, Julian Aguilar, *Twenty Years Later, NAFTA Remains a Source of Tension*, N.Y. TIMES (2012), available at www.nytimes.com/2012/12/07/us/twenty-years-later-nafta-remains-a-source-of-tension.html?_r=0.

¹⁹ Generally, the years used in this study are 1993, the year prior to NAFTA's taking effect, and 2012, the most recent year where there is comprehensive, comparative information on the three NAFTA nations. However, occasionally, years other than 1993 and 2012 are used to assess NAFTA's efficacy when reliable data are unavailable. For example, data for a particular measure—GINI indices—were not created until a later date. See *infra* note 67 and related text.

²⁰ See North American Agreement on Environmental Cooperation, Sept. 14, 1993, 32 I.L.M. 1480; see also North American Agreement on Labor Cooperation, Sept. 13, 1993, 32 I.L.M. 1499.

discussed by scholars elsewhere,²¹ and readers are referred to these articles. In the name of economy of inquiry, several proxies for worker costs are examined to see if practical evidence of such burdens exists. In the area of environmental performance, an index is presented to evaluate environmental criticisms.

Finally, NAFTA exists in a world where the World Trade Organization's (WTO) free trade ethos is nearly universal. Thus, a comparison is made to see how NAFTA nations have fared economically vis-à-vis their non-NAFTA counterparts during the period of NAFTA's existence. The impact of a nation's currency on international trade is noted.

I. WHAT IS COMPARATIVE ADVANTAGE?

David Ricardo is credited with first developing the comparative advantage theory in his treatise, *On the Principles of Political Economy and Taxation*.²² Ricardo hypothesized that if there are two nations making two products, even if one nation is absolutely more efficient in making both products, it would benefit both nations if the nation relatively more efficient in making one product made that product leaving it to the other nation to make the other product and then trade amongst themselves. The idea is that each nation is better off making what it is relatively more efficient in producing. As such, Ricardo's theory encourages and justifies free trade. Presumably, a nation should be wealthier as a result of free trade and its culture should be improved.

One aspect of Ricardian thinking is the key role of labor. According to Ricardo, labor establishes value. As such, this study examines what has happened to labor workers under NAFTA's free trade ethos. What has happened to manufacturing jobs, hourly wages, the cost of living, and other measures of overall stress and stability in workers' lives?

Ricardo's theory has some obvious limitations. For example, the world is composed of many nations, making many products; so ascertaining what each is relatively most efficient in producing is problematic. Add to this currency differences and one begins to see how difficult it is to evaluate Ricardo's theory. The present study reduces some of these problems because NAFTA only involves three nations—Canada, Mexico, and the United States—so comparisons of certain macro-economic data points enable one to determine if, after implementation, each of the three nations is better off. Also this study uses the U.S. dollar as the single currency to compare different nation's economic data, thereby eliminating currency issues.

Perhaps the greatest limitation of Ricardo's theory is that he seems to assume that the benefits of international trade are spread evenly

²¹ See *infra* note 93.

²² RICARDO, *supra* note 6.

throughout a nation. In keeping with Ricardo's emphasis on labor, this study examines whether NAFTA benefits are evenly beneficial to all segments of society or if they accrue disproportionately to certain segments, such as the managerial/professional class.

II. GENERAL BACKGROUND OF THE THREE NAFTA NATIONS

Table 1 outlines some of the basic facts concerning the relative physical size,²³ populations,²⁴ and GDP of the three NAFTA nations for the year prior to NAFTA's taking effect (1993)²⁵ and the end year of this study (2012).²⁶

Table 1: Background Data on NAFTA Nations

Nation	Land area	Population 1993	Population 2012	GDP 1993	GDP 2012
Canada	9985 K sq. km.	27.8 million	34.7 million	\$575 Bn (US)	\$1,780 Bn (US)
Mexico	1964 K sq. km	86.7 million	116.1 million	\$325 Bn (US)	\$1,178 Bn (US)
United States	9629 K sq. km.	258.1 million	315.8 million	\$6388 Bn	\$16,245 Bn

The U.S. economy dwarfs the other two NAFTA members, as it was about 11 times greater than Canada's economy in 1993 and about twenty times that of Mexico's in the same year. By 2012, the U.S. economy was still much larger than either of its partners, but not by quite as much. By 2012, Canada's economy was about one-eighth of the U.S. economy, while Mexico's economy was about one-fourteenth of the size of the U.S. economy in the same year. Relative size had slightly shifted to the two smaller economies. Remarkably, Canada, which has less than one-third of Mexico's population, nonetheless has a GDP over 50 percent higher than that of Mexico.

All three economies increased substantially between 1993 and 2012. Canada's GDP grew from \$575 billion (U.S. dollars) in 1993 to

²³ ANDREA BURGESS ET AL., THE ECONOMIST POCKET WORLD IN FIGURES 12 (2015 ed. 2014).

²⁴ ANDREW BEVAN ET AL., THE ECONOMIST POCKET WORLD IN FIGURES 14 (1996 ed. 1995) (for 1993 populations); *see also* BURGESS, *supra* note 23, at 14 (for 2012 populations).

²⁵ BEVAN, *supra* note 24.

²⁶ BURGESS, *supra* note 23, at 24.

\$1,780 billion in 2012—approximately tripling. Mexico's GDP grew similarly. It went from \$325 billion (U.S. dollars) in 1993 to \$1,178 billion in 2012—about a 3 1/2 increase from 1993. The U.S.'s economy also increased considerably also from \$6,388 billion to \$16,245 billion in 2012—roughly increasing by 2.5 times, thereby registering the smallest rate of increase of all three NAFTA nations.

The populations of the three NAFTA countries told a slightly different story with Canada's population increasing about 7 million or about 25% while Mexico's grew about 28.1 million, roughly 33%; thus the larger, poorer Mexican population grew even faster than the smaller, wealthier Canadian population.²⁷ The U.S. population also increased by about 60 million, about 25%, roughly the same as Canada's percentage gain, but behind the rate of increase of Mexico.

Although it is not as significant as the economic data, the physical size of Canada exceeded that of its partners, just slightly larger than the U.S. and about five times the square kilometers of Mexico. Canada is the third largest nation in the world in land area, and Canadians are recognizing a natural resource competitive edge,²⁸ due in part to its size. Regardless, there was no change in the physical size of any NAFTA nation in the period under study.

III. STRUCTURE OF NAFTA NATIONS' ECONOMIES PRE- AND POST NAFTA

Economists have long recognized an evolution in the structure of a nation's economy as it moves from being under-developed to a mature society. Initially, the nation's economy is an agriculture-dominated economy, followed by movement away from agriculture to manufacturing, and finally shifting to a predominantly service-based economy.²⁹ Table 2 presents the data for structure of economies of the three NAFTA nations, both pre and post NAFTA, to see if, in fact, the NAFTA experience generally supports this posited sequence.³⁰

²⁷ See *infra* note 30 and associated text.

²⁸ See BURGESS, *supra* note 23, at 55 (Canada is ranked 3rd in the world in terms of proven oil reserves behind only Venezuela (1st) and Saudi Arabia (2nd). Canada also ranks 5th in natural gas production and oil production).

²⁹ See generally Christopher Conte & Albert R. Karr, *Labor in America: The Worker's Role*, USEMBASSY, available at <http://usa.usembassy.de/etexts/oecon/chap9.htm>.

³⁰ BEVAN, *supra* note 24, at 106 (for Canada), 154 (for Mexico), and 206 (for the US); BURGESS, *supra* note 23, at 128 (for Canada), 180 (for Mexico), and 236 (for the US). Percentages do not always add up to 100% due to ECONOMIST breakdown for "Industry" in different years into subcategories for "manufacturing" and "mining" or a general "industry" category other than manufacturing for some years.

**Table 2: Structure of the Economies of NAFTA Nations
Pre- and Post NAFTA**

Nation	1993 Agric.; Mfg.; Services %	2012 Agric.; Mfg.; Services %
Canada	Ag. 3.1%; Mfg. 22.1%; Services 66.2%	Ag. 2.4%; Mfg/Industry 21.5%; Services 76.5%
Mexico	Ag. 7.4%; Mfg. 22.4%; Services 59.8%	Ag. 13.4%; Mfg./Mining 24.1%; Services 61.9%
USA	Ag. 1.8%; Mfg. 17.9%; Services 74.9 %	Ag. 1.6%; Mfg. 16.7%; Services 81.2%

The data in Table 2 generally supports economists' conventional wisdom about stages of economic development, although some data runs counter to expectations. Specifically, the 1993 data refers to origins for GDP (not necessarily the same thing as structure of employment, but similar) whereas the 2012 data does refer to the structure of employment. One would expect all three NAFTA nations to record decreases in agriculture and manufacturing with increases in the percentage of the service sector of the economies of each nation as we move from 1993 to 2012. The service sector did increase in all three nations from 1993 to 2012, albeit very slightly in the case of Mexico. The agriculture sector decreased in Canada and the U.S. from 1993 to 2012, but nearly doubled in Mexico, the poorest NAFTA nation, going from 7.4% in 1993 to 13.4% in 2012.

With respect to the manufacturing sector, economists' projections about sectoral shifts found some support in the NAFTA experience. Specifically, Canada and the U.S. both had slight declines in manufacturing—Canada going from 22.1% to 21.5% and the U.S. manufacturing sector dropped from 17.9% in 1993 to 16.7% in 2012—both declines of approximately 3% and 7% respectively. Mexico bucked

the declining manufacturing trend by increasing from 22.9% to 24.1% during the 1993 to 2012 period—an approximate 5% increase. Thus Canada and the U.S. support conventional economic thought about the direction of manufacturing as an economy matures, while Mexico does not.

NAFTA, generally, but not always, supports traditional views about the evolution of a nation's economic structure as it moves from an under-developed to a mature economy.

IV. NAFTA IMPACT ON FREE TRADE BETWEEN MEMBER NATIONS

A major stated goal of NAFTA is to remove trade barriers among member nations.³¹ The question is: has trade among the three NAFTA nations increased since NAFTA's inception? First, trade prior to 1993 will be examined.

A. Trade Levels of NAFTA Nations before NAFTA's Passage

Even before NAFTA's inception, trade among the NAFTA nations was strong with the U.S., but not between Canada and Mexico. For example, in 1993, Mexico's main export markets were the U.S., which accounted for 83% of Mexico's total exports and Canada, which accounted for 3% of Mexico's total exports.³² Thus 86% of Mexico's exports prior to NAFTA were to what would become the other NAFTA nations. Mexican imports in 1991 told a slightly different story because Canada provided only <1.4% of Mexico's imports.³³ However, in 1991 the U.S. provided 70% of Mexico's imports.³⁴

As expected, Canada traded heavily with the U.S. in 1991, with 62.3% of its imports being of U.S. origin, but Mexico was not a significant source of Canadian imports being less than Japan (4.9%), the U.K. (2.6%), Germany (2.3%), and South Korea (1.3%).³⁵ Canada exported the bulk of its products (80.3%) to the U.S. followed by exports to Japan (4.4%), the U.K. (1.6%), Germany (1.5%), and South Korea (0.9%).³⁶ Thus, prior to NAFTA, Canada and Mexico traded very little.

Before the entrance of NAFTA in 1993, the U.S.'s largest export market was Canada (22.1% of the U.S.'s exports), followed by Japan (10.2%), Mexico (9.6%), the U.K. (5.6%), Germany (4.0%), and Taiwan (3.4%).³⁷ The U.S. imported the most from Canada (19.2%), Japan

³¹ NAFTA §102(a)(2).

³² BEVAN, *supra* note 24, at 155.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.* at 107.

³⁶ *Id.*

³⁷ *Id.* at 207.

(18.2%), Mexico (6.9%), China (5.4%), Germany (4.8%), and Taiwan (4.3%).³⁸ Thus, Canada and Mexico represented significant portions of U.S. imports and exports, but the U.S.'s trade—both imports and exports—was split more evenly among several nations than were either Canada's or Mexico's. Neither Canada nor Mexico was more than 22% of U.S. trade in either 1993 or 2012.

By 2012, there was a considerable shift in trade for NAFTA nations, and based on percentage, this shift was not necessarily in favor of NAFTA nations. The U.S., the largest NAFTA nation, exported the most to Canada (18.9%) and Mexico (14%), representing a decline of exports to Canada from 1993,³⁹ but the percentage of U.S. imports from Mexico rose from 6.9% to 12.3%.⁴⁰

Table 3 summarizes the trade imports and exports by percentages of trade represented in each NAFTA nation with the others in the year prior to NAFTA's taking effect and in 2012. If increasing trade among NAFTA nations was a principal objective of NAFTA, then the percentage data on trade from 1991 to 2012 presented here generally does not support an achievement of this goal. Specifically, imports of Canada from the U.S. declined significantly from 62.3% to 50.6% as a percentage of all U.S. imports. Similarly, Mexican imports from the US dropped from 70.7% to 54.9%. Also, exports from Canada to the U.S. dropped from 75.8% to 74.5% in 2012. Mexican exports to the U.S. likewise rose as a percentage of all Mexican exports from 74.5% to 77.6%. Also, there was a very slight increase in import trade between Mexico and Canada—but this was slight going from <1.4% to <4.0% in the case of Canadian imports to Mexico.

Table 3: Trade between NAFTA nations in 1991 and 2012 in Percentage Change

Nation	Percent of its total Imports 1991	Percent of its total imports 2012	Percent of its total exports 1991	Percent of its total exports 2012
Canada	From U.S.: 62.3%	From U.S.: 50.6%	To U.S.: 75.8%	To U.S.: 74.5%
	From Mexico: <1.4%	From Mexico: 5.5%	To: Mexico: <1.3%	To: Mexico: <2.3%
Mexico	From Canada: <1.4%	From Canada: <4.0%	To Canada: 5.5%	To Canada: 3.0%

³⁸ *Id.*

³⁹ BURGESS, *supra* note 23, at 237.

⁴⁰ *Id.*

U.S.	From U.S.: 70.7%	From U.S.: 54.9%	To U.S.: 74.5%	To U.S.: 77.6%
	From Canada: 18.5%;	From: Canada: 14.4%;	To Canada: 20.2%;	To Canada: 18.9%;
	From Mexico: 6.6%	From: Mexico: 12.3%	To: Mexico: 9.0%	To Mexico: 12.3%

1. *Dollar Value of Trade of NAFTA Nations for Years 1993 and 2012: Effect of Reducing NAFTA Trade Barriers*

The imports and exports between each NAFTA nation, in percentages of each nation's total trade, show (with some exceptions) declines from 1993 to 2012. Such declines suggest NAFTA has generally had a negative impact on trade between NAFTA's nations following its adoption. This runs counter to Ricardian notions that reduction in trade barriers increases—not reduces—trade.

B. Dollar Comparisons of Imports between NAFTA nations before and after NAFTA.

There is another way of looking at the evolution of trade between NAFTA nations following NAFTA's passage by examining trade in absolute dollar amounts. In 1991, Canada had total principal imports of \$139.3 billion and total principal exports of \$145.7 billion.⁴¹ In dollar terms, Canadian imports from the U.S. in 1991 were \$86.73 billion. Canadian imports from Mexico in 1991 were less than \$1.95 billion. By 2012, total Canadian imports from all nations were \$474.9 billion, of which \$240.3 billion were from the U.S. and \$26.12 billion were from Mexico. Thus, unlike the percentage analysis, in dollars, trade between all NAFTA nations increased substantially following NAFTA's taking effect.

In dollar terms, Mexico had \$38.2 billion in total imports in 1991,⁴² which grew to \$370.8 billion in principal imports in 2012.⁴³ Mexican imports from Canada in 1991, in dollars, totaled less than \$535 million, but by 2012, Mexico had increased its imports from Canada to less than \$14.45 billion—approximately a \$14 billion increase over the life of NAFTA. Clearly, reduction of trade barriers aided trade expansion.

⁴¹ ANDREW BEVAN ET AL., THE ECONOMIST POCKET WORLD IN FIGURES 100 (1994 ed. 1993). These figures are in Canadian dollars, which were worth considerably less than the U.S. dollar in 1995.

⁴² *Id.* at 149.

⁴³ BURGESS, *supra* note 23, at 181.

Trade increase in dollars was even greater in the case of Mexican imports from the U.S., which jumped from \$46.49 billion in 1991 to \$203.57 billion in 2012—a \$157 billion increase. Even though Mexican imports from the U.S. dropped from 71.1% to 54.9% of Mexico's total imports in the NAFTA years, the dollar amount increased by over \$157 billion—a four times increase.

Total U.S. imports were \$589.4 billion in 1991 and grew to \$2.276 trillion in 2012. The U.S. imports from Canada between 1993 and 2012 dropped significantly in percentage terms but rose significantly in dollar terms. In 1991, the U.S. imported \$98.51 billion from Canada. By 2012, the U.S. imported \$327.64 billion from Canada—almost three times the dollar amount prior to NAFTA. The U.S. experienced similar results with imports from Mexico. In 1991, U.S. imports from Mexico were \$35.14 billion and rose to \$279.87 billion—approximately seven times the pre-NAFTA figures but still less than the level of U.S. imports from Canada. Nonetheless, the large dollar increases in U.S. imports from both Mexico and Canada post-NAFTA supports the freer trade under NAFTA.

C. Dollar Comparisons of Exports between NAFTA nations before and after NAFTA.

The exports from one NAFTA nation to another also increased significantly between 1993 and 2012—the period following NAFTA's taking effect. In the case of Canada, total exports to all nations were \$164.6 billion in 1993.⁴⁴ This figure grew to \$462.9 billion in 2012.⁴⁵ In 1991, Canada exported \$110.44 billion to the U.S. and less than \$1.89 billion to Mexico.⁴⁶ By 2012, Canada exported \$344.86 billion to the U.S. and less than \$10.64 billion to Mexico.⁴⁷ These substantial increases in Canadian exports to the U.S. and Mexico in 2012 compared to 1991 support the assertion that freer trade increased the absolute dollar magnitude of trade among NAFTA nations.

Mexican exports to Canada and the U.S. also grew substantially between 1991 and 2012. In 1991 total Mexican exports to all nations was \$27.1 billion. About \$1.55 billion went to Canada and \$42.99 billion went to the U.S. By 2012, total Mexican exports were \$370.7 billion of which \$11.12 billion went to Canada and \$287.66 billion to the U.S.

The data for dollar trade for the U.S. between 1991 and 2012 also suggests that reducing trade barriers between those years sharply increased trade. Thus, in 1991, the U.S. principal exports to all nations was \$422.2 billion, of which Canada represented 20.2% or \$85.28 billion.⁴⁸ By 2012,

⁴⁴ BEVAN, *supra* note 24, at 107.

⁴⁵ BURGESS, *supra* note 23, at 129.

⁴⁶ FIONA COOPER ET AL., THE ECONOMIST POCKET WORLD IN FIGURES 101 (1994 ed. 1993).

⁴⁷ *Id.*

⁴⁸ BEVAN, *supra* note 24, at 207.

U.S. principal exports to all nations were \$1,595.7 billion of which Canada represented 18.9% (a percentage decline from 1991) but a dollar level of \$292.13 billion—almost three times the 1991 level in dollar terms.⁴⁹ U.S. exports to Mexico in 1991 were \$37.99 billion, but by 2012 they shot up to \$216.3 billion. The NAFTA years saw an almost five-fold increase in U.S. exports to Mexico.

Clearly, dollar level of trade between the U.S. and Canada increased substantially between 1991 and 2012, again suggesting that as barriers to trade between these two NAFTA nations were declining, trade in absolute dollar amount increased sharply, which could be attributed at least in part to NAFTA.

Finally, increased dollar levels of trade between Mexico and Canada and Mexico and the U.S. in absolute dollar terms also suggest a decline in trade barriers. For example, Mexico's principal exports in 1991 were \$27.1 billion of which the U.S. represented 74.5% or \$20.18 billion while Canada accounted for 5.5% or \$1.355 billion.⁵⁰ By 2012, total principal Mexican exports had risen to \$370.7 billion of which the U.S. accounted for 77.6% or \$287.66 billion, and Canada accounted for 3.0% of the total or \$11.49 billion.⁵¹ The data for 1991 and 2012 shows that in dollar terms Mexican exports to other NAFTA nations substantially (exports to the U.S. increasing almost seven times and to Canada almost seventy times) increased thereby permitting the inference that NAFTA's reduction in trade barriers accounted for at least some of the increased dollar trade.

Table 4: Changes in Trade from 1991 to 2012 between NAFTA Nations in Dollar Terms

Country	Total imports in \$ terms 1991	Total imports in \$ terms 2012	Total exports in \$ terms 1991	Total exports in \$ terms 2012
Canada	From U.S.: \$86.78 billion	From U.S.: \$240.3 billion	To U.S.: \$110.44 billion	To U.S.: \$344.86 billion
	From Mexico: <\$1.95 billion	From Mexico: \$26.12 billion	To Mexico: < \$1.89 billion	To Mexico: < \$10.64 billion
Mexico	From Canada: \$535	From Canada: less than	To Canada: \$1.355 billion	To Canada: \$11.12 billion

⁴⁹ BURGESS, *supra* note 23, at 237.

⁵⁰ COOPER, *supra* note 46, at 149.

⁵¹ BURGESS, *supra* note 23, at 181.

	billion	\$14.45 billion		
U.S.	From U.S.:	From U.S.:	To U.S.:	To U.S.:
	\$46.49 billion	\$203.57 billion	\$20.18 billion	\$287.66 billion
	From Canada:	From Canada:	To Canada:	To Canada:
	\$98.51 billion;	\$327.13 billion;	\$85.28 billion	\$292.13 billion;
	From Mexico	From Mexico:	To Mexico:	To Mexico:
	\$35.14 billion	\$279.87 billion	\$37.99 billion	\$216.3 billion

V. PER CAPITA DATA OF NAFTA NATIONS PRE- AND POST NAFTA

As noted above, macro data for NAFTA nations generally supports the idea that free trade improved economic welfare of NAFTA nations from 1991 to 2012. Does the same hold true for individuals in NAFTA nations? This section provides some answers. It breaks down the data into per capita terms so one can see how hypothetical “average” individuals fared under NAFTA: per capita GDP;⁵² Purchasing Power Parity; Human Development Index (HDI) quality of life indices; and, thanks to the U.S. Central Intelligence Agency (CIA), the GINI index, which exposes whether wealth is equally distributed across each nation. To the extent they are available; these measures of individual economic welfare are presented pre and post NAFTA to study possible NAFTA effects.

Table 5: GDP per capita comparisons pre- and post NAFTA

Nation	Per cap GDP 1991	Per cap GDP 2012	World rank GDP 1991	World Rank GDP 2012
Canada	\$21,254	\$51,206	11	16
Mexico	\$2,874	\$9,750	54	Not in top 60
U.S.	\$22,560	\$51,749	9	14

⁵² BEVAN, *supra* note 41, at 149 (for 1991 per capita GDP); *see* BURGESS, *supra* note 23, at 26 (for 2012 per capita GDP).

Table 5 presents a mixed picture of economic success for NAFTA nations regarding per capita GDP. Data supporting NAFTA includes the fact that all three NAFTA nations more than doubled their GDP per capita between 1991 and 2012. The above figures support the Ricardian notion that freer trade improves the economic situation for individuals among all trading partners. However, attributing GDP growth to freer trade could be assigning to one factor an outcome resulting from various other causes, such as technological growth or quality of the goods produced. Thus, care must be taken not to fall into the post hoc ergo propter hoc fallacy.⁵³

Unfortunately, the world rank regarding per capita GDP of the three NAFTA nations declined vis-à-vis the other nations. All three NAFTA nations fell in per capita world rank from 9th to 14th for the U.S., from 11th to 16th for Canada, and from 54th to out of the top 60 for Mexico. Canada approached the U.S. in per capita GDP in 2012 decreasing \$543 below the U.S.

Mexican per capita GDP increased over three times, but the relatively weak showing of Mexican per capita GDP terms compared to other nations raises questions about the value of free trade from the average (or below average) person's perspective. This showing also undermines one of NAFTA's resolutions in its preamble: "...[to] improve working conditions and living standard in their respective territories."⁵⁴

A. Purchasing Power Parity (PPP)⁵⁵ and Human Development Index (HDI)

It is possible that more sophisticated indices could cast a different light on the picture of stagnation and relative decline in Mexico's and the U.S.'s per capita GDP shown above. A more refined view of individuals' economic situation accounts for the purchasing power of their income. Thus, if one's income doubles, but the overall national price level for

⁵³ That is, "after this, therefore because of this." An example of the post hoc ergo propter hoc fallacy would be "It rained the day I took the economics test, and I scored poorly. Therefore, when it rains, I do poorly on exams," even though a more plausible reason is that I did not study sufficiently for the exam.

⁵⁴ North American Free Trade Agreement, pmbl., U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (1993).

⁵⁵ See CENTRAL INTELLIGENCE AGENCY, *The CIA WORLD FACTBOOK 2013* xxi (Skyhorse Publishing 2012) (stating that "...A nation's GDP at purchasing power parity (PPP) exchange rates is the sum value of all goods and services produced in the country valued at prices prevailing in the United States in the year noted. This is the measure most economists prefer when looking at per capita welfare and when comparing living conditions or use of resources across countries. The measure is difficult to compute, as a US dollar value has to be assigned to all goods and services in the economy regardless of whether goods and services have a direct equivalent in the United States (for example the value of an ox-cart or non-US military equipment; as a result, PPP estimates for some countries are based on a small and sometimes different set of goods and services").

goods and services also doubles during the same period, it cannot be said that one is better off economically.

The Purchasing Power Parity (PPP) index recognizes the impact of price level rises on individuals' economic well-being. Thus, one might rightly ask what has been the impact of the PPP following the introduction of NAFTA? Table 6 below provides some answers between years 1995 and 2012.

1. *PPP Index*

In terms of PPP, the three NAFTA nations, Canada somewhat declined, and Mexico dropped significantly (Canada from 89.7⁵⁶ to 79.8⁵⁷ and Mexico fell off a cliff going from a PPP of 27.6 (tie for 48th) in 1991⁵⁸ to 31.7 (out of the top 60) in 2012.⁵⁹ Again, as with per capita GDP, Canada and Mexico did not do well. The U.S.'s apparently stable PPP of 100 both in 1991 and 2012 can be attributed to its function as the never-changing benchmark economy. However, the U.S. fell from first place in PPP in 1991⁶⁰ pre-NAFTA to twelfth place in 2012,⁶¹ indicating a weaker economy.

Changes in the PPP index pre- and post NAFTA indicate that individuals in all three NAFTA nations were worse off vis-à-vis their peers in other nations following NAFTA's adoption. Disturbingly, Mexico, the poorest NAFTA nation, did fare worse than its two richer partners, the U.S. and Canada, when adjusted price levels were taken into account.⁶² If free trade is theoretically so economically beneficial, how can the aforementioned developments occur? The discussion below under the GINI Index provides some answers.

2. *HDI Index*

⁵⁶ BEVAN, *supra* note 24, at 25.

⁵⁷ BURGESS, *supra* note 23, at 27.

⁵⁸ BEVAN, *supra* note 24, at 25. The year 1991 is used due to a lack of a data for the end of 1993.

⁵⁹ BURGESS, *supra* note 23, at 180.

⁶⁰ BEVAN, *supra* note 24, at 25.

⁶¹ BURGESS, *supra* note 23, at 28.

⁶² See *Wage Theft Charts*, THE JUS SEMPER GLOBAL ALLIANCE (2014), available at http://www.jussempere.org/Resources/Labour%20Resources/WGC-AEM/Resources/Wage_gap_chartsAEM.pdf (“...Since costs of living in PPPs terms in Mexico...[is] \$0.68...for each \$1 U.S. dollar, equivalent Mexican...manufacturing workers should be earning instead \$24, \$25/hour...in order to enjoy equal purchasing power compensation....A classic example in 2009: ...The nominal equalized wage of \$16.70 is what the Mexican production line worker should earn to be equally compensated in purchasing power terms for performing an equivalent task. Yet the worker only earns \$3.81 instead of \$16.70; thus the employer deliberately retains \$12.89, which constitutes the greater part of the surplus value that legitimately belongs to the Mexican worker, according to TLWNSI's concept. “)

There is more to life than economics. A nation's citizens need education so they can read and write. They need medical care so they can live long, productive lives. The United Nation's Human Development Index (HDI)⁶³ recognizes such concerns. HDI adds life expectancy and literacy to GDP per capita to give a broader, albeit far from perfect, picture of quality of life for a nation's individuals. As such, life expectancy is a somewhat crude measure of a nation's health care, while literacy is likewise a rather blunt tool to measure a nation's education system. Thus, HDI takes account of economic income, health care, and educational attainment for individuals.

Here, again, all three NAFTA nations fell in their world ranking pre-NAFTA to 2013.⁶⁴ The U.S. dropped only slightly, going from an HDI of 94 (2nd place) in 1993⁶⁵ to 91.4 (5th place) in 2013⁶⁶. Canada fell even further in the HDI rankings, from a 95.1 HDI (1st) in 1993⁶⁷ to 90.2 (8th) in 2013⁶⁸. Mexico, the least developed NAFTA nation, where one might hope for the most improvement, instead, saw its HDI decline from 84.5 (46th)⁶⁹ to entirely out of the top 60.⁷⁰ In terms of the UN HDI ranking system, both Canada and the U.S. are still considered to have very high human development despite their HDI slippage between 1993 and 2013, since they have HDI numbers over 80. Mexico, on the other hand, fell from very high human development in 1993 (HDI of 84.5) to outside the top 60 nations for the same period, thereby moving from very high to high human development.

The HDI data is notable because it is more inclusive (covering income, education, and health care) than, for example, per capita GDP. The decline in HDI signifies several sectors of society are dropping relative to other nations. The declines in the Human Development Index is the strongest evidence so far that joining NAFTA has not advanced the health, literacy, or income of the average person relative to the experience in nations outside NAFTA.⁷¹ It is ammunition for those who assert that international trade does not benefit society in general, which includes the

⁶³ See BURGESS, *supra* note 23, at 28 (GDP or GDP per head is often taken as a measure of how developed a country is, but its usefulness is limited as it refers only to economic welfare. The UN Development Program combines statistics on average and expected years of schooling and life expectancy with income levels (now GNI per head, valued in PPP US \$). The HDI is shown here scaled from 0 to 100; countries scoring over 80 are considered to have very high human development, 67-79 high, 50-66 medium, and those under 50 low).

⁶⁴ BEVAN, *supra* note 24, at 26.

⁶⁵ ROBERT EVES ET AL., THE ECONOMIST POCKET WORLD IN FIGURES 26 (1998 ed. 1997).

⁶⁶ BURGESS, *supra* note 23, at 20.

⁶⁷ EVES, *supra* note 65.

⁶⁸ BURGESS, *supra* note 23, at 20.

⁶⁹ EVES, *supra* note 65.

⁷⁰ BURGESS, *supra* note 23, at 28.

⁷¹ Of course, some would argue that had there been no NAFTA the performance of NAFTA nations relative to other nations would have been even worse.

average person. The fact that Ricardian theory is based on the importance of labor and the implicit need to support the laboring class, these HDI data are doubly damning because they undermine an inference from Ricardo's theory that international trade benefits the entire society.

Table 6: Purchasing Power Parity (PPP) for NAFTA Nations 1991 and 2011 and Human Development Index (HDI) 1993 and 2012

Nation	1991 PPP (& world rank)	2012 PPP	2012 PPP world rank	1993 HDI (& world rank)	2013 HDI (& world rank)
Canada	89.7 (6)	84	23	95.1 (1)	90.2 (8)
Mexico	27.6 (43)	31.7	(not in top 68)	84.5 (46)	76.6 (outside top 60)
United States	100 (1)	100	14	94 (2)	91.4 (5)

3. *The GINI Index: a Measure of National Income Inequality.*

A frequent criticism of international trade is that it does not benefit all sectors of a nation's economy because blue-collar manufacturing jobs are often shipped overseas by the managerial class to lower labor market costs.⁷² Thus., U.S., Canadian, and Mexican blue-collar workers could find themselves worse off following the institution of NAFTA.

Enter the GINI index, which provides an answer to the question of how much income inequality there is among differing income levels in society.⁷³ This index ranges from 0.0 to 100.0. Perfect income equality is

⁷² GOLDSMITH, *supra* note 4, at 15-16; *see also* AGUILAR, *supra* note 18.

⁷³ CENTRAL INTELLIGENCE AGENCY, *The CIA WORLD FACTBOOK 2013* xxi (Skyhorse Publishing 2012) (Distribution of Family Income—the GINI Index. This index measures the degree of inequality in the distribution of family income in a country. The index is calculated from the Lorenz curve, of which cumulative family income is plotted against the number of families arranged from the poorest to the richest. The index is the ratio of a) the area between the country's Lorenz curve and the 45 degree helping line to b) the entire triangular area under the 45 degree line. The more nearly equal a country's income distribution, the closer its Lorenz curve to the 45 degree line and the lower the GINI index, e.g., a Scandinavian country with an index of 25. The more unequal a country's income distribution, the farther the Lorenz curve from the 45 degree line and the higher the GINI index, e.g., a Sub-Saharan country with an index of 50. If income were distributed with perfect equality, the Lorenz curve would coincide with the 45 degree line and the index would be zero. If income were distributed with perfect inequality, the Lorenz curve would coincide with the horizontal axis and the right vertical axis and the index would be 100) [hereinafter CIA].

reflected in a GINI number of 0.0. A GINI index of 100 would show perfect income inequality.⁷⁴

The U.S. Central Intelligence Agency (CIA) is the source for GINI indices. The CIA ranks 138 nations from worst in terms of income inequality (1 for Namibia with a GINI of 70.7 in 2003) to best (134, Sweden with a GINI of 23.0 in 2005).⁷⁵ The median GINI is 39.0 with a ranking of 67 held by the nation of Malawi.⁷⁶

Among NAFTA nations, Canada had the least income inequality with a GINI coefficient of 32.1 in 2005, placing it 100th in terms of income inequality (at the top of the 2nd quartile or bottom of the top quartile).⁷⁷ Since Canada has the least income inequality among NAFTA nations and barely reaches the top quartile of inequality, one can infer that NAFTA has not achieved the “equality” objective articulated at NAFTA’s U.S. adoption.⁷⁸

Table 7 shows that Mexico had the most income inequality among NAFTA nations, Canada has the least inequality. The U.S. fared rather poorly, being only slightly better than Mexico, with both Mexico and the U.S. falling in the lower half of nations in terms of income inequality.⁷⁹ The GINI analysis suggests that NAFTA benefits have gone to higher income persons.

⁷⁴ See Remarks on Signing the North American Free Trade Agreement Implementation Act, *supra* note 14. There are limitations to GINI analysis. GINI numbers are available only for random years during NAFTA’s existence. The matter of income inequality is significant in light of President Clinton’s prediction at the time of NAFTA’s signing that NAFTA would promote equality (however, Mr. Clinton did not specify whether he meant income equality or some other equality such as gender or racial equality).

⁷⁵ There are at least 195 nations. See CIA, *supra* note 73, at xiii (Independent States: 195 list). Thus the CIA’s ranking of 134 nations for GINI purposes could omit nations having greater income disparity than the 134 for which GINI’s are calculated, which would improve Mexico’s and the U.S.’s positions on income disparity.

⁷⁶ The fourth quartile GINI range is from 70.7 to 46.8 and includes 33 countries (Madagascar is ranked 33 with a GINI of 47.5). The third quartile range is 34 through 67 (with Mozambique at 34 with a GINI of 47.3 and Malawi at 67 with a GINI of 39.0). The second quartile range is from 68 through 101 with Macedonia (ranked 68) having a GINI of 39.0 and Ireland ranked 101 with a GINI of 32). The top quartile range is 102 (Spain with a GINI of 32.0 and ends with Sweden at 134 with a GINI of 23.0).

⁷⁷ CIA, *supra* note 73, at 132.

⁷⁸ See Remarks on Signing the North American Free Trade Agreement Implementation Act, *supra* notes 14 and 15.

⁷⁹ One would infer that socialist nations would have lower GINI coefficients (less income inequality) than capitalist nations. This generally, but not always, proved true based on CIA data. For example, China, purportedly a communist nation, had a GINI coefficient of 48—two points higher (thus showing greater inequality) than the capitalist U.S.’s 45 (CIA *supra* note 73, at 773, both calculated near the same years—2009 for China and 2007 for the US. Russia, by comparison, had a GINI of 42 for year 2010 (*Id.* at 601), Japan a GINI of 37.6 for year 2008 (*Id.* at 375), and Germany a GINI of 27.0 for year 2006 (*Id.* at 281) and France a 32.7 in year 2008 (*Id.* at 250). One might conclude from these data that Germany is more socialist than France, Russia, or Japan.

Table 7 presents the most recent available GINI analysis from the U.S. CIA. It indicates that the disparity in income levels in the two most developed NAFTA nations has risen slightly, indicating more disparity and less equity within these NAFTA nations. Mexican income disparity improved slightly but remained below the median for all nations. In CIA terms, Mexico fell in the Sub-Saharan nation class indicative of great inequality.

Table 7: GINI Indices for most recent years for NAFTA Nations

Country	Earliest GINI Index	Most recent GINI Index
Canada	31.5 (1994)	32.1 (2005)
Mexico	53.1 (1998)	51.7 (2008)
U.S.	40.7 (1997)	45 (2007)

Two of the three NAFTA nations (Mexico and the U.S.) ranked in the worst half of nations in terms of income inequality. Both nations have a GINI index approaching double that of the nation with the least income inequality (Sweden). This criticism is at odds with U.S. President Clinton's statement of NAFTA's objective being the promotion of equality.⁸⁰

Income disparities based on GINI analysis should be qualified by noting that the GINI comparison years differed, so possibly the income inequality was not as bad as otherwise indicated, although it also could be worse. Nonetheless, the GINI numbers coupled with other indices of social and economic disparity such as the GDP per capita in PPP and HDI, indicate NAFTA's economic and collateral benefits accrued unequally across the U.S. and Mexico.

⁸⁰ See Remarks on Signing the North American Free Trade Agreement Implementation Act, *supra* note 14 and associated text.

VI. EMPLOYMENT LEVELS IN NAFTA NATIONS PRE- AND POST NAFTA

David Ricardo elevated labor to the preeminent position in economic analysis. Therefore, it is appropriate to observe that one objective of NAFTA was to increase trade, which could improve employment levels of member nations. The argument is: more international trade means more domestic jobs and lower unemployment levels.

Table 8 shows the unemployment levels of NAFTA nations in 1993 and 2012. The data reveals that only one of the three NAFTA nations—Canada—improved its unemployment rate going from 11.4% in 1993 to 7.2% in 2012. Both Mexico and the U.S. experienced higher unemployment rates, Mexico moving from 3.2% to 4.9%, and the U.S. from 6.9% to 8.1% from 1995 to 2012.⁸¹ As with other indices relating to individual welfare, NAFTA appears to have an unfavorable effect on unemployment, particularly because Mexico and the U.S. both have much larger populations than Canada—the one nation experiencing a decline in unemployment following the years of NAFTA. Even Canada's 2012 unemployment rate is not low at 6.3%, so the idea that free trade lowers unemployment finds little support in the data here.

Despite the increase in unemployment from 1993 to 2012 in Mexico and the U.S., there are positive aspects to this data. First, Mexico had a much higher percentage of its population in the workforce in 2012 than it did in 1993. In 2012, 57.9% of the population was in the workforce, up very substantially from 38.9% in 1993.⁸² This huge increase in the workforce has implications for unemployment because even though unemployment increased 1.9% in 2012 over the 1993 level, this small increase, coupled with the much larger workforce, means that many new workers were finding employment. If these new workers had not found jobs, the unemployment level would have been much higher. More jobs in Mexico are a salutary development for a nation aspiring to better lives for its citizens. Secondly, a similar benefit could be seen in the U.S. employment picture. The U.S. unemployment rate of 8.1% in 2012 can be attributed as much to the Great Recession as to NAFTA. However, there clearly has been an erosion in U.S. jobs given the propensity of U.S. corporations to move their operations offshore,⁸³ in order to reap the benefits of manufacturing costs—mainly labor—that are significantly

⁸¹ Bureau of Labor Statistics, *International Comparisons of Annual Labor Force Statistics, 1970-2012*, available at <http://www.bls.gov/fls/flscomparelf.htm> (last modified June 7, 2013) [hereinafter *Labor Force Statistics*].

⁸² BEVAN, *supra* note 24, at 53.

⁸³ See, e.g. David Firestone, "A Chief Exporter, and Not at All Pleased About It; North Carolina is Rapidly Losing Its Once-Plentiful Factory Jobs to Overseas Plants," *THE NEW YORK TIMES*, Feb. 23, 2001, at A11.

lower than in the U.S.⁸⁴ The loss of millions of U.S. manufacturing jobs has necessitated former U.S. blue-collar workers to shift to service jobs, which often pay less than those in manufacturing. Further, the growth in worker participation in the employment market, evidenced by the increase from 49.9% in 1992/93 to 63.7% in 2010, no doubt reflects the rise in two wage holder families trying to maintain their standard of living while working for lower pay. Also, the number of U.S. workers holding multiple jobs has increased for similar reasons.⁸⁵

Table 8: NAFTA's Impact on Unemployment and Labor Force Participation

	Unemployment 1993	Unemployment 2012 ⁸⁶	Population in labor force 1992/93 ⁸⁷	Population in labor force 2012 ⁸⁸
Canada	11.4%	7.2%	50.1%	66.7%
Mexico	3.2%	4.9%	38.9%	58.4%
U.S.	6.9%	8.1%	49.9%	63.7%

⁸⁴ See *supra* note 2 and associated text.

⁸⁵ UNITED STATES CENSUS BUREAU, THE 2012 STATISTICAL ABSTRACT: LABOR FORCE, EMPLOYMENT, AND EARNINGS 390 (2012), http://www.census.gov/compendia/statab/cats/labor_force_employment_earnings.html.

(Multiple Jobholders 2010: Total number 6,878,000 (4.9% of total employed; white: 5,867,000; black: 653,000; Asian: 202,000; Hispanic: 638,000; Marital status of multiple jobholders: married, spouse present: 3,644,000; widowed, divorced, or separated: 1,233,000; single, never married: 2,000,000; Full or part-time status: Primary job full-time, secondary job part-time: 3,591,000; both jobs part-time: 1,805,000; both jobs full-time::263,000).

⁸⁶ *Labor Force Statistics*, *supra* note 81.

⁸⁷ BEVAN, *supra* note 24, at 52-53.

⁸⁸ *Labor Force Statistics*, *supra* note 81.

VII. NAFTA'S IMPACT ON INDIVIDUAL WORKERS IN NAFTA COUNTRIES

Since David Ricardo made labor the centerpiece of his economic theory, it is important to see what has happened to individual workers after NAFTA. First, are hourly wages in manufacturing depicted in Table 9.

Table 9: Hourly manufacturing wages in U.S. dollars pre- (1993)⁸⁹ and post (2011)⁹⁰

Country	1993 hourly compensation costs in manufacturing	2011 hourly compensation costs in manufacturing
Canada	\$16.36	\$36.36
Mexico	\$2.65	\$6.48
U.S.	\$16.79	\$35.53

Table 9 reveals that hourly compensation costs in all three NAFTA nations have more than doubled between 1993 and 2011. Two things stand out: how significantly the Mexican worker continues to lag compared to its two NAFTA partners; and secondly, that Canada has overtaken the U.S. as the high cost NAFTA manufacturer.

Others have argued for wage equalization using Purchasing Power Parity. According to this analysis, the way to determine “real wages” is to find the PPP for the country and apply the PPP to the actual wages paid (called nominal wages).⁹¹ They concluded for year 2009 that Mexican manufacturing workers, where cost of living for 2009 was 64 cents in PPP terms, should be earning \$16.70 per hour in 2009. Their analysis would be one more example of NAFTA’s failure to benefit the working person in a country where the worker is exploited by management, as evidenced by hourly wages far below productivity levels and many other indicia of civilization.

⁸⁹ BRUCE D. FISHER & MICHAEL J. PHILLIPS, LEGAL, ETHICAL, AND REGULATORY ENVIRONMENT OF BUSINESS 258 (Jan Krygier ed., West Publishing 1995) (1983).

⁹⁰ Bureau of Labor Statistics U.S. *Department of Labor, International Comparisons of Hourly Compensation Costs in Manufacturing*, 2011 1 (2012), available at <http://www.bls.gov/news.release/pdf/ichcc.pdf>.

⁹¹ See THE JUS SEMPER GLOBAL ALLIANCE, “Living Wages North and South: Wage Gap Charts (manufacturing production-line wages 1975-2009) (2011); see also CIA, *supra* note 73 (Purchasing power parities reflect the amount in dollars required in a given country to have the same purchasing power that \$1 U.S. has in the United States; e.g., if the PPP index in one country is 69, then \$0.69 are required in that country to buy the same that \$1 buys in the U.S.; the cost of living is thus, higher).

VIII. INFLATION LEVELS IN NAFTA NATIONS AFTER NAFTA'S PASSAGE

Free trade is touted as enhancing economic wellbeing. A corollary to this would include reducing consumer price inflation. The NAFTA experience shows inflation levels for 1993 (the most recent year data was available). Canada had a very low 0.2% consumer price inflation rate.⁹² Mexico's rate was 6.9%,⁹³ and the U.S. was at an inflation level of 2.6%.⁹⁴ By 2013, the inflation rate was higher in Canada at 1.5%,⁹⁵ but not in the U.S., where inflation declined to 1.5%.⁹⁶ Mexico's inflation rate dropped from 6.9% to 3.8%.⁹⁷ Thus, controlling inflation is a benefit of freer trade for two of the three nations and of only marginal detriment to Canada.

Table 10: NAFTA's effect on Inflation

	1993 Inflation rate	2013 Inflation rate
Canada	0.2%	1.0%
Mexico	6.9%	3.8%
U.S.	2.6%	1.5%

IX. NAFTA'S IMPACT ON THE ENVIRONMENT: THE ENVIRONMENTAL PERFORMANCE INDEX (EPI)

Even prior to NAFTA taking effect, there were concerns expressed that free trade among nations would adversely affect the environment. Thus, an Environmental Side Agreement was negotiated and took effect at the time of NAFTA's passage.⁹⁸ Rather than setting air, water, or toxic waste standards uniformly applicable to all three NAFTA countries, such as CO2/cubic meter for all NAFTA nations to follow, the Environmental Side Agreement requires that each NAFTA nation shall enforce its own pollution laws. Some have criticized this approach as being too general or polluter friendly.⁹⁹

⁹² BEVAN, *supra* note 24, at 106.

⁹³ *Id.* at 154.

⁹⁴ *Id.* at 206.

⁹⁵ BURGESS, *supra* note 23,

⁹⁶ *Id.* at 128.

⁹⁷ *Id.* at 180.

⁹⁸ *See supra* note 19.

⁹⁹ *See, e.g.,* Laura Okin Pomeroy, *The Labor Side Agreement under the NAFTA: Analysis of Its Failure to Include Strong Enforcement Provisions and Recommendations for Future Labor Agreements Negotiated with Developing Countries*, 30 GEO. WASH. J. OF INT'L. L. & ECON. 769 (1996); Steve Charnovitz, *The NAFTA Environmental Side Agreement: Implications for Environmental Cooperation, Trade Policy, and American Treaty Making*, 8 TEMP. INT'L. & COMP. L. J. 257 (1994).

The Yale Center for Environmental Law and Policy, Yale University and the Center of International Earth Science Information Network at Columbia University have published the Environmental Performance Index (EPI) for over 100 nations since 2002 but it only includes data from 2000 forward.¹⁰⁰ The EPI is a composite score covering several indicators such as ecosystem vitality, and public health. The higher the EPI score for a nation, the better is its environmental performance. For example, the U.S. had an EPI ranking of 43 out of 132 nations in year 2000¹⁰¹. The U.S. EPI score was 54.3 (the top ranked nation (Switzerland) had an EPI of 76.2¹⁰². Table 11 compares EPI rankings for the three NAFTA nations for years 2000 and 2012 to show what has occurred environmentally in the NAFTA nations following NAFTA's passage.¹⁰³

Table 11: NAFTA Nations' Environmental Performance Index Compared to that of Other Nations

Nation	Year 2000	Year 2012
Canadian EPI	55.6 (ranked 36 out of 132)	58.41 (ranked 37 th out of 132)
Mexican EPI	43.3 (ranked 104 out of 132)	49.11 (ranked 84 th out of 132)
U.S. EPI	54.3 (ranked 43 out of 132)	56.59 (ranked 49 th out of 132)

The data in Table 11 reveals that all three NAFTA nations had a higher EPI score in 2012 than in 2000,¹⁰⁴ evidence of improved environmental performance. However, these scores were only marginally better than in 2000, although the international rankings among nations of Canada and the U.S. declined slightly (from 36 to 37 for Canada and from 43 to 49 for the U.S.). Only Mexico improved its ranking from a dismal 104 to a still below median of 84th. Of the five categories of environmental performance in 2012, Canada fell into category 2 (strong performance), but the U.S. and Mexico both were in category 3 (modest EPI performers).¹⁰⁵ Because the U.S. and Mexico represent over 90% of NAFTA's population, NAFTA as a whole could said to be registering a weak environmental performance vis-à-vis non-NAFTA nations.

¹⁰⁰ YALE CENTER FOR ENVIRONMENTAL LAW AND POLICY, YALE UNIVERSITY, http://epi.yale.edu/files/2012_epi_report.pdf [hereinafter *Yale*].

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ See GOLDSMITH, *supra* note 4.

Nonetheless, the higher EPI scores support the assertion that NAFTA accompanied no decline in overall environmental quality in the three NAFTA nations for years following 2000 to 2012, a significant part of NAFTA's existence.

X. WORLD GDP DATA FOR YEARS 1993 AND 2011

Before departing from analyzing the NAFTA experience with respect to economic impact, it is worth exploring the big picture economic development for the World during the same period. Table 12 presents the World data.¹⁰⁶ In 1993, the world GDP was \$24,108 billion and per capita GDP worldwide was \$4,390. By 2013, the world GDP had increased to \$73,982 billion with per capital GDP rising to an almost unbelievable \$12,718 for Europe, \$13,435 for other Asia, \$5,775 for Latin American and Caribbean islands, and \$1,318 for Sub-Saharan Africa—quite a spread. Thus, one can see that world GDP increased by almost three times over the 20 year period, while per capita GDP increased by about 2 ½ times. These figures approximate comparable items for NAFTA nations cited earlier in this paper.

Table 12: World GDP Growth in the NAFTA Years

Nation	1993 GDP	2012/13 GDP	1993 Per Cap. GDP	2012/13 Per Cap. GDP	World rank 1993/2012
World	\$24.108 trillion	\$73.982 trillion	\$4,390	\$12,716 (Euro area)	--
Canada	\$575 billion	\$1.780 trillion	\$20,664	\$51,206	17/16
Mexico	\$325 billion	\$1.153 trillion	\$3,748	\$9,750	50/not top 60
U.S.	\$6.388 trillion	\$16,245 trillion	\$24,753	\$51,749	8/14

As noted earlier, all of the NAFTA nations slipped in terms of GDP per capita rank during NAFTA's existence relative to non-NAFTA nations. It is significant that the WTO --an agreement espousing, among other things, free trade—has been ratified by 160 nations during this period.¹⁰⁷ Thus, Ricardian ideas of free trade found elsewhere could be

¹⁰⁶ Generally data are for years 1993 and 2011, but if data are available for a later year, for instance 2012 in the case of each NAFTA nation's unemployment rates, then the later year will be used.

¹⁰⁷ *Understanding the WTO: The Organization*, WORLD TRADE ORGANIZATION, available at https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm.

seen as sparking the dramatic increase in world GDP and per capita GDP during the 1993-2010 period. Even though the WTO followed NAFTA by one year, the WTO's predecessor, GATT, preceded NAFTA by several decades. The WTO's free trade philosophy coupled with the improved relative performance of several WTO nations opens to question how much incremental improvement in economic indices such as GDP are attributable to the WTO/GATT rather than NAFTA.¹⁰⁸

XI. FACTORIES ON WHEELS: FAMILY AND WORKER SECURITY AND STABILITY PRE- AND POST NAFTA

International trade breeds fluidity. Capital can flow instantly over the Internet. Technology transfers from nation to nation can occur quickly in today's multi-national corporations given the receptivity of workers in, for example, Brazil, Russia, India, and China to technology training.¹⁰⁹ Factories are on wheels: they close in one nation and reestablish themselves in to another as opportunistic entrepreneurs seek to maximize returns on their investments by cutting costs particularly in labor, the factor David Ricardo saw as fundamental to a nation's economy. Labor workers enjoy few protections in this Darwinian environment.

The family is recognized as the basic unit of society, the foundation of national well-being. International trade could be seen in this context as an enemy of family and personal stability. A father or mother working in a factory could go home from work one day only to find their desk or press had disappeared overnight due to a plant closure. Despite laws guarding against such happenings, the decline in manufacturing jobs is a terrain feature of contemporary business.¹¹⁰

NAFTA contains no explicit language supporting the family as a fundamental social value. One could infer, however, from language in NAFTA suggestive of improved economic well-being, that NAFTA will strengthen the family by improving its economic well-being; thereby creating an environment in which children's education, family health, and hope for a materially brighter future will be residual benefits from freer trade.

Proxies exist for family stabilities, most obvious—divorce rates. Table 13 compares divorce rates for the three NAFTA nations pre- and post NAFTA. The divorce rate for each NAFTA nation declined between 1993 and 2011, suggesting greater family stability in 2011 than in 1993.

¹⁰⁸ See *supra* Table 1 as it relates to NAFTA nations' respective GDP growth during the period of NAFTA existence.

¹⁰⁹ See GOLDSMITH, *supra* note 4.

¹¹⁰ See BEVAN, *supra* note 41 and associated text indicating that the manufacturing sector of Mexico and the US has declined during the 1993-2011 NAFTA period.

Table 13: Family Stability Pre-and Post NAFTA

Country	1993 Divorce rate/1,000 population	1993 Intern'l. Divorce rank	2012 Divorce ¹¹¹ rate/1,000	2012 Intern'l. ¹¹² Divorce rank	Marriages/1,000 population 1993/2012 ¹
Canada	2.9	11 th	2.2	Tie 28 th	7.1/4.6
Mexico	0.8	Not in top 60	0.8	11 th lowest	7.3/5.1
U.S.	4.8	1 st	2.8	7 th	9.3/6.8

A second proxy for family stability is the number of marriages. According to conventional mores, marriage is a prerequisite to having a family. Notable here is the fact that marriages per 1,000 population declined about 1/3 in all three NAFTA nations between 1993 and 2011. Perhaps this is evidence of hesitancy to make long-term commitments in the face of economic instability—high youth unemployment, less secure jobs, and stagnant real wages—all by-products of NAFTA and a more international economy.

XII. PROXIES FOR STRESS IN A SOCIETY: HAS NAFTA CREATED MORE INSTABILITY AND STRESS?

Table 14 presents proxies for worker stress: youth unemployment, poverty, obesity, diabetes, and excessive health care costs are stress proxies here.

In recent years, workers in NAFTA countries have encountered stress because of the lack of good jobs. Youth unemployment is high—15.3% in Canada, 10% in Mexico, and 17.6% in the U.S.¹¹³ The unemployed youth are less inclined to marry and have families. Table 13 shows the significant drop in marriages in all three NAFTA nations between 1993 and 2011.

Jobs for adults are also scarce, driving families into poverty. Table 14 shows that poverty is at double-digit levels in Mexico and the U.S. and is almost at that level in Canada at 9.4%. In part, the tight job market can

¹¹¹ BURGESS, *supra* note 23, at 89.

¹¹² *Id.*

¹¹³ CIA, *supra* note 73, at 131, 479, 771 (The CIA defines “youth” unemployment as “youths aged 15-24” as unemployed. Canada: 15.3%; Mexico 10%; US: 17.6% (all for year 2009)).

be explained because of corporate “right-sizing,” “down-sizing,”¹¹⁴ and corporate measures designed to squeeze every ounce of productivity from labor. Corporate managers rightly point to the challenge of foreign competitors as justification for such draconian practices lest the corporation find itself losing market share and even put into bankruptcy. An upshot of such aggressive management is worker uncertainty over whether they will have a job tomorrow. In effect, U.S. managers play U.S. blue-collar workers off against low-cost foreign labor as a way to control labor costs. U.S. blue collar workers frequently receive no pay raises even though they witness corporate managers receiving hefty raises and bonuses for extracting labor concessions.¹¹⁵

Over-eating is a mechanism for dealing with stress.¹¹⁶ Over-eating which can result in obesity and even diabetes is strongly evidenced in the U.S. among males. Table 14 shows that U.S. males are now ranked third world-wide in obesity with 31.7% obese. Runaway medical costs are a further consequence of stress and obesity in the U.S. Here, the U.S. spends over 17% of its GDP on the health care to address medical problems often resulting from job related stress.¹¹⁷

Several observations arise from Table 14 relating to stress and health expenditures. First, Canada appears to have the healthiest population in terms of obesity and diabetes, although it does spend 11.8% of its GDP on keeping its citizens well, ranking 8th in the world regarding health expenditures. Canada also has a significantly lower percentage of poor persons (9.4%) compared to either the U.S. (15.1%) or Mexico (18.2% or 47% depending on the criterion used for poverty). Throughout this study, Canada has shown itself superior to the U.S. and Mexico in a number of measures, so its citizens’ anxiety proxies used here (obesity and diabetes) are understandably lower (although health spending is high). The U.S. proxies for societal anxiety and stress are disturbingly high: very high obesity rates for men and women, high poverty levels for almost 1/6th of the population, and very high medical expenditures as a percentage of GDP (17.9%). One would expect proxies for stress and anxiety to be high for Mexico given the high poverty levels, high obesity and diabetes levels for both men and women, and the high societal medical expenditures.

¹¹⁴ See Bruce D. Fisher & Francois Lengart, *Employee Reductions in Force: A Comparative Study of French and U.S. Legal Protections for Employees Downsized out of Their Jobs; A Suggested Alternative to Workforce Reductions*, 26 LOY. L.A. INT’L. & COMP. L. REV. 181 (2003).

¹¹⁵ *Id.* at 182 (“Most C.E.O.’s are ridiculously overpaid,” he [Al Dunlap, one-time head of Scott Paper and Sunbeam] wrote in his book, “but I deserved the \$100 million I took away when Scott merged with Kimberly-Clark.”) Dunlap was known as ‘Chainsaw Al’ as he laid off thousands of workers at Scott in the 1990’s in what he called necessary moves to cut Scott’s costs).

¹¹⁶ Harvard Mental Health Letter, *Why Stress Causes People to Overeat* (2012), available at http://www.health.harvard.edu/newsletter_article/why-stress-causes-people-to-overeat.

¹¹⁷ BURGESS *supra* note 23, at 84.

NAFTA seems not to have been of much help to many Mexican and U.S. workers regarding health and anxiety. This is troubling for Mexico given its relative poverty, and also of concern for U.S. workers and citizens given its aggregate wealth, which seems not to have been spread equitably throughout all levels of society.¹¹⁸

Table 14 leaves us with a picture of NAFTA nations that in many ways fails the individual worker and members of society—particularly with respect to Mexico and the U.S.

Table 14: Proxies Indicative of Individual Stress and Anxiety

	Youth (ages 15-24) unemployment year 2009 ¹¹⁹	Percentage of population below poverty line (defined by each nation) ¹²⁰	Obesity: % of male/female population 2013 ¹²¹	Diabetes % of population ages 20-79 2012; country rank ¹²²	% of GDP spent on health care 2012; world spending rank as % of GDP 2012 ¹²³
Canada	15.3%	9.4% (LICO—Low Income Cutoff)	Not in top 10 nations	Not in top 16 nations	10.9%; spending ranks 12 th in world
Mexico	10%	18.2% (food based poverty); 47% property based poverty	Not in top 10 nations	Not in top 16 nations	6.1% of 2012 GDP; health spending unranked internationally ¹²⁴
U.S.	17.6% nations	15.1% (2010 estimate)	31.7% males; females not in top 10 nations	Not in top 16 nations	17.9%; 1 st in world ranking

¹¹⁸ See *supra* notes 64-79 and associated text.

¹¹⁹ CIA, *supra* note 73, at 479, 771.

¹²⁰ *Id.* at 132, 480, 773 (Canada has a Low Income Cutoff (LICO) "...a calculation that results in higher figures than found in many comparable economies. Canada does not have an official poverty line (2008)." *Id.* at 132. As to Mexico's poverty line: "note based on food based definitions of poverty" it is 18.2%. "Asset based poverty amounted to more than 47% (2008)." *Id.* at 480. The US poverty rate for 2010 was estimated at 15.1%. *Id.* at 773).

¹²¹ BURGESS, *SUPRA* note 23, at 87.

¹²² *Id.* at 84.

¹²³ *Id.* at 86.

¹²⁴ CIA, *supra* note 73, at 479.

XIII. A POST-SCRIPT: THE ROLE OF CURRENCY EXCHANGE RATES IN INTERNATIONAL TRADE

Currencies are not part of NAFTA.¹²⁵ Nonetheless, currencies (U.S. dollar, Canadian dollars, and Mexican pesos) have long been recognized as playing a key role in foreign trade. This follows because most foreign trade uses money as a medium of exchange rather than barter—exchanging goods for goods. If one country's currency gets cheaper vis-à-vis others, the nation with the cheaper currency should enjoy an increase in exports because its goods cost less and, in effect, it is erecting a trade barrier against foreign goods.¹²⁶ For example, if \$1 U.S. is worth 3.11 Mexican pesos at the end of 1993,¹²⁷ (which it was), then \$1 million U.S. would buy Mexican goods priced at PS 3,110,000. But what if \$1 U.S. buys PS 13.08, as it did at the end of 2013,¹²⁸ the U.S. dollar has appreciated significantly (PS 9.76 more per \$1 U.S.). In effect between 1993 and 2013 the cost of Mexican goods has dropped a great deal for U.S. buyers, increasing the likelihood that Mexico will export more goods to the U.S. than in 1996. This is called a “beggar thy neighbor” policy by the Mexicans—a way for Mexicans to make their goods more attractive to U.S. buyers and disadvantage U.S. business because U.S. buyers are enticed to purchase Mexican goods rather than the same kind of U.S. goods, which are now relatively more expensive.

Over the NAFTA years, the Canadian dollar has seen a marked change in its value relative to the U.S. dollar but in the opposite direction than the Mexican peso relative to the dollar. Thus, in 1993 the U.S. dollar was worth \$1.32 Canadian.¹²⁹ In other words, in 1993 U.S. buyers of Canadian goods received over a 30% discount when they bought Canadian goods. Obviously, this exchange rate worked to the advantage of the Canadian businesses because it made their goods attractively priced to the U.S. market. However, unlike the Mexican peso, over NAFTA's life, the Canadian dollar appreciated against the U.S. dollar. This makes Canadian goods more expensive for the American market and, to some extent, acts as a brake on Canadian exports to the U.S. Referring to Table 4 which discloses a two and one-half dollar increase in Canadian exports to the U.S. from 1993 to 2011, one wonders what this increase would have been had there been no substantial appreciation in the Canadian dollar vis-à-vis the U.S. dollar during this period. On the other hand, the Canadian

¹²⁵ *But see*, Kelly Hugger, *NAFTA Toward a Common Currency: An Economic Feasibility Study*, 4 UG ECON. REV. (2008), available at <http://digitalcommons.iwu.edu/uer/vol4/iss1/5>.

¹²⁶ *See* Buttonwood, *What Devaluation Actually Means*, THE ECONOMIST, Feb. 12, 2013, available at www.economist.com/blogs/buttonwood/2013/02/currencies.

¹²⁷ MICHAEL COULMAN ET AL, THE ECONOMIST WORLD IN FIGURES 1995 148 (Hamish Hamilton 1994).

¹²⁸ BURGESS, *supra* note 23, at 180.

¹²⁹ COULMAN, *supra* note 127, at 100.

dollar's appreciated value vis-à-vis the U.S. dollar entices Canadian consumers to purchase more U.S. goods because their dollar is, by 2012, worth more and buys more in the U.S. market than in 1993. Thus, referring again to Table 4, one would have expected Canadian imports from the U.S. to be even higher than the slightly more than doubling that took place from 1993 to 2012. This Canadian experience suggests that currency is not necessarily the controlling factor in determining the magnitude of international trade.

The point of mentioning currency values in a discussion of NAFTA is this: NAFTA has as a main goal the removal of trade barriers. Yet the shifting of currency values between trading partners can nullify or reinforce trading incentives just as much (or more) than provisions of a trade agreement calling for a removal of a 5% tariff of goods imported from a trading partner.

Table 15 summarizes the change in NAFTA nations' currency values vis-à-vis the U.S. dollar moving from the end of 1993 to the end of 2012. Thus, currency values should not be ignored when an attempt is made to affect trade flows internationally.

**Table 15: Changes in Canadian and Mexican
Currency Values from 1993 to 2012**

Country	Foreign currency	Value of foreign currency at end 1993 in U.S. \$	Value of foreign currency at end
Canada	Canadian \$	\$.7575	\$.99
Mexico	Mexican peso	\$.3215	\$0.0777
U.S.	U.S. \$	\$1.00	\$1.00

Conclusion

NAFTA came into effect on January 1, 1994. Sufficient time has lapsed to judge whether it has achieved its goals. This paper presents economic and social data before and after NAFTA came into effect in order to evaluate how successful it has been. The macro income and GDP data support the proposition that reducing trade barriers among Canada, Mexico, and the U.S. has led to much higher GDP and per capita GDP for all three nations from years prior to NAFTA's passage to the year 2010. Also, inflation levels in the U.S. and Mexico dropped and Canada's was essentially flat in 2011 compared to the early 1990s. Accordingly,

Ricardo's theory of comparative advantage finds some support in the NAFTA experience. Environmental indices, while far from glowing for the NAFTA nations, do not show that harm in this key area has worsened from pre-1994 levels.

Several cautionary notes must be sounded to avoid overstating NAFTA's success. First, the Human Development Index of all NAFTA nations dropped relative to nations outside of NAFTA during the period of 1993 to 2012. Thus, even though absolute levels of economic, health, and education have improved in NAFTA nations over the period studied, such rankings of Mexico and Canada and, in a few economic and other categories—even the U.S.—have fallen relative to non-NAFTA nations. Further, in some respects, NAFTA is seen as hostile to environmental concerns given the fact that Mexico and the U.S. are not among the best or even good environmental performers during the period. Although Mexico and the U.S. did register slight gains in Yale's Environmental Performance Index—but to label such "gains" as environmental achievement in either Mexico or the U.S. would be an exaggeration. Canada, by comparison, excelled in environmental performance during the NAFTA period.

Whenever evaluations of agreements or laws are made by comparing data over time, one must be aware of the post hoc ergo propter hoc fallacy—that is, attributing causation to something—here improved wellbeing—that follows something else—here NAFTA. That which follows could be the result of other unstated but relevant factor or factors—for example, technological development or currency devaluations. Technology or currency adjustments could be causally more significant than NAFTA or any trade agreement in improving the economic wellbeing of both NAFTA and non-NAFTA nations.

It is also noteworthy that as the assessment of NAFTA moves from the macro to the micro considerations, the benefits of NAFTA's free trade ethos weaken. Lower relative Human Development Indices of NAFTA nations compared to other nations, the experience of NAFTA nations' per capita GDP compared to nations outside NAFTA, and the GINI indices, all indicate that NAFTA has imposed hardships on average workers. Instability in the workplace has led to decreased worker long-term employment security. Objective proxies show that NAFTA has exacted worker costs in terms of stress, disease, and health costs.

A fair analysis of NAFTA's costs and benefits leaves open the question of whether NAFTA has proven beneficial to all strata of society or been more beneficial to upper echelons of NAFTA nations—the capitalists, entrepreneurs, and professional classes—with costs borne more by the working class. Further evidence of labor's reduced significance is one glaring anomaly: labor (and environmental concerns) were not even in the NAFTA, but, rather, relegated to "side" agreements, much as poor relations are "seated below the salt" at family reunions—in attendance, but in a diminished status.

Nonetheless, a principal goal of NAFTA was to reduce trade barriers between NAFTA nations. NAFTA itself set no express goals regarding worker or environmental welfare (despite politicians' statements suggesting otherwise). NAFTA set the bar low regarding labor and environmental concerns by relegating them to "side" agreements, and NAFTA has met this modest goal. NAFTA's success lies in reducing trade barriers given the vast expansion of trade in all NAFTA nations during 1993-2012.