The Five-Year Effect of NAFTA on Pennsylvania: *An Analysis of Export Data*

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This article explores the effect of the North American Free Trade Agreement (NAFTA) on Pennsylvania since the agreement's enactment on January 1, 1994. It does so by examining export statistics related to Pennsylvania as a whole as well as to several key regions within the state. As judged by these export statistics, NAFTA's impact on Pennsylvania has been quite positive. At the very least, increases in exports from Pennsylvania since NAFTA's enactment have been so strong that critics of the agreement will be hard-pressed in making a case against it.

The first question usually asked about the North American Free Trade Agreement (NAFTA) is, how many American jobs have been lost or gained?[1] Although we seem to hear more often of NAFTA costing jobs than creating them, we must be wary of anecdotal evidence, for securing solid information regarding specific job losses or gains in Pennsylvania is difficult and perhaps impossible. According to both the Pennsylvania Department of Labor and Industry and the Employment and Training Administration office at the United States Department of Labor, no group at either the state or federal level collects and tracks data on job losses (Currie 2001; Poole 2001).[2]

This article avoids the debate about NAFTA and jobs. Instead, it examines the effect of NAFTA on Pennsylvania between 1994 and 1999 in terms of rising exports.[3] These five years of fairly consistent trade data reveal NAFTA's dramatically positive effect on state and regional exports to Canada and Mexico. Most export numbers have jumped sharply. Equally significant, export growth has been broadly distributed across a variety of industries, including major manufacturing sectors that some analysts predicted would be hurt by NAFTA. The impressive overall export growth has not been driven merely by a handful of fortunate industries; the benefits have been widely shared.

Despite the clarity of our findings, we encountered several problems in conducting this research. First, the state data[4] gathered by the United States Department of Commerce (DoC) dates only to 1993, the year prior to NAFTA's implementation, as opposed to earlier data that is available on national-level exports.[5] Thus, we were not able to make estimates based on long-term trends. Second, while industry data exists at the state level, it is not available at the regional or metropolitan levels. Third, because no organization collects state import data, it is not possible to compare imports against exports in order to ascertain whether a state trade deficit or surplus exists.

We begin with some background on NAFTA and a brief description of recent studies of NAFTA's national and local effects. We then present the first *five*-year analysis of the impact of NAFTA on Pennsylvania as a whole. Finally, we examine NAFTA's impact on five particular metropolitan areas in Pennsylvania: Erie, Harrisburg, Philadelphia, Pittsburgh, and Youngstown.[6]

Background

On December 17, 1992, Canadian Prime Minister Brian Mulroney, Mexican President Carlos Salinas de Gortari, and U.S. President George Bush signed NAFTA, marking the end of a process that began on February 5, 1991 when the three leaders announced that they would negotiate the trade accord. Following approval by the legislatures of each of the three countries, NAFTA went into effect on January 1, 1994. It created a free-trade area in North America that was the largest of its kind in the world, with a combined 1994 GDP of $7.7 trillion and 368 million consumers. NAFTA seeks to:

- Eliminate barriers to trade between the three member nations and facilitate the cross-border movement of goods and services
- Promote conditions of fair competition in the free-trade area;
- Increase substantially investment opportunities in the territories of the member nations;
- Provide adequate and effective protection and enforcement of intellectual property rights in each nation's territory;
- Create effective procedures for the implementation and application of the agreement, for its joint administration, and for the resolution of disputes; and
- Establish a framework for further trilateral, regional, and multilateral cooperation to expand and enhance the benefits of the agreement.

NAFTA eliminates tariffs on most goods originating in Canada, Mexico, and the United States. The schedule to eliminate tariffs previously established in the Canada – U.S. Free Trade Agreement of 1989 was continued as planned so that all trade between Canada and the United States is now duty free. For most trade between Mexico and the United States and between Canada and Mexico, the intent of NAFTA was to eliminate existing customs duties immediately or phase them out in five to 10 years. By 1998, many duties had been ended. On a few

Table 1
NAFTA Tariff Reduction Schedule for Heinz Exports toMexico (percent)

Product	1960s	1988	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
57 sauce	>100	20	20	18	16	14	12	10	8	6	4	2	0
BBQ Sauce	>100	20	20	13.5	12	10.5	9	7.5	6	4.5	3	1.5	0
Ketchup	100	20	20	16	12	8	4	0	0	0	0	0	0
Pickles	>100	20	20	16	12	8	4	0	0	0	0	0	0
Tomato Sauce	>100	20	20	13.5	12	10.5	9	7.5	6	4.5	3	1.5	0

Source: Arthur Humphrey, national sales manager for Mexico, Heinz Co., April 28, 1997.

sensitive items, the agreement will phase out tariffs over 15 years. NAFTA members may agree to a faster end to tariffs on any goods at anytime.

Table 1 shows a sample tariff-reduction schedule from an actual U.S. company, Heinz of Pittsburgh.

This schedule, covering multiple products for a single U.S. company, is typical of the rate of tariff reduction experienced by thousands of companies throughout America. Among the precedent-setting arrangements in the trade agreement are: the complete liberalization of agricultural goods within 15 years; inclusion of the innovative dispute-settlement procedures of the Canada – U.S. Free Trade Agreement; trade liberalization in services, including financial services, within a framework of clear rules on intellectual property rights; and the removal of all tariffs and quotas on textiles and apparel in North America (Espana 1993). Many of these arrangements signify progress on issues that eluded GATT for generations, particularly those concerning textiles and agriculture. As Yarbrough and Yarbrough (1994) note, such trade-policy breakthroughs provided GATT with helpful insights in dealing with similar issues that have avoided settlement for decades.

Analyses of the National and Local Effects of NAFTA

NAFTA's *potential* impact at the national level was examined extensively in the years prior to its adoption.[7] The United States Federal Reserve Bank of Chicago estimated that NAFTA would produce "output gains" for all three nations, increasing U.S. GDP by 0.24%, Mexican GDP by 0.11%, and Canadian GDP by an astonishing 3.26% (Kouparitsas 1997; Weintraub 1997).

Many studies measuring the *actual* impact were produced after 1994. A study done by the Heritage Foundation in 1997 gave NAFTA an "A" and dubbed it a "remarkable success" for creating jobs, increasing exports, and stimulating export-led economic growth. The study noted that U.S. exports to Mexico grew by 37% from 1993 to 1996, reaching a record $57 billion (Sweeney 1997). As President Clinton happily predicted during his May 1997 trip to Mexico, by the end of 1997 the historically "Third World" country would buy more American products than any country except Canada, surpassing second-place Japan, which has an economy 15 times larger. Over the same period, U.S. exports to Canada rose by 33%. During NAFTA's first three years, 39 of the 50 states increased their exports to Mexico, and 44 saw a rise between 1995 and 1996 (Sweeny 1997).

That three-year trend continued throughout the first five years of the trade accord (see Table 2). Since 1993, U.S. exports to Canada have grown by over 50% and those to Mexico have nearly doubled.[8] This increase reflects an added $93 billion in American exports. Because of this significant jump, former United States Trade Representative Charlene Barshefsky insisted that "there is no economic argument against NAFTA" (Cooper 1997)

Table 2
U. S. Exports to Canada and Mexico, 1993-1998
(millions of dollars)

Country	1993	1994	1995	1996	1997	1998
Canada	100.4	114.4	127.2	134.2	151.8	156.3
Mexico	41.6	50.8	46.3	56.8	71.4	79.0

Source: U.S. Department of Commerce.

As for jobs, estimates vary widely. The U.S. Trade Representative said that after its first three years, NAFTA had created 122,000 American jobs as a result of trade with Mexico, plus 189,000 due to trade with Canada (Barshefsky 1997). On the other hand, a study by a coalition of labor and environmental groups, led by the Economic Policy Institute, contended that NAFTA had cost the United States 420,000 jobs (Associated Press 1997). By mid-1997, the United States Department of Labor had certified 116,516 job losses. Yet, a study done by UCLA's North American Integration and Development Center in 1997 found that the United States had experienced a net gain of 11,000 jobs due to NAFTA, having lost 38,000 to Mexican and Canadian competition, while gaining 49,000 from increased U.S. exports to those two nations (Hinojosa 1996; Silver 1996). Understandably, this study led some analysts to conclude that when it comes to NAFTA's job impact, the trade agreement is a "wash" (Cooper 1997).

Job losses and gains are difficult to measure. The U.S. Trade Representative argued that U.S. exports to Mexico "supports" 2.3 million American jobs. The *Dallas Morning News* (1999) claimed a gain of 688,000 new American jobs after five years. Some NAFTA supporters point to the creation of 12 million new American jobs and a drop in the overall unemployment rate from 7.5% to 4.9% since 1994, suggesting that NAFTA had a role in the general job surge (see Lambro 1997).

Studies projecting NAFTA's state-level effects were scarce.[9] Four such studies produced in 1999 assessed NAFTA's impact on Texas, Michigan, Arizona, and Florida. Of these, the Florida report showed the least positive impact. The three other studies demonstrated that NAFTA had a remarkably positive impact on state exports. A study in 2000 of NAFTA's effect on Wisconsin found the most impressive results in terms of increased exports.[10]

The Five-Year Effect of NAFTA on Pennsylvania

One of the first state-level NAFTA studies was done by the Allegheny Institute for Public Policy in 1997. This study focused on NAFTA's three-year effect on Pennsylvania (Kengor 1997).[11] It found that Pennsylvania's exports to Mexico and Canada reached record levels following the first full year of NAFTA's implementation, increasing by 31% and 11%, respectively.[12] Twenty of the 30 industry classifications for Pennsylvania experienced export gains to Mexico during NAFTA's first year, while 26 of 32 saw increases to Canada. This led to an extra $616 million in Pennsylvania exports after just the first year, particularly in capital goods industries and environmental technology. None of the leading sectors of the state's economy experienced notable drops in exports to either Canada or Mexico. The agreement reportedly helped Pennsylvania companies like Heinz, Chester Environmental, Amp., and Mine Safety Appliances. Prior to NAFTA, Heinz had no sales in Mexico. In 1996, it sold between $3 million and $5 million worth of products there.

Tables 3 and 4 best convey the effect of NAFTA.

Table 3
Percentage Changes for Pennsylvania's Exports to Selected Destinations, 1993-1999

Market	% Change 1993-1999	% Change 1998-1999
NAFTA Countries	88.9%	13.1%
Canada	58.9%	1.2%
Mexico	267.6%	61.8%
Non-NAFTA Countries	27.9%	-4.7%
World	48.1%	2.0%

Source: U.S. Department of Commerce.

As these tables show, Pennsylvania's exports to the NAFTA countries grew from $4.36 billion in 1993 to $8.23 billion in 1999, an 88.9% increase. That was a rate of increase three times higher than the 27.9% rise in ex-

Table 4
Pennsylvania's Export Totals to Selected Destinations, 1993-1999

Market	1993	1994	1995	1996	1997	1998	1999
Total NAFTA	4,357.6	4,932.8	5,412.9	5,652.6	6,756.0	7,282.2	8,233.4
Canada	3,730.3	4,066.5	4,671.8	4,773.7	5,615.7	5,856.9	5,927.2
Mexico	627.3	866.4	741.2	879.0	1,140.2	1,425.2	2,306.2
Non-NAFTA	8,832.0	9,765.7	12,267.3	11,792.9	12,542.4	11,856.6	11,294.2
Total World	13,189.6	14,698.6	17,680.2	17,445.6	19,298.4	19,138.8	19,527.6

Source: U.S. Department of Commerce.

ports to non-NAFTA nations. The 58.9% rise to Canada alone was twice as high as that to non-NAFTA nations. Most spectacular, the value of exports to Mexico more than tripled, from about $627 million in 1993 (the year prior to NAFTA) to $2.31 billion in 1999. This was a gain of 267.6%, almost 10 times the rate of increase to non-NAFTA nations over the period.

The strength of Pennsylvania's exports to Mexico and Canada under NAFTA was so pronounced that no other two nations did more to pull up Pennsylvania's total exports in the post-1993 period. Because of the strength of Pennsylvania's exports to these two countries, the state managed to increase its exports to the world as a whole by 48.1%. Without the strength of those two foreign markets, Pennsylvania would have increased its exports merely by 27.9% from 1993-99. Under NAFTA, the added $3.9 billion in Pennsylvania's exports to the NAFTA nations comprises 62% of the $6.3 billion in added state exports to the world as a whole.

The numbers for the most recent year available are also positive. From 1998 to 1999, Pennsylvania's exports to the NAFTA nations increased by 13.1%, compared with a 4.7% *decrease* in exports to non-NAFTA nations. Most responsible for the strength in exports to the NAFTA nations was a 61.8% increase in state exports to Mexico. Thanks to the Mexican market alone, Pennsylvania's exports to the world as a whole barely managed to stay in the plus category, increasing by just 2%.

Comparing NAFTA nations with the rest of the world is smart for many reasons. Most notably, one cannot argue that the boom in Pennsylvania's exports to the NAFTA countries was simply an outgrowth of the overall good economy during the 1990s. If that were the case, then we would see a similar, perhaps near equal rise in Pennsylvania's exports to *all* countries during the period. To the contrary, exports to the NAFTA countries are significantly larger — over three times the percent increase in exports to non-NAFTA countries.

We must emphasize that Mexico experienced one of the worst recessions in its checkered history in 1995, known as the Peso Crisis. This recession greatly diminished Mexicans' purchasing power, particularly of foreign exports. Consequently, there was a sharp dip in Pennsylvania's exports to Mexico that year. Yet, even with that, Pennsylvania's exports to the country vastly outpaced those to other countries in the post-NAFTA period. The overall strength of state exports to Mexico amid the Mexican recession is extraordinary.

The much larger growth in Pennsylvania's exports to the NAFTA nations compared with the non-NAFTA nations is good news for another reason. The NAFTA nations constitute the state's two largest export markets. Indeed, the larger rate of growth might not be so significant if the two NAFTA nations ranked, say, 10 and 15 in terms of size of export market. Instead, they rank 1 and 2. A better standing could not be hoped for. According to DoC, 58,140 jobs have been created in Pennsylvania as a result of the nearly $4 billion increase in state exports to Mexico and Canada under NAFTA.[15]

Finally, it is important to note what happened to Pennsylvania's exports to Mexico immediately prior to NAFTA's implementation. Since DoC did not collect such data then, we must turn to MISER, the only group collecting state trade data prior to 1993. According to MISER, Pennsylvania's exports to Mexico declined precipitously the year before NAFTA, falling 12%.[14] Yet, a turnaround took place immediately. In the first year of NAFTA, as Table 3 shows, Pennsylvania's exports to Mexico jumped from $627 million to $866 million — a 38% gain. The only obstacle that slowed this stampede of exports (albeit temporarily) was the Mexican recession of 1995. MISER and DoC data also show that Pennsylvania's exports to Canada and Mexico reached record highs in the first year of NAFTA's implementation. Under NAFTA, Canadians and Mexicans have spent $38.3 billion on Pennsylvania exports.

Pennsylvania Exports by Industry

What is Pennsylvania exporting to Canada and Mexico? Which industries are enjoying big gains in exports under NAFTA? There are not merely one or two high-tech industries responsible for the boom in exports. The export success is broad based, covering the vast majority of Pennsylvania's industries. Of the 33 industry categories that export to Canada, 28 increased exports; and of the 32 that export to Mexico, 25 increased exports. In total, 82% of industries increased their exports.

Table 5 shows Pennsylvania's exports to Canada within three groups of product categories: manufactures, agricultural and livestock products, and other commodities.

Table 5
Pennsylvania's Exports To Canada By Industry (millions of dollars)

Product Group	1993	1999	*% Change* 1993-1999
Manufactures	*3,516.5*	*5,608.3*	*59.5%*
Apparel	23.0	25.2	9.6%
Chemical Products	495.2	991.5	100.2%
Electric & Electronic Equipment	318.2	552.4	73.6%
Fabricated Metal Products	159.2	268.9	68.9%

Product Group	1993	1999	% Change 1993-1999
Food Products	119.3	187.2	56.9%
Furniture & Fixtures	36.0	28.5	-20.7%
Industrial Machinery & Computers	533.6	854.1	60.1%
Leather Products	10.4	36.4	247.9%
Lumber & Wood Products	106.2	129.9	22.3%
Paper Products	84.0	214.4	155.2%
Primary Metals	354.0	645.1	82.2%
Printing & Publishing	120.3	198.7	65.1%
Refined Petroleum Products	64.9	85.9	32.5%
Rubber & Plastic Products	102.2	178.1	74.2%
Scientific & Measuring Instruments	150.4	250.7	66.7%
Stone, Glass & Clay Products	215.2	288.2	34.0%
Textile Mill Products	27.9	84.5	203.1%
Tobacco Products	0.2	0.8	350.7%
Transportation Equipment	493.7	466.4	-5.5%
Miscellaneous Manufactures	92.7	102.4	10.5%
Unidentified Manufactures	9.9	18.8	91.0%
Agricultural & Livestock Products	67.6	76.2	12.8%
Agricultural Products	58.8	68.0	15.7%
Livestock & Livestock Products	8.8	8.2	-6.0%
Other Commodities	*146.2*	*242.6*	*65.9%*
Bituminous Coal & Lignite	32.6	77.2	137.0%
Crude Petroleum & Natural Gas	15.4	4.2	-72.6%
Fish & Other Marine Products	3.4	1.0	-69.9%
Forestry Products	0.6	2.3	276.7%
Goods Imported & Returned Unchanged	34.0	55.5	63.4%
Metallic Ores & Concentrates	3.6	6.8	86.5%
Nonmetallic Minerals	3.1	3.8	19.8%
Scrap & Waste	42.8	68.0	58.8%
Special Classification Provisions	7.7	19.5	151.7%
Used Merchandise	2.9	4.3	47.1%
Total	*3,730.3*	*5,856.9*	*58.9%*

Source: U.S. Department of Commerce.

The top exporting industry to Canada is chemical products, which sold nearly $1 billion in goods above the border in 1999 alone — more than a 100% increase under NAFTA. The second largest exporter, industrial machinery and computers, sold over $854 million, a 60.1% increase. The third and fourth largest exporters, primary metals and electric and electronic equipment, saw rises of 82.2% and 73.6%, respectively. Among the top five exporting industries to Canada, only transportation equipment saw a decline, a small one of 5.5%. The sixth largest export industry, fabricated metal products, was up 69% under NAFTA. Its rate of increase, and that for primary metals, exceeds the overall rate of increase for Pennsylvania's exports to Canada generally. Combined, these two industries sold $914 million in exports to Canada in 1999, up from $513 million the year before NAFTA's enactment.

Table 6 displays Pennsylvania's exports to Mexico by industry. More than 99% of the $2.3 billion worth of Pennsylvania products exported and sold to Mexico in 1999 were manufactured goods. Similarly, almost 96% of Pennsylvania products exported and sold to Canada were manufactures. These figures undercut the argument that opening free trade through agreements like NAFTA is undermining America's manufacturing base. There may indeed be ways in which our manufacturing base is adversely affected by NAFTA, but it is not in terms of total exports to Canada and Mexico.

Table 6
Pennsylvania's Exports To Mexico By Industry
(millions of dollars)

Product Group	**1993**	**1999**	**% Change 1993-1999**
Manufactures	*621.3*	*2,290.0*	*268.6%*
Apparel	5.9	22.0	275.3%
Chemical Products	155.1	361.5	133.1%
Electric & Electronic Equipment	112.4	879.2	682.1%
Fabricated Metal Products	14.8	97.6	558.6%
Food Products	51.4	34.4	-33.1%
Leather Products	0.5	50.3	9,128.9%
Furniture & Fixtures	1.9	1.8	-2.2%
Industrial Machinery & Computers	97.5	240.2	146.4%
Lumber & Wood Products	4.8	2.8	-41.2%
Paper Products	10.4	27.1	159.4%

Product Group	1993	1999	% Change 1993-1999
Primary Metals	55.8	153.5	175.3%
Printing & Publishing	1.1	8.8	669.2%
Refined Petroleum Products	1.2	3.5	190.1%
Rubber & Plastic Products	13.4	121.9	811.8%
Scientific & Measuring Instruments	29.5	79.4	169.2%
Stone, Glass & Clay Products	17.2	53.3	210.5%
Tobacco Products	0	1.5	N/A
Textile Mill Products	26.4	45.4	72.0%
Transportation Equipment	14.1	77.5	449.0%
Miscellaneous Manufactures	6.3	6.1	-3.1%
Unidentified Manufactures	1.6	22.1	1,320.5%
Agricultural & Livestock Products	*3.2*	*5.1*	*60.1%*
Agricultural Products	0.5	4.0	741.2%
Livestock & Livestock Products	2.7	1.2	-57.0%
Other Commodities	*2.8*	*1.2*	*289.3%*
Forestry Products	*	0.2	1,307.4%
Fish & Other Marine Products	*	*	1.5%
Metallic Ores & Concentrates	0.1	1.3	893.8%
Bituminous Coal & Lignite	0.5	*	-96.4%
Crude Petroleum & Natural Gas	0	*	N/A
Nonmetallic Minerals	0.9	2.7	196.1%
Scrap & Waste	0.2	3.8	2,077.7%
Used Merchandise	1.0	0.7	-29.9%
Special Classification Provisions	0.1	2.3	1,996.6%
Total	*627.3*	*2,306.2*	*267.6%*

* less than $100,000

Source: U.S. Department of Commerce.

Table 6 reveals particularly good news about Pennsylvania's manufacturing exports. The state's top five exporting industries to Mexico are all in manufacturing. These are: electric and electronic equipment ($879.2 million), chemical products ($361.5 million), industrial machinery and computers ($240.2 million), primary metals ($153.5 million), and rubber and plastic products ($121.9 million). All five of these industries saw triple digit increases in their exports to Mexico under NAFTA. Among them, the highest increase was in rubber and plastic products, which saw a phenomenal 812% rise, followed by a 682% increase by electronic and electrical equipment.

The news also seems favorable for the steel and metals industry. The export category that includes the steel industry — primary metals — increased more than 175% under NAFTA after declining the year before NAFTA took effect.[15] Exports in fabricated metal products rose almost 559%. Prior to NAFTA, fabricated metal products was the ninth largest exporting industry to Mexico. It is now sixth. Combined, the two industries sold more than $251 million in exports to Mexico in 1999 alone. Under NAFTA, the two have sold nearly half a billion dollars in exports to Mexico.

Big increases also occurred in printing and publishing (669%) and transportation equipment (449%). Leather products, which had the third largest rate of increase among state exports to Canada, grew an amazing 9,129%. Declines in manufacturing exports were small.

The farm sector offered a mixed picture with a 741% jump in agricultural products compared with a 57% drop in livestock and livestock products. Metallic ores and concentrates rose almost 894% compared with a decrease of more than 96% for bituminous coal and lignite. The drop for coal is not a surprise, considering that Mexicans mine their own coal in a very strong domestic coal-mining industry. Pennsylvania companies like Mine Safety Appliances (MSA) have found significant success exporting mine-safety equipment to the Mexican coal industry. MSA has been exporting to Mexico for five decades. Mexico is an annual multi million dollar market to the Pittsburgh company. Dom Palmieri, the international sales representative for MSA, says the company sells "the complete line" of its products in Mexico, "in excess of 4,500 items," from mining-cap lamps to devices for detecting methane gas vapors. These sales to Mexico, he notes, "translate into a lot of local jobs here in Pittsburgh." NAFTA has helped MSA, says Palmieri, "mainly in reduced tariffs. This allows companies like MSA to compete favorably in a global market. It does so because it saves us money."[16]

The Five-Year Effect of NAFTA on Western Pennsylvania

This section examines more closely exports to Canada and Mexico from the three major metropolitan areas affecting western Pennsylvania: Erie, Pittsburgh, and Youngstown. Like those for Pennsylvania as a whole, the results of NAFTA for exports from western Pennsylvania have been overwhelmingly positive, particularly when measured relative to non-NAFTA nations.

Table 7
Erie, PA
Export Totals to Selected Destinations, 1993-1999
(millions of dollars)

Market	1993	1994	1995	1996	1997	1998	1999	% Change 1993-1999
NAFTA Countries	195.2	174.4	304.5	175.0	386.4	452.4	275.9	41.3%
Canada	182.1	166.3	298.4	161.9	380.7	428.0	203.8	11.9%
Mexico	13.1	8.1	6.1	13.1	5.6	24.4	72.1	448.6%
Non-NAFTA Countries	116.4	111.0	186.3	146.9	211.8	168.8	260.4	123.8%
World	311.6	285.4	490.8	321.9	598.2	621.2	536.3	72.1%

Source: U.S. Department of Commerce.

Table 7 shows that in 1999 Pittsburgh ranked 36 in total dollar value among the largest exporting metropolitan areas in the United States, while Erie placed 123 and Youngstown 181. Pittsburgh exported $3.9 billion in products that year, Erie exported $536 million, and Youngstown exported nearly $240 million. The most telling evidence revealing NAFTA's effect on the three metropolitan areas emerges when their exports to the NAFTA nations are compared against those to the non-NAFTA nations. Additional insights are gained when viewing the export data of the two NAFTA nations individually and against their exports to non-NAFTA nations and to the world as a whole. Tables 7-9 provide this data.

As with Pennsylvania as a whole, in all three metropolitan areas the rate of increase for exports to Mexico far exceeds the rise to non-NAFTA nations. For Erie, the rate of increase to Mexico was almost 449% under NAFTA, about four times higher than the roughly 124% rise to non-NAFTA nations. For Pittsburgh, the rate to Mexico was 121%, 40 times higher than the 3.1% rise to non-NAFTA nations. The results were just as dramatic for Youngstown where exports to Mexico jumped 105% compared with a *decline* of almost 12% to non-NAFTA nations. As in the case of Pennsylvania from 1998-99, Youngstown's exports to Mexico under NAFTA have been so overwhelmingly strong that they helped to pull overall exports out of what would have been a decline from 1993-99.

Table 8
Pittsburgh, PA
Export Totals to Selected Destinations, 1993-1999
(millions of dollars)

Market	1993	1994	1995	1996	1997	1998	1999	% Change 1993-1999
NAFTA Countries	922.0	955.1	1,010.3	1,170.4	1,564.1	1,717.1	1,808.0	96.1%
Canada	741.9	731.0	823.6	948.5	122.2	135.6	1,410.5	90.1%
Mexico	180.1	224.1	186.7	221.9	341.6	360.9	397.5	120.7%
Non-NAFTA Countries	2067.2	2195.5	2971.8	2763.2	2,788.1	2362.1	2132.3	3.1%
World	2989.7	3150.6	3982.2	3933.7	4352.2	4079.2	2132.3	31.8%

Source: U. S. Department of Commerce

Table 9
Youngstown, OH
Export Totals to Selected Destinations, 1993-1999
(millions of dollars)

Market	1993	1994	1995	1996	1997	1998	1999	% Change 1993-1999
NAFTA Countries	108.4	105.9	136.1	128.8	188.9	150.6	168.4	55.3%
Canada	103.5	98.3	115.0	120.9	174.4	134.3	158.4	53.0%
Mexico	4.8	7.5	21.1	7.9	14.5	16.3	10.0	105.1%
Non-NAFTA Countries	80.8	79.4	89.8	95.1	134.1	145.9	71.4	-11.7%
World	189.2	185.3	225.9	223.9	323.0	296.6	239.8	26.7%

Source: U. S. Department of Commerce

For all the metropolitan areas but Erie, exports to Canada also outpaced exports to non-NAFTA nations by notable margins. Pittsburgh's exports to Canada increased 90%, almost doubling from nearly $742 million in 1993 to $1.41 billion in 1999. This was nearly 30 times the rate of Pittsburgh's 3.1% increase to non-NAFTA nations over the same period. Also impressive, Youngstown increased exports to Canada by 53% since NAFTA was implemented.

The results for Erie are more complicated. Erie's exports to Canada in 1999 were half of what they were in 1998. Erie has been consistently inconsistent in its exports to Canada since NAFTA, declining three times and rising three times. This likely reflects the export-production pattern of one or two companies or industries in the Erie area.

For Pittsburgh, the 96.1% rate of increase in exports to the NAFTA nations outdid the 3.1% rise to non-NAFTA nations by a ratio of 31 to 1. Youngstown was likewise impressive, seeing exports to the NAFTA nations grow 55.3% compared with a 12% drop in exports to non-NAFTA countries. Only for Erie was the rise in exports to non-NAFTA nations (123.8%) higher than the increase to NAFTA nations (41.3%). The Erie case is attributable not to the Mexican market, to which the city's exports boomed by 449%, but instead to a surprising collapse in exports to the Canadian market from 1998 to 1999. Indeed, had this article covered only 1993 to 1998, when Erie's exports to Canada were much stronger, the rate of increase for Erie's exports to the NAFTA nations would have been double what it was to the non-NAFTA nations.

Of the three cities, Pittsburgh and Youngstown would have to be judged stunning export successes under NAFTA, at least in terms of their export base. In total, Erie has gained $80.7 million in exports to Mexico and Canada under NAFTA, Pittsburgh has gained some $886 million, and Youngstown has gained nearly $60 million. Altogether, the three cities have seen a rise of $1.03 billion in exports to the two NAFTA nations since the trade agreement was implemented.

Remarkably, this $1.03 billion in added exports to the NAFTA nations accounts for 84% of the $1.23 billion in overall exports to all countries. In other words, the increase in exports to the NAFTA nations drove overall exports for the three cities combined. Just two of the world's more than 170 nations — Canada and Mexico — accounted for 84% of the overall growth in exports from Erie, Pittsburgh, and Youngstown since NAFTA started. Under NAFTA, Canada and Mexico have become by far the two most attractive foreign markets to western Pennsylvania. According to DoC estimates, approximately 15,000 jobs have been created in these metropolitan areas as a result of this added $1 billion in exports under NAFTA.

The data also underscore the prominence of the Canadian and Mexican markets to the three metropolitan areas. Table 10 shows that Canada is the top export market for all three cities. For Pittsburgh, Mexico is now the second largest, buying over twice as many products in 1999 as did the third largest market, Germany. For Erie, Mexico places third, behind second place Brazil and well ahead of Germany, a distant fourth place. Mexicans buy over five times more Erie products than do Germans. For Youngstown, Mexico places third, behind the second place United Kingdom.

Table 10

Top Trade Partners for Selected Cities, 1999 (millions of dollars)

	Major Markets of:	
Erie	**Pittsburgh**	**Youngstown**
1. Canada (203.8)	1. Canada (1,410.5)	1. Canada (158.4)
2. Brazil (108.6)	2. Mexico (397.5)	2. U. K. (17.3)
3. Mexico (72.1)	3. Germany (183.4)	3. Mexico (10.0)
4. Germany (13.6)	4. U. K. (177.7)	4. France (9.8)
5. Australia (13.3)	5. Netherlands (132.7)	5. Taiwan (5.3)

U. K. = United Kingdom

Source: U.S. Department of Commerce.

Table 10 reveals the crucial importance of Mexico and Canada, and thus NAFTA, to these three major metropolitan areas in western Pennsylvania. Erie sold almost $204 million in products to Canada in 1999 and more than $72 million to Mexico. Youngstown exported over $158 million to Canada and $10 million to Mexico. Pittsburgh exported $1.4 billion to Canada and $397.5 million to Mexico. Altogether, Canadians purchased $1.76 billion in products in 1999 from producers in Erie, Youngstown, and Pittsburgh. Mexicans purchased $479 million. That totals $2.2 billion in regional exports to Canada and Mexico in 1999 alone. In all three cases, Canada was the single largest export market, while Mexico was one of the top two or three largest markets. This further amplifies the significance of the rates of increase in exports to Canada and Mexico relative to the non-NAFTA nations.

The Five-Year Effect of NAFTA on the Harrisburg Metropolitan Area

Harrisburg was among the nation's top 100 exporting cities in 1999, ranking 97 with $938 million in total exports. Tables 11 and 12 compare Harrisburg's exports with the NAFTA and non-NAFTA nations between 1993 and 1999 and between 1998 and 1999.

Table 11
Harrisburg, PA
Export Totals to Selected Destinations, 1993-1999
(millions of dollars)

Market	1993	1994	1995	1996	1997	1998	1999
NAFTA Countries	227.3	264.8	274.5	387.6	445.9	474.4	542.6
Canada	148.0	164.9	164.2	229.8	264.6	292.8	311.2
Mexico	79.3	99.9	110.4	157.7	176.3	181.6	231.4
Non-NAFTA Countries	111.8	270.2	326.4	387.9	518.6	478.5	396.1
World	339.2	535.0	601.0	775.5	964.4	952.9	938.7

Source: U.S. Department of Commerce.

Table 12
Harrisburg, PA
Export Totals to Selected Destinations (millions of dollars)

Market	1993-1999		1998-1999	
	$ Change	% Change	$ Change	% Change
NAFTA Countries	315.3	138.7%	68.2	14.4%
Canada	163.2	110.2%	18.4	6.3%
Mexico	152.1	191.8%	49.8	27.5%
Non-NAFTA Countries	284.3	254.2%	-82.4	-17.2%
World	599.6	176.8%	-14.2	-1.5%

Source: U.S. Department of Commerce.

Of the five metropolitan areas examined in this article, only Harrisburg exported less to the NAFTA nations than to the non-NAFTA nations. This does not necessarily reflect poorly on NAFTA. Under NAFTA, Harrisburg's exports to Mexico increased by almost 192%, compared with a 254% gain to the rest of the world. Its exports to the two NAFTA nations combined increased almost 139%. While exports to the NAFTA nations are notably lower than those to the non-NAFTA nations, they are still quite high. Indeed, of the five metropolitan areas, Harrisburg is probably the most impressive exporter generally, for it did well across the board. In fact, of the five metropolitan areas, only Harrisburg saw triple-digit increases in its exports to Canada, Mexico, the two NAFTA nations combined, and the non-NAFTA nations.

With such high increases to the NAFTA nations, it is difficult to call Harrisburg a NAFTA failure, or to assert that NAFTA has been bad for Harrisburg. Cities, regions, and states throughout the country would be thrilled to experience both a 110% increase in exports to Canada and a 192% rise to Mexico, as Harrisburg has done under NAFTA. More recently, Harrisburg has performed better with the NAFTA nations than with the non-NAFTA nations in terms of exports. In the most recent year for which data is available, Harrisburg's exports to the NAFTA nations increased by 14.4%, compared with a drop of 17.2% to the non-NAFTA nations, a drop that is among the largest declines for the five metropolitan areas under review. Better yet for NAFTA, Harrisburg's exports to Mexico in that year jumped by 27.5%, far surpassing the 17.2% decline in its exports to the non-NAFTA nations. By selling more than $542 million in products and services to Canada and Mexico in 1998-1999, Harrisburg avoided a devastating decline in overall exports.

The Five-Year Effect of NAFTA on the Philadelphia Metropolitan Area

With roughly $9.3 billion in exports in 1999, Philadelphia ranked 13 among the nation's largest exporting cities. It is by far Pennsylvania's top exporting city. As Tables 13 and 14 show, the NAFTA export numbers for Philadelphia are simply superb.

Since NAFTA was implemented, Philadelphia's exports to NAFTA countries have increased 129%, nearly four times the 33.4% rise to the non-NAFTA countries. The rise in exports to Canada was almost 79%, more than twice as high as the increase to the non-NAFTA countries. Most astounding was the almost 376% rise in exports to Mexico under NAFTA, more than 11 times the increase to non-NAFTA countries.

Impressive as these numbers are, in just the most recent year Philadelphia's exports to the NAFTA countries shot up 39%, compared with a drop of 1.6% to the non-NAFTA countries. The rise in exports to Mexico alone that year was astonishing — jumping almost 156%, or a rate of increase over 150 times higher than the increase to the non-NAFTA countries. This performance is among the strongest of all major cities and metropolitan areas in the United States, particularly given the sheer volume of exports sent from Philadelphia to the NAFTA countries.

The rise in exports to Mexico in the most recent year was so strong that the Mexican market alone pulled Philadelphia's overall exports to the world out of an otherwise devastating decline. Philadelphia now

Table 13
Philadelphia, PA
Export Totals to Selected Destinations, 1993-1999
(millions of dollars)

Market	1993	1994	1995	1996	1997	1998	1999
NAFTA Countries	1,500.3	1,771.5	1,942.2	1,994.3	2,171.4	2,473.3	3,436.9
Canada	1,245.6	1,426.5	1,641.4	1,690.9	1,845.7	1,999.3	2,225.4
Mexico	254.7	345.0	300.8	303.3	325.7	474.0	1,211.5
Non-NAFTA Countries	4,368.8	4,774.3	5,946.6	5,733.7	5,856.3	5,923.9	5,830.2
World	5,869.1	6,545.8	7,896.9	7,727.9	8,027.8	8,397.2	9,267.1

Source: U.S. Department of Commerce.

Table 14
Philadelphia, PA
Export Totals to Selected Destinations (millions of dollars)

Market	1993-1999		1998-1999	
	$ Change	% Change	$ Change	% Change
NAFTA Countries	1,936.6	129.1%	963.6	39.0%
Canada	979.8	78.7%	226.1	11.3%
Mexico	956.8	375.7%	737.5	155.6%
Non-NAFTA Countries	1,461.4	33.4%	-93.7	-1.6%
World	3,398.0	57.9%	8,699.9	10.4%

Source: U.S. Department of Commerce.

sells more than $3.4 billion in goods to Canada and Mexico annually. That figure has more than doubled since NAFTA began. Arguably, Canada and Mexico are now Philadelphia's two most successful and important export markets. According to the DoC, the added $1.93 billion in Philadelphia exports to the NAFTA nations since 1993 accounts for 29,040 new jobs in the area.

Conclusion

This article has examined the five-year effect of NAFTA on Pennsylvania. The trade accord has had a number of consequences. Unfortunately, most of these, including estimates on job gains or losses, are difficult to sustain adequately with data. One area that can be measured definitively, however, is NAFTA's effect on export levels. It has been highly positive. Because of NAFTA, Pennsylvania has been among the most successful states in terms of increased exports.

Across the vast majority of industries, NAFTA has had a very positive impact on exports from Pennsylvania, state-wide as well as regionally. Better export data is difficult to imagine, especially regarding skyrocketing exports to Mexico, which have far outpaced exports to the rest of the world. In a number of cases, exports to Mexico have been so overwhelmingly strong that they pulled overall exports out of what would have been a decline without the Mexican market. In terms of export levels, particularly for regions like the Philadelphia metropolitan area, the data could not be better in making the case for NAFTA.

To be sure, total exports constitute only a portion of overall state GDP, which means that Pennsylvania will not rise or fall based on NAFTA exports.[17] Nonetheless, the revenue from these exports is considerable, particularly for people employed in those industries, which includes a large number of Pennsylvanians. So, while we should not overstate NAFTA's impact, we likewise should not understate it. NAFTA supporters can find comfort in these highly positive export gains for Pennsylvania.

Notes

1. In any discussion of trade and its impact, a kaleidoscope of related issues is often raised. For discussion of what a state government might do to promote trade in terms of trade missions, overseas trips, and other forms of economic development, see Kengor (1996). For discussion of the advantages and disadvantages of free trade and the conditions under which political coalitions form either in favor of or in opposition to it, see Bhagwati (1969), Milner (1988), and Yarbrough and Yarbrough (1994).

2. Union officials often ask state and federal officials for the number of workers certified for NAFTA Trade Adjustment Assistance (NAFTA-TAA). Some of these officials inaccurately report the totals as job losses caused by NAFTA. Asked how many of those certified for NAFTA-TAA in Pennsylvania actually lost their jobs, John Currie of the Pennsylvania Department of Labor and Industry stated unequivocally: "Nobody knows. And anyone who says they know cannot prove it" (Currie 2001). One Pennsylvania source said he would be surprised if 10,000 of the 46,000 workers certified for NAFTA-TAA in Pennsylvania actually lost jobs due to NAFTA. At the same time, he cautioned that no one knows, including himself.

3. Throughout this article, we cite estimates by the United States Department of Commerce (DoC) of job gains generated in Pennsylvania by rising exports under NAFTA. Although these estimates are reliable, they tell us nothing about the types of jobs that have been gained, their quality, or how much they pay. With industry data, too, we could only speculate.

4. The DoC data comes from the United States Census Bureau, which issues two principal data sets with export statistics for states and regions: the Exporter Location series (EL), and the Origin of Movement series (OM). The EL series is referred to in this document as the DoC data. The OM series is known as MISER data (see next note). The EL series is newer and allocates exports according to the physical location of exporters by tracing export s to the point of sale. The EL series is based on the exact data recorded on U.S. export declarations. A problem with such data is that the exporter of record is not always the producer of the good sold but may be a wholesaler, retailer, broker, or other intermediary — even a foreign buyer. The exporter of record might also be the administrative branch office of the manufacturer and located in a different state from the branch that actually produced the goods. The EL series therefore may at times be more of an indicator of marketing activity than export production even though about three-quarters of merchandise exports are produced by manufacturers who do their own exporting. Consider two companies: Lasermedics (Texas) and MD International (Florida). Lasermedics exports medical equipment to Latin America via MD International. A Lasermedics product sold abroad but exported via MD International would be credited as a "Florida export" by EL (DoC) data. That same product would be considered a "Texas export" by the OM (MISER) data.

5. There is state export data from the University of Massachusetts Institute for Social and Economic Research (MISER) dating back to the 1980s. As noted, however, that data, is collected differently from DoC data, measuring different items with different results. We relied on DoC data because of its lower cost and greater availability.

6. Youngstown is located in Ohio, just over Pennsylvania's western border. We include it because many western Pennsylvanians work there and because it has an important impact on the economy of that part of the state. The only other region in western Pennsylvania for which DoC data exists is the Sharon metropolitan area. Unfortunately, because Sharon is a small exporter, DoC does not track its total exports on a country-by-country basis, but instead records only its total exports. Nonetheless, it is probably telling that Sharon's overall exports under NAFTA have been even better than those of the other three western regions and Pennsylvania as a whole.

7. For an overview of many of these studies, see United States International Trade Commission (1992). Among the more well-known studies, see Hinojosa and Robinson (1991), Hufbauer and Schott (1992), Marwick (1991), McCleery and Reynolds (1991), United States Department of Labor (1990), and United States International Trade Commission (1991).

8. A common criticism is that NAFTA has led to higher trade deficits with Canada and Mexico. In fact, the United States had trade deficits with both nations on and off for many years prior to NAFTA. An American trade deficit with Mexico in 1990, for example, became a surplus between 1991 and 1994. A deficit returned during the Mexican recession of 1995 and continued throughout 1996

before becoming a surplus again in 1997. In any case, it is debatable whether a trade deficit is economically unhealthy for a nation.

9. See Systems Synthesis Project (1994, 112-13), and Trade Partnership (1992).

10. The Texas study was done by the Texas Public Policy Foundation, the Michigan study was done by the Mackinac Center, the Arizona study was done by the Goldwater Institute, and the Florida study was done by the James Madison Institute. Paul Kengor was the author or co-author of all these studies.

11. Also see Kengor (1996).

12. The state's first-year increase in exports to Mexico made this nation the second largest market for Pennsylvania's products. Pennsylvania's exports to Mexico in 1994 reached $854 million, which surpassed the state's exports to Japan and the United Kingdom.

13. DoC bases its estimate on its assessment that 15,000 jobs are created for every new $1 billion in exports.

14. MISER recorded $742 million in Pennsylvania exports to Mexico in 1992, $653 million in 1993, and $854 million in 1994.

15. See MISER data for 1992 and 1993.

16. For an extended treatment of the case of MSA and other Pennsylvania companies, see Kengor (1996).

17. Pennsylvania's GDP is roughly $400 billion. State exports to Mexico and Canada in 1999 totaled $8.23 billion, or about 2% of state GDP.

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