Asymmetries in Exports and Imports in the Americas: 1980 to 2005

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Abstract. This paper compares Exports and Imports in agricultural products, fuels & mining products, manufactures, and commercial services in the American countries involved in the NAFTA, and Mercosur-Andean trade agreements. Data on exports and imports between these countries and the world ranges from 1980 through 2005. This study traces the path of these relationships over a twenty-five year period and comments on the relationships of the net export gaps within these trade groups. Similarities and differences in export and import patterns are reported. In analyzing these 25 year trends, this paper underscores the asymmetries in trade that have occurred in these select countries in the Americas.

JEL Classification: F10, F14, F43
Keywords: Exports, Imports, NAFTA, Mercosur, Andean, World Trade Organization

1. Introduction

Most nations are better at producing some products than other products and are better at producing specific products than are other nations. Natural resources can have a great impact on what a country can produce and export, but beyond natural resources, there are other factors that influence trade today. Some of the major ones are exchange rates, reciprocal economic advantages, customs procedures, economic cycles of growth and recession, disruptive geopolitical events, the fast growing economy of Asia, trade agreements, decreasing transportation costs, and flexible production systems (Lee, 2005).

Trade liberalization in the Americas has improved access to markets, with the main attraction for countries being the US market. The Free Trade Area of the Americas (FTAA) was formed in 1994 and has affected steel exports from Brazil and Argentina. It has also had an impact on crude oil and steel from Venezuela (Bustillo and Ocampo, 2003) and US exports (Allgeier, 2004). Increased trade can be beneficial to the economy with greater exports, but a problem for the one with greater imports. So, the amount of trade in each direction has been carefully watched. Not only the amount, but also the effects of trade on the environment in North and South America have become a focus of concern due to problems with corn in Mexico, fish in Argentina, soybeans in Brazil and mining in Chile (Gallagher and Blanco, 2003).

These concerns have led to more discussions of sustainability assessments

with analysis about possible harm to the environment. President Bush has worked to grow US exports by, for example, expanding free trade agreements with Singapore and Chile, working to change Indian import requirements on textiles, negotiating for removal of Mexican barriers on auto parts, and enforcing copyright laws in Paraguay. However, in the US, imports are growing faster than exports. It is reported (Roubini and Setser, 2004) that trade deficits are large relative to GDP, large absolutely, and large relative to the US export base. The US deficit in international trade increased again in 2004 (US Census Bureau, 2005). In light of increased trade agreements, increased environmental awareness, and increased demand for goods throughout the world, what has actually happened in trade flows in the Americas? Rose (2004) questions whether the WTO has actually increased trade. He argues that the results have been negligible.

This paper looks at export and import amounts measured per year in US Dollars at current prices from 1980 through 2005 for agriculture, manufactures, fuel & mining, and commercial services in North and South American countries involved in the NAFTA, Mercosur, or Andean trade agreements. The trading partner is the entire world. The Mercosur agreement originally included Argentina, Brazil, Paraguay, and Uruguay when it began in 1991. The older Andean accord, dating from 1969, included the countries of Bolivia, Chile, Colombia, Ecuador, Peru, and Venezuela. Gradually, the Andean countries have merged into the Mercosur group. As of 2006, all the Andean countries have either joined the Mercosur or become associates. NAFTA includes the United States, Canada, and Mexico.

The commodity data are collapsed to four broad categories by the WTO and thus hide much detail within each category. For example, because all agricultural products are considered as one group, we are not able to follow specific trends in agriculture. It has been reported, for example, that trade in fruits and vegetables has expanded faster than other agricultural products (Huang et al, 2004) and that there are significant differences in trends among individual fruits (Huang, 2004). Huang et al (2004) also show that much of the world, specifically the European Union, Asia, and the NAFTA countries depend on the Southern Hemisphere countries for juice and fruit. Among the NAFTA countries, the US is the leading importer of fruits and vegetables and horticultural trade among NAFTA partners has increased greatly (Stout et al, 2004). It has also been reported that Mexico has lost ground in agricultural arenas since NAFTA and that 1.7 million countryside jobs have been lost (Carlsen, 2003).

This paper focuses on similarities and differences in patterns in exports and imports of the specified products and country groups in the time period from 1980 to 2005. This study traces the path of these relationships over the twenty-five year period and considers the relationships of the net export gaps within and between countries.

2. Data Set

The source of the data is the World Trade Organization Statistics Database. All data

is free to the public and can be downloaded from the WTO from their website at http://stat.wto.org/Home/WSDBHome.aspx. The WTO has several data sets from which data can be selected. The data sets used for this paper were merchandise trade by commodity and trade in commercial services. Trade flow can be measured by value or volume (Rodrigue, 2004). This paper uses value measured in dollars per year.

The data set contains values for all the countries in the NAFTA trade agreement, hereafter designated simply as North America, and the countries of South America that are part of either the Mercosur or Andean trade groups, hereafter called South America.

Movement in exports and imports in North and South America often exhibit a high correlation while the Gap (exports – imports) correlation does not. Table 1 shows the correlations in five year increments between North and South America.

Table 1. Correlations between North and South American trade values

Years	80-84	85-89	90-94	95-99	00-05
Exports, Agriculture	0.81	0.92	0.96	-0.04	0.96
Exports, Comm. Services	-0.55	0.97	0.98	0.90	0.97
Exports, Manufactures	0.64	1.00	0.99	0.99	0.93
Exports, Mining	0.17	0.64	0.74	0.81	0.99
Gap, Agriculture	-0.74	0.69	0.46	-0.21	-0.90
Gap, Comm. Services	-0.74	-0.07	-0.9	-0.57	-0.48
Gap, Manufactures	-0.89	0.92	0.74	0.12	0.29
Gap, Mining	0.83	-0.86	-0.83	-0.50	-0.99
Imports, Agriculture	-0.26	0.97	0.97	0.34	0.98
Imports, Comm. Services	-0.76	0.96	0.97	0.87	0.87
Imports, Manufactures	-0.68	1.00	0.95	0.86	0.93
Imports, Mining	0.88	0.89	-0.37	0.80	0.99

Tables 2 and 3 give, in billions, the amount of exports, imports, and net exports (exports – imports) for the North American NAFTA countries and the South American countries in the ANDEAN and MERCOSUR trade agreements.

Table 2. North America, Values of Exports, Imports and Net Exports, in Billions

	Exports				Imports				Gap			
Year	AG	MA	MI	CS	AG	MA	MI	CS	AG	MA	MI	CS
1980	65.60	172.22	37.21	45.22	32.58	165.44	104.91	39.00	33.02	6.78	-67.70	6.22
1981	67.68	190.01	35.20	54.04	33.44	189.80	107.34	43.39	34.25	0.21	-72.15	10.65
1982	59.67	177.12	35.10	58.49	30.71	185.95	84.25	48.09	28.96	-8.84	-49.16	10.40
1983	59.76	173.40	32.32	59.32	33.40	210.63	77.61	51.46	26.36	-37.23	-45.30	7.86
1984	62.83	194.74	34.49	69.22	38.34	281.73	82.90	65.27	24.49	-86.99	-48.41	3.95
1985	52.07	199.46	35.38	72.85	38.69	312.23	73.39	70.32	13.38	-112.76	-38.01	2.53
1986	51.00	206.55	28.98	85.38	41.42	351.43	57.43	79.81	9.57	-144.88	-28.45	5.57
1987	59.85	234.89	31.53	96.01	43.28	388.32	65.09	90.75	16.57	-153.42	-33.56	5.26
1988	74.91	288.97	37.51	112.36	45.06	440.29	66.62	101.25	29.85	-151.31	-29.11	11.11
1989	79.19	319.89	42.58	130.53	47.38	459.04	82.00	108.66	31.82	-139.15	-39.42	21.86
1990	81.74	363.80	47.43	151.23	48.98	468.55	95.38	125.43	32.77	-104.75	-47.95	25.80
1991	80.24	392.93	47.16	167.30	48.37	475.51	81.05	129.39	31.87	-82.58	-33.89	37.91
1992	86.79	419.40	44.83	179.17	51.59	519.11	80.90	133.93	35.20	-99.71	-36.08	45.24
1993	85.86	444.36	43.16	187.57	54.36	572.90	81.58	141.67	31.50	-128.54	-38.41	45.90
1994	95.00	501.55	45.58	204.49	59.92	662.43	86.24	152.86	35.08	-160.88	-40.67	51.63
1995	112.73	568.41	55.34	223.93	65.32	743.46	94.94	162.21	47.41	-175.05	-39.60	61.71
1996	114.47	609.29	58.94	245.25	69.35	773.20	109.30	174.73	45.13	-163.92	-50.36	70.52
1997	111.60	688.27	61.67	263.59	75.60	861.45	118.38	189.48	35.99	-173.18	-56.71	74.10
1998	101.10	698.31	52.02	271.57	76.43	927.23	96.62	203.82	24.68	-228.92	-44.60	67.74
1999	98.54	734.35	52.88	294.28	80.42	1026.36	114.77	223.57	18.12	-292.01	-61.89	70.71
2000	106.20	824.55	76.08	317.36	84.39	1168.95	186.17	251.48	21.81	-344.40	-110.09	65.88
2001	103.74	763.74	75.07	304.52	83.97	1088.14	172.02	247.71	19.76	-324.40	-96.95	56.81
2002	101.40	729.61	67.78	312.78	87.81	1118.60	160.07	253.85	13.59	-388.99	-92.29	58.93
2003	109.94	753.96	84.21	325.81	95.26	1186.08	206.34	273.80	14.67	-432.12	-122.14	52.01
2004	119.67	856.89	106.60	369.73	107.49	1354.58	274.05	315.95	12.18	-497.68	-167.46	53.78
2005	123.85	938.55	142.93	406.21	117.26	1487.39	373.39	345.34	6.59	-548.83	-230.46	60.87

Table 3. South America, Values of Exports, Imports and Net Exports, in Billions

	Exports				Imports				Gap			
1980	24.85	16.36	40.57	12.35	12.05	55.24	17.69	23.57	12.80	-38.88	22.87	-11.21
1981	25.57	17.68	43.24	13.18	11.76	61.72	19.04	26.78	13.80	-44.04	24.20	-13.60
1982	21.08	15.68	44.02	11.76	8.32	47.07	16.58	23.85	12.77	-31.38	27.44	-12.09
1983	22.74	20.06	40.13	10.84	8.02	30.89	13.32	17.22	14.73	-10.83	26.81	-6.38
1984	25.71	25.19	42.75	11.48	8.05	34.03	12.80	17.54	17.66	-8.84	29.94	-6.06
1985	24.39	26.61	40.24	11.88	6.59	36.34	11.91	17.31	17.79	-9.73	28.33	-5.43
1986	24.01	27.65	22.71	12.01	7.95	40.90	8.53	18.76	16.05	-13.25	14.18	-6.75
1987	23.31	32.85	29.94	13.31	7.83	46.83	10.38	18.92	15.48	-13.98	19.56	-5.61
1988	28.18	43.25	30.04	14.63	9.57	57.04	10.36	21.49	18.60	-13.78	19.68	-6.86
1989	28.67	49.40	35.77	17.36	10.70	60.32	11.55	23.15	17.96	-10.92	24.22	-5.79
1990	30.60	50.78	44.37	19.86	11.65	68.50	12.94	28.57	18.95	-17.72	31.43	-8.70
1991	31.09	56.11	38.33	20.48	12.97	80.48	12.93	30.92	18.12	-24.37	25.40	-10.44
1992	32.98	62.64	37.93	23.09	15.82	108.63	13.76	35.42	17.15	-45.99	24.17	-12.33
1993	33.79	73.17	36.54	24.22	16.94	121.80	13.52	40.20	16.85	-48.63	23.02	-15.98
1994	42.12	84.53	39.51	27.35	20.71	139.80	13.89	43.31	21.41	-55.27	25.62	-15.96
1995	50.79	103.55	48.97	29.46	22.70	158.89	17.43	44.90	28.09	-55.34	31.54	-15.44
1996	53.47	117.38	57.39	30.40	26.30	180.28	19.18	46.09	27.17	-62.90	38.21	-15.69
1997	59.00	137.60	57.57	32.39	27.02	221.93	22.36	51.56	31.99	-84.33	35.21	-19.16
1998	56.63	148.62	43.81	34.81	27.81	234.55	18.89	54.16	28.82	-85.92	24.92	-19.35
1999	52.49	159.96	53.32	34.10	23.81	226.64	19.20	52.50	28.68	-66.69	34.12	-18.40
2000	52.84	191.80	77.68	38.58	25.37	259.64	27.85	58.41	27.47	-67.84	49.83	-19.83
2001	56.25	188.40	66.57	37.16	25.86	257.92	26.61	58.63	30.39	-69.52	39.97	-21.47
2002	57.05	187.87	67.09	35.25	25.00	236.33	23.35	52.51	32.05	-48.46	43.74	-17.25
2003	67.88	193.77	78.50	37.82	27.22	239.92	27.44	54.79	40.66	-46.15	51.06	-16.98
2004	81.42	228.81	113.80	44.57	30.69	291.29	39.58	62.77	50.72	-62.48	74.21	-18.20
2005	92.00	260.02	159.18	53.23	32.72	342.81	52.17	75.16	59.28	-82.79	107.01	-21.94

3. Agriculture during 25 Years

Exports and imports in agriculture have shown an increasing trend during the twenty-five year period in both North and South America. Figures 1 and 2 illustrate these paths. The correlations between North and South American exports are high and positive, except for the period from 1995 to 1999 where they leveled out in North America while continuing to rise in South America. In the North, exports increased from 65.6 billion to 123.85 billion in the 25-year period, an increase of 89%, while in the South, exports moved from 24.85 billion in 1980 to 92 billion in 2005, an increase of 270%.

Imports of agriculture show an overall increasing path in both continents. In the North, the 25-year period showed steady growth, from 32.6 to 117.26 billion (a 260% increase). In contrast, the increase in the South for agriculture imports over all 25 years was from 12 billion to 32.7 billion, a 171% increase. The ratio of North to South American imports in 1980 was 32.6 to 12, or 2.7, while by 2005, this had increased to 117 to 32.7, or 3.6.

Figure 3 illustrates the gap between exports and imports in North and South America. In North America, the gap has been on a steady decline since 1995. In 1995, exports in agriculture were 112.7 billion while imports were 65 billion, a difference of 47 billion. By 2005, exports were 123.8 and imports were 117.26 billion, a gap of only 6.6 billion. In South America, on the other hand, the gap between exports and imports has increased over the years. In 1980, the difference between exports and imports was 12.8 billion, while in 2005, this difference grew to 59 billion, an increase of 361%. Since 1998, then South American net exports surpassed those of North America, the difference between net exports in the two continents has continued to increase.

Figure 1. Agriculture Exports, in billions

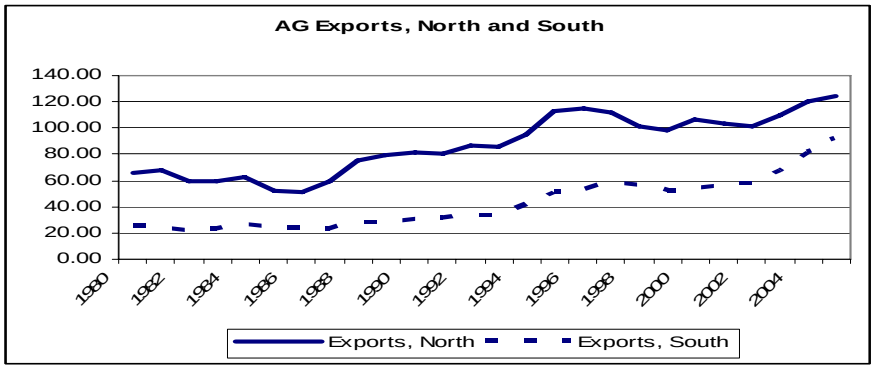


Figure 2. Agriculture Imports, in billions

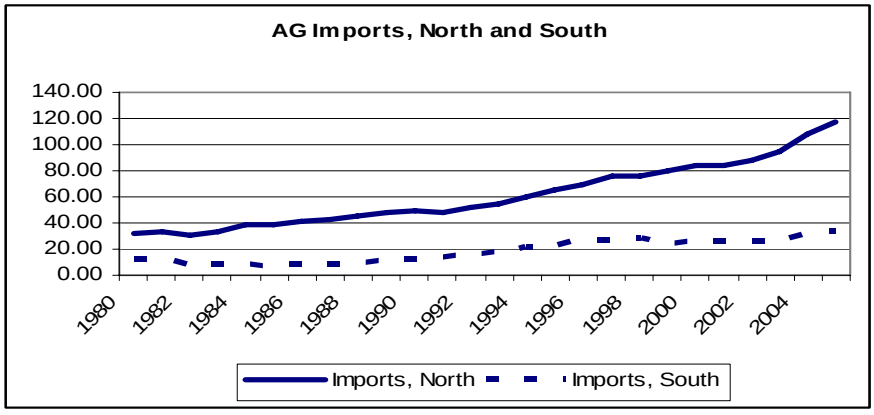
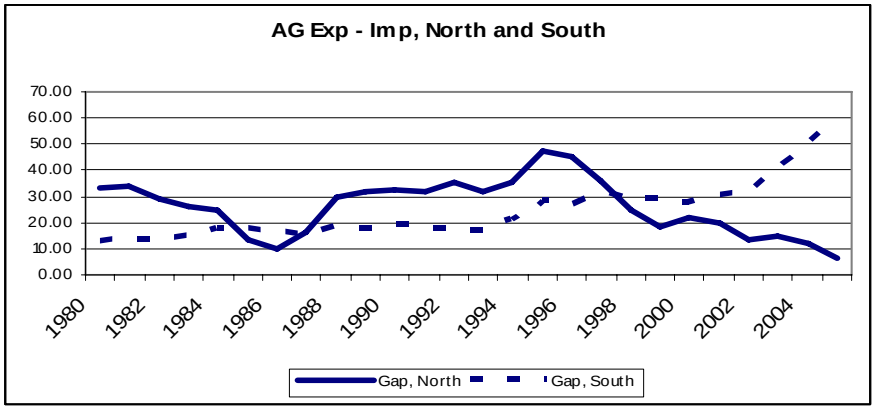


Figure 3. Agriculture, Exports Minus Imports



4. Manufactures

This category includes iron & steel, chemicals, pharmaceuticals, leather, wood products, machinery, etc. Figures 4 through 6 show the exports, imports, and net exports for North and South America. Exports for both continents increased overall during this period. In North America, exports in 1980 were 172.2 billion. By 2005, exports had reached a level of 938.6 billion, a 445% increase. In South America, the 1980 exports were 16 billion, while by 2005, exports reached 260 billion, an amazing 1490% increase.

Imports also grew in both continents. In North America, manufactures increased from 165 billion in 1980 to 1,487 billion in 2005, a 799% increase. In South America, the 1980 level of imports was 55 billion while the 2005 level grew to 342.8 billion, a 521% increase. Thus, both continents experienced large increases in

imports of manufactures.

The gap, or net exports, moved from 6.8 billion to -548.8 billion over 25 years in North America and from -38.8 billion to -82.8 billion in South America. That is, the North American movement showed the positive distance between exports and imports turning from positive to negative with an overall drop of 450% throughout the period, while South American movement showed imports surpassing exports throughout the 25 years, but with a negative increase of 80%. So, while both continents show, increases in exports and imports, in the North, imports have grown so fast that the increase in exports is not able to have a positive impact on the value of net exports.

Figure 4. Manufactures Exports, in billions

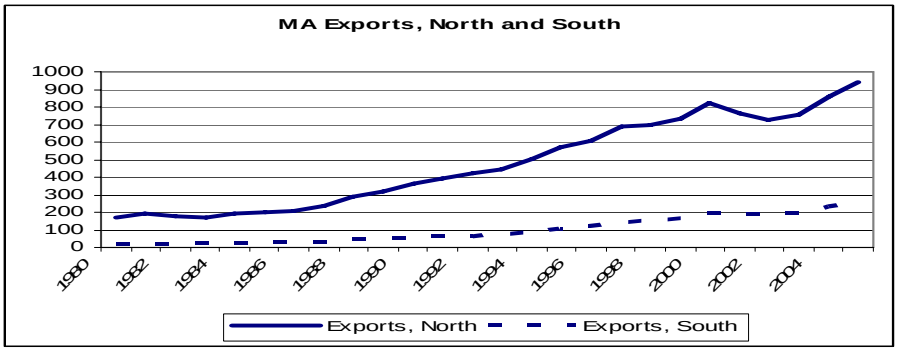


Figure 5. Manufactures Imports, in billions

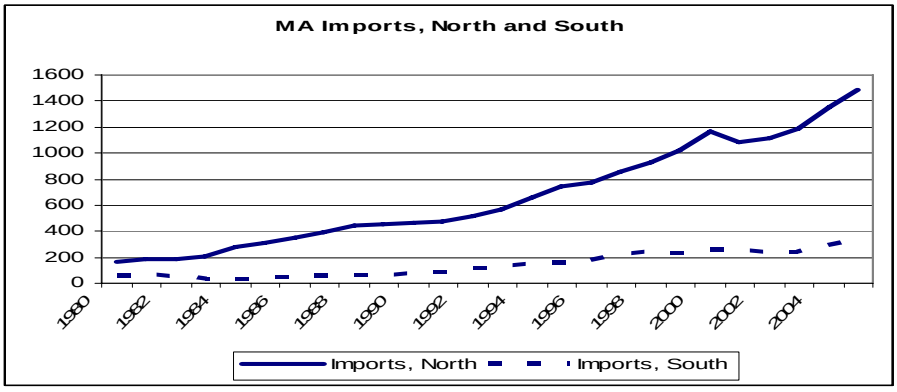
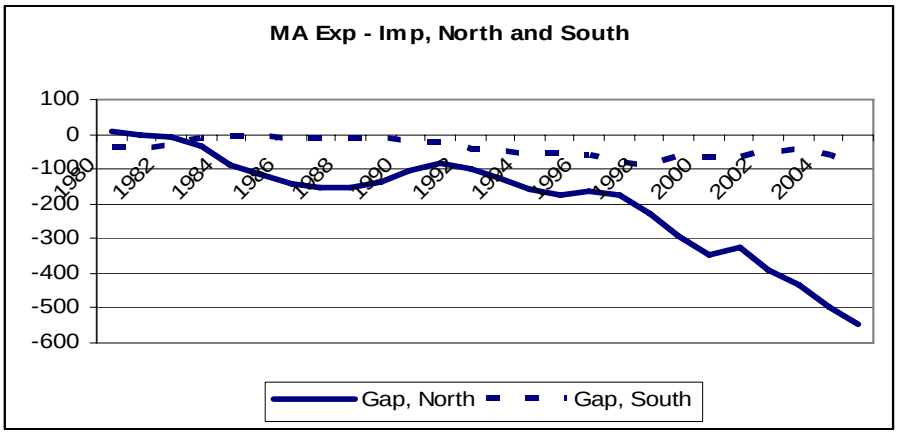


Figure 6. Manufactures, Exports minus Imports



5. Mining and Fuels

The mining and fuels category includes ores, minerals, and fuels. Figures 7, 8, and 9 show the exports, imports, and net exports for North and South America. The correlations between mining exports in the two continents indicate a steadily increasing positive correlation while imports show a fairly stable strong correlation, except during the 90-94 period. Since 1985, the correlations between net exports in both continents has been definitely negative.

In North America, mining exports grew from 37 billion in 1980 to 143 billion in 2005, an increase of 284%. North American imports grew from 105 billion to 373 billion, an increase of 256%. Thus net exports show imports greater than exports the entire period, with a strong downturn since 2000.

South America began 1980 with 40.6 billion in exports and ended 2005 producing 159 billion in exports, an increase of 292%. Imports in South America also grew, from 17.7 to 52 billion, an increase of 195%. The gap, however, was always positive and has increased over the years from 22.9 to 107 billion (368%). So, even though both exports and imports grew, imports grew at a faster rate.

In 1980, the ratio of North to South American exports was .92 while in 2005, it was .90, showing little difference in change in relative amount of exports. The ratio of North to South American imports, on the other hand, in 1980 was 5.9 and in 2005 was 7.2, another indication that relative amounts of imports are increasing in North America faster than in South America.

Figure 7. Mining, Exports, in billions

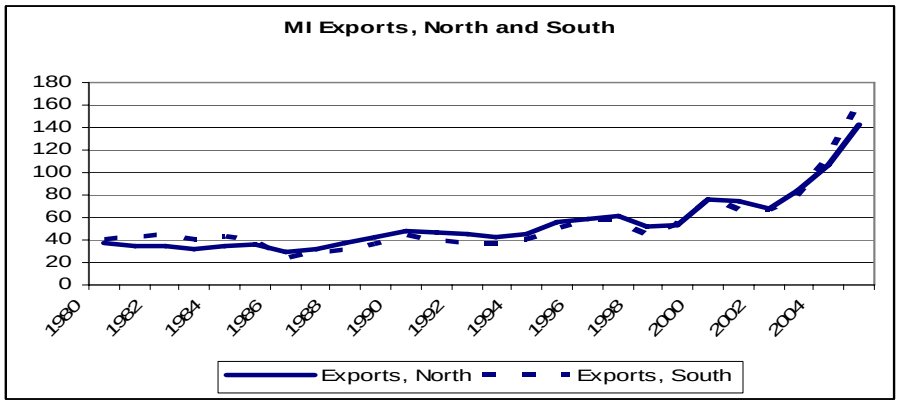


Figure 8. Mining, Imports, in billions

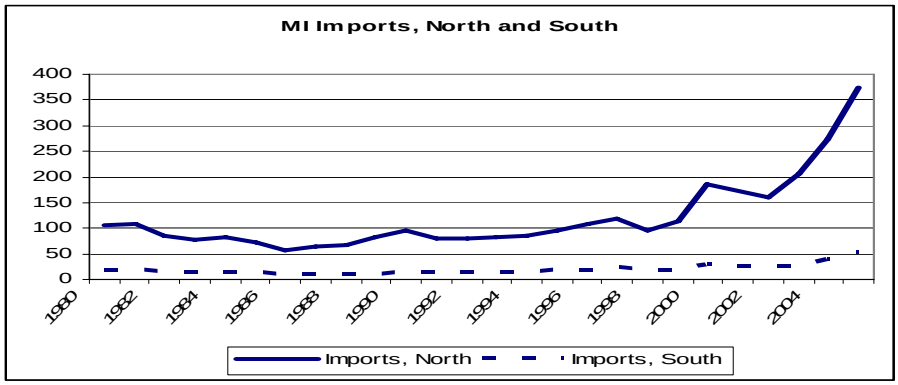
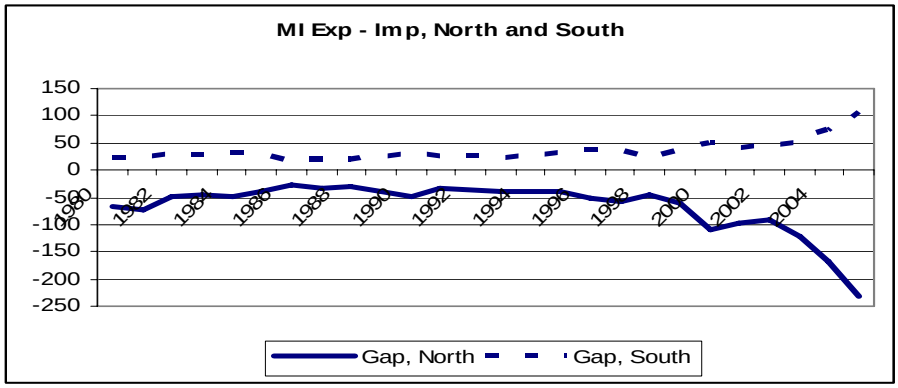


Figure 9. Mining, Exports minus Imports



6. Commercial Services

Commercial Services include communication services, construction services, insurance services, financial services, computer and information services, etc. The patterns of exports, imports, and net exports are shown in figures 10, 11, and 12. North America experienced strong growth in this area over the 25 year period. In 1980, exports were 45 billion. By 2005, exports reached 406 billion, an increase of 798%. Imports also grew. In 1980, they were 39 billion, while in 2005, they were 345 billion, an increase of 785%. Net exports grew from 6 to 60.8 billion. The growth was strongest from 1987 to 1997, fell off after 1997, and has been increasing again since 2004.

South America also showed growth in this area, but imports remained greater than exports. The 1980 values for exports and imports were 12 and 23.6 billion, respectively, and these grew to 53 and 75.2 billion in 2005. The net export value was -11 in 1980 and -22 billion in 2005. From Figure 12, we see that net exports exhibited a slow but steady decline from 1985 onward.

Figure 10. Commercial Services, Exports, in billions

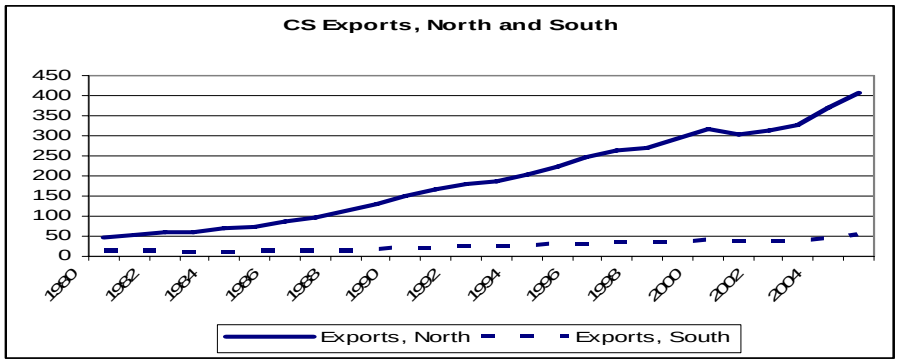


Figure 11. Commercial Services, Imports, in billions

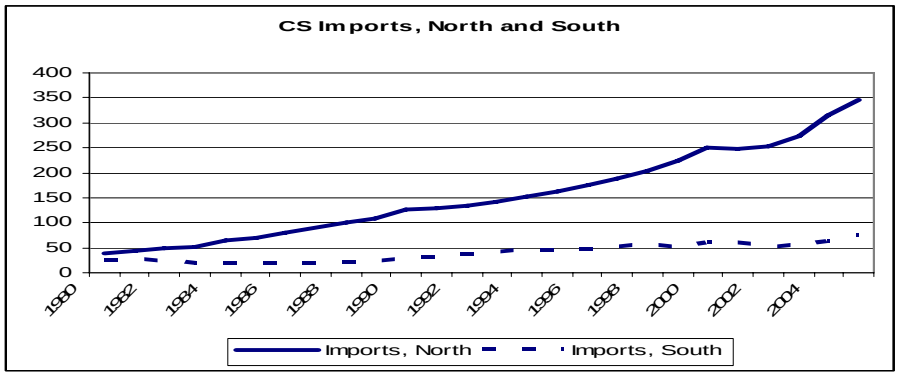
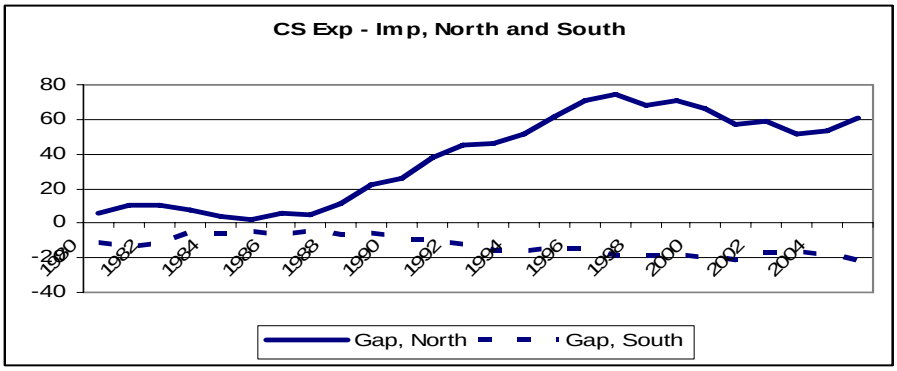


Figure 12. Commercial Services, Exports minus Imports



7. All Categories Combined

The last set of figures, 13 to 15, show the sums of exports, imports and net exports across all four categories (agriculture, manufactures, mining, and commercial services). We see overall increases in exports in both North and South America, as well as increases in imports. Figure 15, which captures net exports, shows that the North American gap is trending negatively with a sharp drop since 1998. South American net exports hovered around 0, fluctuating above and below, but have stayed above 0 since 2002.

Total exports over these four categories in North America increased from 320 to 1,611.5 billion in 25 years, while total imports increased from 342 to 2,323.4 billion. Thus North American net exports in 2005 were around -711.8 billion. The change in North American net exports over a 25 year period has been an increase of 3,184% in the negative direction. That is, the gap of exports minus imports has grown from -21.7 to -711.8 in this time period.

In South America, exports increased from 94 to 564 billion, while imports went from 108 to 502 billion. Net exports in 1980 were -14.4 and ended at 61.6 billion in 2005. The change was a difference of 527% with the move from negative to positive.

In 1980, the ratio of North to South American exports was 3.4, and in 2005 it was 2.9. The ratio of imports was 3.2 in 1980 and 4.6 in 2005. The gap ratio, however, was a positive 1.5 in 1980 and a negative 11.6 in 2005. Thus, all indicators reflect total movement in North America in a strong downward trend and in South America in a mild upward trend.

Figure 13. All Categories, Exports, in billions

Figure 14. All Categories, Imports, in billions

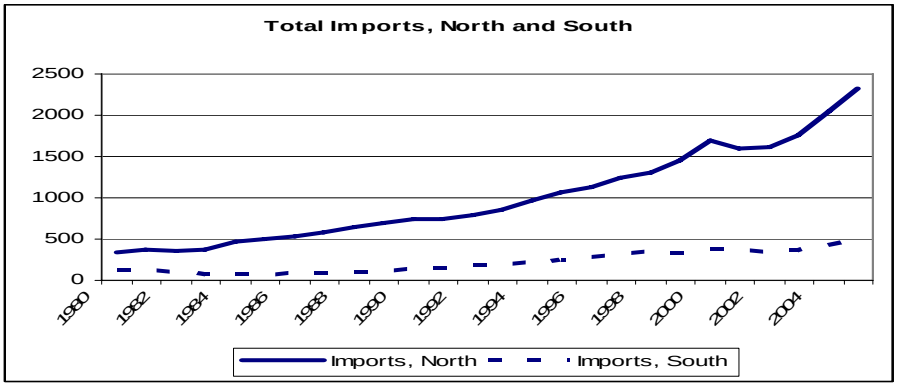
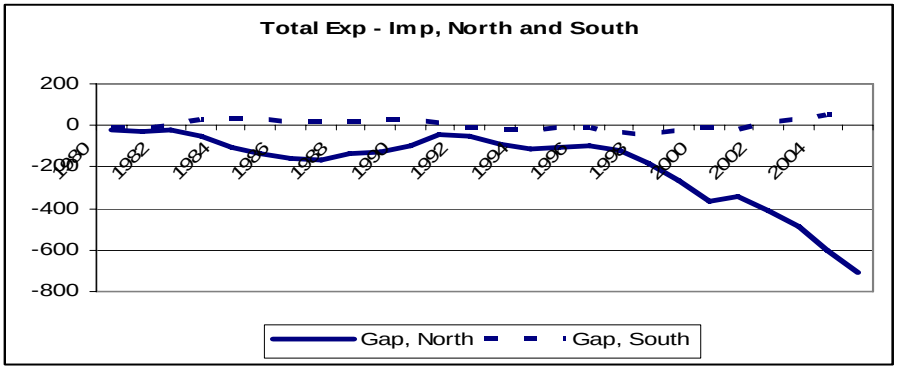


Figure 15. All Categories, Exports minus Imports



8. Conclusions

Exports, imports, and net exports during the 25 year period, from 1980 to 2005, in the North and South American countries involved in the trade groups of NAFTA, ANDEAN, and MERCOSUR were examined. Table 1 showed show strong positive correlations between exports in most cases, indicating that North and South American exports moved in the same direction during this period. Imports, for every area except mining, were correlated negatively in 1980, but had all moved to strong positive correlations by 2005 (.87 to .99). The correlation between net exports in North and South America was strongly negative in agriculture, manufacture, and commercial services in 1980, and strongly positive in mining. By 2005, the mining and agriculture correlations were very strongly negative; commercial services was mildly negative, and manufactures was very mildly positive.

Figures 3, 6, 9, 12, and 15 show net exports for North and South America for each commodity and overall. Agriculture shows several times when the lines crossed with a final crossing in 1998 and a diverging path since. Manufactures shows South America below zero but steady while North America exhibits a strong negative trend. Mining shows South America always positive and trending up since 1999 while North America is always negative and trending down since 1999. Commercial services in the South has a slight negative trend while the North shows a sharp rise from 1986 to 1997, then a trend down with a turn-around in 2004. Looking at net exports of all categories, we see the NAFTA countries with an increasing downward trend since 1992, while the South American groups hovered around zero until 2002 and have moved into positive territory.

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