

SECTION B1

EXISTING TRADE FLOWS

Development of the information discussed in this report section was substantially completed during 1999 and the resulting database reflects the information available as of that time.

TRADE DATABASE

This component of the LATTs project, which had as its purpose the identification of current trade patterns between the United States (individual Alliance states, the Alliance Region and other U.S. regions) and Latin America, required the assembly of the LATTs trade database. This constituted a significant challenge because LATTs was the first known study to attempt to link international trade data with domestic production and consumption data. This process involved allocating international trade passing through international gateways (ports, airports and border posts) to individual U.S. states and Bureau of Economic Analysis (BEA) zones. For example, tracing the trade route of a widget exported through a Florida port to Brazil from Tennessee.

Different commodity and trade databases address different components of the commodity flow path. Some address the international segment – from a port to a country – while others address the domestic portion – from Tennessee to Florida. To assemble a master database that actually addresses the entire trade path required matching a variety of databases.

The major challenge was to link international trade databases with the domestic commodity flow databases, specifically for trade between the U.S. and Latin America which passes through (i.e., gateways in) the Alliance, including trade which originates and terminates within the Alliance. Because of their specific natures, linking the databases required a great deal of experience and knowledge in this specific field. At the very least, the databases and models used for this task are all similar in the sense that they contain economic and trade indicators for specific jurisdictions – states, counties, BEA's, countries – by industry and commodity group – for the past, present and future – for different modes of transportation. But that is where the commonality ends. The data characteristics vary from database to database. For example, some databases report data at a state level while others report at a BEA or county level. They also report data at different commodity detail levels. And a certain commodity/industry grouping in one database may not include the same mix of industries as a similar grouping in another database. Also, some of the databases used to define the domestic routing of commodities contained both international and domestic flows in an aggregate form, hence requiring alternative methods of identifying the international component within aggregate domestic flows.

Consequently, this effort required more than merely “cutting and dicing” data taken off the shelf and then producing reports. At the very least, it required a

great deal of data processing, an understanding of how the specific databases vary, the expertise to untangle data mismatches, and the capacity to assemble a larger customized database. The results of this effort provided the basis for this section of the report.

THREE INTERNATIONAL TRADE COMPONENTS

There are three international trade components (see **Exhibit B1-1**) for which data was collected, each from different sources:

- ▶ International seaborne trade;
Source: Journal of Commerce's Port Import Export Reporting Service ("PIERS").
- ▶ International cross-border trade with Mexico;
Source: Bureau of Transportation Statistics' Transborder Surface Freight Database.
- ▶ International air cargo trade;
Sources: U.S. imports and exports for selected airport codes, Department of Commerce, Bureau of the Census; and Trade with U.S. Possessions, Annual EA695, Department of Commerce, Bureau of the Census.

Exhibit B1-1
THREE INTERNATIONAL TRADE COMPONENTS



For all three of these categories, the data addresses the flow for trade through U.S. gateways (seaports, border posts and airports) where international shipments are cleared. During the clearance process, a range of information about the shipments is collected, the most useful and accurate of which is information about the nature of the shipment as well as the international origin/destination. This information was used to trace the international trade patterns for individual industry sectors.

Also collected during the clearance process, specifically for the seatriade and cross-border trade, is information about the U.S. shipper/receiver, including their domestic location. Conceptually, this information about the domestic origin/destination could be useful in tracing international trade domestically, to and from U.S. locations of origin and destination. However, this domestic data component was found to have a significantly high level of error. For example, shippers commonly identify the address of the respective company headquarters as the point of origin/destination, rather than the actual production plant. Grain from Iowa shipped down the Mississippi River system through the port of New Orleans to Brazil may actually be shown as being shipped from New York where the shipper was headquartered. In other cases, no address is provided in this database. Although this problem of arbitrary reporting was not universal to all industry sectors, it was found that these international databases could not be used alone to accurately trace the domestic routing of international trade. Hence, an approach was undertaken which involved supplementing domestic reporting components of the international trade databases with other data sources, namely:

- ▶ Reebie TRANSEARCH data.
- ▶ 1993 Commodity Flow Survey, Department of Commerce/Bureau of the Census.
- ▶ Standard & Poor's DRI U.S. Regional Economic Service.

All three of these data sources were used to help define the domestic production and consumption and related flow patterns for commodities which were characteristic of Latin American trade. It is important to note that while the international trade routing portion (between ports/airports/border-posts and foreign origin/destinations) was based primarily upon shipper declarations, the domestic routing portion, though somewhat based upon declarations where available, was supplemented by other data sources and models. The method of supplementing the declarations of domestic origins/destinations identified the most plausible domestic routing and allocation of international trade. To accomplish this, the domestic allocation process went through a series of progressive adjustments and refinements. For example, one of the early observations made during internal reviews was that the domestic allocation process had a bias toward the gateway states. In other words, the gateway states were shown to produce/consume an unusually high percentage of the trade passing through them. For some sectors like petroleum (crude & refined) which is shipped primarily through ports in Texas and Louisiana, the largest share was shown to be predominantly produced and consumed in those two states. This is actually plausible since these two states have a strong local base in those industries. However, in general, especially for merchandise and

industrial goods, the gateway state bias was beyond plausible. Hence, DRI's U.S. Regional Economic Service was used in combination with Reebie's TRANSEARCH data and the 1993 Commodity Flow Survey data, to adjust for the bias.

LATTS TRADE DATABASE

One of the challenges of undertaking a study of this nature was the sheer magnitude of data which was analyzed. At the database level, LATTS studied trade between 112 specific U.S. entities (76 Alliance state BEA's, Puerto Rico, and 35 non-Alliance states) and 23 foreign entities (19 Latin American, and 4 other world regions), through 101 gateways (ports/border-posts/states), for 32 different commodity groups, by 3 international modes and 6 domestic modes, over a space of 5 previous years (1992-1996). From a mathematical standpoint, the combinations ran into the millions, making it very impractical to report findings at this level of detail.

Hence, for purposes of discussing trade patterns in this report, the U.S. was broken into five major regions; the Alliance, the Southwest, the Northwest, the Central and the North Atlantic states. The states included in each region are shown in **Exhibit B1-2**. The non-Alliance states were addressed on a regional basis, while the trade patterns for each of the Alliance states and Puerto Rico were identified individually.

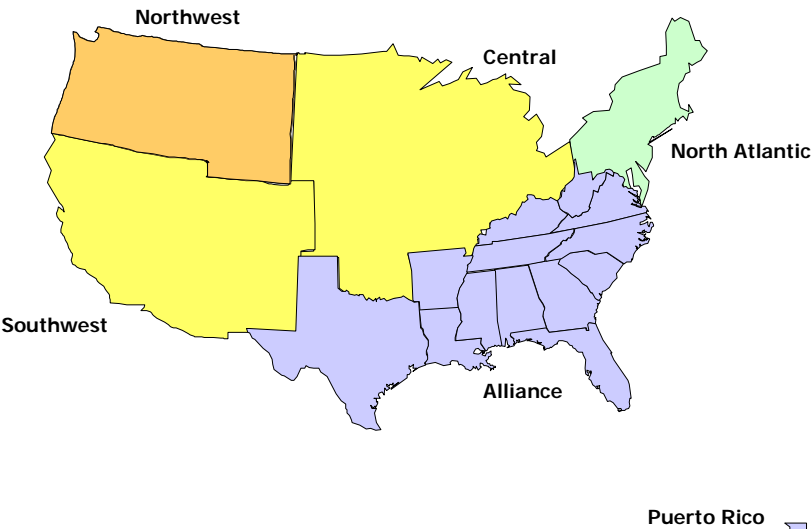
In a similar manner, Latin America was grouped into 19 individual entities, the majority of which are individual countries, while several of the smaller countries were combined into groups, as shown in **Exhibit B1-3**.

In addition to the 19 Latin American data regions shown above, there are four additional international data regions for which the database identified trade with the U.S.: Asia, Europe, Canada and the Rest of World. However, in this report, to simplify the task of reporting non-Latin American international trade, these four regions were combined into a single Rest of World category.

COMMODITY SECTORS

For this study, the Standard Transportation Commodity Code (STCC) classification system was used, specifically at the 2-digit level. **Exhibit B1-4** lists the commodities and their associated codes. In addition, for presentation purposes broader classifications are shown below. These classifications are intended to simulate material handling needs.

**Exhibit B1-2
U.S. REGIONS FOR THE LATTS TRADE DATABASE**



<u>Northwest</u>	<u>Southwest</u>	<u>Central</u>	<u>North Atlantic</u>	<u>Alliance</u>
Washington Oregon Idaho Montana Wyoming	California Nevada Utah Colorado Arizona New Mexico	North Dakota South Dakota Nebraska Kansas Oklahoma Minnesota Iowa Missouri Wisconsin Illinois Michigan Indiana Ohio	Maine New Hampshire Vermont Massachusetts Connecticut Rhode Island New York New Jersey Pennsylvania Maryland Delaware	Texas Arkansas Louisiana Mississippi Alabama Georgia Florida Kentucky Tennessee South Carolina North Carolina W. Virginia Virginia Puerto Rico

**Exhibit B1-3
LATIN AMERICAN DATA REGIONS**



Exhibit B1-4
TWO DIGIT STCC COMMODITY GROUPS

LATTS Commodity Group	STCC2 Code	Commodity Description
Crude & Refined Resources	13	Crude Petroleum Or Natural Gas
	29	Petroleum Or Coal Products
Agricultural & Natural Resources	01	Farm Products
	08	Forest Products
	09	Fresh Fish Or Marine Products
	10	Metallic Ores
	11	Coal
	14	Nonmetallic Minerals
Primary Manufactured	27	Printed Matter
	28	Chemicals Or Allied Products
	32	Clay, Concrete, Glass Or Stone
	33	Primary Metal Products
	39	Misc Manufacturing Products
Manufactured	19	Ordnance Or Accessories
	20	Food Or Kindred Products
	21	Tobacco Products
	22	Textile Mill Products
	23	Apparel Or Related Products
	24	Lumber Or Wood Products
	25	Furniture Or Fixtures
	26	Pulp, Paper Or Allied Products
	30	Rubber Or Misc Plastics
	31	Leather Or Leather Products
	34	Fabricated Metal Products
	35	Machinery
	36	Electrical Equipment
	37	Transportation Equipment
	38	Instrum, Photo Equip, Optical Eq
Miscellaneous & Unknown	99	Unknown
	40	Waste Or Scrap Materials
	41	Misc Freight Shipments
	46	Misc Mixed Shipments

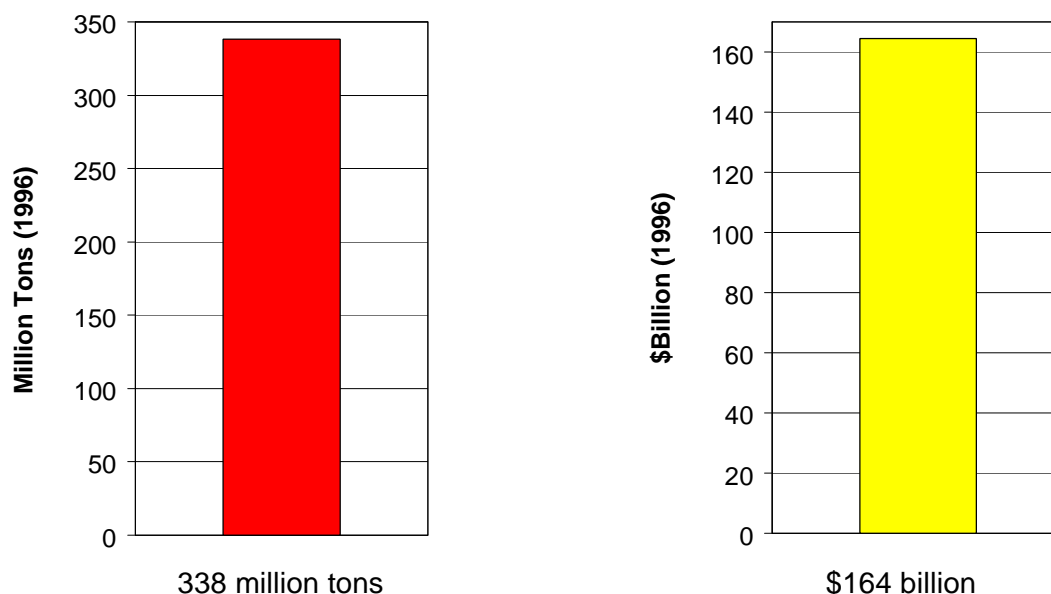
TRADE VOLUME MEASURES: TONNAGE VERSUS VALUE

The ultimate infrastructure investment strategies developed by this study were based, in part, on anticipated volumes of future trade with Latin America. The most useful measure in terms of identifying capital facilities and equipment needs associated with accommodating such trade is in terms of tons. For example, an annual tonnage throughput estimate of a certain commodity sector is useful in estimating the level of facilities and equipment to handle such throughput over the course of a year. Hence, the majority of the analysis in this report is in terms of tons (metric). However from a reporting standpoint, this presents a problem of bias toward bulk commodity sectors, specifically in the case of sea trade where the mix of commodities is dominated by bulk commodities (crude petroleum, grain, coal, etc). This skews the data toward trading partners, U.S. gateways, U.S. origins/destination and inland modes which are bulk intensive. Hence, the sea trade analysis in this report contains a 1996 dollar value based analysis to complement the tonnage analysis. On the other hand, the air cargo and cross-border Mexican trade components have a more diverse mix of commodities. Hence these categories were analyzed from a tonnage standpoint only.

TRADE SUMMARY

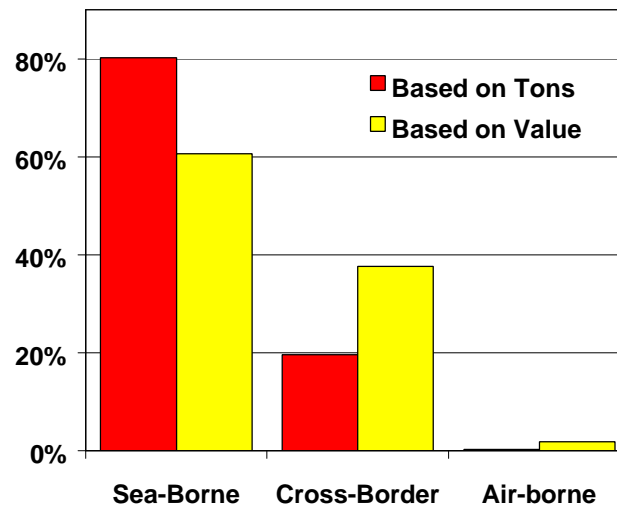
The total trade between the Southeastern Alliance and Latin America for 1996, measured in volume, was 338 million metric tons. In terms of value, trade between the two regions totaled \$164 billion, as shown in **Exhibit B1-5**. Clearly, the trade relationship between the Alliance and Latin America is a substantial one—with implications for jobs, transportation infrastructure, and the general economies of both.

Exhibit B1-5
TOTAL ALLIANCE GATEWAY TRADE WITH LATIN AMERICA
Tons vs. Value (1996)



Measured by volume, gateway trade between the Alliance and Latin America is primarily transported by water, as depicted in **Exhibit B1-6**. In tons, 80% of trade is sea-borne, about 20% is cross-border, and only a small amount is carried by air. This volume of trade indicates that water related transportation infrastructure is crucial to growth in trade of bulk commodities between the regions.

Exhibit B1-6
TOTAL ALLIANCE GATEWAY TRADE WITH LATIN AMERICA – BY MODE



Measured in value, sea-borne trade is again the primary transport mode, but not by as large a margin. In dollars, 61% of trade is carried by water, 38% is cross-border, and about 2% is shipped by air.

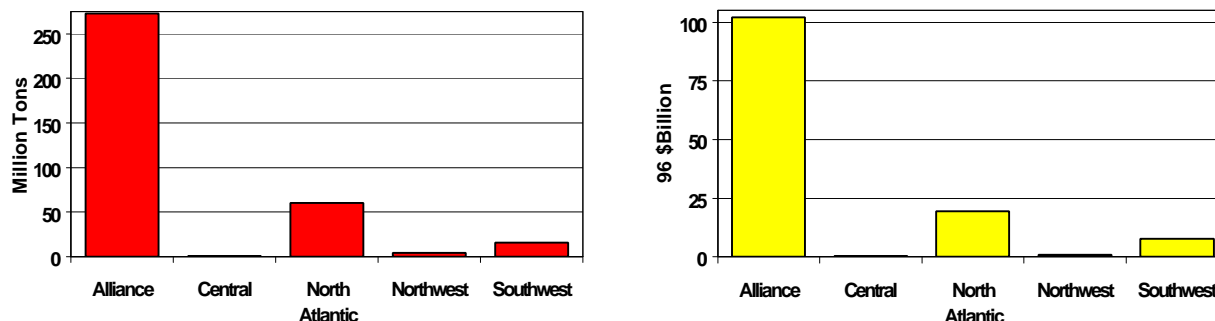
SEABORNE TRADE AND THE ALLIANCE REGION

Various characteristics of seaborne trade as it relates to the Alliance Region are summarized below.

Alliance as the U.S. Gateway to Latin America

In terms of U.S. regions, the Alliance is the largest trading gateway with Latin America measured by tons and by value. The Alliance was the gateway for 273 million tons of seatrade with Latin America in 1996, while the next closest region was the North Atlantic with just under 60 million tons. In terms of value, the Alliance's seatrade with Latin America totaled nearly \$102 billion followed by the North Atlantic with \$19.5 billion (**Exhibit B1-7**).

Exhibit B1-7
THE ALLIANCE IS THE GATEWAY TO LATIN AMERICA
1996 TOTAL SEATRADE WITH LATIN AMERICA



Latin American vs. Rest of the World Trade

Not only is the Alliance Region the major U.S. gateway for Latin American trade, Latin America is an important seaborne trade market for the Alliance Region itself. During 1996, 41 percent (27.3 million tons) of the over 662 million tons in U.S. seaborne trade which gatewayed through the Alliance Region's ports, was Latin American trade.

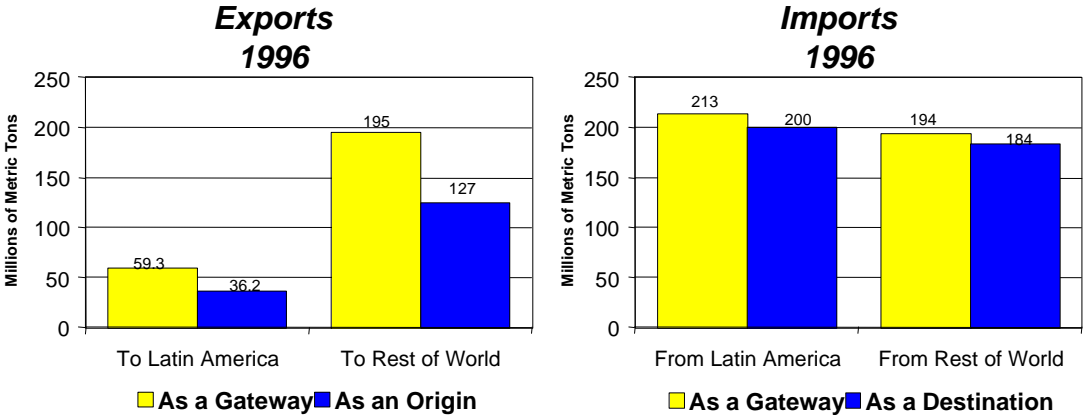
In addition to being an important gateway for U.S. trade with Latin America, the Alliance Region is the origin and destination for a considerable share of trade with Latin America. In 1996, an estimated 236 million tons of Latin American sea trade originated or terminated in the Alliance Region, compared to 308 million to and from the rest of the world.

The relationship between flows which gateway in the Alliance Region and either originated or are destined for the Region is illustrated in **Exhibit B1-8**. More Latin American trade gatewayed through the Alliance Region's ports than actually originated and terminated in the Alliance Region. For Latin America exports, the Alliance Region's ports were the gateway for 59.3 million tons compared to 36.2 million tons which originated from the Alliance Region. For Latin American imports, the Alliance Region's ports were a gateway for 213 million tons compared with 200 million tons terminating in the Alliance Region.

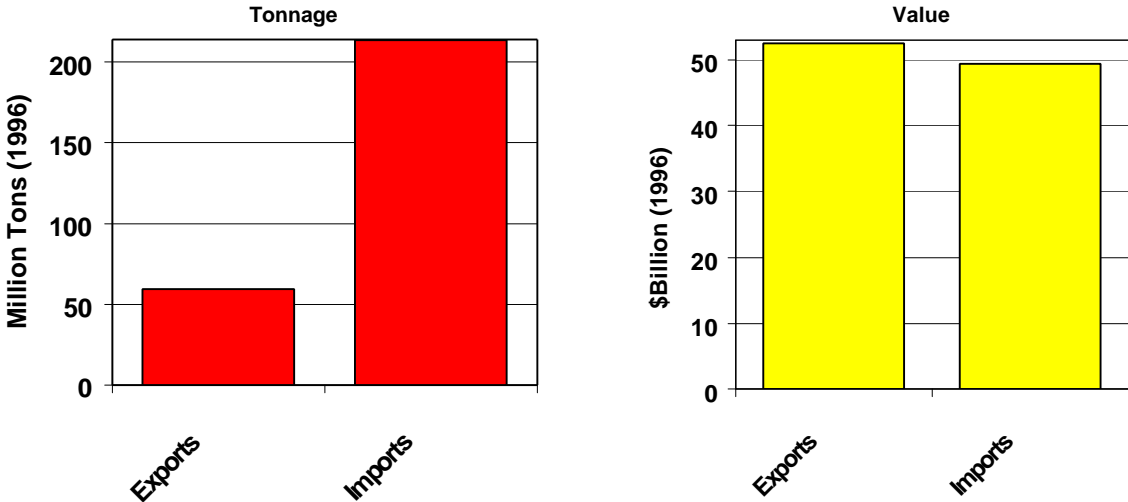
Seaborne Exports vs. Imports

The relationship between exports and imports is reversed when seaborne trade is measured in value of goods rather than tonnage. The Alliance was the gateway for a total of \$102 billion worth of trade between the U.S. and Latin America in 1996. Of that total, exports from the U.S. to Latin America through the Alliance totaled \$52 billion worth of goods transported by sea. Imports into the U.S. from Latin America were at \$49 billion in value, as depicted in **Exhibit B1-9**.

**Exhibit B1-8
THE ALLIANCE REGION AS A GATEWAY AND ORIGIN/DESTINATION
FOR SEABORNE TRADE**



**Exhibit B1-9
TOTAL ALLIANCE GATEWAY TRADE
1996 SEATRADE WITH LATIN AMERICA**



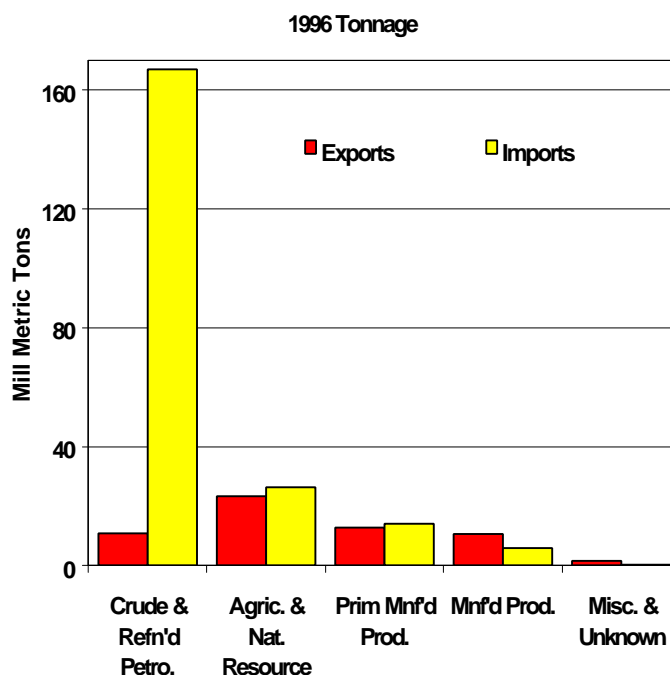
Seatrade Tonnage by Commodity Group

The largest Alliance gateway seatrade commodity group in terms of tonnage is Crude & Refined Petroleum, with 178 million tons in 1996. The U.S. sent 11 million tons of Crude & Refined Petroleum through the Alliance to Latin America, while 167 million tons were imported into the U.S. through Alliance gateways from Latin America (**Exhibit B1-10**). After Crude & Refined Petroleum, the largest volume commodity groups were as follows: Agricultural & Natural Resources, Primary Manufactured Products, Manufactured Products, and Miscellaneous and Unknown.

Agricultural & Natural Resources totaled 50 million tons of seatrade between the U.S. and Latin America in 1996 through the Alliance gateways. The U.S. exported approximately 23 million tons to Latin American nations by sea, while importing approximately 26 million tons from them using Alliance gateways.

Primary Manufactured Products trade using Alliance gateways amounted to 27 million tons—13 million tons of which was exported from the U.S. to Latin America, and 14 million tons were imported into the U.S. by sea. Over 16 million tons of seaborne Manufactured Products flowed through Alliance gateways. Exports from the U.S. to Latin America made up almost 11 million tons, while imports from Latin America totaled around 6 million tons. Finally, about 2 million tons of Miscellaneous & Unknown products were exported from the U.S. to Latin America via seatrade through Alliance gateways.

Exhibit B1-10
ALLIANCE SEATRADE WITH LATIN AMERICA
BY COMMODITY GROUP



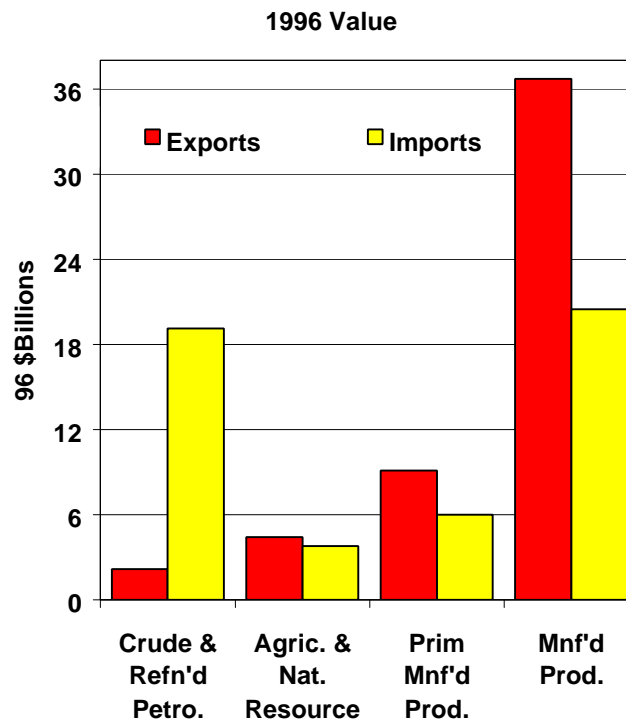
Seatrade Commodity Groups By Value

The gateway seatrade between the Alliance and Latin America, when measured in value, depicts an import/export relationship that is quite different from that shown by tonnages. In terms of value, the largest commodity group is Manufactured Products, with \$57 billion in trade between the U.S. and Latin America using the Alliance as a gateway. Of that amount, \$37 billion is accounted for by exports to Latin America from the U.S. (**Exhibit B1-11**).

Crude & Refined Petroleum follows Manufactured Products at \$21 billion total, \$19 billion of which is imported into the U.S. from Latin America. Primary Manufactured Products account for \$15 billion, \$9 billion of which is exported from the U.S. Another \$8 billion comes from Agricultural & Natural Resources, roughly half being traded in each direction.

Combining the Primary Manufactured & Manufactured commodities, the U.S. exports \$46 billion of \$72 billion of the total trade occurring in those two commodity groups.

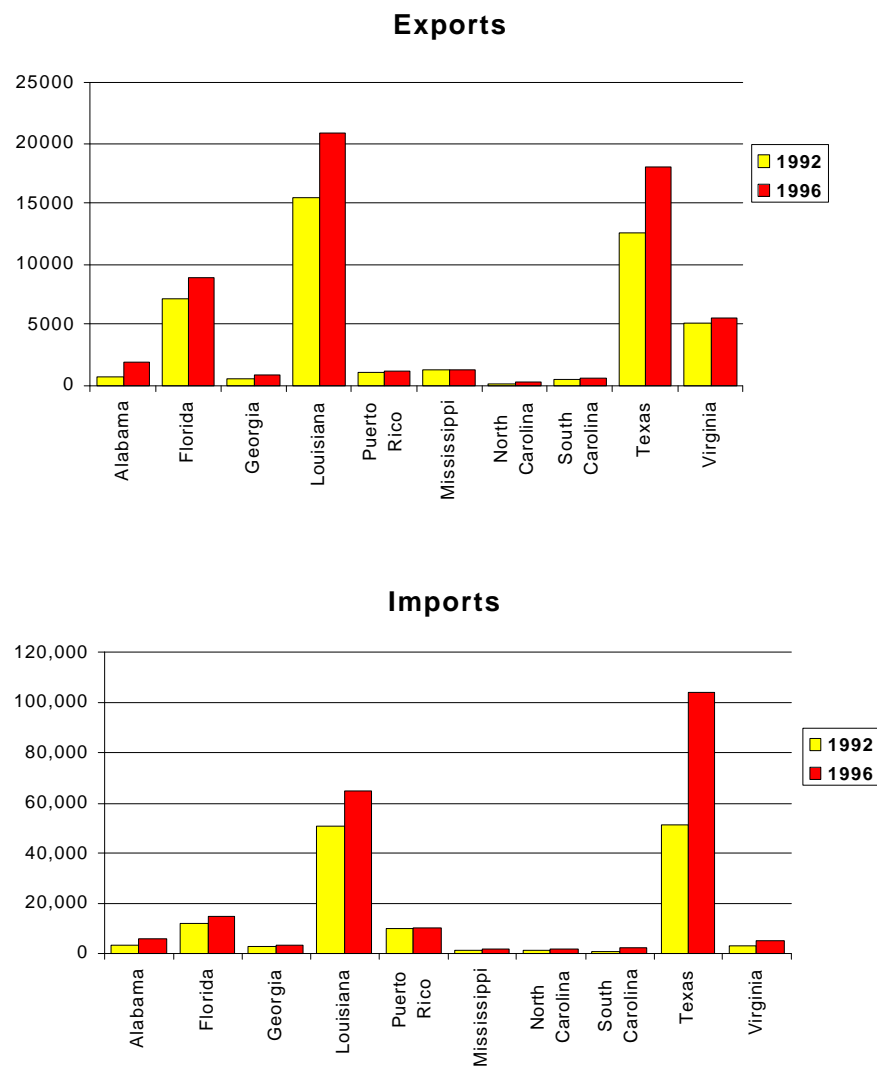
Exhibit B1-11
ALLIANCE SEATRADE WITH LATIN AMERICA
BY COMMODITY GROUP



Gateway States

Ten of the Alliance members have coastal ports and hence are defined as gateway states. There are big differences in the volumes of Latin American trade moving through different gateway states. Texas and Louisiana are by far the big players for imports, with Texas in 1996 at over twice Louisiana's volume. Moreover, Texas has also been growing most rapidly, not only in absolute terms, but in percentage terms as well. These two states are followed by Florida and, more distantly, by Alabama and Virginia. The same states stand out in exports as well, although Virginia is not far behind Florida, Louisiana and Texas are about even, and Alabama is less distinguished from the rest of the pack (**Exhibit B1-12**).

Exhibit B1-12
ALLIANCE GATEWAY STATES FOR LATIN AMERICAN SEATRADE
(Thousands of Tons)



The distribution of gateway seatriade varies significantly based on the mix of commodities, primarily due to the materials handling needs of various commodities. For example, bulk commodities such as farm products and coal require different materials handling equipment (silos, conveyors, ship loaders, etc.) than containerized commodities (gantry cranes, stackers, carriers, etc.), or liquid bulk commodities (storage tanks, pipelines, etc.). Moreover, ports tend to specialize in specific materials handling equipment and capacities, and hence attract specific commodity mixes consistent with their materials handling.

The following four exhibits (**Exhibits B1-13 through B1-16**) show the 1996 tonnage distribution of Latin American Seatriade across the Alliance port gateways for four commodity groups: crude and refined petroleum products, agriculture and mined products, primary manufactured products, and manufactured commodities. Although there are some exceptions, crude and refined products tend to be of a liquid bulk nature, agriculture and mined product tend to be of a bulk nature, primary manufactured products tend to be of a bulk and/or break-bulk nature and manufactured goods tend to be containerizable, although there are some exceptions to that rule. It is clear from these maps that the distribution of Latin American trade varies by commodity group, primarily due to the port materials handling capabilities, as well as other factors such as market access, etc.

Exhibit B1-13
ALLIANCE PORT VOLUMES FOR LATIN AMERICAN TRADE
CRUDE AND REFINED PETROLEUM PRODUCTS

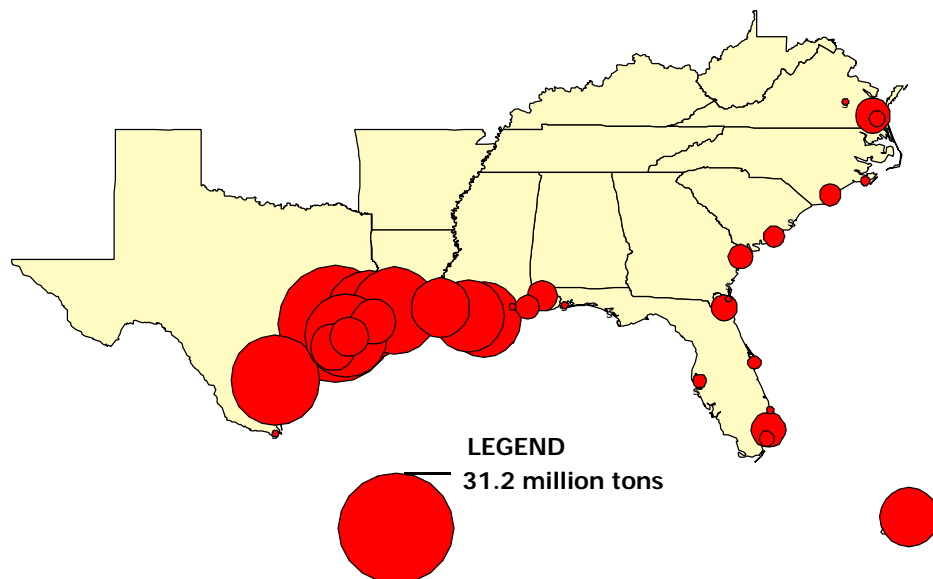
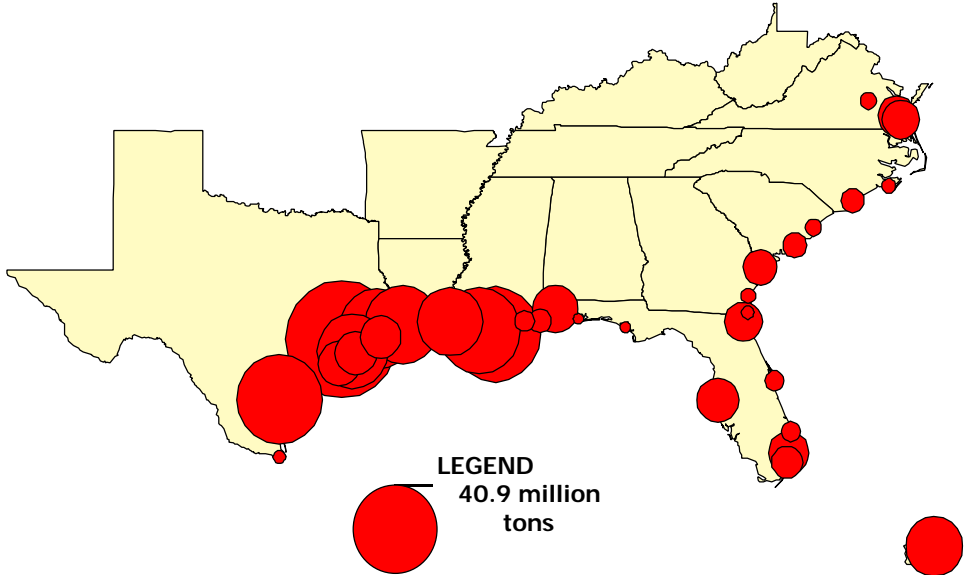


Exhibit B1-16
ALLIANCE PORT TRAFFIC 1996 – LATIN AMERICAN TRADE
All Commodities – Tons



Much like all other rankings, the gateway rankings are skewed as a result of the high tonnage volumes for crude and refined petroleum products; Texas and Louisiana are shown to dominate Latin American gateway sea trade (**Exhibits B1-17 and B1-18**). However, from a value standpoint, other Alliance states have a more prominent role, especially when the data regarding crude and refined petroleum products is excluded.

Exhibit B1-17
ALLIANCE GATEWAY STATES FOR LATIN AMERICAN SEA TRADE
1996 Tons vs. Value

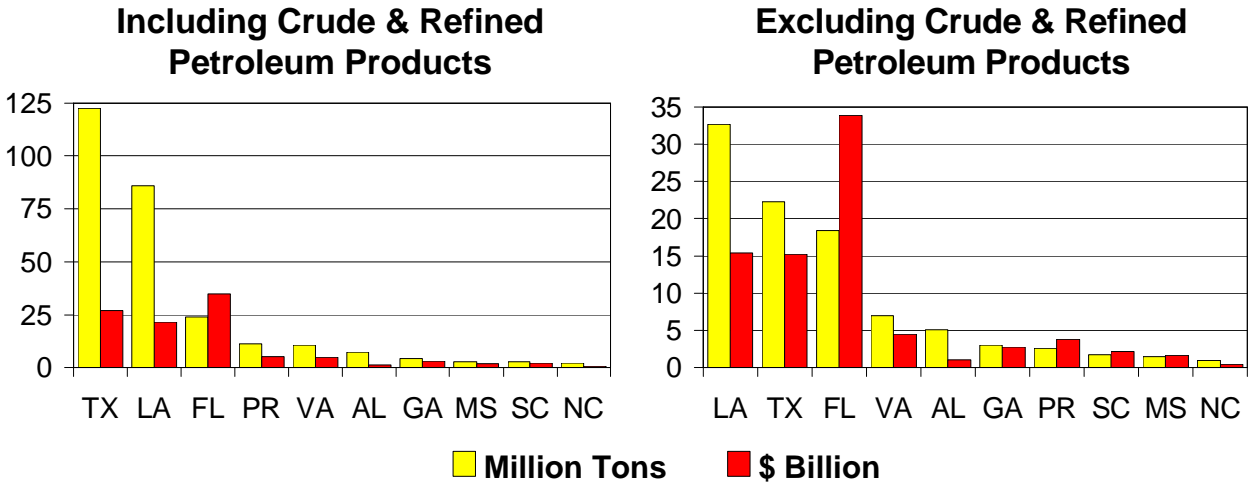
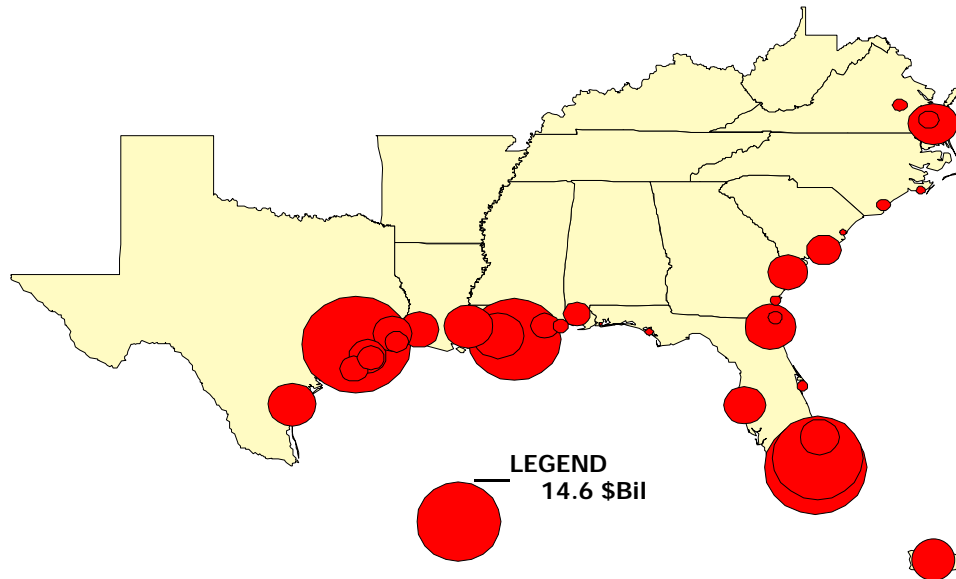


Exhibit B1-18
ALLIANCE PORT TRAFFIC
1996 – LATIN AMERICAN TRADE
All Commodities – Value



U.S. Origins and Destinations by Commodity Group

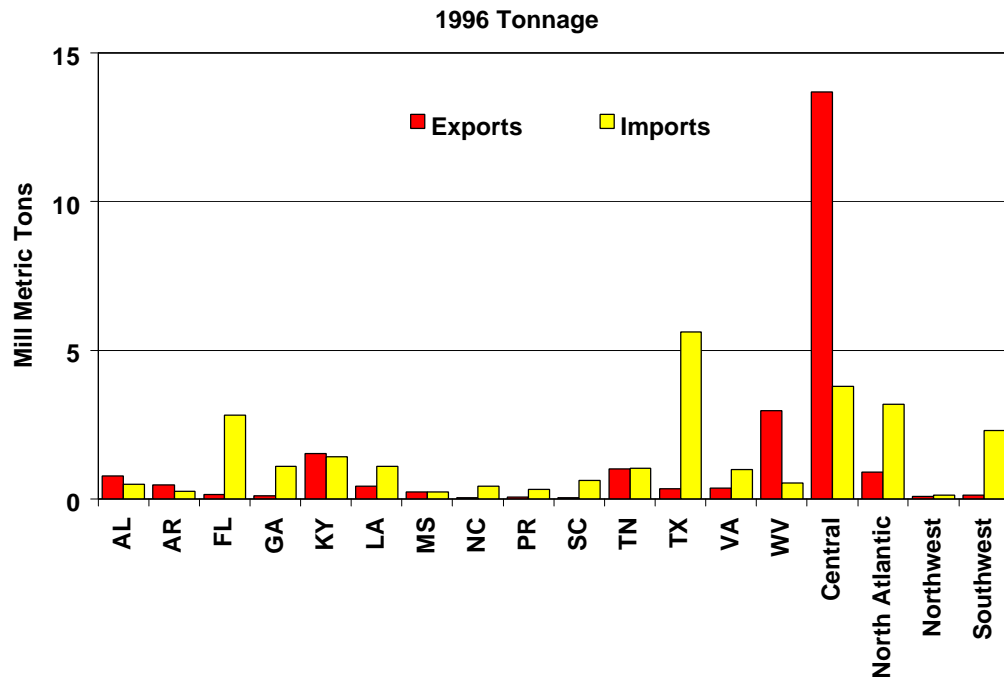
The distribution pattern for different commodity groups varies, due to differences in production and consumption patterns of various U.S. regions.

Agricultural & Mining Products

The U.S. Origin/Destinations gatewaying Agricultural & Mining Products through the Alliance are led by the Central region of the country. The Central region is the origin for 13.7 million tons of Agricultural & Mining Products using Alliance gateways to Latin America. That region is destination for 3.8 million tons of Agricultural & Mining Products from Latin America. The value measurement of trade between the Central region and Latin America is in line with the tonnage measurement--\$3.2 Billion of exports originating in the Central region, and \$0.35 billion of imports from Latin America. (**Exhibit B1-19**)

The next largest origin/destination for Latin American trade is Texas, followed by the North Atlantic region. Texas is the destination for 5.6 million tons of Agricultural & Mining Products gatewaying in the Alliance from Latin America, and the originating point for 0.3 million tons sent to Latin America. In terms of value, this is \$0.55 billion in imports and \$0.05 billion in exports to the region.

Exhibit B1-19
U.S. ORIGIN/DESTINATIONS
AGRICULTURAL & MINING PRODUCTS



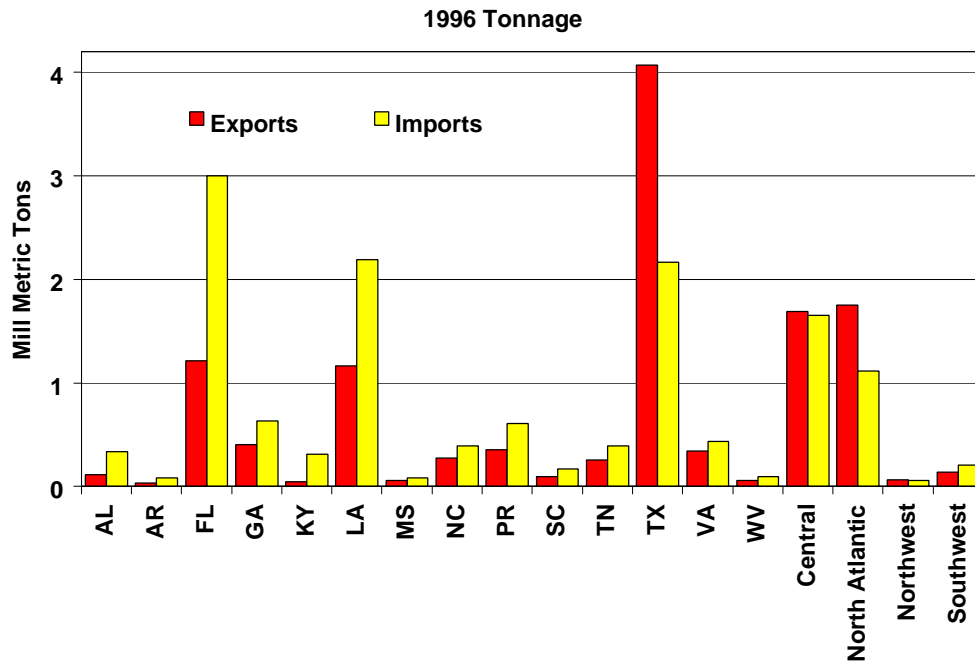
Primary Manufactured Products

The Primary Manufactured Product category is very different in its origin/destination profile. Texas is the largest origin/destination point for trade with Latin America in this commodity group, followed by Florida, Louisiana, and the Central and North Atlantic regions. Texas is the originating point for over 4 million tons of exports to Latin America, and the destination for over 2 million tons. The next closest exporters are the North Atlantic and Central regions, with 1.75 million and 1.7 million tons, respectively. Florida and Louisiana each import more Primary Manufactured Products from Latin America than Texas, as destinations for 3.0 and 2.2 million tons. **(Exhibit B1-20)**

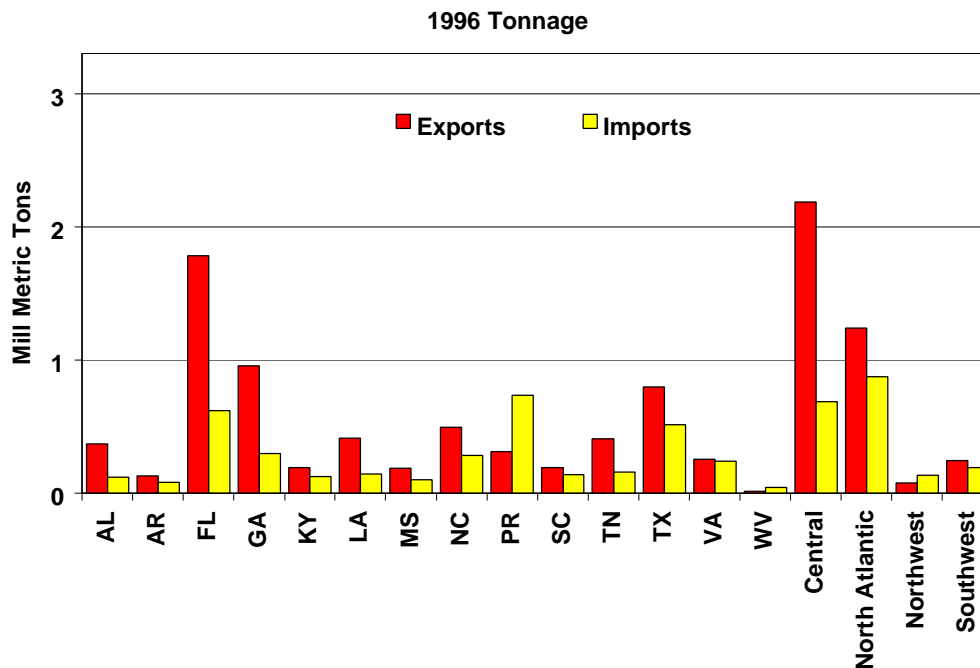
Manufactured Products

Manufactured Products trade is led by the Central region, followed by Florida and the North Atlantic region. The central region was the origin for exports that totaled 2.2 million tons through Alliance gateways in 1996, while the region was the destination for 0.7 million tons. Florida followed with 1.8 million tons exported, and 0.6 million tons imported. The North Atlantic was the origin for 1.2 million tons of exports and the destination for 0.9 million tons of manufactured products. **(Exhibit B1-21)**

**Exhibit B1-20
U.S. ORIGIN/DESTINATIONS
PRIMARY MANUFACTURED PRODUCTS**



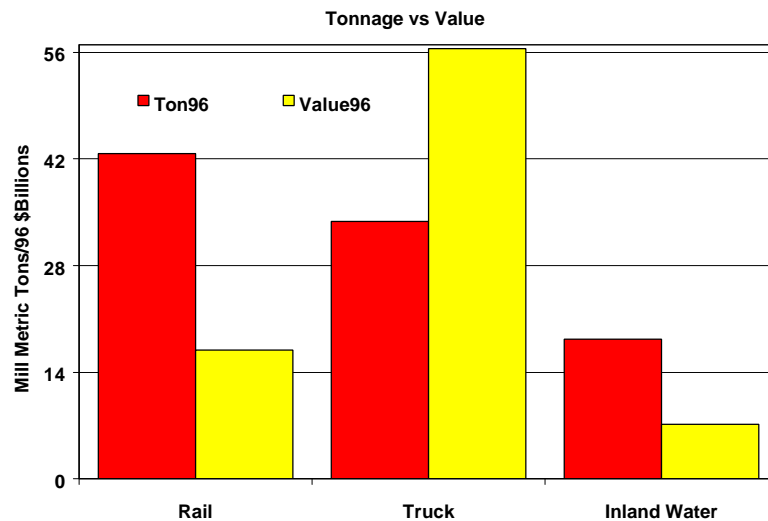
**Exhibit B1-21
U.S. ORIGIN/DESTINATIONS
MANUFACTURED PRODUCTS**



Inland Modal Choices for Alliance Seatrade

While the origin/destination pattern summarized above influences inland modal choices, the ranking of inland mode choice also varies depending upon the measure (weight or value) of trade used. In terms of weight, rail was the leading modal choice, followed by truck and inland water. Rail carried a total of 42.6 million tons of seatrade Alliance gateway seatrade in 1996, while trucks transported 33.8 million tons and inland water carried 18.3 million tons. Measured in value, truck-borne trade totaled \$56.4 billion, followed by rail at \$16.9 billion and inland water at \$7.1 billion. (**Exhibit B1-22**)

Exhibit B1-22
1996 ALLIANCE SEATRADE
INLAND MODAL CHOICES



This distribution again emphasizes the importance of high value trade between the Alliance and Latin America. Trucks, while not carrying the level of tonnage that rail handles, are handling the most valuable goods traded with Latin America through Alliance gateways. This illustrates the crucial role played by interstates and other roadways in the Alliance-Latin American trade relationship.

Latin America Trading Partners for Sea Trade

The same seven countries or groups of countries appear at the top of both import and exports lists of primary Latin American trading partners for waterborne traffic through Alliance ports, although their rankings differ between exports and imports. The seven are Brazil; Colombia; Mexico; Venezuela; Jamaica and the Bahamas; Other Caribbean Islands; and Other Central American countries.

With respect to goods imported through Alliance gateway ports, in 1996, 94.0% of all imports that came from Latin America originated in one of the top seven.

The top two, Mexico and Venezuela, together originated 65.6%, and each of these percentages has been quite steady since 1992.

Companion figures for exports show less concentration. The top seven together accounted for 77.1% of Alliance gateway exports in 1996, little changed from the 78.4% in 1992. For exports, throughout the five-year period the top two trading partners were Mexico and Brazil, with Brazil leading Mexico until 1996. Together, the two nations received 39.6% of 1996 waterborne exports, up from 33.1% in 1995. Both the 1996 increase in the two-country share and Mexico's first place ranking are substantially due to a 60% surge in exports to Mexico. It is necessary to include four trading partners to account for at least half of exports. The group of Other Central American countries resides in third place throughout the five years, with fourth place variously occupied by Colombia, Jamaica and the Bahamas, and Venezuela.

ALLIANCE REGION AIR CARGO TRADE

Over the last half century it has become increasingly cost-effective to ship a wide variety of goods by air—especially those goods with a high value relative to weight. This trend has had a profound effect on the development of global, regional and national production networks. For example, many plant managers can use air transport to provide cost-effective just-in-time delivery of parts or products to customers or production partners in different countries and even continents. These products range from parts for computers, telecommunications equipment and motor vehicles to high-value cosmetics and apparel to fresh seafood, fruit and flowers.

The United States is a key player in the global production/consumption networks for many of these products and has experienced strong growth in airborne trade. Over the 1992-1996 period, international airborne commodity trade grew at an average annual rate of 9.0% for outbound flows and 10.3% for inbound flows. These growth rates are significantly higher than the growth rates for waterborne trade of 1.0% for outbound flows and 4.7% for inbound flows.

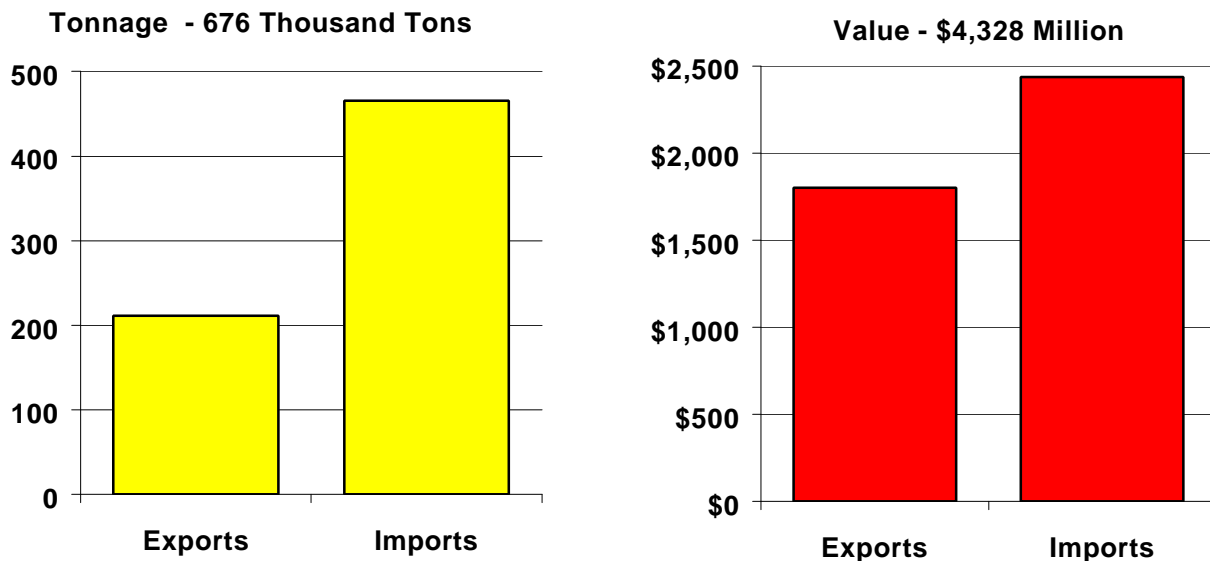
The largest destination of U.S. airborne exports is Asia (36% of 1996 exports), followed by Europe (36%), Latin America (17%) and Canada (7%). Asia and Canada were the fastest growing destinations of U.S. airborne exports with annual average 1992-96 growth rates of 15.7% and 17.4% respectively. Airborne exports to Latin America and Europe each experienced significantly lower growth rates of about 5%. The largest source of U.S. airborne imports is Asia (41% of 1996 imports), followed by Europe (34%) and Latin America (21%). Imports from Latin America grew at an average annual rate of 7.6% over the 1992 to 1996 period while all other regions had growth rates in the range of 10-12% per year.

U.S. Air Cargo Trade With Latin America

U.S. air cargo trade with Latin America totaled 676 thousand tons in 1996. This volume represented a total value of over \$4.3 billion in total trade. Of this, 211,000 tons of air cargo trade was exported to Latin America from the U.S.,

while another 465,000 tons were imported to the U.S. (**Exhibit B1-23**). On the value side, \$1.8 billion worth of air cargo was exported from the U.S., while \$2.4 billion worth was imported.

Exhibit B1-23
U.S. AIR CARGO TRADE WITH LATIN AMERICA



Air Cargo Commodity Groups

As discussed, the characteristics of various commodity groups influences the extent to which air freight is or is not an appropriate modal choice.

When viewed on a tonnage basis (see **Exhibit B1-24**), Farm Products are by far the predominant commodity group. Fresh Fish and Other Marine Products rank second, followed in sequence by Apparel, Machinery (excluding Electrical), and Electrical Machinery.

The pattern of leading Latin American air cargo commodity groups differs when viewed on the basis of value (see **Exhibit B1-25**). The Apparel group is the leading group, followed by Electrical Machinery and Machinery (excluding Electrical). Farm Products, the leading air cargo commodity group on the basis of tonnage, is not even within the five highest ranked commodity groups when measured in terms of value.

Exhibit B1-24
KEY AIR CARGO COMMODITIES – LATIN AMERICAN TRADE

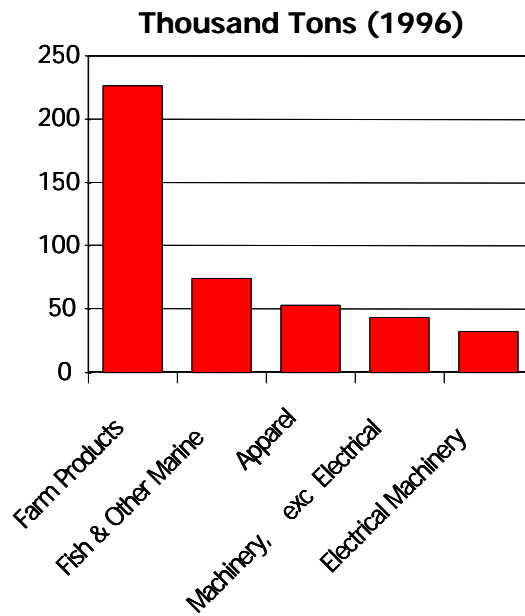
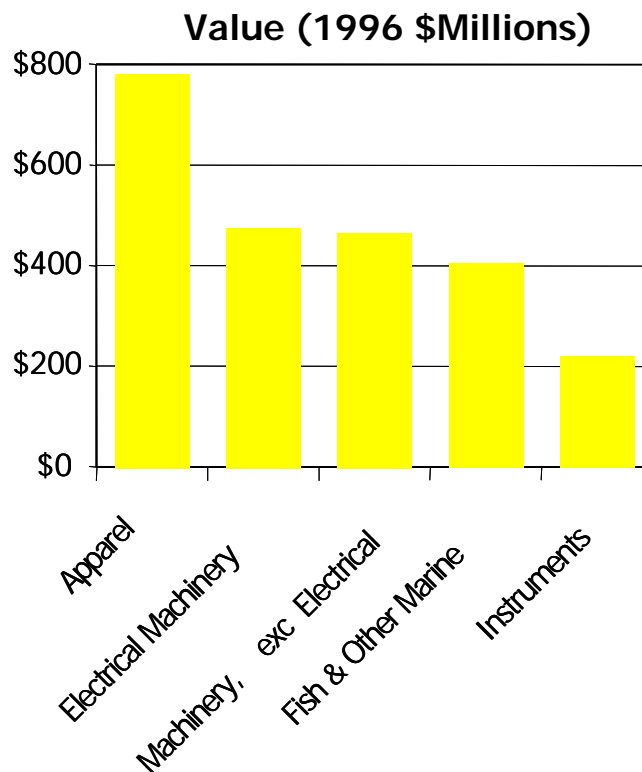


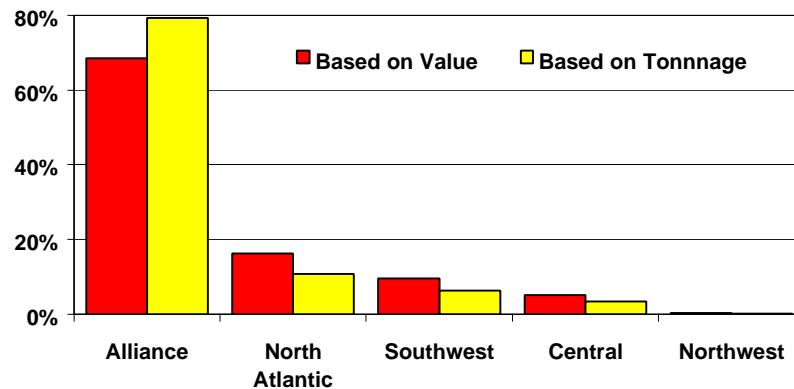
Exhibit B1-25
KEY AIR CARGO COMMODITIES – LATIN AMERICAN TRADE



Gateway Regions for Air Cargo Trade

The Alliance is the leading gateway region for air cargo trade with Latin America, both in terms of tonnage and value. Based on tonnage, the Alliance is the gateway for over 79% of U.S. air cargo trade with Latin America (**Exhibit B1-26**). The next closest regions are the North Atlantic and the Southwest with 10.8% and 6.3%, respectively. In terms of value, the Alliance is the gateway for 68.5% of air cargo trade with Latin America, followed again by the North Atlantic and Southwest with 16.3% and 9.6%.

Exhibit B1-26
GATEWAY REGIONS FOR 1996 AIR CARGO
TRADE WITH LATIN AMERICA



Air Cargo Trade by Alliance Gateway States

Air cargo gateways in the Alliance are led by Florida, which handled 488 thousand tons in 1996 (**Exhibit B1-27**). In the next tier, Puerto Rico was the gateway for 16,000 tons, followed by Tennessee (9,000 tons), Texas (8,000 tons), and North Carolina (7,000 tons).

U.S. Origin and Destination Air Cargo Trade

The Alliance is also the leading origin and destination for trade with Latin America in terms of both tonnage and value (**Exhibit B1-28**). In terms of tonnage, the Alliance is the origin or destination for 37% of U.S. air cargo trade with Latin America. The North Atlantic, Central, and Southwest regions follow with 27%, 19%, and 16%, respectively. In terms of value, the Alliance is the origin or destination for 40% of air cargo trade with Latin America, again followed by the North Atlantic (27%), Central (17%), and Southwest (15%).

Exhibit B1-27
1996 AIR CARGO TRADE WITH LATIN AMERICA
ALLIANCE GATEWAY STATES

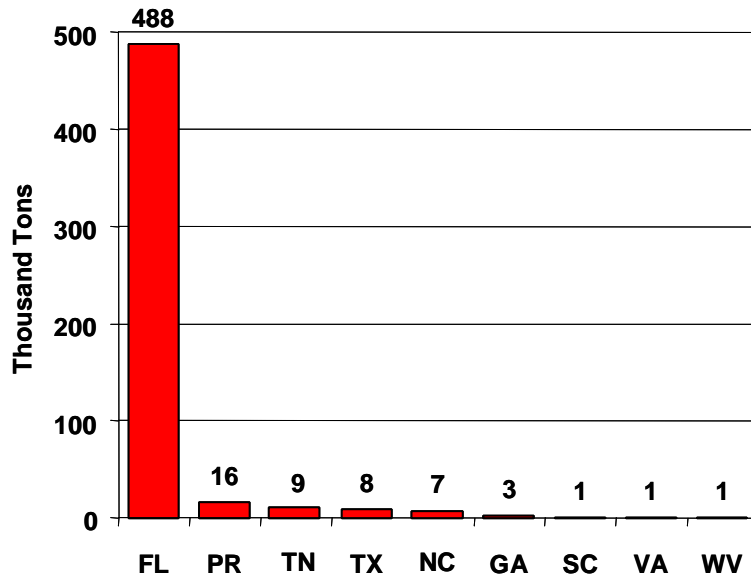
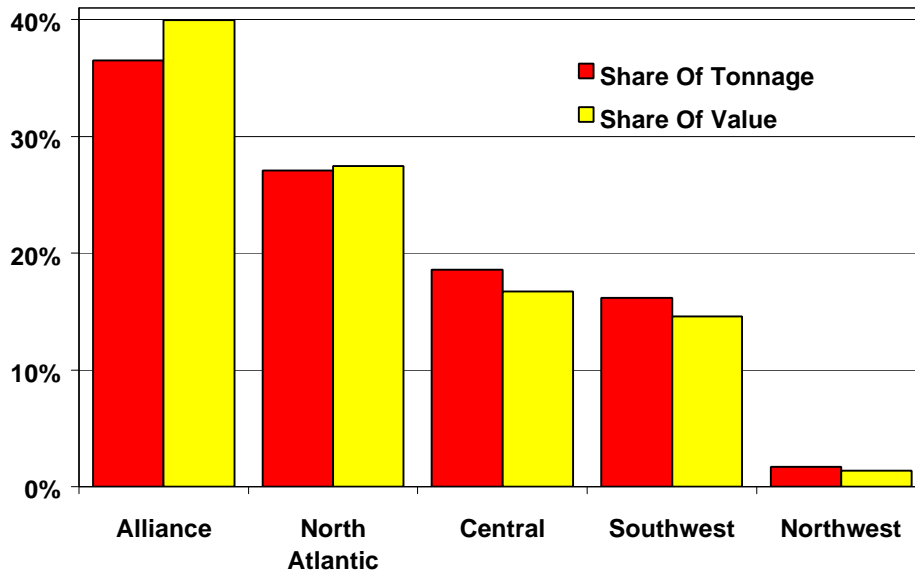


Exhibit B1-28
U.S. ORIGINS & DESTINATIONS
1996 AIR CARGO TRADE WITH LATIN AMERICA



Alliance's Air Cargo Trading Partners

Exhibit B1-29 (following page) depicts the Alliance's air cargo trade relationships with Latin American countries. In terms of tonnage, Colombia is the leading trade partner at nearly 170,000 tons. Other Central American countries are next with just over 75,000 tons. Chile, Brazil, and Ecuador follow with 61,000 tons, 42,000 tons, and 39,000 tons, respectively.

In terms of value, Other Central American countries lead with \$569 million of air cargo trade with the Alliance. The next tier consists of: Columbia (\$519 million), Brazil (\$400 million), the Dominican Republic (\$288 million), and Chile (\$218 million).

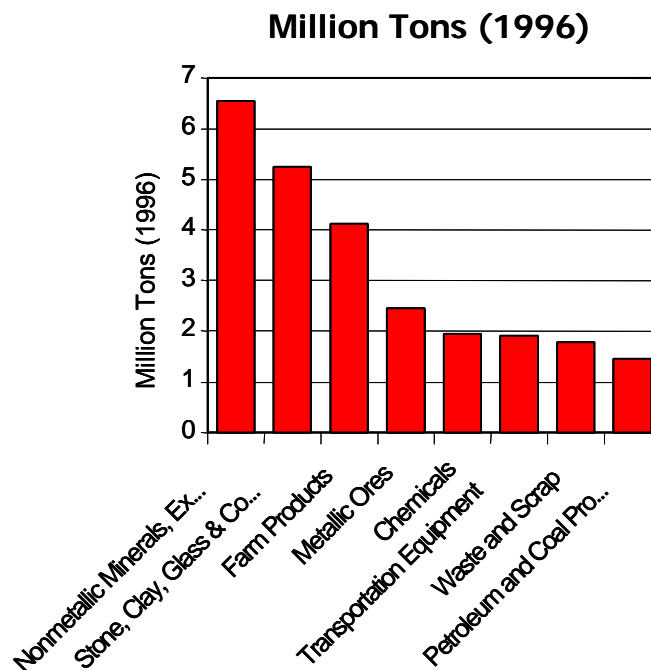
ALLIANCE REGION CROSS-BORDER TRADE WITH MEXICO

Another component of Latin American trade is cross-border trade with Mexico through the border states of Texas, Arizona, New Mexico and California. Mexico is an important cross-border trade market for the Alliance, both in terms of the Alliance (Texas) as a gateway to Mexico, and in terms of the Alliance's own trade with Mexico.

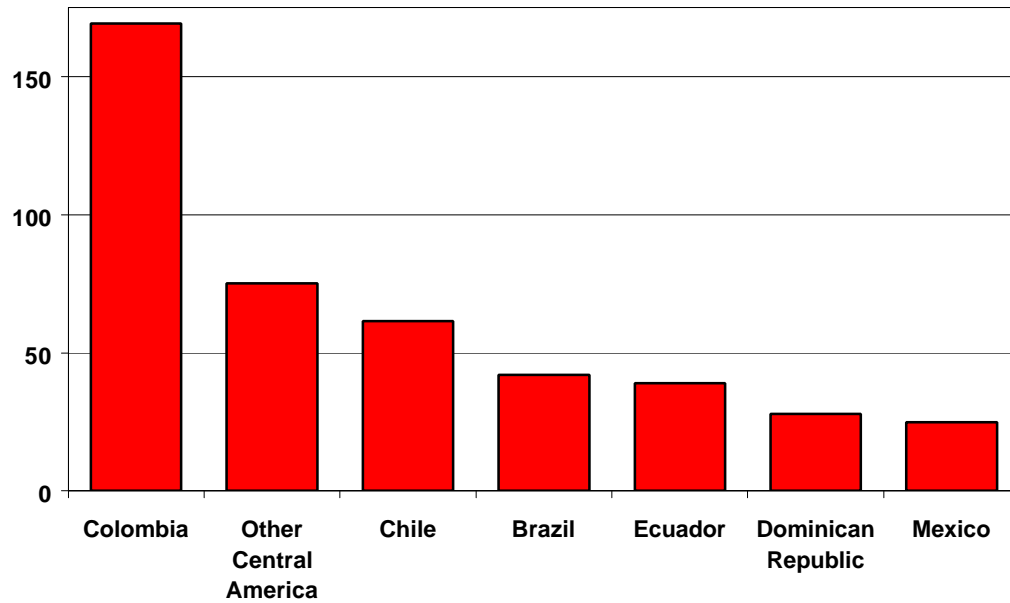
CROSS-BORDER TRADE COMMODITY GROUPS

Shown in **Exhibit B1-30** is the pattern of leading cross-border trade commodity groups based upon tonnage. As depicted, Non-Metallic Minerals is the leading commodity group, followed by the Stone, Clay, Glass and Concrete group. Farm Products and Metallic Ores are the third and fourth leading commodity groups based upon tonnage.

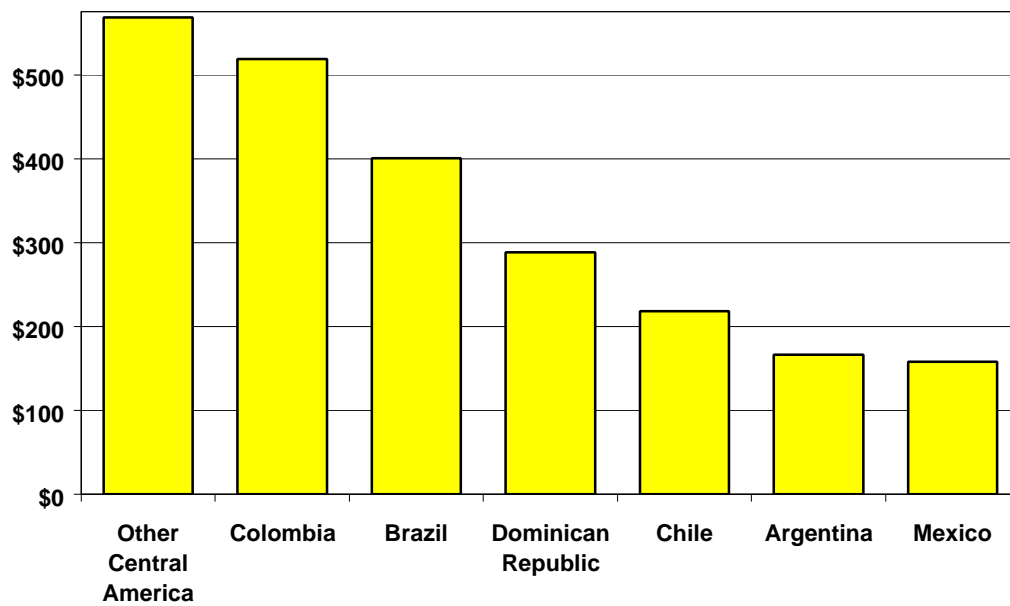
Exhibit B1-30
KEY CROSS-BORDER COMMODITIES – LATIN AMERICAN TRADE



**Exhibit B1-29
ALLIANCE'S AIR CARGO TRADING PARTNERS (TOP 80%)
1,000's Tons (1996)**



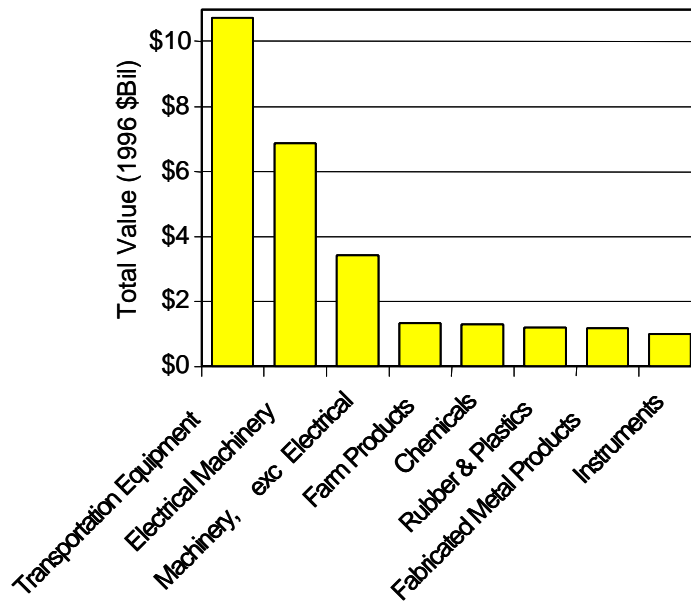
Value (1996 \$ Millions)



Due to the characteristics of the various commodity groups, the pattern of leading cross-border trade commodities is quite different when measured in terms of value. **Exhibit B1-31** shows that the cross-border trade commodity group with the highest value is Transportation Equipment, followed by Electrical Machinery and Machinery (excluding Electrical).

Exhibit B1-31
KEY CROSS-BORDER COMMODITIES – LATIN AMERICAN TRADE

Value (1996 \$Bil)



Alliance as a Cross-border Trade Gateway

During 1996, 87.5 million tons in surface trade crossed the border between the U.S. and Mexico, of which 50 million tons were exports and 37.4 million were imports (**Exhibit B1-32**). Of this trade, over 75 percent gatewayed through Texas, 39.4 million tons in exports and 27 million tons in imports.

Alliance as an Origin/Destination

Not only is the Alliance the major gateway for cross-border trade, it is also the major origin/destination for this trade. Of the U.S. total cross-border trade of 87.5 million tons, 46.7 percent either originated or terminated in the Alliance. The Alliance's cross-border trade comprised 24.6 million tons of exports and 16.3 tons of imports (**Exhibit B1-33**).

Exhibit B1-32
1996 SURFACE CROSS-BORDER TRADE WITH MEXICO
U.S. Gateways

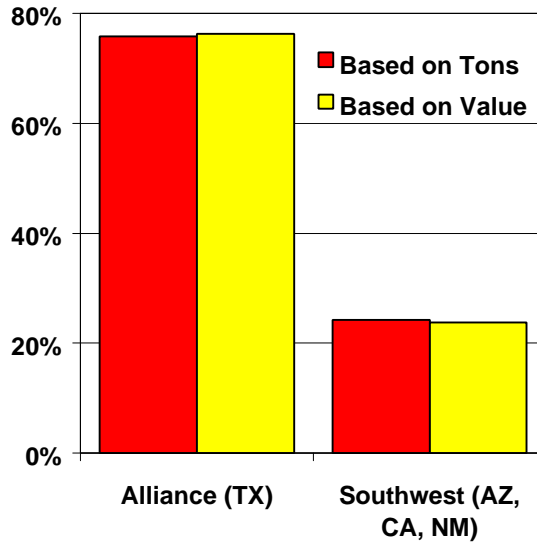


Exhibit B1-33
1996 SURFACE CROSS-BORDER TRADE WITH MEXICO
U.S. Origin & Destination

