

Chapter 2

Global Macroeconomic Trends

2.0 Global Trade Patterns

Despite episodes of oil price spikes, several financial crises, and flare ups in geopolitical tensions, global trade in manufactured goods has grown on average 7.6 percent per year over the last six decades, while inflation adjusted global GDP has grown 3.8 percent, according to World Trade Organization data, and Moffatt & Nichol estimates for 2008.

The volume index of world exports of manufactured goods has increased 64-fold between 1950 and 2008, while global real GDP has only increased 8-fold as shown in figure 2.1

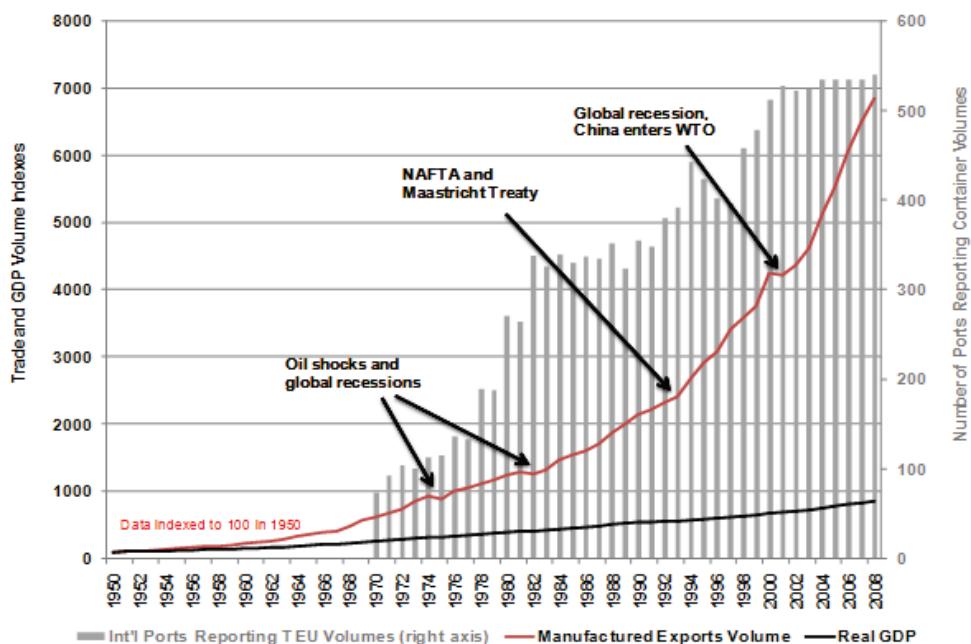


Figure 2.1: World Exports of Manufactured Goods and Real GDP, Indexed to 100 in 1950 and Number of Ports Reporting Container Volumes

Source: *World Trade Organization, Containerisation International, Moffatt & Nichol*

	Average Trade Growth	Average GDP Growth	Ratio of Trade to GDP Growth
1950 - 2007	7.6%	3.8%	2.0
1996 - 2007	6.6%	2.9%	2.3

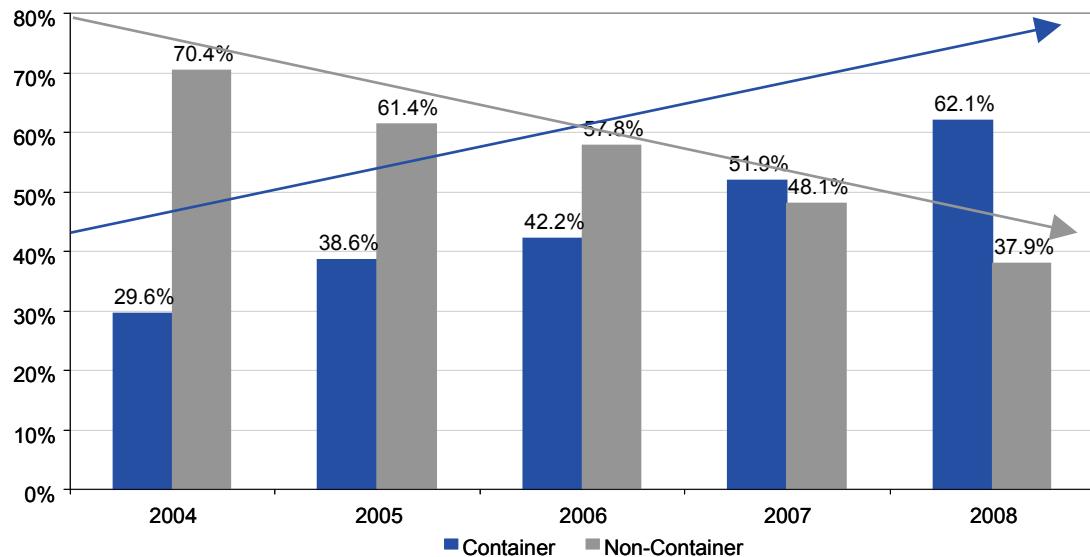
Table 2.1: World Exports of Manufactured Goods and Global Real GDP Growth

Source: *World Trade Organization, Moffatt & Nichol*

As shown in Table 2.1, world trade in manufactured goods has grown over time twice as fast as world GDP. While economic growth is an underlying driver of trade growth, it does not fully account for trade growing twice as fast. Other long term structural factors have contributed to high growth levels. The good news is that trends for these structural factors are such that trade will continue to grow faster than GDP through the end of the next decade. The differential in the growth rates can be attributed to at least four structural factors, each of which still has ample room to continue driving global trade.

2.1 Containerization of Trade

Figure 2.1 shows, among other things, that the number of ports around the world reporting container volumes since 1970 increased from 75 to over 550 since 1970. Containerization lowers the cost of trade and therefore allows manufacturers to reach a larger market or relocate production operations to lower cost locations. Most recently there has been an increasing trend of containerizing traditional breakbulk commodities. As noted in Figure 2.2, as recently as 2004, 29.6% of imported natural rubber was containerized and 70.4% was not; as of September 2008 the trend has reversed where 62.1% of the imports were containerized and 37.9% was not. This is only one example of a global trend, and one that is expected to continue over the next



[Figure 2.2: Containerization of Natural Rubber Imports](#)

Source: US Census Bureau; Moffatt & Nichol

decade.

The outlook for future and continued containerization of commodities can be linked to the growing trade between developing economies and the rest of the world. Some of the fastest

growing trade routes in 2008 are between South America and the rest of the world including the US and China. Many of these South American nations, including Brazil, Colombia and Peru, have growing container trades which are being developed out of very primitive facilities. The Port of Callao in Peru, for example, handles approximately 25% of the volume of the Port of New York/New Jersey's roughly 4 million TEUs (Twenty-Foot Equivalent Unit – a standard measurement of container size). What makes Callao impressive is that the current volumes are handled without the use of a single dockside modern gantry crane (these are the cranes used to load/off load containers from a vessel) while the Port of New York/New Jersey operates with approximately 50 such cranes. Callao is currently undergoing a development program, including the purchase of modern cranes, which will roughly double the port's current capacity.

Within the US there is a growing tendency to ship agriculture exports in containers as well. The soybean industry has found in recent years that shipping in containers can help reduce costs as well as help deliver a specialized product. This refers to the customer demands for particular grades of soybeans being used in various products. By placing the soybeans in containers, the exporters have reassured customers that they are receiving the desired soybean grade which hasn't been mixed with other grades. It has become a quality assurance mechanism, one which is increasingly being sought after in other agriculture products. The USDA has also promoted containerization as a means of maintaining the competitiveness of US agricultural exports.

2.2 Trade Barriers

Between 1947 and 2008 there have been nine global trade agreements beginning with the Global Agreement on Trade and Tariffs at the Geneva round and most recently the failed Doha Round which began several years ago. In the meantime the Maastricht Treaty in Europe and NAFTA contributed significantly to trade growth as did China's ascension to the WTO in 2001. The Business Roundtable estimates that 50% of world trade takes place under Free Trade Agreements, with about one third of them having been established in Asia since 2001. This is presented in Table 2.2.

FTAs negotiated globally	Aproximately 300
FTAs negotiated since 2002 in Asia-Pacific	119
Percentage of world trade occurring through FTAs	50%
Countries with which China is negotiating or has proposed FTAs	28
EU FTAs	21
US FTAs	10

Table 2.2: World Free Trade Agreement Facts

Source: *Business Roundtable, Moffatt & Nichol*

In November 2008, China and Peru signed a free trade agreement. Canada and Colombia also signed an agreement that same month. This is indicative of two changing dynamics which are

mutually dependent. First, it shows the world is becoming more and more integrated. Nations which have existed relatively independent of one another are now becoming trade partners. Second, it shows that many of these nations which have historically relied on the US to trade with are turning elsewhere for support, which implies that the US is losing some of its clout in the global trade economy, particularly with South America. If the US is to maintain its dominance and influence with South and Central America it is important for FTAs to be established between the US and these nations.

2.3 Information and Communication Technology

The Internet is accessible worldwide so that businesses can operate production and distribution software, such as SAP, that allows them to globally manage their activities from virtually anywhere in the world. These improvements in communication technology greatly facilitate global sourcing – enabling firms to optimize production efficiencies.

2.4 Demographics

The populations of Europe, North America and Japan are aging as their baby boom generations enter retirement. In 2007 3.4 million Americans turn 62, while in 2008 an even greater number will make this transition. This group will continue to downsize residences and purchase new goods when they move to new homes. The demographic projections from the US Census Bureau shown in Figure 2.3 indicate that:

- From 1980 – 2000 just 1 in 5 people were of the retirement age
- By 2030 close to 1 in 3 people will be of the retirement age

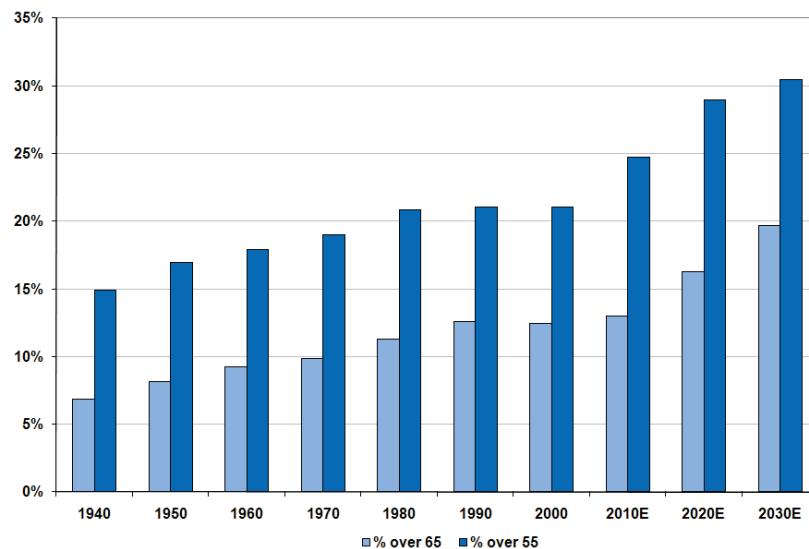


Figure 2.3: Percentage of Population at Retirement Age and Average Age

Source: US census Bureau, Moffatt & Nichol

The demand for services (leisure & entertainment, healthcare, financial advising, legal services) by older people grows faster than their demand for manufactured goods as shown in Figure 2.4.

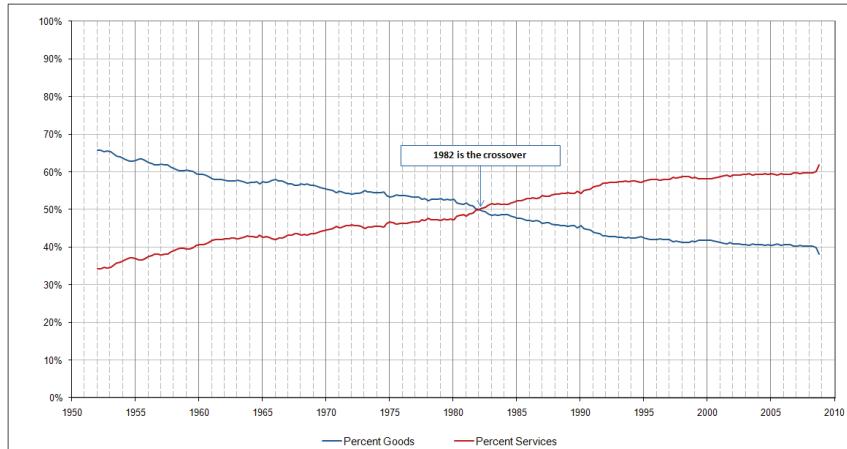


Figure 2.4: Share of US Household Expenditures Goods and Services

Source: Bureau of Economic Analysis, Moffatt & Nichol

Therefore, as the service sector bids labor away from manufacturing, the manufacturing sector, which is less location sensitive, will continue to outsource to lower cost labor locations. Manufacturing is less location sensitive due to containerization, lower trade barriers and better

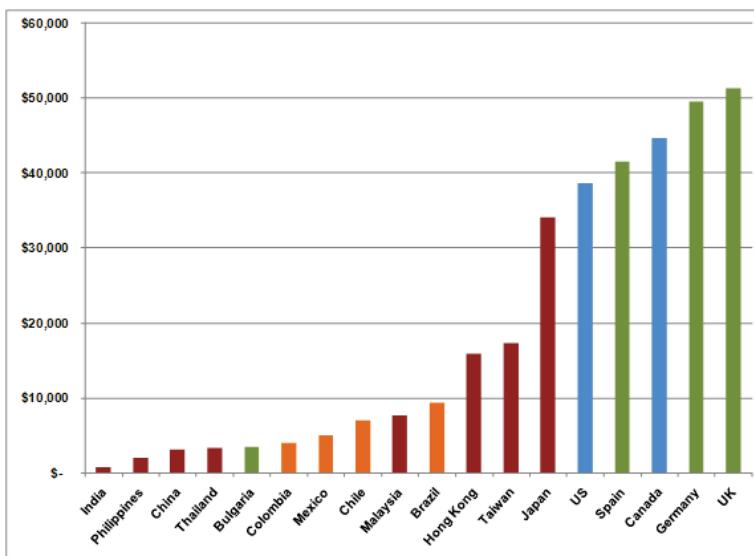


Figure 2.5: Manufacturing Labor Costs in US Dollars at Prevailing Exchange Rates

Source: International Labor Organization, Business Monitor, Moffatt & Nichol

information technology. Wages have been and remain lower in Asia. Those countries also have younger populations and offer higher demand growth for low cost manufactured goods than in mature industrialized economies. Given these patterns, indicated in Figure 2.5, outsourcing trends to Asia are not likely to reverse soon with these labor cost disparities.

Given the aging population and the cheap available labor overseas it is not surprising that employment in the US has shifted from manufacturing to services, as shown in Figure 2.6. The total value of manufactured goods produced in the US continues to rise. However, manufacturing activity in the US is increasingly capital-intensive and concentrated in high

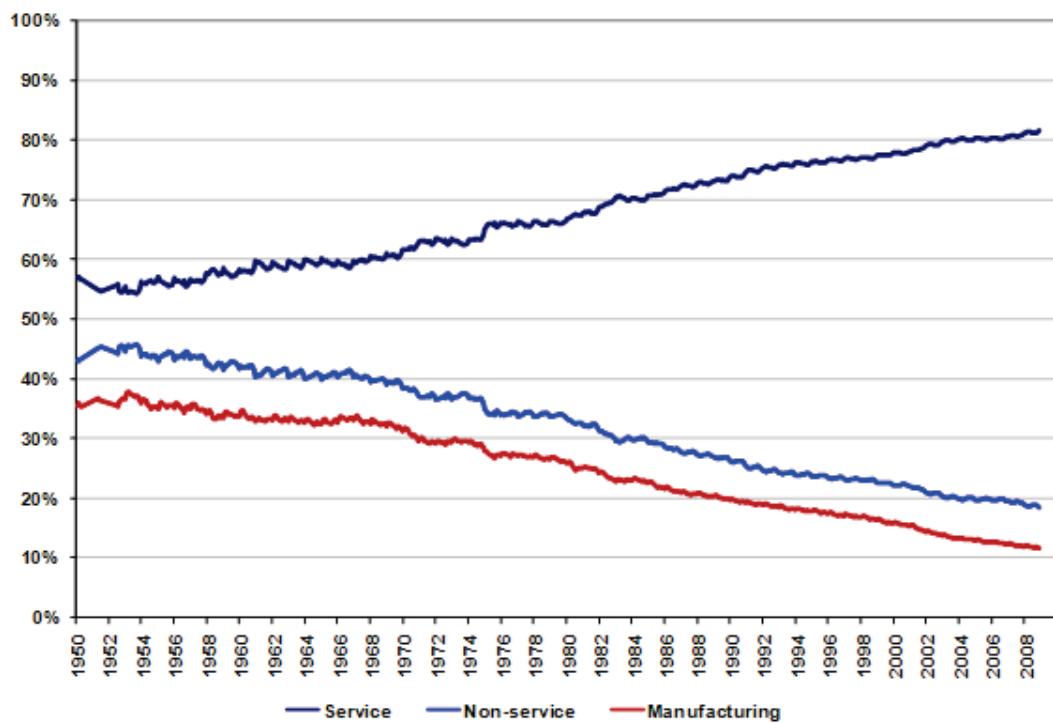


Figure 2.6: Employment Shares by Type of Activity 1957 - 2006

Source: Bureau of Labor Statistics, Moffatt & Nichol

intellectual property goods such as power and transportation equipment.

This perspective implies that not all industries are likely to outsource simultaneously. The lower profit margin ones would go first and this process would continue with the next lowest profit margin ones and so on. One way to see this is to review patterns in US labor employment shown in Figure 2.7. Monthly employment for industries that manufacture containerizable goods are shown from 1990 through the middle of 2008, indexed to 100 in January 1990 to make the chart easier to read. Given that employment levels by industry vary significantly, the chart shows that

the clothing-related industries have outsourced the most and industries related to automobile manufacturing and home construction have outsourced the least.

This can be attributed to the boom in the housing market and strong auto sales that were supported through most of this decade by loans with low market interest rates. The decline in residential real estate and automobile sales is pressuring the profits and financial viability of companies in these sectors. The survivors are most likely to be the ones that have been offshoring their production operations. Given this outlook, US manufacturing employment could

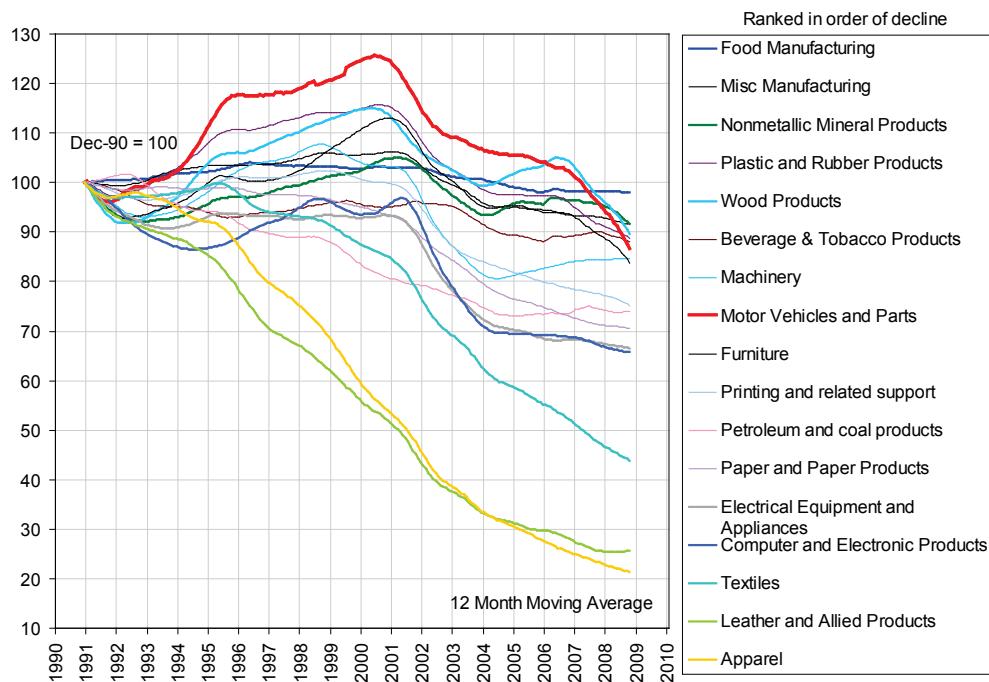


Figure 2.7: Employment Trends in Industries Manufacturing Containerizable Goods

Source: Bureau of Labor Statistics, Moffatt & Nichol

continue to fall on average by 2% per year, which would support US container volume growth – particularly during recessions, assuming the world financial system does not freeze up again.

World trade in manufactured goods has not only grown faster than global GDP but also faster than trade in energy, metals and agricultural commodities. However, this gap is expected to close. Prior to globalization beginning in the early 1970s, emerging markets exported raw materials to industrialized nations and imported manufactured goods. As factories were moved from industrialized nations to emerging market locations, there was less need for commodities to be shipped around the world. Therefore, between 1970 and 1990 commodity trade was relatively flat while trade in manufactured goods rose steadily. Since 1990, commodity exports

from mature industrialized nations to emerging markets have begun to grow. This supports increased manufacturing in those emerging markets. The recent growth in US commodity

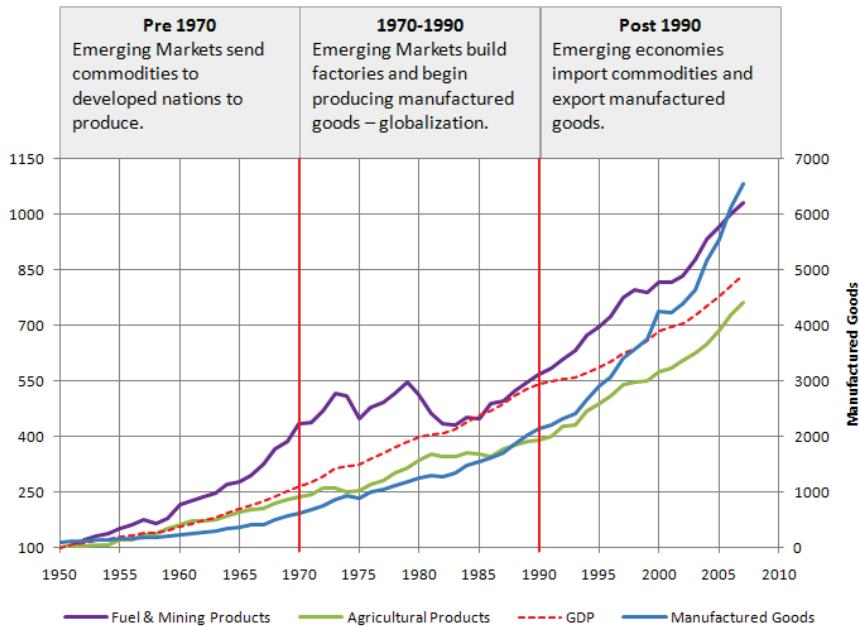


Figure 2.8: Global Trade in Manufactured Goods, Oil & Metal Commodities and Agricultural Goods

Source: World Trade Organization, Moffatt & Nichol

exports was due to the weakening foreign exchange value of the dollar and the ongoing change in the structure of world trade. It is expected that global trade of all types of goods will continue to grow. Figure 2.8 illustrates these trends.

2.5 United States Trade Trends

The global trends discussed above are particularly evident in the US. Over the last 27 years US container volumes have grown seven-fold while real GDP slightly more than doubled. Most consumer goods and some bulk commodities arrive in the US in containers.

1981-1990		1991-2000		2001-2007		1981-2007		
TEU Growth CAGR	TEU to GDP Ratio	TEU Growth CAGR	TEU to GDP Ratio	TEU Growth CAGR	TEU to GDP Ratio	TEU Growth CAGR	TEU to GDP Ratio	
West Coast	9.8%	2.9	7.5%	2.0	7.8%	2.9	7.6%	2.4
East Coast	4.8%	1.4	5.7%	1.6	7.6%	2.9	5.5%	1.7
Gulf Coast	6.4%	1.9	8.3%	2.3	4.9%	1.8	6.6%	2.1
National	6.8%	2.0	7.2%	2.0	6.6%	2.5	6.4%	2.0

Table 2.3: Container Volume by US Region and Real GDP Growth

Source: American Association of Port Authorities, Bureau of Economic Analysis, Moffatt & Nichol

Figure 2.9 shows container volumes and real GDP, indexed to 100 in 1980. Containerization of trade began in the 1970s; however, it only became a standard for global trade in the 1980s. The chart shows that US container volume trade has grown even during recession years and near-

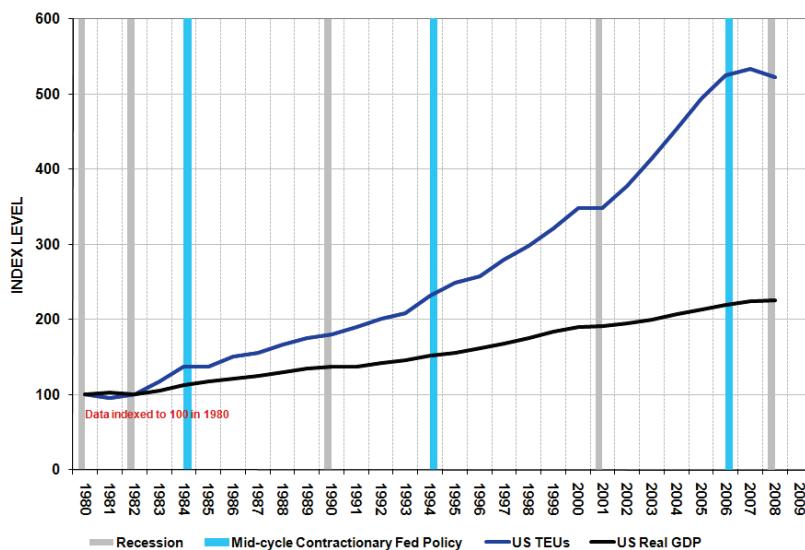


Figure 2.9: US International Container Volume Trade and Real GDP, Indexed to 100 in 1980

Source: American Association of Port Authorities, Bureau of Economic Analysis, Moffatt & Nichol

recession periods following mid-cycle Fed funds tightening. Off-shoring of manufacturing rises during periods of slow growth as companies try to sustain profit margins by cutting costs to offset flat or declining revenues.

Not all ports and regions benefited equally from growing US container volume trade. Some regions experienced higher growth than others, presented in Table 2.3. There are several reasons for this. US trade has grown fastest with Asia, beginning with Japan and Hong Kong, then Korea and other emerging Asian economies and most recently with China. Most of Asia's trade arrives in the US via trans-Pacific services operated by various global ocean carriers. These volumes are mostly offloaded at West Coast ports. Some Asian volumes arrive via the Panama Canal at East Coast ports on "all water" service offered by the ocean carriers. South and Southeast Asian volumes move via the Suez Canal.

Figure 2.10 displays the share of US containerized trade by each of the major foreign trade routes, and how they have changed from 1997 to 2005, and the projection of share for 2015. This clearly demonstrates the dominance of the Asian trade route, reflecting the impact of the outsourcing of manufacturing to Asia.

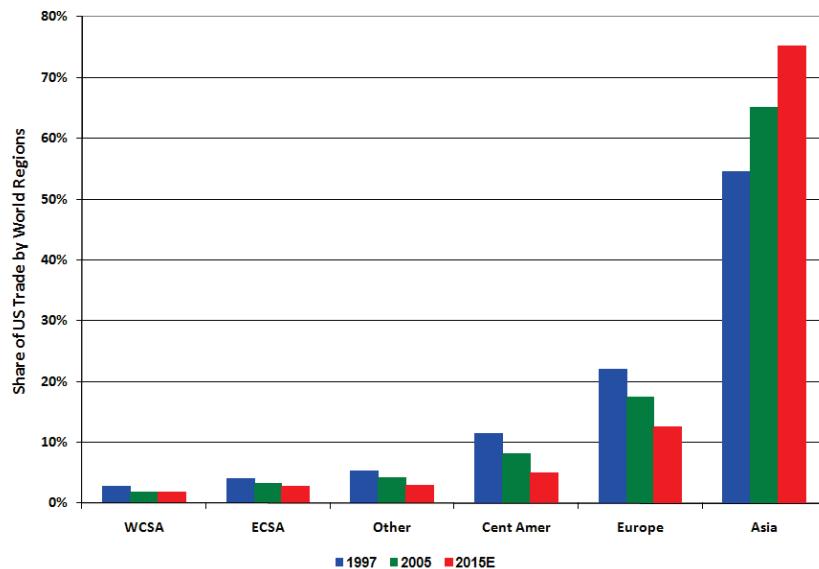


Figure 2.10: US Containerized Trade for Major Foreign Trade Routes

Source: PIERS, Moffatt & Nichol

While Figure 2.10 indicates a relatively small share for the North – South trade routes for the West Coast and East Coast of South America (WCSA, ECSA) there may be potential that could be recognized beyond these projections. While Chile has a penetration measured in TEUs (twenty foot equivalent units) per 1,000 people approaching that of the US, as shown in figure 2.11, the other economies fall far behind. With further port development in Brazil and Argentina, and continued development of these economies, the North – South trade routes could show additional growth, potentially benefiting some segments of Appalachia.

Forecasts, presented in Table 2.4, call for loaded container trade volume to grow at a compound annual growth rate (CAGR) of 6.2% over the next twenty years, sustained by further off-shoring of manufacturing and removal of trade barriers. Near to mid-term growth is expected to be slower due to the current recession; however, beyond that it is expected that trade growth will return to its historical average of 6.2%. Beyond 2020 container volume growth may slow as the structural drivers of trade will have ended.

	2007				2007-2013 CAGR			2007-2020 CAGR		
	Imports	Exports	Total	Share	Imports	Exports	Total	Imports	Exports	Total
North Asia	11,542,916	4,355,308	15,898,225	55.1%	4.9%	7.5%	5.6%	6.9%	7.1%	6.9%
SE Asia	1,600,483	788,903	2,389,386	8.3%	5.5%	7.0%	6.0%	7.4%	6.3%	7.1%
South Asia	575,977	298,761	874,738	3.0%	7.6%	8.4%	7.9%	8.5%	8.3%	8.4%
Europe	1,701,699	1,477,121	3,178,820	11.0%	3.0%	4.1%	3.5%	3.3%	3.2%	3.2%
Mediterranean	852,215	687,011	1,539,226	5.3%	3.4%	7.9%	5.5%	4.5%	6.9%	5.7%
Middle East	38,080	260,027	298,108	1.0%	4.3%	9.1%	8.5%	7.0%	7.3%	7.3%
WC S America	282,773	206,014	488,787	1.7%	3.1%	7.8%	5.2%	4.1%	4.1%	4.1%
EC S America	417,802	313,498	731,300	2.5%	3.5%	4.1%	3.8%	5.3%	3.9%	4.7%
Cent Am/Carib	943,474	1,743,340	2,686,815	9.3%	2.7%	5.0%	4.2%	3.7%	4.4%	4.2%
NAFTA	62,943	56,000	118,943	0.4%	3.2%	11.2%	7.3%	4.9%	10.7%	8.1%
Australia/NZ	130,936	200,732	331,668	1.1%	3.6%	3.2%	3.4%	5.9%	3.1%	4.3%
Africa	69,562	166,293	235,855	0.8%	3.4%	11.9%	9.7%	4.5%	11.6%	10.0%
Other	30,951	62,598	93,549	0.3%	3.1%	1.9%	2.3%	5.2%	2.5%	3.5%
Total	18,249,813	10,615,606	28,865,420	100.0%	4.6%	6.6%	5.4%	6.4%	6.1%	6.2%

Table 2.4: Loaded Forecasts by Trade Lane

Source: MarAd, Moffatt & Nichol

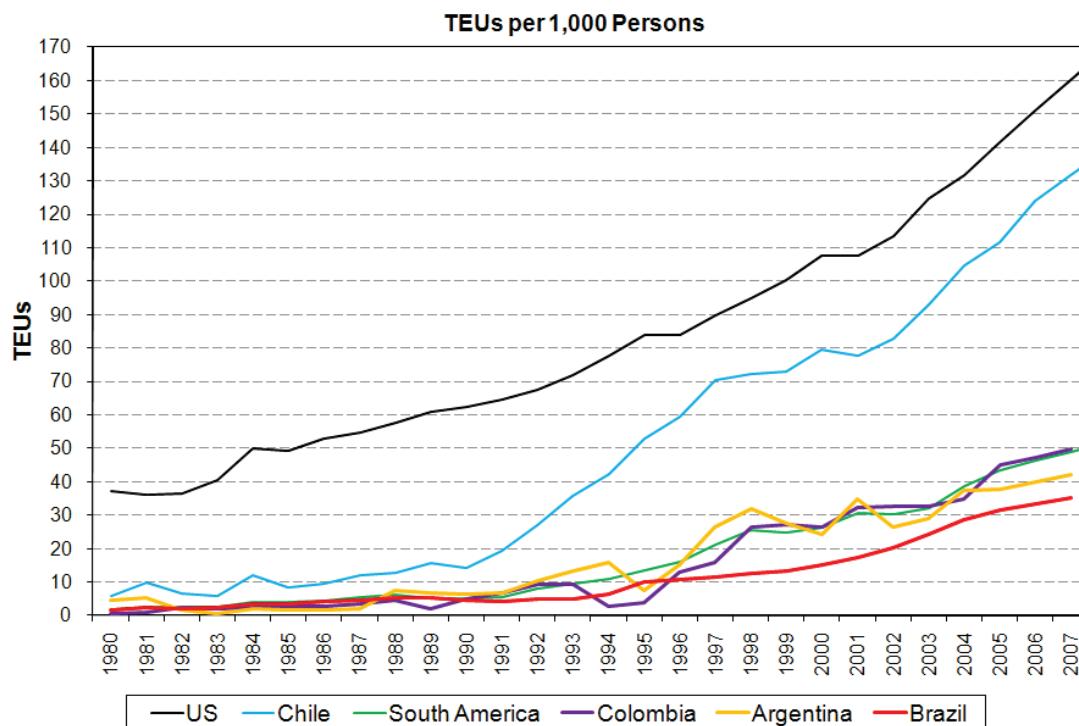


Figure 2.11: TEUs per 1000 Persons

Source: Containerisation International, PIERS, MarAd, Census Bureau, Moffatt & Nichol