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Special Report

February 2007

Currencies and Trade Weights

By Howard L. Simons

We concluded a January [Market Facts](#) on changing U.S. trade weights over time:

The pattern is obvious: Currency levels have little impact on trade patterns. Period. The constant political and industry attention paid to exchange rates as a corrective mechanism is misplaced entirely and no doubt is counterproductive.

We can build upon the aggregate analysis done in that [Market Facts](#) by disaggregating the “All Others” category into its constituent countries and by comparing each country’s currency to the separate import and export weights for that currency calculated by the Federal Reserve.

Two methodological notes are in order. First, the Federal Reserve calculates its trade weights on an annual basis; currencies trade continuously. We interpolated monthly trade weights by a dual cubic spline process, from annual to quarterly and then from quarterly to monthly. We could then compare monthly currency values to monthly trade weights. Given the requisite data transformations, no attempt is made to model the relationship between currency changes and trade weights. The information content is visible in the following charts themselves. **The previous conclusion, that trade patterns seldom follow currency changes, is reinforced strongly.**

Second, the Federal Reserve weights reflect the use of a currency in trade. This can be deceptive for U.S. trading partners whose trade is dominated by goods priced in dollars, such as crude oil. The export weights for each country reflect the role of each currency in payment for U.S. exports thereto; the import weights for each country reflect the role of each currency in payment for U.S. imports therefrom.

Finally, the global currency system of the past 35 years has acted as an ecosystem of sorts. Some currencies, such as the components of the euro, have become extinct. Others, such as the Chinese yuan, have sprung into existence with political integration into the global economy. Still others, such as the Brazilian real and the Argentine peso, represent new attempts at currency management by continuous polities frequently unable to manage their monetary affairs.

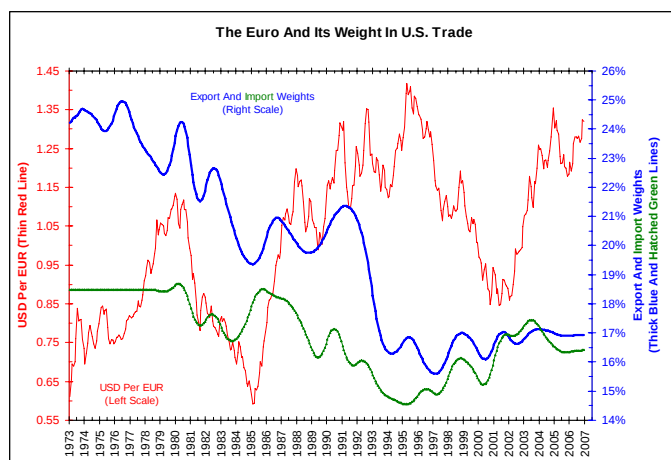
The results are presented below grouped by major currencies followed by the minor currencies grouped geographically. Each chart contains three lines:

- The currency displayed so that a stronger value rises on the chart and a weaker value falls (thin red line). This convention is familiar to traders of the EUR, typically quoted as USD per EUR;
- The interpolated Federal Reserve export weight (thick blue line); and
- The interpolated Federal Reserve import weight (hatched green line).

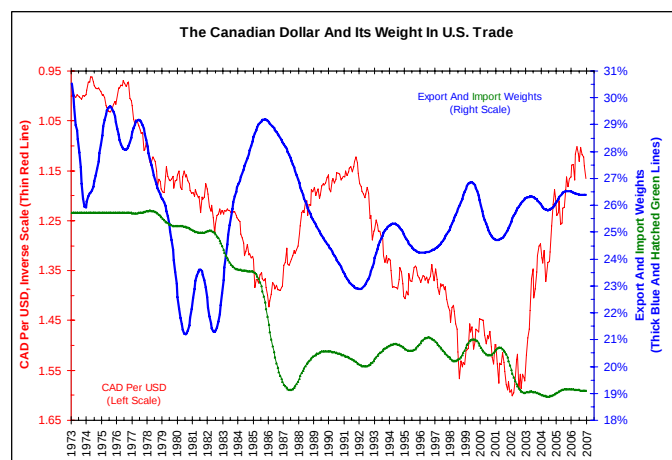
Comments on the key points in each chart will precede the chart.

Major Currencies

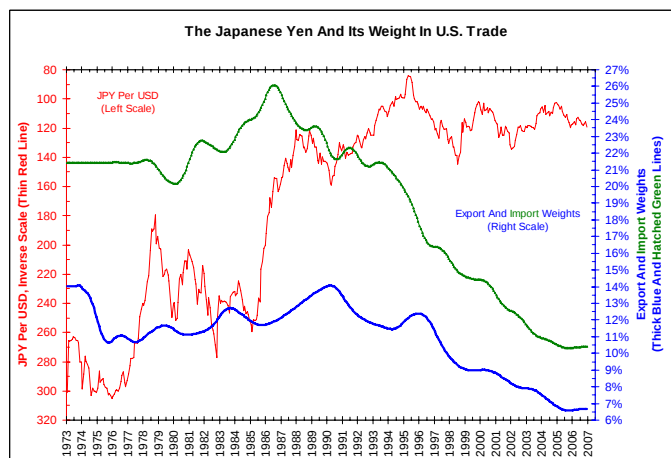
Regardless of whether the euro and its predecessors rose or fell between 1973 and 1997, the export weight trended lower. A weaker dollar both during this period and after 2002 did not make U.S. exports to the Eurozone more competitive. The opposite, however, does not appear to be true: Periods of euro strength do appear to dampen its weight in the U.S. import mix.



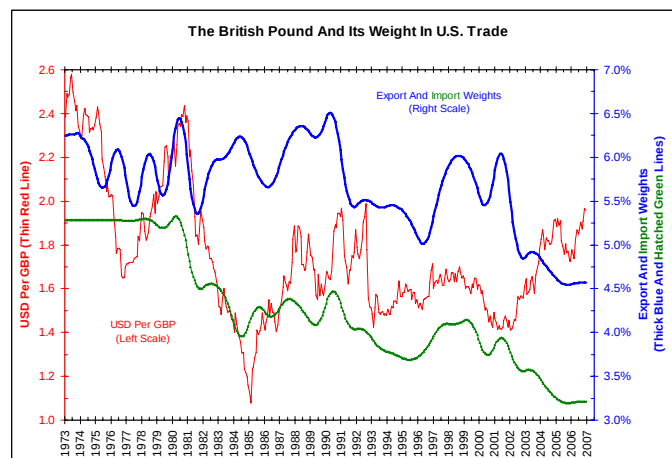
The mid-1980s burst higher in the Japanese yen preceded a decline in its import weight still underway. However, a weaker dollar did nothing to increase the export weight to Japan as this dollar weakness coincided with the onset of Japan's "Lost Decade." The income elasticity of demand is far more critical for imports than is the currency price elasticity of demand.



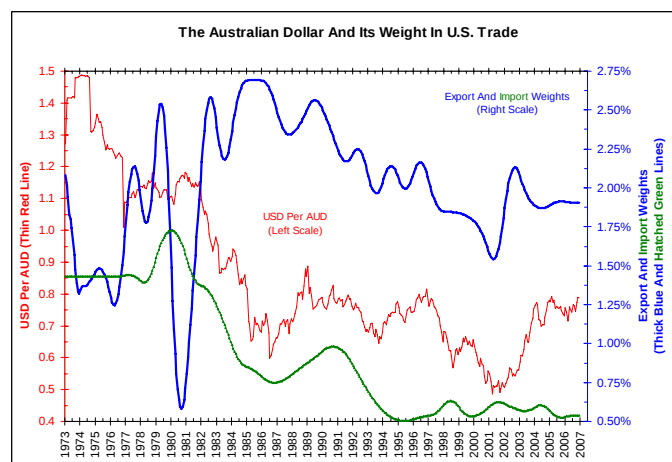
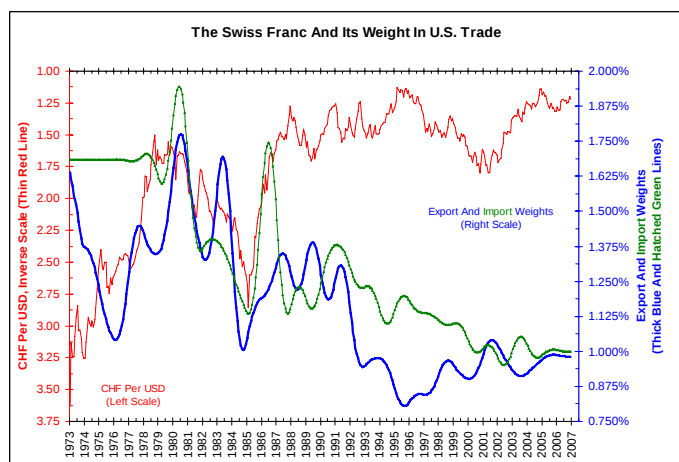
The British pound's large decline in the early 1980's coincided with a decrease in the GBP's import weight. That weight stabilized into 1991 and has trended lower since. The broad trading range of the GBP since the early 1990s has coincided with a general decline in export weights as well. Regardless of the pound's direction over the past fifteen years, the share of American trade claimed by the U.K. has decreased.



The effects of the Canadian dollar exchange rate were almost exactly the opposite of predicted during the 1980s decline in the unit. Export weights grew even as the U.S. dollar firmed, and import weights fell after the CAD weakened. After the adoption of NAFTA in the mid-1990s, the export weight trended higher regardless of strong movements both up and down in the CAD. The import weight stayed flat after 2003 even as the CAD surged.



The import weight of the Swiss franc collapsed as the CHF weakened between 1981 and 1985, and then it rebounded with the currency into 1985; once again, this is precisely the opposite of what many consider the proper currency/trade weight relationship to be. Between 1985 and 2003, the import weight trended lower regardless of currency movement. The export weight behaved as expected into 1992, and then collapsed with no currency impetus behind it.

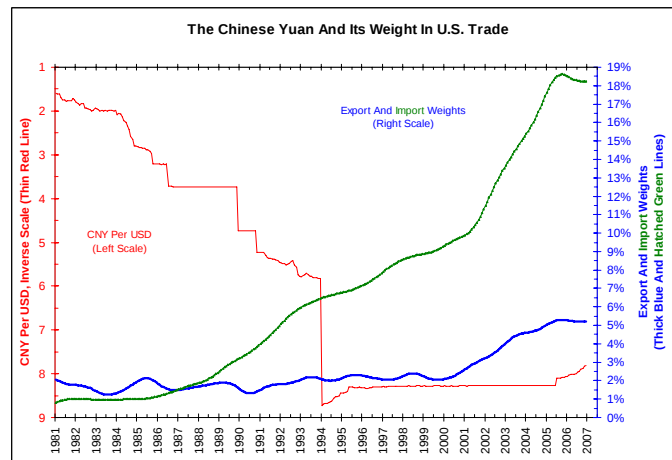
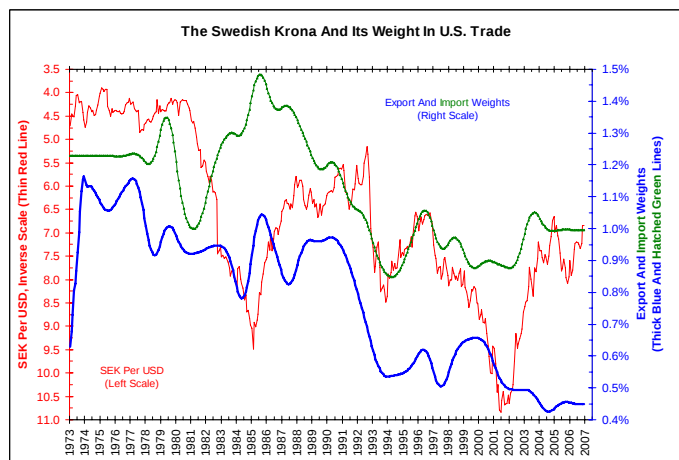


Asian Currencies

Lost in all of the political rhetoric over the Chinese yuan being undervalued is the 2000-2006 upwards trend in export weights to China. If China's marginal propensity to import is a positive number, as is almost assuredly the case, these weights will rise as a function of China's growing national income.

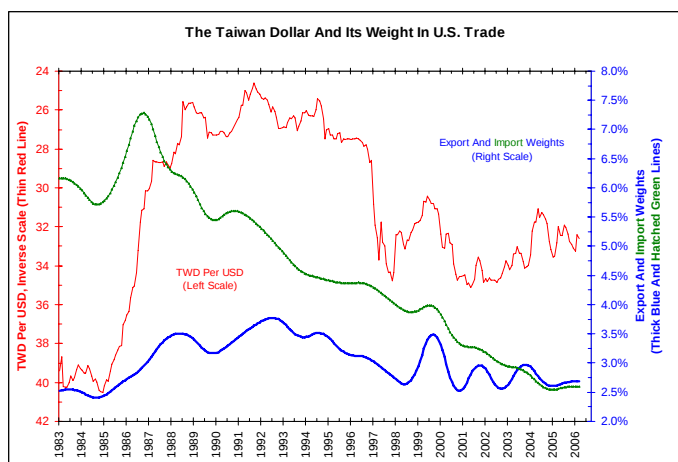
The surge in import weights over the past two decades speaks for itself. What is not determinable is whether any level of CNY strength would have been sufficient to offset China's huge cost advantages in labor, environmental and safety regulations, newer plant and equipment and a state-directed banking system.

The export weight of the Swedish krona can be described as a quarter-century downtrend regardless of SEK movements. Import weights behaved as expected during the early 1980s dollar rally, but scarcely budged between 1998 and 2002 as the SEK weakened.



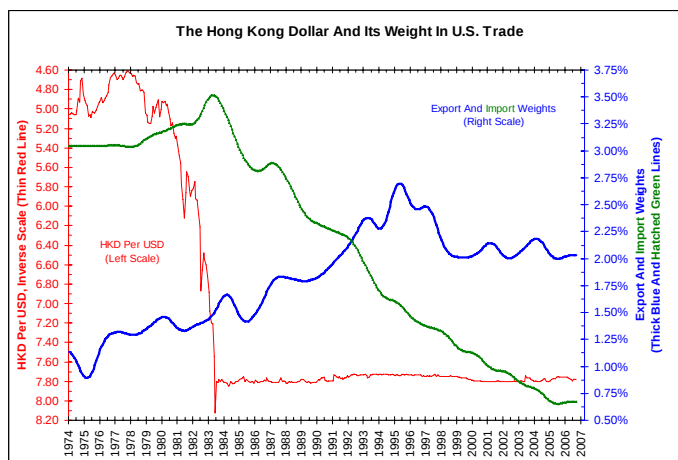
The Australian dollar's import weight declined between 1980 and 1995 even as the AUD weakened. It then never recovered regardless of currency movements. Export weights to Australia have mirrored the course of the AUD since the mid-1980s; this is one of the few cases where exports from the U.S. become more competitive with a weaker U.S. dollar.

The chart below can be summarized as "Taiwan's importance as an exporter to the U.S. has declined steadily since the mid-1980s." The island's share in U.S. export weights has tracked changes in the TWD somewhat, indicating a measure of currency price elasticity of demand in Taiwan's import decisions.

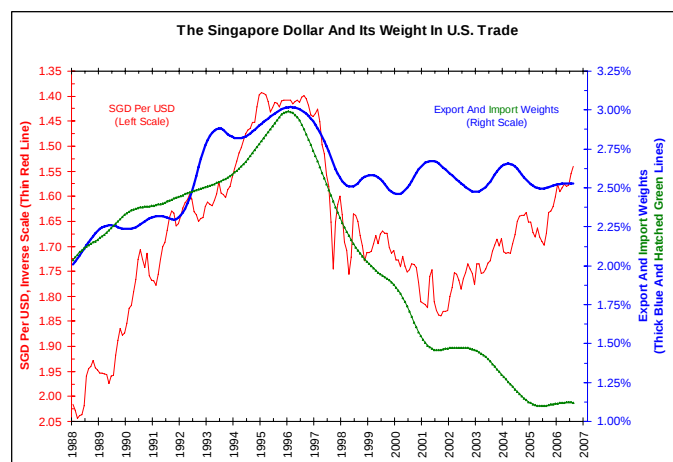


Those who scream about the CNY's purported undervaluation might wish to view the chart below. The HKD has been locked in a near-fixed range since the mid-1980s, but its import weights have fallen steadily since that time. If we are to believe the protectionists, we would have to say the HKD is overvalued. This, of course, is nonsense: Just as in the case of Taiwan above, Hong Kong's exports to the U.S. have been displaced by exports from mainland China.

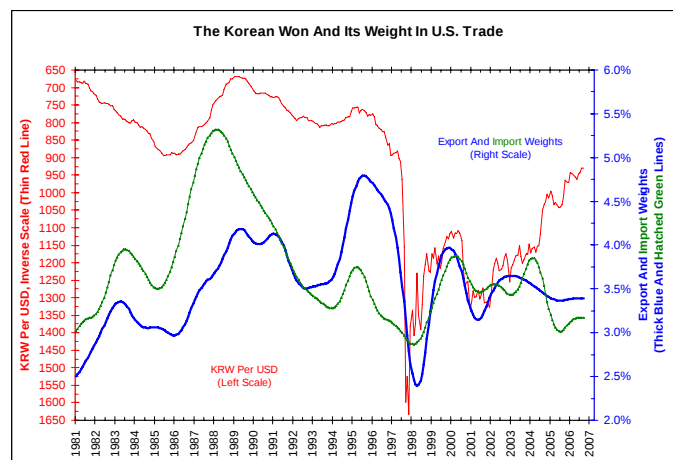
We can add, tongue-in-cheek, that the uptrend in export weights between 1984 and 1996 is prima facie evidence of an overvalued Hong Kong dollar.



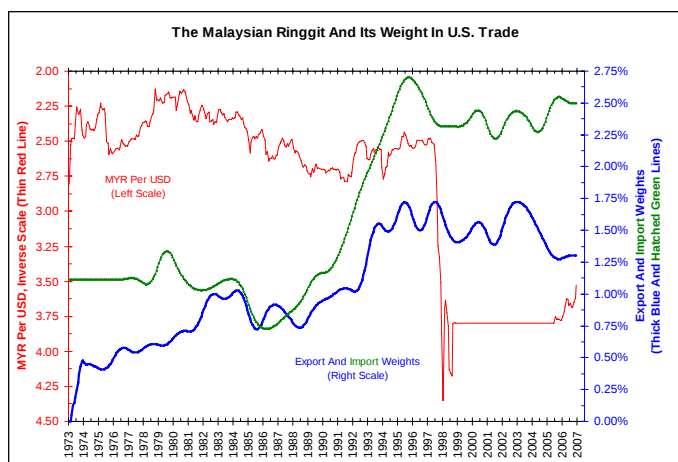
Trade weights from Singapore also reflect China's ascendancy. The 1997-2001 decline in the SGD did nothing to arrest its falling import weights, not did the 2002-2006 rally do anything to accelerate the downtrend already in place. Export weights to Singapore rose modestly in the mid-1990s "Asian Tiger" epoch, but have flattened since.



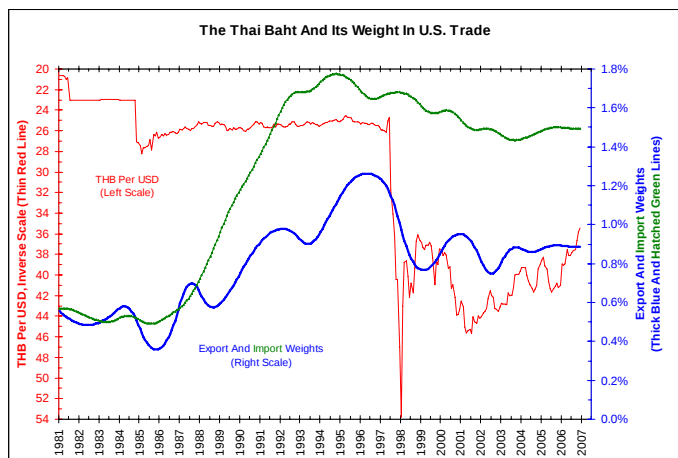
The Asian Tiger epoch was a condition precedent to the 1997-1998 Asian crisis, one that affected the next group of currencies mightily. Import weights from Korea, which had been in decline since 1988, did reverse after the KRW's plunge, and did decline after the KRW's post-2004 rally. The real impact, however, was the large drop in export weights to Korea during the Asian crisis period. This reflected both changes in the currency and the large drop in Korean national income during this period.



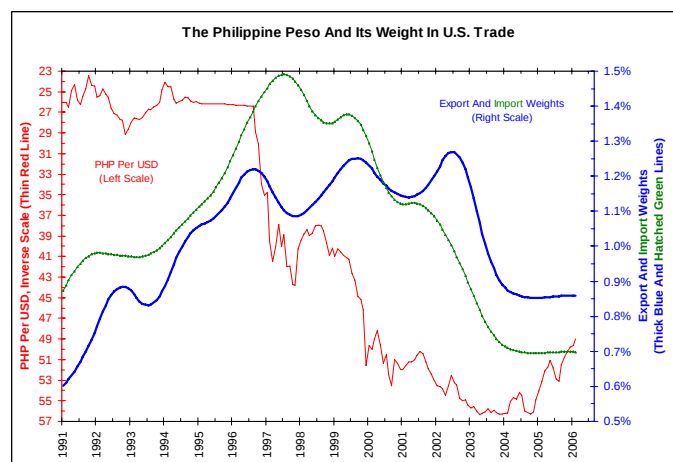
Both import weights from Malaysia (following page) and export weights thereto grew rapidly between 1986 and 1996, and then were unaffected by the ringgit's sharp drop. This is a strange case; we can say neither the MYR nor the course of the Malaysian economy affected its trade weights with the U.S.



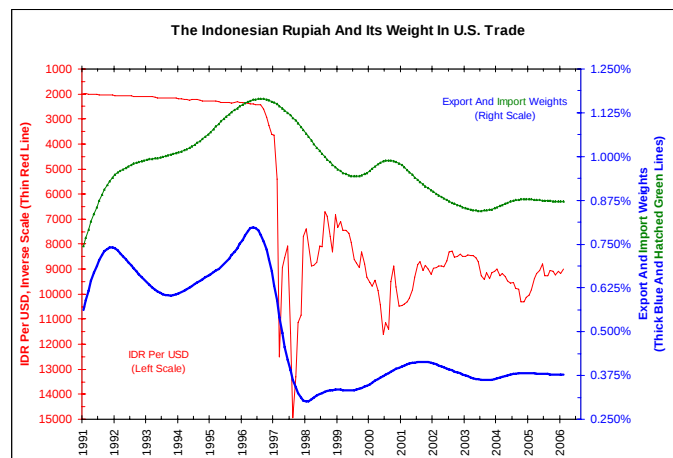
The Thai baht, the currency trade that started the Asian crisis rolling in July 1997, exhibits trade weight characteristics very similar to the Malaysian ringgit. The simple fact of the matter is Thailand accounts for only a small percentage of U.S. trade.



The Philippine peso stands as another refutation of the protectionists. Its import weights fell sharply after the PHP fell in 1997, but export weights to the suddenly poorer country actually trended higher between 1998 and 2003 before falling sharply in 2004.



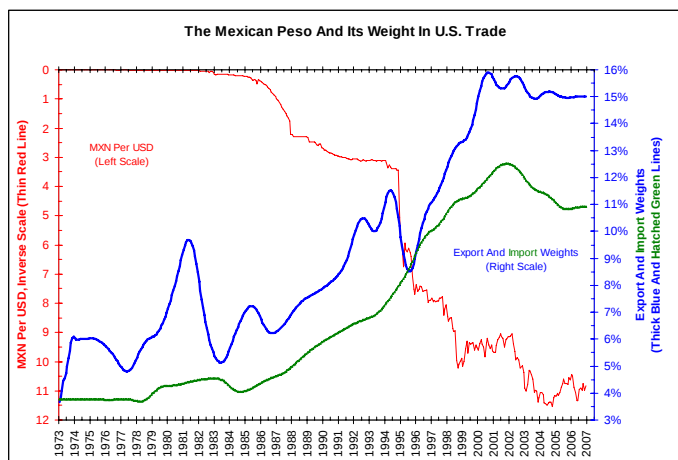
The 1997 collapse of the Indonesian rupiah preceded a decline, not the theorized increase, in import weights. The same cannot be said for export weights, however: The archipelago's sudden impoverishment led to a swift decline in export weights, one that has yet to recover.



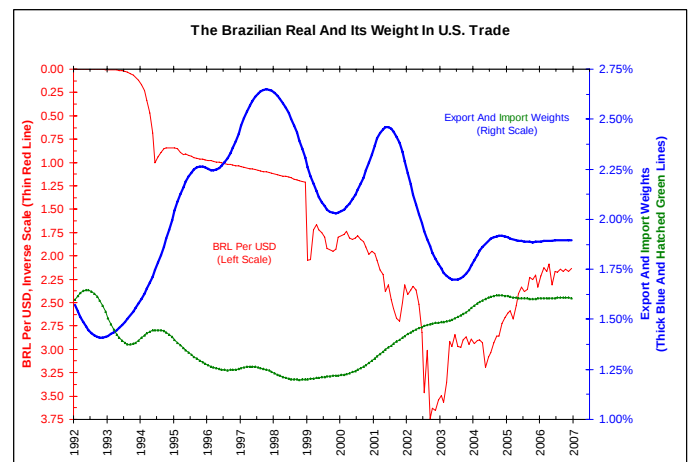
Latin American Currencies

Mexico is a special case on several levels. Its peso has collapsed on three different occasions without triggering the macroeconomic collapses normally associated therewith. As a member of NAFTA, its trade with the U.S. on both the import and export sides has grown regardless of the currency. Its major source of foreign exchange, crude oil exports, is priced in USD, and it has another major source of dollars, the remittances of Mexican nationals living and working in the U.S. And like Colombia, discussed below, Mexico has large, undocumented sources of U.S. dollars.

U.S. export weights to Mexico surged after NAFTA and have leveled off near a large 15% level. Import weights from Mexico have fallen as many of the light manufactured exports from Mexican maquiladora plants have been displaced by cheaper good from China. All of these factors combine to make the MXN rate largely irrelevant the U.S.' fourth-largest trading partner.

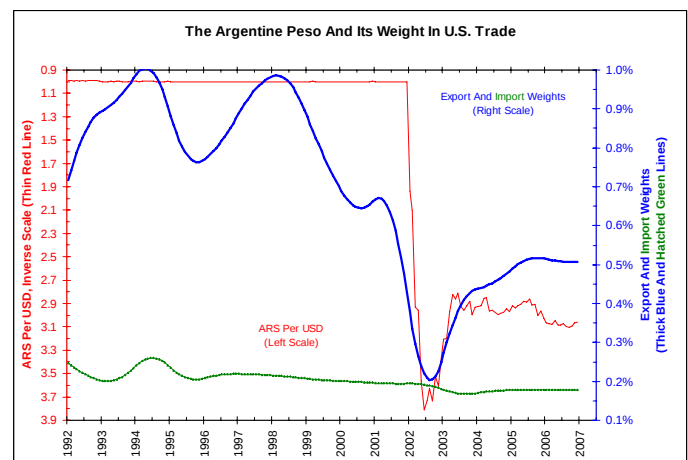


The BRL has a short history; as we discussed in a November 2006 [Commentary](#), it is the successor to a litany of cruzeiros, cruzeiros novo, cruzados and cruzados novo. The BRL has collapsed thrice in twelve years, but in defiance of the protectionists' theories, the impact on import weights has been minimal. Export weights to Brazil have declined since 1997, a period in which economic growth in Brazil has been strong. This may be a rare case when the currency price elasticity of demand exceeds income elasticity of demand.

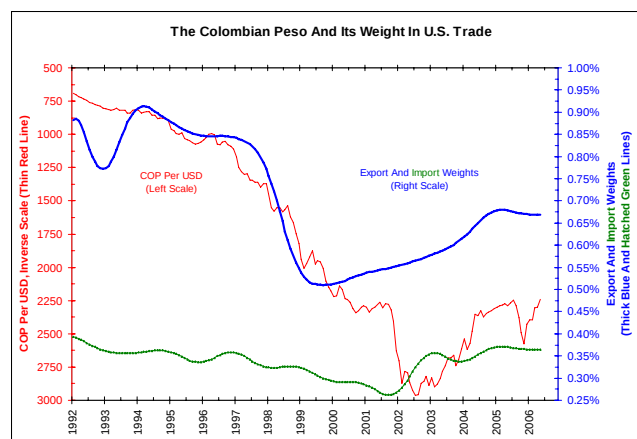
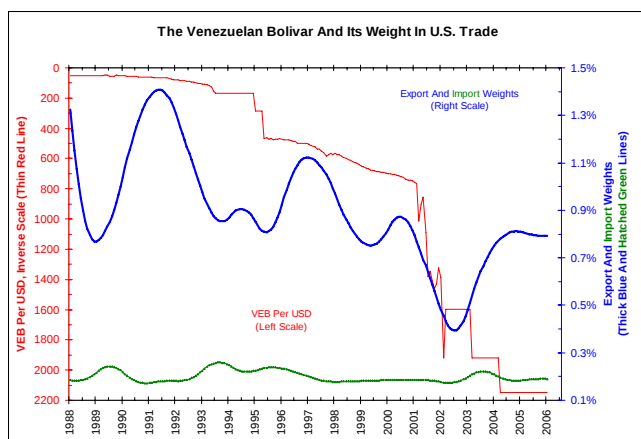


Argentina, like Brazil, has gone through multiple currencies. These have included the peso ley, the austral and a direct peg to the USD. There is also the little matter of frequent defaults, nationalizations and other non-currency impediments to the free flow of goods and services.

Import weights from Argentina scarcely have budged since 1992. Export weights to Argentina began to fall in 1999 as the country suffered during its dollar-peg epoch, and then collapsed going into the 2002 debt default. They have rebounded somewhat with the ARS; we take this to be an income effect, not a currency effect.

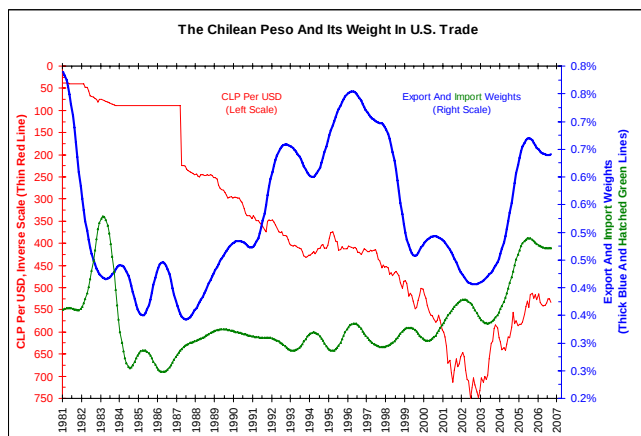


Import weights from Venezuela have been quite low as Venezuela's chief export to the U.S., crude oil, is priced in USD. Export weights have fallen as the bolivar has weakened during the Chavez era; whether this is currency-related, income-related or politics-related is difficult to discern.



Chile so much enjoys a reputation as South America's success story that first-time observers have trouble absorbing the extent of the peso's decline since 1988. Export weights to Chile rose between 1988 and 1996 even as the CLP fell, and then fell into 2003 as the CLP fell. Factors other than currency movements likely were involved.

In addition, the weights of imports from Chile have increased even as the CLP rose after 2003. Chile's efficiencies in agricultural exports – its leading export, copper, is priced in USD – probably account therefor.



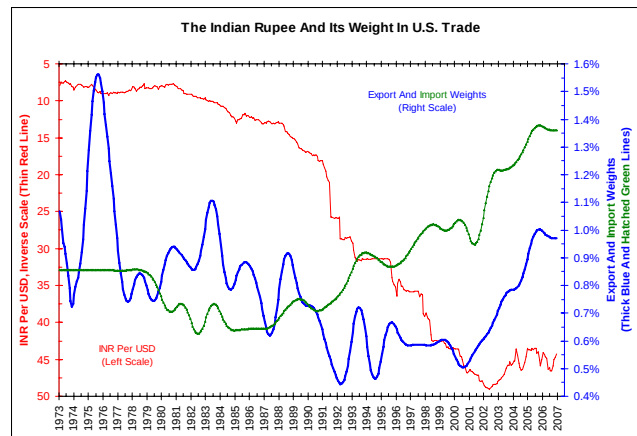
Export weights to Colombia have tracked movements in the peso in a manner consistent with standard theory. Import weights from Colombia have increased since 2002 even in the face of a firmer COP. The U.S.-Colombia trade picture is so distorted by undocumented flows that further comments will be withheld.

Other

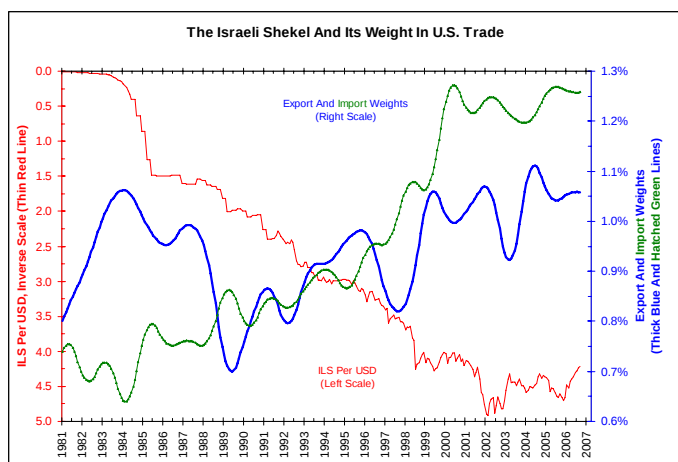
The growing importance of the U.S.-India bilateral economic relationship is not reflected well in the trade data. At the risk of being tendentious, it is increasingly a post-industrial relationship. Included are skilled labor imported from India and information services outsourced to India.

Import weights have been increasing steadily since the late 1980s; in all likelihood, this reflects the modernization of the Indian economy far more than the decline in the rupee. Export weights to India have jumped since 2001 even as the rupee has remained near its lows.

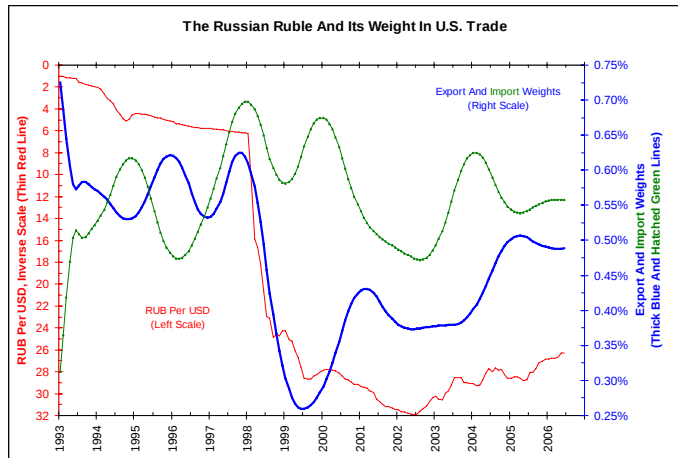
As an aside, the VOIP call answered by an Indian technician has become part of the American idiom. How do we account for the value of the service provided during that phone call, which really is an import provided at a marginal cost of \$0?



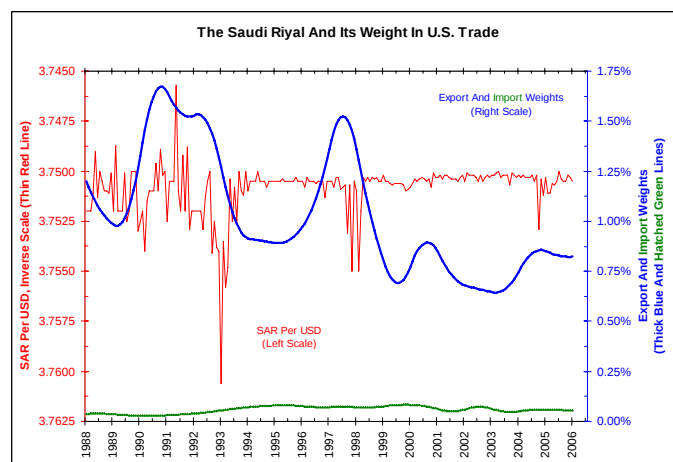
The increasing import weights from Israel (following page) during the shekel's 1982-2002 decline are as expected in classic theory. The generally increasing export weights to Israel during this same period are antithetical to classic theory. Too much U.S.-Israel trade is dollar-denominated or is confined to sectors such as technology and military hardware for currency movements to be a real factor.



Export weights to Russia fell during the country's 1998 default and have rebounded since during the ruble's modest recovery. Bilateral trade between the U.S. and Russia is very small and is confined to specialty goods and minerals.



Finally, we come to an absolute special case, Saudi Arabia. The riyal is de facto fixed – note the range – and import weights skirt near zero. Their principal export is priced in USD. Export weights to Saudi Arabia have declined somewhat over the years, but given the importance of military hardware and other sensitive exports to Saudi Arabia, this data stream probably does not reveal much.



Conclusion

We have reviewed 26 currencies with as many as 34 years of trade data accounting for 100% of the Federal Reserve's trade-weighting scheme.

As an exercise in logic, if D is posited as the sum of $(A + B + C)$, and A, B and C all point in a different direction than what we presume for D, we should accept the actual evidence from the observed parts and reject the presumed conclusion for the whole.

Translation for those who like things expressed more simply: If your nose is bent and your teeth are crooked and your chin sags, quit thinking you are beautiful.

Bessie Braddock: Sir, you are drunk!

Churchill: And you, madam, are ugly. But in the morning, I shall be sober.

We found some isolated instances wherein export weights to countries whose currencies had appreciated rose and some isolated instances wherein import weights from countries whose currencies had depreciated rose. These were noted duly.

The preponderance of evidence, however, is income elasticities, trade agreements, economic integration, and the terms in which goods and services are priced and other factors all are more important than currencies in affecting trade flows.

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