

## An Updated Trade-Weighted Dollar Index for Tennessee

by Steven G. Livingston

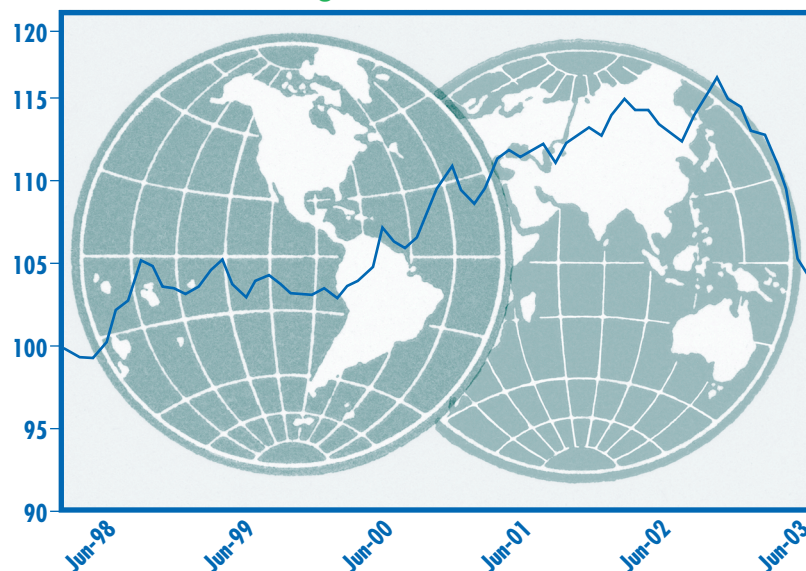
When it comes to prices, the international market is no different from any other. Having a competitive price is the key to making the sale. When it comes to money, however, the international market *is* different. Many currencies are used, and the rate of exchange between these currencies is an important element of the price that a firm can ultimately offer for its product. Foreign exchange rates are thus a critical part of the international trade picture. A weak currency translates into a lower price, and this helps firms to compete in international markets. A strong currency means a higher price, and this helps foreign firms who wish to compete in the firm's home market.

The importance of foreign exchange rates to trade flows is well known. We studied this issue in an earlier *Global Commerce* (Winter 1996) and found that, in Tennessee, shifts in the value of the dollar translate into shifts in the state's export figures after a lag of about six months. Certainly one of the biggest trends of the past decade was the steadily rising dollar. It is one reason for the large trade deficits America has experienced during these years. In Tennessee, for example, by 2001 state exporters had to compete against foreign firms with a dollar that was almost 50 percent higher than it was in 1992. In the strength of the dollar, Tennessee trade faced a very strong headwind, making its growth all the more remarkable.

In recent months, however, the dollar has fallen substantially. It has retreated to the levels of 1998, and many expect it to fall further. It appears that state exporters have already reaped some benefit from this drop (see this month's International Trade Report, page 5).

The change in the trend of the dollar, though, is not the biggest international monetary story of recent years. That story is the successful creation

## Tennessee Trade-Weighted Dollar Index



of a new European currency, the euro (€). The implementation of the euro and the new interest in the changing trend of the dollar have led us to revise and update the Tennessee Trade-Weighted Dollar Index that has appeared in this publication for the past seven years.

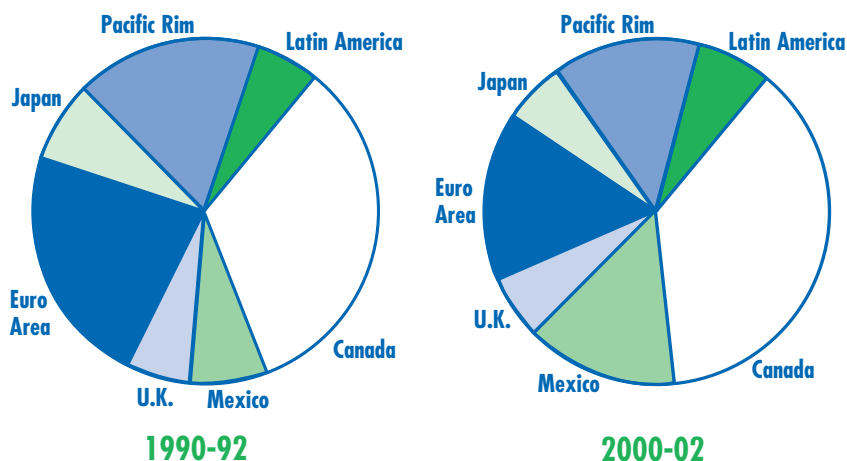
## Trade-Weighting the Dollar

A trade-weighted dollar is simply an expression of the value of the dollar that takes into account the size of the markets where U.S. firms trade. Though one can express the dollar in terms of the euro or of the yen or of any other nation's currency, the obvious problem is that each of these values is only of use for that market. One solution would be to express the dollar in terms of an average of all the world's currencies, but this ignores the fact that some currencies represent very small markets, where even huge changes in foreign exchange rates have very little impact on overall trade figures, while other currencies represent very large markets, where even slight changes might

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## Tennessee's Changing Global Market



## Index

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change the balance of trade substantially. So the best solution is to express the dollar in terms of an average of the world currencies, where each currency is weighted by the size of its market. The fact that only 20-30 countries account for almost all of America's exports makes the calculation of a trade-weighted dollar index much easier, as one does not need to include all of the other countries to make a virtually complete index. The Federal Reserve Bank reports such an index for the United States. As with most states, though, Tennessee's trade does not exactly mirror that of the nation. For example, a much larger percentage of

## Weighing Tennessee's Trade

	% Exports	% Trade Index
Canada	35.04%	38.36%
Euro Area	14.80%	16.20%
Mexico	13.17%	14.42%
United Kingdom	5.56%	6.09%
Japan	5.31%	5.81%
Singapore	1.98%	2.17%
China	1.97%	2.16%
Brazil	1.95%	2.13%
Hong Kong	1.85%	2.03%
South Korea	1.77%	1.94%
Australia	1.70%	1.86%
Taiwan	1.45%	1.59%
Turkey	1.06%	***
Malaysia	0.84%	0.92%
Argentina	0.71%	0.78%
India	0.62%	0.68%
Indonesia	0.54%	0.59%
Philippines	0.51%	0.56%
Saudi Arabia	0.51%	0.56%

## Dollar Index Changes

Added	Dropped
Malaysia	Dominican Republic
Argentina	Sweden
India	Thailand
Philippines	

Tennessee exports go to the NAFTA market than is the case for most American states. In *Global Commerce*, we developed a dollar index specifically for the trade pattern of Tennessee. This allows us to better understand the impact of changes in the value of the dollar on this state. (In our original 1996 article, we showed how the Tennessee index and the overall U.S. index sometimes substantially diverge.)

## The Changing Geography of Tennessee Trade

There have certainly been changes in the composition of Tennessee's markets over the past 10 years. The most obvious, noted above, is the increased relative size of the NAFTA market for this state. Mexico, in particular, has grown dramatically. In the past 10 years, it has increased its portion of Tennessee exports from 6.44 to 13.17 percent. The share of exports going to Latin America has risen as well, so the state is becoming more "Americas-centric." The euro area, Japan, and the Pacific Rim have all become relatively smaller destinations for state products. Britain alone of the major export markets has not changed much in the past 10 years. The euro area has shrunk the most, declining from 20.62 to 14.95 percent of state exports since the early 1990s. The pie charts above summarize these changes in market share.

## A Revised Tennessee Trade-Weighted Dollar Index

Our original dollar index was created by averaging Tennessee exports over 1990-92 to establish the relative size of each foreign market. It then included 22 countries that together composed 86 percent of the state's exports.

The euro makes things somewhat easier as it combines a number of countries that were in the old index. For the new index, we include all markets, except one, to which Tennessee ships more than one percent of its exports. This is based on averaging state exports over the past three years. As the table shows, 18 different markets together account for a little more than 90 percent of all of Tennessee's trade. The table also shows the weight given to each of these markets in the new index.

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## 1st Quarter 2003

It was a great quarter for cotton and chemicals.

## 1st Quarter 2003

Automotive exports continue to slump.

## Tennessee's Largest Export Sectors

	Exports	Change from Last Year	Change from Last Quarter
Transportation Equipment	\$550,021,667	-18.0%	-8.0%
Chemicals	\$419,884,187	22.4%	3.3%
Computer and Electronic Products	\$357,867,776	7.0%	-8.8%
Non-Electrical Machinery	\$336,838,753	20.7%	5.7%
Agricultural Products	\$224,224,136	41.1%	21.2%
Miscellaneous Manufactured Goods	\$134,578,580	0.3%	-24.2%

## What's Hot and What's Not

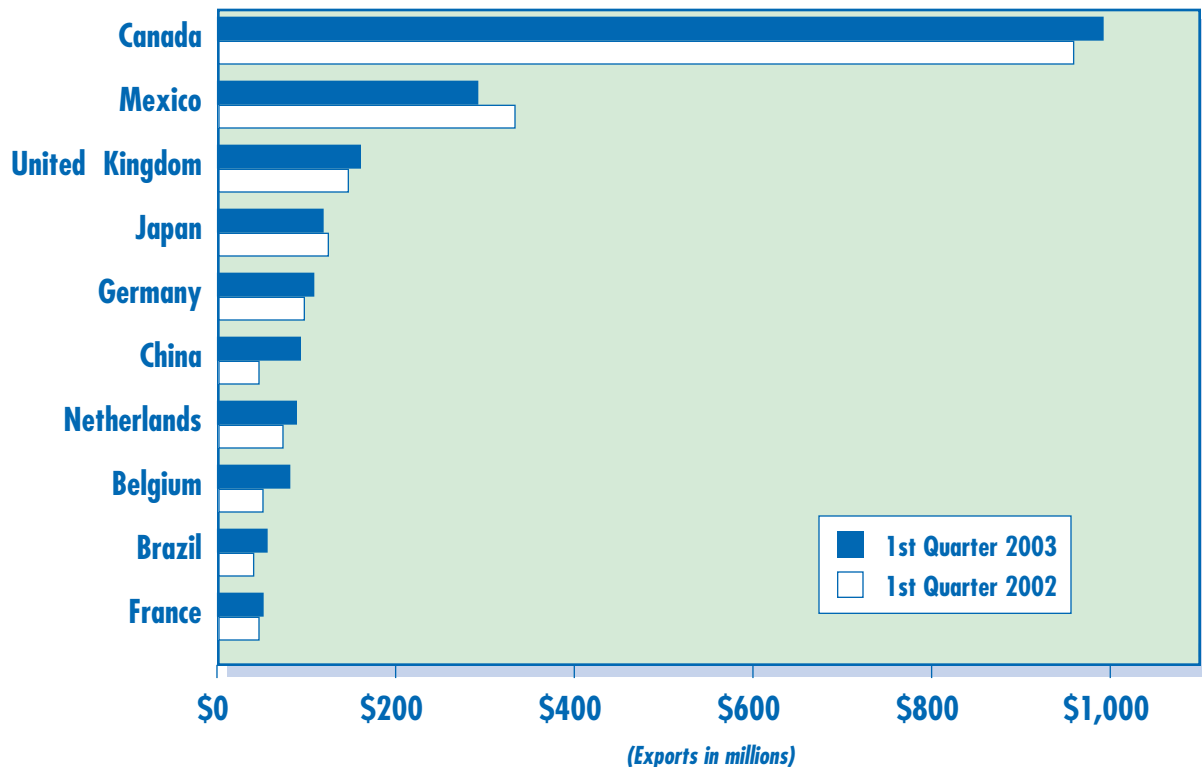
(among Tennessee's top 100 exported goods)

	Value of Exports	Growth	Decline
<b>PRODUCTS WITH THE GREATEST GROWTH</b>			
Gas Turbines >5000kw	\$7,005,000	*	
Excavators	\$9,658,326	*	
Men's/Boys' Shirts of Manmade Fibers	\$7,897,942	2,268.0%	
Beverage Vending Machines	\$16,587,214	1,409.4%	
Parts for Instruments Measuring Ionizing Radiation	\$13,491,920	934.3%	
<b>PRODUCTS WITH THE GREATEST DECLINE</b>			
Commercial Vehicles <5 Tons	\$349,595		-98.7%
Parts for Elec. Apparatus for Line Telephony	\$22,634,403		-55.9%
Car Tires	\$17,388,858		-45.4%
Iron or Steel Articles	\$12,561,761		-44.5%
Automobiles	\$75,091,341		-38.3%

\* No exports in the first quarter, 2002

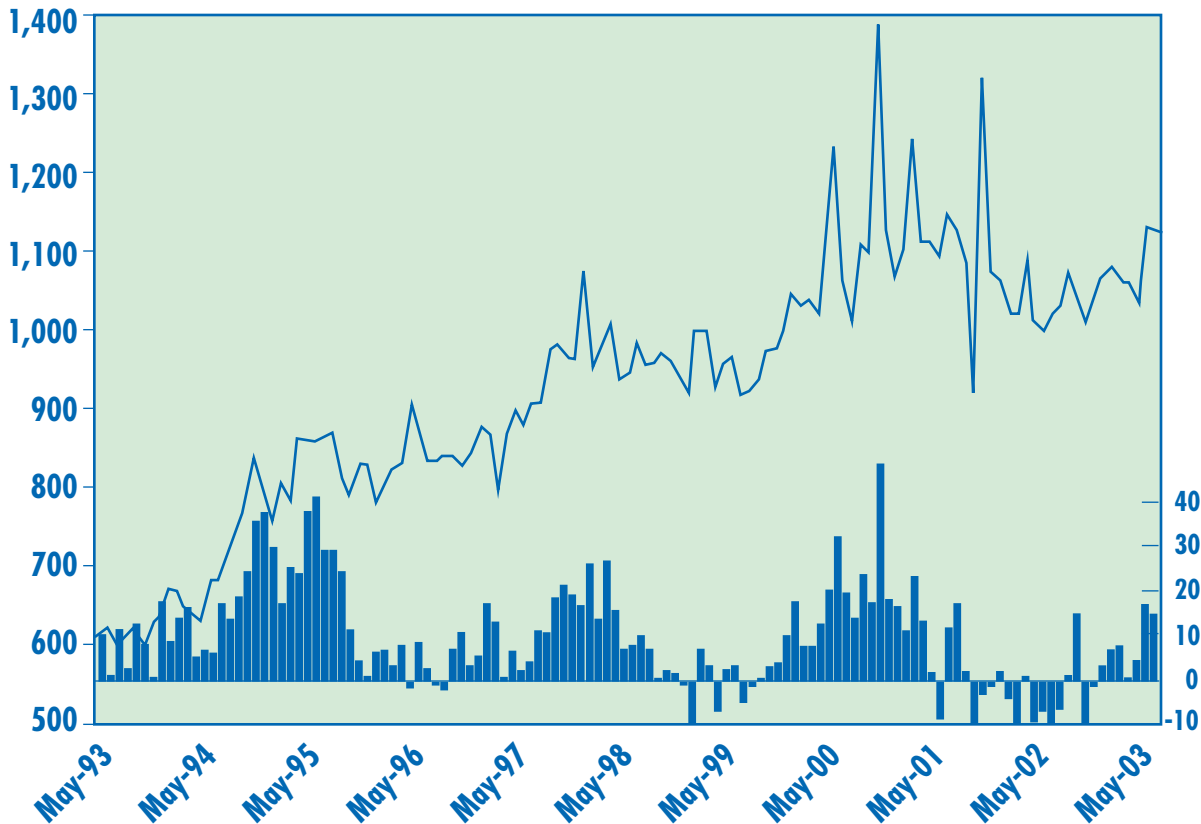
## Tennessee's Leading Trade Partners

China was the state's fastest growing large market.



# Tennessee's Monthly Exports

Exports in \$ Millions



(Seasonally adjusted, expressed in 2000 dollars)

1st Quarter 2003

## GlobalCommerce

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**Editor:** Steven G. Livingston  
**Publications Editor/Designer,**  
**College of Business:**

Sally Ham Govan  
**Phone:** 615-898-2610

**On-line:**  
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## Fastest Changing Export Destinations

(among countries averaging more than \$2 million in sales per quarter)

	Value of Exports	Gain	Decline
<b>COUNTRIES WITH THE GREATEST GROWTH</b>			
Honduras	\$19,844,147	185.1%	
Portugal	\$9,439,777	163.3%	
El Salvador	\$6,828,181	131.4%	
Ecuador	\$5,554,299	128.5%	
United Arab Emirates	\$10,364,208	97.7%	
<b>COUNTRIES WITH THE GREATEST DECLINE</b>			
Bangladesh	\$1,230,547		-79.3%
Venezuela	\$2,182,249		-78.3%
Austria	\$3,512,596		-61.8%
Turkey	\$31,541,002		-39.3%
Spain	\$15,042,492		-31.5%

# Tennessee International Trade Report

**April and May saw double-digit increases in state exports, but about half of the overall increase was once again due to sales of cotton.**

Tennessee exports were valued at \$2.899 billion for the first quarter of this year. Foreign sales were 6.6 percent higher than a year ago. However, the first quarter of 2002 was very weak, and this removes some of the luster from this quarter's numbers. Moreover, the overall figures disguise a great deal of volatility in the state's export picture.

As a case in point, it was a very poor quarter for the Tennessee auto industry, the state's largest export sector. Transportation equipment exports fell by nearly a fifth from 2002. Exports of passenger cars were down by \$56 million (to \$76 million), while auto parts lost another \$46 million (to \$251 million). Fortunately, no other sector posted losses of this magnitude, but a number of other products lost a third or more of their exports for the quarter. These include goods such as computer parts (off \$13 million) and tires (off more than \$17 million). The telephony industry continued its virtual free fall. Exports of parts for line telephony apparatuses dropped another 55 percent this quarter. Quarterly exports are now at about the level of *monthly* exports in 2001.

Needless to say, it took some very good performances in other export sectors to cover these losses. Leading the way was the state's chemical industry, which increased its exports by more than 22 percent. Cellulose and polyethylene terephthalates were the two products with the best gains. Tennessee's industrial machinery industry had a very good quarter as well. Heavy farm and construction machinery such as bulldozers, harvesters (and parts), and excavating machinery were the stars here, increasing their combined exports from \$30 to \$74 million for the quarter. The third strong product was cotton. Thanks to huge sales in China, Mexico, and Brazil, cotton exports soared more than 48% (to \$218 million).

Weak automotive exports spell trouble in the NAFTA markets, and this was certainly the case this past quarter. Mexico was particularly hard hit, with Tennessee exports down 12 percent, losing \$38 million for the quarter. Gains in cotton and aluminum sheeting were far short of balancing the \$73 million decline in automotive-related exports. Tires were similarly hard hit, dropping by \$13 million. Canadian exports also took some big hits, especially in automobile and line telephony gear sales. Still, strong sales of computers and industrial machinery were enough to push Canada into positive territory, as Tennessee exports eked out a rather weak 3.65 percent gain for the quarter. At \$994 million, state exports remain nearly \$200 million down from the levels of 2000-01.

With NAFTA weak, most of Tennessee's export growth took place in Europe. Sales to the countries of the European Union were up a little more than 13 percent for the quarter. The \$34 million gain in Belgium (56.22 percent) was the best

single performance, but there was at least solid export growth in all of the major European markets except Italy, where sales were essentially flat. (Figures for several smaller countries were anomalous, though. A one-time sale of integrated circuits in 2002, not repeated this year, was enough to produce very poor numbers for Spain, and Austria saw a huge drop in auto parts sales.) No single product or sector accounted for the good news coming out of Europe. Products as different as vending machine parts (Great Britain), orthopedics (France), books (Germany), coloring pigments (Belgium), polyethylene terephthalate (the Netherlands), and whiskey (everywhere) made strong showings in the first quarter. The strength and breadth of sales to Europe suggest that in this market the state did see some advantages from the falling dollar.

Tennessee exports to Latin America actually grew faster than those to Europe, though the dollar amount was less. The 33 percent growth rate (to \$221 million) looks pretty spectacular, but, unlike Europe, it was very narrowly based. Cotton alone accounted for more than half of this growth, and virtually all of that was to one market, Brazil. Organic chemicals and apparel shipments (the latter to Central America) also made large gains. These three commodities compose the lion's share of Tennessee export growth to Latin America.

One country, China, made for a solid quarter in Asia. With almost every other market flat, China broke ranks and nearly doubled its purchases of Tennessee goods. Once again, cotton was king. A \$40 million cotton shipment this past March was the source of most of the overall increase in exports to China. However, sales of harvesting machinery were also very strong. A big decline in manmade fiber exports was not enough to offset these robust sales. The only other Asian market with similarly good numbers was the Philippines. Thanks to purchases of aircraft parts and radiation measuring instruments, exports to the Philippines were up nearly a third for the quarter (to \$21 million.).

Japan, still by far the largest Asian market for Tennessee (\$127 million), continued to remain sluggish. Exports to Japan dropped around \$5 million in the first quarter. Sales of tires and orthopedics suffered the biggest reverses, but it is really more a case of a relentlessly slow market.

In sum, we can judge Tennessee's trade picture as either half full or half empty. Even with losses in its best market (NAFTA) and largest industry (automotive), the state forged export gains, but it is unlikely to sustain those gains without a turnaround in that market and in that industry. Data from the second quarter suggest this turnaround still awaits. April and May saw double-digit increases in state exports, but about half of the overall increase was once again due to sales of cotton. ■



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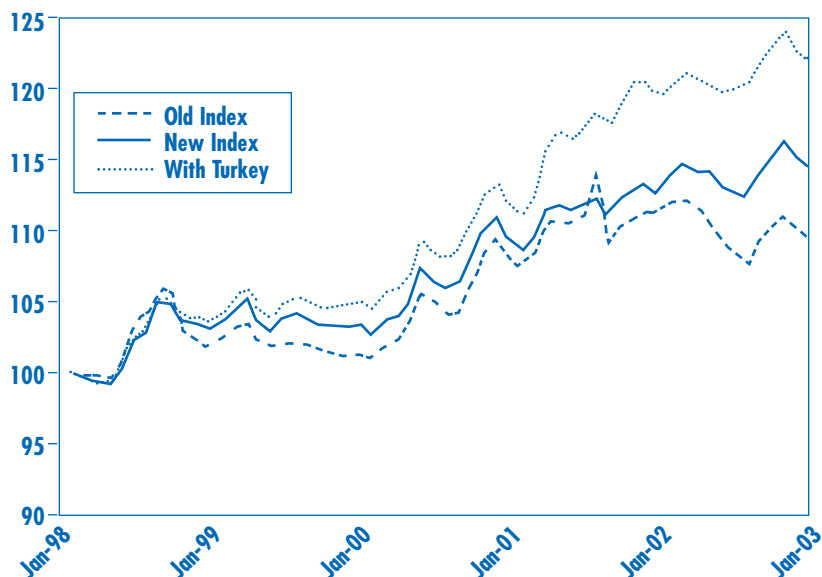
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### The Special Problem of Turkey

The chart below compares the old and new trade-weighted dollar indexes. It shows why we

### Comparing Trade-Weighted Dollar Indexes



omitted one market from the index and may highlight some limitations of any foreign exchange index. Our old and new indexes track each other rather closely, as one would expect and desire. But if we had added Turkey, which is the destination of a little more than one percent of Tennessee exports, our new index would have exploded upward compared to the old index.

The problem is that the Turkish lira has suffered a remarkable depreciation over the past decade. In January 1998, the exchange rate was 213,133 liras to the dollar. In June 2003, the rate was 1,451,765 to the dollar. This drop was so large that it would have added seven points to our index—this from a country with one percent of the total market. This volatility caused us to drop the lira from our index, as it simply has an effect of too great a magnitude given the size of Turkey. However, the Turkish case does remind us of a potential problem with dollar indexes. Should any country enter a period of great currency volatility, the index may become less reliable. Presumably, those trading in such markets are learning other methods of handling the currency fluctuations!

This caveat notwithstanding, trade-weighted dollar indexes have shown their utility over many years of use. The new Tennessee Trade-Weighted Dollar Index should provide a more accurate and updated picture of the environment in which this state's exporters are operating. ■