

## Taking Account...

### **BEA paper looks at import substitution and prices**

A striking economic shift over the past few decades has been the growing substitution of imports for products once sourced from domestic producers. This shift in sourcing has presented measurement challenges for national economic accountants, researchers, and others. For the U.S. import price indexes, any price reductions that buyers realize by switching to a foreign source would indeed be out of scope, which some say has led to an upward bias in measures of real output growth and productivity growth.

In addition, U.S. imports increasingly have shifted away from high-wage countries to lower wage countries. Changes in prices that occur when import buyers substitute to new source countries are also likely to be missed by import price indexes. These unmeasured price changes similarly affect the measurement of output growth.

In a recent Bureau of Economic Analysis (BEA) paper, former BEA economists Marshall B. Reinsdorf and Robert E. Yuskavage examine the conceptual framework for measuring sourcing substitution bias, providing empirical evidence on the size of the biases in measures of the growth of import prices, real gross domestic product (GDP), and productivity.

The authors analyzed product-level data on changes in import-sourcing patterns. Next,

they identified products in the U.S. industry accounts that are consumed by households and that are supplied by imports.

The authors then aggregated consumer price indexes (CPIs) for items that are sourced at least partly from imports, using weights that reflect household consumption patterns. CPIs better capture the impact of substitution towards lower priced imports. Next, purchaser price indexes that are conceptually equivalent to CPIs were constructed from combinations of import price indexes and producer price indexes for these products, using weights from BEA's industry accounts that reflect sourcing patterns. Finally, the authors compared their purchaser price indexes constructed for consumer products sourced from imports with the aggregated CPIs for those products.

Falling tariffs, differences in index formulas, and differences in quality adjustment procedures may also contribute to the size of the growth rate gaps between the CPI aggregates and the aggregates containing import price indexes. After adjusting for these factors, the authors found that durable goods showed an adjusted gap of 1.2 percent per year. Calculations of an upper bound for the effect of sourcing substitution suggest, however, that some of this gap comes from effects other than sourcing substitution.

Apparel and textile products, which were subject to consider-

able offshoring, had an estimated adjusted growth rate gap of 0.6 percent per year.

The adjustments for the effects of the index formula and quality adjustment procedures are subject to a range of uncertainty. Nevertheless, bigger adjustments do not imply a smaller overall bias. Rather they imply that more of the observed growth rate gaps should be attributed to bias from formula or quality adjustment procedures.

The effect of the sourcing substitution biases on the average annual growth rate of real GDP was less than 0.1 percentage point. Importantly, offsetting (though probably smaller) effects may have been present on the export side as well.

Indeed, new trading relationships with emerging country economies may also have lowered the average price received by U.S. exporters. Lower prices offered to new customers in emerging economies may not have been reflected in the export price index, which would offset some of the effect of the bias in the import price index in calculations of real GDP. In addition, the index formula and quality adjustment procedures used to construct the export price index are similar to those in the import price index.

As for productivity, sourcing substitution bias did have an effect, accounting perhaps for 0.1 percentage point of the measured productivity growth rate of private businesses.