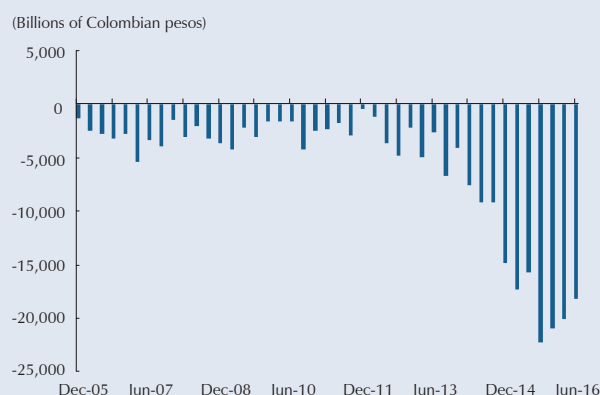


## Box 1 THE NATURE OF THE TRADE DEFICIT CORRECTION

Juan Pablo Cote B.\*

The behavior of the external balance in current pesos is characterized by a decline in the trade deficit for goods and services since the fourth quarter of 2015 (Graph B1.1). As noted in the previous edition of this report, the reduction in the trade deficit for goods has contributed to far fewer imports in dollars, which have offset the effect of the reduction in exports. The smaller deficit in the balance of services is explained, in turn, by sizeable reductions in imports of services, especially those for the mining and energy sector.

**Graph B1.1**  
Trade Balance (National Accounts)



Source: DANE.

There could be two reasons for the nature of this adjustment in the trade balance: a real adjustment, via the quantities exported and imported, or a price adjustment, which leads to changes in terms of trade. In this sense, it is important to determine why the trade gap is narrowing. Doing so lets us know to what extent the adjustment pertains to real corrections that help to counteract the impact the negative shock to terms of trade (that began in the second half of 2014 and became more pronounced during 2015) had on the external imbalance, by isolating it from the effect generated by the fluctuations in price. Indeed, the country's terms of trade recovered to some extent during the first half

of the year, largely because of the rise in oil prices during that same period. Therefore, the reduction in the deficit may have some component related to that fact.

Algebraically speaking, the change in the trade balance can be broken down into two parts, as indicated above: one due entirely to changes in the prices of exported and imported goods and services, and another that depends only on changes in the quantities that are exported and imported. The process begins by defining a trade balance as follows:

$$BC = P_X X - P_M M$$

Where  $P_X X$  is the exported value and  $P_M M$  is the imported value. Accordingly,  $P_X(P_M)$  is some measure of the price of goods and services exported (imported) and  $X(M)$  is that of exported (imported) quantities.

In denominating the change in the trade balance as  $\Delta BC$ , we obtain:

$$\begin{aligned} \Delta BC &= (P_X X - P_M M) - (P_{X0} X_0 - P_{M0} M_0) \\ &= \left[ P_X X \left( \frac{P_X - P_{X0}}{P_X} \right) - P_M M \left( \frac{P_M - P_{M0}}{P_M} \right) \right] + \left[ P_{X0} X_0 \left( \frac{X - X_0}{X_0} \right) - P_{M0} M_0 \left( \frac{M - M_0}{M_0} \right) \right] \end{aligned}$$

Where the 0 subscript indicates it is the initial value of the variable. The first square bracket can be interpreted as the effect that changes in terms of trade have on trade balance, since it is not null only if there are changes in the prices of exported or imported goods and / or services from one period to another. The second square bracket corresponds to the effect changes in exported or imported quantities has on the trade balance.

Graph B1.2 shows the result of this breakdown for the annual variations in the trade balance, with data for the second quarter of 2016 and using two methodologies.

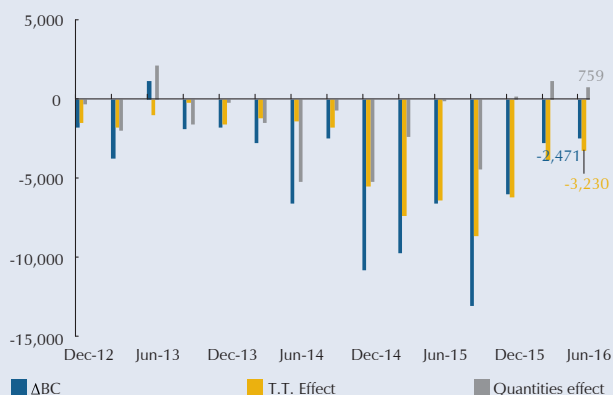
Panel A uses nominal and real export and import figures from the DANE national accounts, measured in pesos. These data include trade in goods and services. The variations in prices pertaining to the effect of terms of trade were constructed based on the implicit deflators of exports and imports.

\* The author is an expert who works with the Department of Programming and Inflation. The opinions expressed herein imply no commitment on the part of *Banco de la República* or its Board of Directors.

Graph B1.2  
Breakdown of the Change in the Trade Balance  
(Annual change)

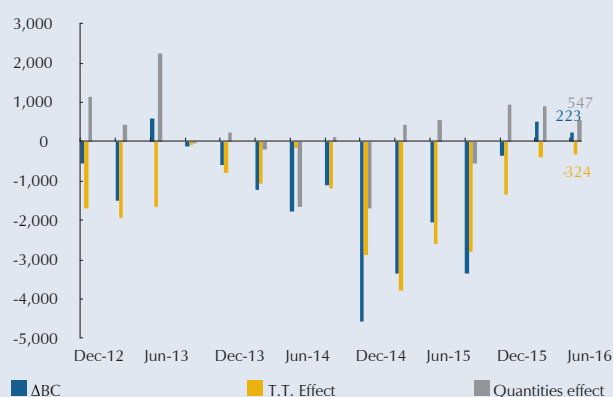
A. National accounts

(Billions of Colombian pesos)



B. Commerce methodology

(Millions of dollars)



Source: DANE, DIAN; Calculations by Banco de la República

Panel B uses export and import figures provided by DIAN. They only include trade in goods, measured in dollars. As an approximation to the price variables, foreign trade prices indexes were employed according to the method proposed by Garavito, López, and Montes (2011).<sup>1</sup> Using these indices, the series of real exports and imports were constructed to approximate the effect of changes in quantities.

First, it is important to point out that calculations of the annual variation in the trade balance, using the

national accounts method, show an increase in the deficit for the first two quarters of 2016, but one that has been declining since the third quarter of last year. In the case of the trade method, the figures show a reduction of the deficit in 2016 pertaining to positive changes in the trade balance during the first half of the year.

However, in both cases, the results of the exercises indicate the correction in the deficit during the first two quarters of 2016 is explained by the effect of changes in quantities. In fact, the breakdowns suggest the impact of the country's terms of trade contributed negatively to the trade deficit in both quarters. For example, if the trade methodology is used, the trade deficit in the second quarter of 2016 decreased by USD223 million compared to the same quarter of 2015. However, the effect of the deterioration in the country's terms of trade<sup>2</sup> during that period was negative. With all else being constant, this widened the trade deficit by USD324 million. Finally, the effect of changes in the quantities exported and imported helped to close out the deficit at USD547 million, offsetting and overcoming the negative impact of the country's terms of trade on the trade balance.

In summary, the calculations outlined in this section suggest the correction in the trade deficit during the first two quarters of 2016 would be due mainly to a change in the quantities exported and imported, which would be consistent with a decline in the real demand for imports. This also would indicate that, although a component of real exports continues to decline, as implied by some figures in the first half of the year,<sup>3</sup> fewer real imports of goods and services seem to overcome this effect and help to close the external imbalance.

1 Garavito, A., López, D. y Montes, E. (2011). "Aproximación a los índices de valor unitario y quantum del comercio exterior colombiano," No. 680, Borradores de Economía, Banco de la República.

2 Despite their partial recovery, the country's terms of trade were still lower by the second quarter of 2016 than those observed a year earlier.

3 During the first half of 2016, the quantities of mining exports and those from the rest of the group (constructed according to the method proposed by Garavito et al., 2011) showed reductions with respect to the same period the year before.