

By Antonio Rodriguez-Lopez

Abstract: *Back-of-the-envelope calculations indicate that the U.S. trade deficit with Mexico is in fact a trade deficit with other countries that export intermediate inputs to Mexican firms, who assemble all the inputs to produce U.S.-bound final goods. Furthermore, productivity increases in Mexico are stalled and there has been a dramatic redistribution of the value created by firms in Mexico from salaries to capital gains. In light of this, a NAFTA renegotiation that targets rules of origin and Mexican labor-market conditions is long overdue and will benefit Mexico in the long run.*

Since NAFTA came into effect in 1994, real gross trade between Mexico and the U.S. has more than quadrupled, growing at an impressive rate of 15 percent per year during its first seven years, and then slowing down to a 3 percent growth rate between 2000 and 2016. In terms of gross trade value, Mexico is the second major exporter to the U.S. (after China), but is also the second export destination of U.S. goods (after Canada). In 2016, nominal U.S. imports from Mexico were \$294 billion, while U.S. exports to Mexico were \$231 billion, yielding a U.S. trade deficit of \$63 billion.

Gross trade values, however, can be misleading because they are subject to substantial double counting, particularly if trade between countries is based on global supply chains where inputs cross borders multiple times before a final consumption good is completed. Moreover, when more than two countries are involved in a global supply chain, which is very common, gross trade values can give a very inaccurate picture of true trade balances.

Suppose, for example, that total trade between Mexico and the U.S. consists of a single \$100 phone. The production of this phone needs three inputs: (1) An input valued at \$60 and provided by the U.S.; (2) An input valued at \$30 and provided by China; and (3) An input valued at \$10 and provided by Mexico.

Inputs 1 and 2 are shipped to Mexico, where input 3 is added and the phone is then shipped to the U.S. for final consumption. In this case, the true U.S. trade deficit from importing this phone is \$40, composed of a \$30 deficit with China (from input 2), and a \$10 deficit with Mexico (from input 3). Gross trade statistics, however, show a different picture, attributing a \$40 trade deficit of

the U.S. with Mexico, and a \$30 trade deficit of Mexico with China. Although the U.S. trade deficit continues to be \$40, all of it is attributed to Mexico when in reality only \$10 of the phone value was added by Mexico.

Double counting and third-country involvement are both very relevant in U.S.-Mexico trade, which is heavily based on highly integrated supply chains. According to INEGI, 62.4 percent of Mexican manufacturing exports in 2015 were part of global supply chains. More importantly, INEGI calculates that the domestic value added in Mexico's global manufacturing exports in 2015 was only 45.6 percent of their gross value, with numbers fluctuating from 16.3 percent in audio and video equipment to 65.7 percent in the production of motor vehicles.

As an example of how dramatically different the U.S.-Mexico trade picture can be when we use value-added trade, let us take the results of Koopman, Wang and Wei (2014), who estimate using 2004 data that 74.6 percent of U.S. gross exports are value-added U.S. exports, while only 51.6 percent of Mexican gross exports are value-added Mexican exports. Assuming that these numbers apply for U.S.-Mexico trade in 2016, that implies that U.S. value-added exports to Mexico are \$172.3 billion (74.6 percent of \$231 billion), and Mexican value-added exports to the U.S. are \$151.8 billion (51.6 percent of \$294.2 billion). These numbers would indicate that the U.S. had a \$20.5 billion surplus with Mexico!

Hence, in this simple back-of-the-envelope exercise, the U.S. trade deficit with Mexico from gross trade values is in fact a U.S. trade deficit with other countries that export intermediate inputs to Mexican firms, who assemble all the inputs to produce U.S.-bound final goods. This is not an implausible story, considering that Mexico has large trade deficits with input suppliers such as China and South Korea—Mexican data from 2016 shows Mexican trade deficits of \$64.1 billion with China and \$11.1 billion with South Korea.

This takes us to another important issue regarding U.S.-Mexico trade: the type of tasks or activities embodied in the value added of Mexican exports. If we arrange all the tasks needed to produce a final consumption good from the lowest-skill task (such as jobs in an assembly line) to the highest-skill task (such as a job in product research and development), trade theory tells us that with NAFTA, Mexico would specialize in lower-indexed tasks, while the U.S. and Canada would specialize in higher-indexed tasks. This indeed

happened, but in the long term, focusing on low value-added tasks is hardly a good mechanism to ensure sustained productivity gains from trade.

With NAFTA, the Mexican path for continuous productivity gains is through incremental innovations in production processes leading through time to the employment of more sophisticated (and higher value-added) tasks. Although this process was present in the first years of NAFTA, it was abruptly interrupted—with a few exceptions, such as in the motor vehicle industry—after China took off in the early 2000s. Had Mexico moved up consistently through the skill ladder, the expected benefits from NAFTA would have materialized, especially for Mexican workers.

In this respect, data from INEGI shows that of the domestic value added in Mexican global manufacturing production in 2015, only 19.5 percent corresponded to salaries (a steep decline from its 36.7 percent share in 2003). In contrast, capital gains—labeled as gross operating surplus—accounted for 53.2 percent of Mexican value added in 2015 (up from a 35.9 percent share in 2003). Note that the decline in the labor share almost exactly matches the increase in the capital share. Shockingly, these numbers imply that the value added of Mexican labor was merely 8.9 percent of the gross value of Mexican global exports in 2015.

In light of this, a NAFTA renegotiation that targets rules of origin and Mexican labor-market conditions is appropriate and will benefit Mexico in the long run. On the one hand, stricter rules of origin will allow Mexican firms to take over the production of more sophisticated (and higher value-added) inputs. Of course, this also depends on the ability of Mexico to provide higher-skilled, more educated workers. On the other hand, given the dramatic redistribution of Mexican value-added shares from labor to capital during the last years, it seems there is enough room for improvements in Mexican labor conditions without hurting the country's competitiveness.

The U.S., which quite possibly has a trade surplus in value added with Mexico, will also benefit from stricter rules of origin, as more activities will be performed in the NAFTA area. But what about U.S. jobs? A common narrative is that NAFTA destroys jobs in the U.S., which later appear in Mexico. According to this popular rhetoric against NAFTA, the correlation between U.S. and Mexican manufacturing employment should be negative: As jobs are destroyed in the U.S., they are created in Mexico. However, the manufacturing employment indexes for the U.S. and Mexico since 1993 show that this is not

the case. In fact, the correlation between U.S. and Mexican manufacturing employment is positive and remarkably high at 0.835. Even if we take year-to-year percentage changes, the correlation remains very high at 0.635. That is, in general U.S. and Mexican manufacturing employment move in the same direction, suggesting that—at least at the aggregate level—U.S. and Mexican workers are complementary rather than substitutes.

Hence, although industries may indeed move plants from the U.S. to Mexico, the efficiency gains from the global supply chain are large enough to allow these industries to expand their U.S. employment—U.S. firms destroy some jobs (mostly low-skilled and highly routine), but the expansion in employment in the tasks that remain in the U.S. more than makes up for the job losses. Hence, the key issue for the U.S. is how to retool the released workers so that they can be reabsorbed in other activities with similar pay and benefits.

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