Beyond Borders: Hidden Effects of US Tariffs on the US-MXâ€™s Circular Flow of income. A Bi-regional CGE Model

Topic: CGE and Econometric Input-output Modelling (2)
Author: Eduardo Moreno-Reyes
Co-Authors: Claudio SOCCI, Rosita PRETAROLI

In 2025, the new elected government of the United States declared the intention to impose trade tariffs on imports from Mexico. The amount of the measure has not been clearly specified yet; however, the action is meant to reduce the current trade deficit between US and Mexico especially in industries like transportation and electronic equipment. The announcement suggests that the existing trade agreement, USMCA (United States, Mexico and Canada Trade Agreement) will be reviewed in 2026 through intense trade negotiations.

In the worst case, the declared tariffs could reach the 25% of the value of all imported goods from Mexico, with severe implications not only on trade but also on the internal income distribution of the two countries. In this perspective, it becomes extremely important to produce a forecast of the potential impacts of this measure in both countries at aggregated and disaggregated level. Indeed, due to the complex industrial interdependencies between the United States and Mexico, notably in the automotive, electronics, oil, and chemical industries, the pricing consequences of the measure might go beyond the simple raise in import costs and the associated adjustments in the trade deficits. They also might encompass wider ripple effects throughout the â€œtrade in taskâ€•, that is the trade in intermediate goods and services typical of the offshoring (Grossman & Rossi-Hansberg, 2006).

Mexicoâ€™s trade patterns implicate that 80% of exports go to the US market, generating a 6.0% GDP trade surplus, despite deficits in petroleum, coal products, and chemicals. Mexico also maintains smaller surpluses with Canada (0.13% GDP) and Latin America (0.71% GDP). However, it faces substantial overall deficit culminating in a -2% GDP (INEGI, 2024) and distributed as follows: -5.0% of GDP with China, -2.6% with other Asian countries, and -2.5% with Europe.

On the other side, the US shows greater trade diversification, with exports distributed to Africa and Oceania (32%), Europe (18%), Canada (15%), Mexico (12%), and China (7%). Imports of goods and services follow a similar pattern: Africa and Oceania (27%), China (19%), Europe (16%), and Canada and Mexico (11% each). While the US experiences trade deficits with major partners, notably China (-1.9% GDP) and Europe (-0.76% GDP), these are partially mitigated by services trade balances (BEA, 2024).

Given this multifaced trade situation, to evaluate the effects of potential new/raised tariffs on both US and Mexico, it can be very useful to use a multi-regional and multi-sectoral approach, in which the multiple (direct, indirect and induced) effects can be determined.

Since the 1960s, Balassa (1965) and Corden (1966) used the Effective Protection Rates (EPR) to measured tariffs escalationâ€™s impact on developing countries by imposing high duties on final goods, but lower rates on raw materials. Diakantoni and Escaith (2012) draw on the EPR to capture the indirect effects of the international inter-industry system proposing a Leontevian approach. Miroudot, et al. (2013) examine the implications of Global Value Chains (GVCs) for trade policy for Canada. Giammetti (2020) studied the impact of Brexit on trade by using the World Input-Output Database (WIOD) (Timmer, et al., 2015), and explored how import substitution policies could reduce economic losses for UK and EU27.

However, Diakantoni and Escaith (2012) argues that maybe CGE models fit better how protectionism might affect the economy, enabling sensitivity analysis of substitution effects on Effective Protection Rates. Recently, these models have been widely used to evaluate the effects of tariffs (Bolarinwa, 2024), since they allow simulating a shock on relative prices (Vellinga & Tanaka, 2024) and quantify the real and nominal impacts.

Following this last approach, this article develops a bi-regional CGE model on a bi-regional Social

Accounting Matrix (SAM) which reconstructs all inter-regional and intra-regional income flows between the US and Mexico. The bi-regional US-MEX SAM derives from authorsâ€™ elaborations on BEA and INEGI databases and shows a disaggregation of 63 commodities and 63 industries, 4 components of value added (Compensation of employments, Gross Operation Surplus, Taxes on products, Taxes of Production) and 6 institutional sectors (Households, Financial and non-financial corporations, Federal and Local Government, Rest of World) for each country. In addition, households from US are divided into 9 groups according to the data from BEA, while households from Mexico are classified by deciles. The construction of such a database is functional to the calibration of the CGE model and the definition of the technical coefficients, shares, implicit tax rates, income distribution quota etc. In this way it io possible to quantify the real and nominal potential effects of tariffs in each phase of income generation, distribution and use at a disaggregated level in both countries The detail