Experiences using technical tools linked to input-output and general equilibrium models for policy analysis

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Motivation

For designing cost-effective public policies related with international trade, it is important to answer key questions:

- What are the consequences of trade integration on employment, inequality and productivity?
- What are the effects, in terms of economic growth and social well-being, of external shocks such as the rise of abundant natural resources prices?
- Can developing countries accelerate their economic growth through global value chains? What kind of conditions are necessary?

- Both input-output (IO) and general equilibrium (GE) models help us to answer these fundamental questions. In addition, these models can be very well associated with econometric, time series or even causal inference methodologies.
- The use of these models is preferable to partial equilibrium models.
- However, they are instruments of analysis, means to answer key policy questions and not the ends $\Rightarrow$ it is important to choose the method or combination of methods that can answer key questions in the best possible way.

Case Study: Brazil

Brazil had a series of restrictions on imports until the late 1980s:

- Ad valorem rates was 51% on average
- A list of 1,300 products could not be imported

Between 1988-1993 many of trade barriers were reduced

How had trade liberalization affected Brazilian labor market? And inequality?

Under the hypothesis that Brazil was relatively abundant in unskilled labor (to skilled labor) $\Rightarrow$ trade openness would benefit unskilled workers reducing wage premium by qualification and thus inequality. However, data on wages gap, before and after opening, did not show clear changes and various studies were not conclusive either.

Reviewing literature and answering questions: a) approaches were more related to the labor economics literature (there were also important increases in productivity); b) trade variables were not particularly those derived from the trade literature (HOS).

Analysis

1. To find evidence of whether Brazil was relatively abundant in unskilled labor $\Rightarrow$ input-output model to perform the associated Heckscher-Ohlin-Vaneck (HOV) tests on the relative abundance of factors of production.
2. To study the improvements in productivity and how these changes could affect wage gap by skill, with an input-output model and complementing with econometric analyzes. These improvements were biased towards greater savings in unskilled labor.
3. To use some additional econometric estimations

Main results

Trade liberalization effectively led to a relative increase in prices in those sectors which were most intensive in unskilled labor, and this effect led to a drop in the qualification wage premium. However, the sectors with the greatest improvements in productivity were the least intensive in unskilled labor, and therefore, had a tendency to increase the wage premium.

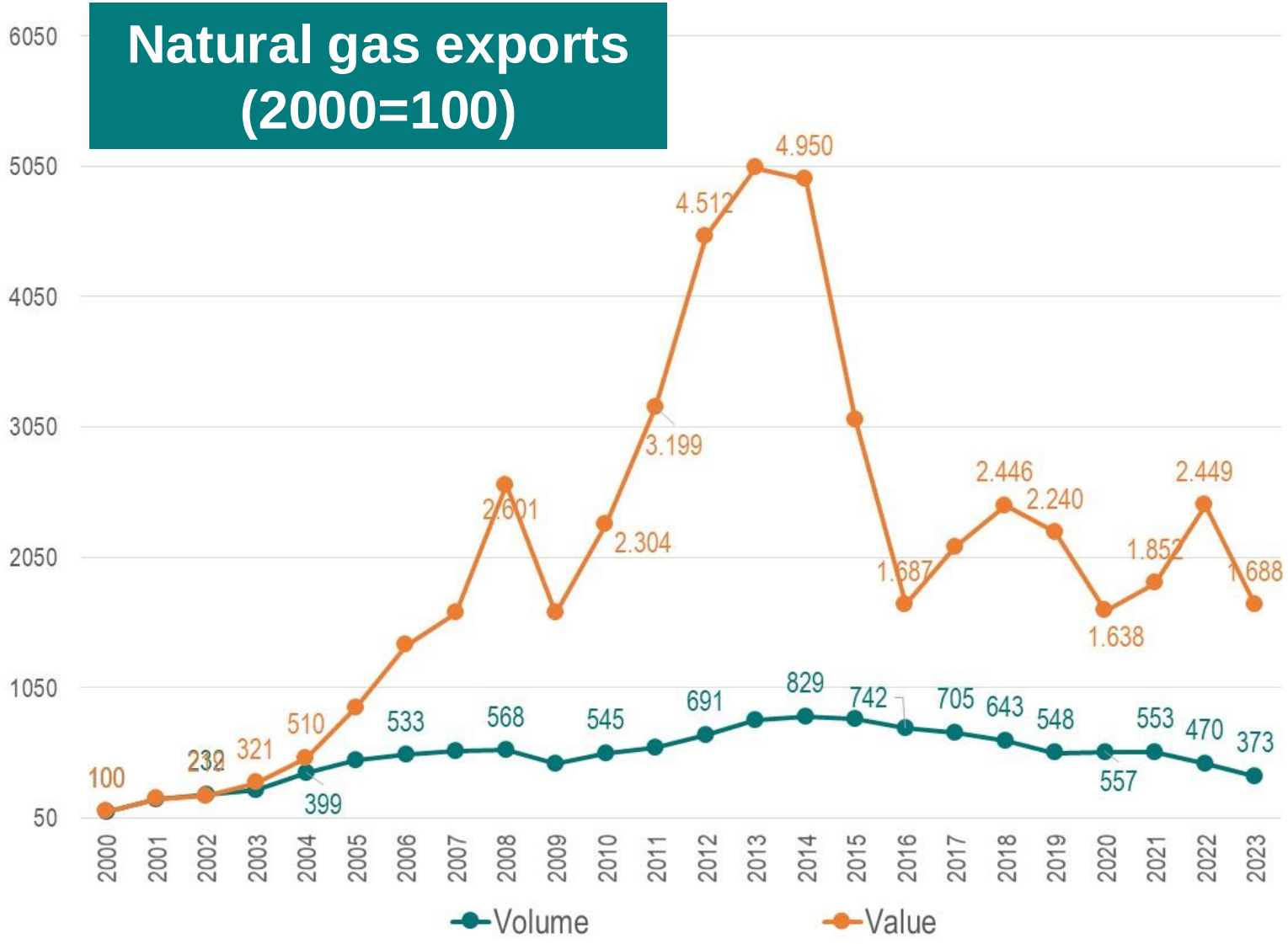
These two opposite effects precisely made the data of wage premium unclear.

Case Study: Bolivia

Bolivia is going through the famous “curse of natural resources”, which has not only economic, but also sociocultural issues.

IO as well as GE models can also help to understand these problems and suggest solutions.

Natural gas exports (2000=100)



Source: Own elaboration based on INE.

During 2004-2014, the volume exported increased by more than 100% and the value exported by more than 800%.

Between 2004-2014, Bolivia had: a) a high rate of GDP growth; b) poverty as well as inequality reduction; and c) surplus in fiscal and trade accounts. But since 2014 trade and fiscal balance were negative, and currently Bolivia is in a very critical situation.

Two factors are important to understand this scenario:

1. Through a SDGE model, Fernández, Gantier and Palmero (2018) show a rent-seeking behavior from both population and government, which led to losses in growth and well-being (long-term product growth was reduced by more than 2%).

2. Through an input-output model, Muriel and Terán (2019) show that employment content in exports increased by 30% during 2005-2014 (less than total employment, 34%). TFP decreased, -6% (Conference Board).

Thank you….

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