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Global value chains, trade and employment in Mercosur: a structural decomposition analysis

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Context and motivation

What are we doing?

We examine the employment developments in Mercosur, with a particular focus on the disruptive effects of the slowbalisation period. Mercosur's employment is analysed in terms of the type of production and bilateral trade flows carried out with five major trading partners. Subsequently, we sought to identify the extent to which the observed changes in employment in Mercosur are associated with four key factors.

Why are we doing?

The developing countries that form Mercosul display considerable heterogeneity in their macroeconomic environments and labor markets (ILO, 1997; Kon, 2003; Martins, 2019). Despite this, these countries exhibit a joint capacity to respond to economic shocks (Caceres, 2011). Integration efforts have been undertaken through an attempt to harmonize national policies, among which, labor policies.

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Research hyphotesis

1. We expect that the relationship between foreign demand and labor productivity is a key determinant of employment trends in the Mercosur region, based on the so-called "Denison effect" (Feenstra & Hong, 2007; Foster-McGregor, 2019).

2. We expect that alterations in global trade patterns during the period of "slowbalization" will have a deleterious impact on the interindustry structure of Mercosur, which will in turn have an adverse effect on employment (Caceres 2011, Antràs, 2020, Meng et al., 2021).

Estimating jobs created in Mercosur's production

- Our starting point are the works of Los et al. (2015) and Foster-McGregor (2019).
- We employ the production decomposition method of Wang et al. (2017) to quantify Mercosur production according to demand and trade partner:

$$\mathbf{k} \ = \ \hat{\mathbf{p}}\mathbf{Bf} \ = \ \underbrace{\hat{\mathbf{p}}\mathbf{Lf^D}}_{\mathbf{k^D}} + \underbrace{\hat{\mathbf{p}}\mathbf{Lf^F}}_{\mathbf{k^E}} + \underbrace{\hat{\mathbf{p}}\mathbf{LA^F}\mathbf{Bf}}_{\mathbf{k^I}} \tag{1}$$

- Therefore, variations in employment induced by each component can be attributed to three main factors: labour requirements ($\hat{\mathbf{p}}$), the structure of inputs ($\mathbf{L}$, $\mathbf{B}$ e $\mathbf{A^F}$), and final demand ($\mathbf{f}$, $\mathbf{f^D}$ e $\mathbf{f^F}$).
- Equation (1) breaks down how many jobs are in each country/industry, and where they end up. Specifically:
  1. The employment generated domestically during production for domestic consumption ($\mathbf{k^D}$);
  2. The employment generated domestically during production for traditional exports ($\mathbf{k^E}$);
  3. The employment generated through trade in GVCs ($\mathbf{k^I}$).

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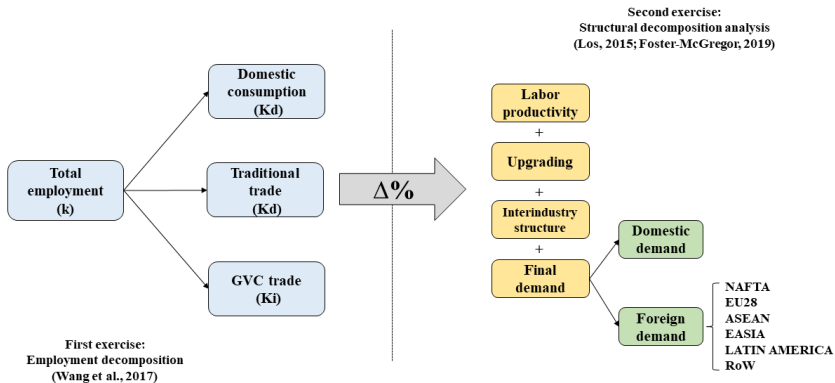Results
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The structural decomposition exercise: which factors?

- By looking at how these different factors have changed over time using a structural decomposition analysis, we can find out how each of them contributed to employment growth:

$$
\begin{aligned}
\dot{k} \ = \ ln\left(1 + \dot{k}\right) = \ ln\left(\frac{k_1}{k_0}\right) = \ ln\left(\frac{\hat{q}_1 \hat{w}_1 B_1 f_1}{\hat{q}_0 \hat{w}_1 B_1 f_1}\right) + ln\left(\frac{\hat{q}_1 \hat{w}_1 B_1 f_1}{\hat{q}_0 \hat{w}_0 B_1 f_1}\right) \\
+ ln\left(\frac{\hat{q}_1 \hat{w}_1 B_1 f_1}{\hat{q}_0 \hat{w}_0 B_0 f_1}\right) + ln\left(\frac{\hat{q}_1 \hat{w}_1 B_1 f_1}{\hat{q}_0 \hat{w}_0 B_0 f_0}\right)
\end{aligned}
\tag{2}
$$

- Therefore, we can obtain the employment growth rate as a function of final demand as the sum of the four terms:
  1. changes in labor productivity ($\hat{\mathbf{q}}$);
  2. changes in the share of added value in production (i.e., economic upgrading)($\hat{\mathbf{w}}$) ;
  3. changes of the interindustry structure ($\mathbf{B}$);
  4. changes in final demand ($\mathbf{f}$).

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# The structural decomposition exercise: a resume

Data

- Period of analysis: 1995 to 2016.
- EORA26 MRIO: 189 countries countries and 26 sectors.
- For our purposes, the sectors were aggregated at the national level.
- In addition to Mercosur - our object of interest - data were aggregated for five trade partners: European Union (EU28), North America Free Trade Agreement (NAFTA), Association of Southeast Asian Nations (ASEAN), East Asia Countries (EASIA), Latin America Countries (L.A.) and the Rest of the World (RoW)
- EORA26 MRIO provides data for the flow of intermediate goods and services, final demand (domestic and foreign) for different components, added value and product.
- Employment data by country gathered from the International Labor Organization (ILO).
- Nominal data were deflated using the US$ GDP deflator from the World Development Indicators (WDI).

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Evolution of employment in Mercosur: 1995 - 2016

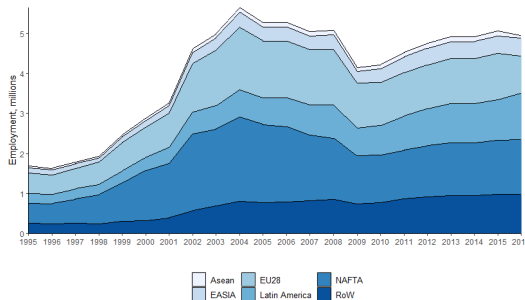Figure 1: Evolution of employment in Mercosur by productive activity
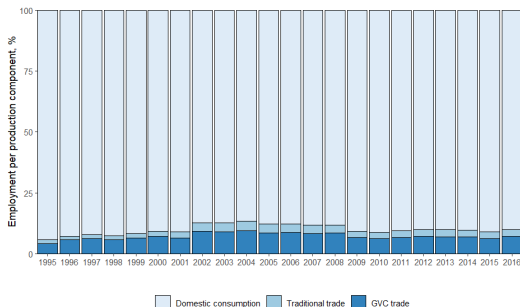
Source: own elaboration based on estimates with data from EORA26 and ILO

- Whole period: domestic consumption (90,1%), tradicional trade (2,7%) and GVC trade (7,2%).

- Between 2001 and 2008: domestic consumption (88%), tradicional trade (3,4%) and GVC trade (8,6%).

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Evolution of employment in Mercosur: 1995 - 2016

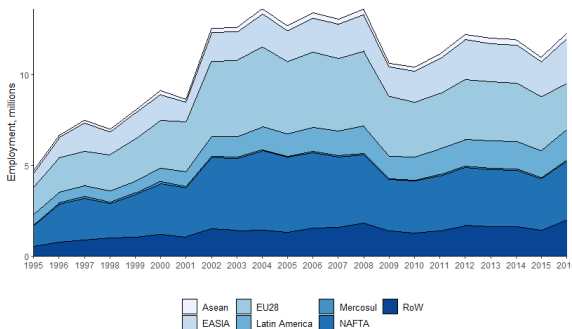Figure 2: Evolution of employment due to traditional trade in Mercosur by trade partner

Source: own elaboration based on estimates with data from EORA26 and ILO

- Three trading partners are responsible for more than 75% of the jobs created in the period: NAFTA (33.1%), European Union (26.1%) and Latin American countries (15.5%).

Evolution of employment in Mercosur: 1995 - 2016

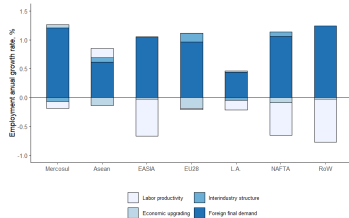Figure 3: Evolution of employment due to GVC trade in Mercosur by trade partner

Source: own elaboration based on estimates with data from EORA26 and ILO

- Transactions with NAFTA (28.7%) and the European Union (29.2%) still account for a large part of the jobs created.

- Asian partners have greater importance in terms of jobs created (around 18.6%), largely due to trade with EASIA countries (15.9%).

- A small portion (close to 0.7%, or a little more than 73 thousand jobs) relates to the re-importation of goods and services into Mercosur itself.

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Employment growth rate decomposition: 1995 - 2016

Figure 4:

Employment growth due to **traditional trade** from Mercosur and trade partners
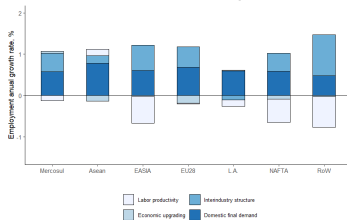

Source: own elaboration based on estimates with data from EORA26 and ILO

- Changes in labor productivity and final demand have a significant impact on the growth of employment, often exhibiting a compensatory effect on one another.

Figure 5:

Employment growth due to **GVC trade** from Mercosur and trade partners

Source: own elaboration based on estimates with data from EORA26 and ILO

- The impact of economic upgrading and interindustry structure is minimal and does not exhibit a discernible pattern.
- The interindustry structure plays a significant role in the generation of employment within the context of GVCs trade (except L.A.).

Mercosur's employment growth rate decomp.: 1995 - 2016

Figure 6: Effect of foreign final demand on Mercosur's employment by trade channel and partner
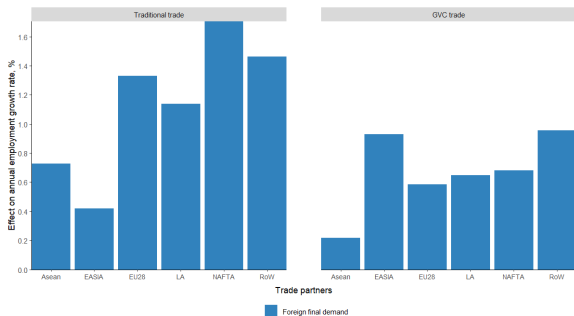
- Foreign demand played an important role in both trade channels.
- Employment growth was driven primarily by trade in final goods with NAFTA (1.7%), the European Union (1.3%), and Latin American countries (1.1%) through traditional trade channel.
- Regarding Mercosur's participation in GVCs, it is notable that employment grew at a faster pace in trade activities related to EASIA, NAFTA, and L.A. partners, at rates of 0.9%, 0.7% and 0.6% respectively.

Source: own elaboration based on estimates with data from EORA26 and

Going further: pre and post-crisis decomposition

Table 2 – employment growth rate according to production componentin the pre-crisis and post-crisis (annual, %)

Trade bloc	Domestic consumption		Traditional trade		GVC trade	
	1995-2007	2008-2016	1995-2007	2008-2016	1995-2007	2008-2016
Mean	0,20	0,11	0,52	0,08	0,59	0,07
Mercosul	0,25	0,11	1,09	-0,03	1,01	-0,10
ASEAN	0,22	0,06	0,53	0,13	0,66	0,27
EASIA	0,16	0,12	0,41	-0,03	0,49	0,04
EU28	0,26	0,22	1,09	-0,18	1,07	-0,05
L.A.	0,29	0,15	-0,04	0,19	0,12	0,13
NAFTA	0,07	0,02	0,32	0,22	0,41	-0,04
RoW	0,15	0,05	0,21	0,26	0,39	0,24

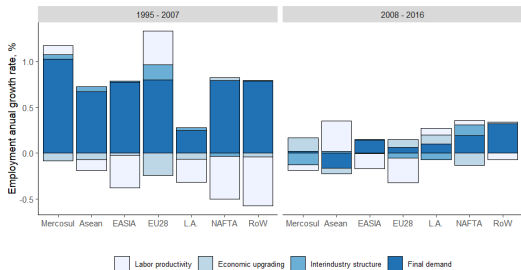Source: own elaboration based on estimates with data from EORA26 and ILO.

- Trade blocs that have a significant domestic demand were the most impacted by the crisis through trade channels.

- This scenario indicates that domestic demand played a significant role in maintaining employment levels.

Going further: pre and post-crisis decomposition

- The offsetting relation remains valid, though in a less intense manner.

- In select partners, labor productivity has contributed to job creation (as a consequence of reduced labor productivity).

- The positive effects of the interindustry structure on employment are evident during the "hyperglobalization." However, the post-crisis period exhibits no clear pattern in this regard.

Figure 7:

Employment growth due **traditional trade** from Mercosur and trade partners: pre-crisis and post-crisis
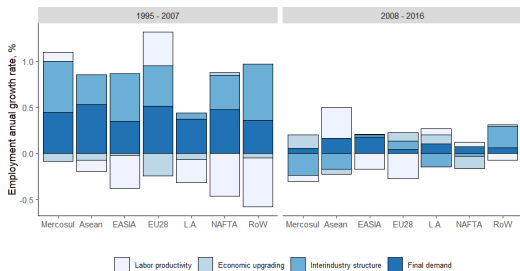

Source: own elaboration based on estimates with data from EORA26 and ILO

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Going further: pre and post-crisis decomposition

- The positive impact of interindustry structure on employment is particularly evident in the context of the pre-crisis period.

- The previously verified relationship between economic upgrading and job generation in Mercosur and L.A. is linked to changes in the conjuncture of the post-crisis period.

Figure 8:

Employment growth due **GVC trade** from Mercosur and trade partners: pre-crisis and post-crisis

Source: own elaboration based on estimates with data from EORA26 and ILO

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Pre and post-crisis decomposition: Mercosur's bilateral trade

Figure 9:

Effect of foreign final demand on Mercosur's employment due to **traditional trade** by partner: pre-crisis and post-crisis

- In general, the period of "slowbalization" exerted a significant influence on foreign demand.

- The reversal in traditional trade was largely driven by a decline in foreign demand from Asian countries and regional trade with Latin America.
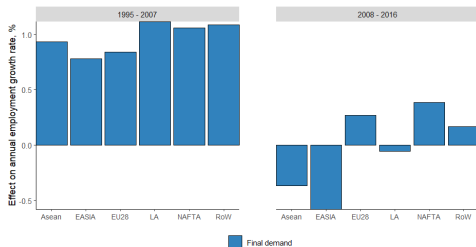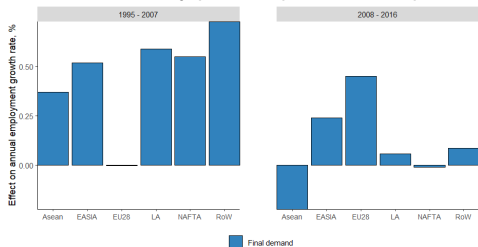

Source: own elaboration based on estimates with data from EORA26 and ILO

Pre and post-crisis decomposition: Mercosur's bilateral trade

- Adverse effects on GVCs trade, particularly from direct competitors who engage in international trade as suppliers of primary goods and inputs (ASEAN, Latin America, and NAFTA – predominantly Mexico).

- It is conceivable that the reorientation of the EASIA and EU28 economies towards domestic consumption has created an opening for bilateral Mercosur trade to specialize in supplying these countries with upstream activities.

Figure 10:

Effect of foreign final demand on Mercosur's employment due to **GVC trade** by partner: pre-crisis and post-crisis

Source: own elaboration based on estimates with data from EORA26 and ILO

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1. Between 1995 and 2016, the pace of Mercosur's employment growth rate was largely driven by trade-related channels. This tendency was also observed in the other partners (except L.A. countries).

2. Jobs have shifted from trade channels to domestic consumption (more pronounced in Mercosur and partners with large domestic demand) in the post-crisis.

3. The changes in employment can be explained by the fluctuations in final foreign demand and labor productivity, although to a lesser extent following the crisis.

4. No clear pattern regarding the effects of economic upgrading.

5. The post-crisis period contributed to a change in the participation of the intersectoral structure component, which had a negative contribution to the employment rate in Mercosur and most of its partners.

6. Mercosur's GVC trade expansion with EASIA and EU28: new possibilities?

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Thank you for your attention!

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