

## Trade, Capital Quality, and the Skill Premium: EU-MERCOSUR Agreement effects in a Production Network Model

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The trade agreement between the European Union (EU) and Mercosur will significantly liberalize trade in goods between these two trade blocks. The agreement will lift 91% of tariffs on Mercosur's imports from the EU, and 92% of tariffs on EU's imports from Mercosur over a 10-year transition period. It links two trading blocs that differ markedly in factor endowments, sectoral composition, and technological capabilities. While the EU is a net exporter of skill-intensive manufactures and high-quality capital goods, Mercosur countries are specialized in land- and resource-intensive primary products as well as agro-industrial goods (European Commission, 2024). These asymmetries make the agreement an especially compelling laboratory for studying how tariff reductions propagate through production networks, alter the composition of investment, reshape labour demand, and affect greenhouse gas emissions. The existing quantitative literature on the EU-Mercosur agreement, includes impact assessments commissioned by the European Commission (LSE, 2020) and studies based on the GTAP framework. Both computable general equilibrium (CGE) and structural gravity models treat capital as homogeneous, labour as undifferentiated and immobile, and ignore the environmental footprint of trade reallocation. Hence, some impacts that are likely to be quantitatively important—given the pronounced factor-endowment differences between the two blocs—remain unexplored.

In this paper, we contribute to the existing literature by exploring four novel channels driving the EU-Mercosur trade agreement impacts. First, in our model capital goods differ in quality across origins, so that trade liberalisation affects not only the cost of investment but also its embodied productivity (Eaton and Kortum, 2002). Second, capital and skilled labour are complementary in production; therefore, importing higher-quality capital increases the demand of skilled workers and raises their wages, widening the wage gap between skilled and unskilled workers and increasing income inequality (Krusell et al., 2000). Third, we allow for workers to move across occupations subject to upskilling frictions and across countries subject to migration costs; in this sense the supply of skills responds endogenously to changes in relative factor prices (Caliendo, Dvorkin and Parro, 2019). Fourth, production generates greenhouse gas emissions that vary by sector and origin, so that trade-induced reallocation has environmental consequences.

These channels interact through the production network with forces that may go in opposite directions. For instance, access to cheaper high-quality foreign capital raises the skill premium, drawing workers into skilled occupations and attracting migrants. Migrants will move to countries where the skill premium rises most. However, increased import competition may simultaneously contract skill-intensive sectors in countries with superior technology, reducing the demand for skilled workers. Whether the upgrading effect dominates the competition effect depends on trade elasticities, upskilling costs, migration frictions, and the position of affected sectors within the production network.

We integrate these four channels into a multi-regional general equilibrium model with sectoral input-output linkages, building on the framework of Parro (2013). We model the MERCOSUR bloc, the EU, and the rest of the world. The contribution relative to Parro (2013) is twofold. First, we introduce endogenous labour supply across skill levels and cross-country migration. Note, this margin becomes quantitatively important when liberalisation creates divergent labour-market

pressures across countries with very different skill endowments. Second, we link our model to sectoral GHG emission coefficients, enabling us to trace how trade-induced changes in the scale and composition of production affect emissions both domestically and globally. This approach addresses critical omissions in the official Sustainability Impact Assessment (SIA) of the Agreement in Principle (European Commission, 2019), most notably emissions associated with land use, land-use change and forestry (LULUCF), while also incorporating labour and migration dynamics. By quantifying these dimensions, the model provides a robust analytical basis for assessing the agreement's consistency with both the European Climate Law and the Paris Agreement. In doing so, it captures socio-environmental externalities that recent academic and legal scholarship argues were understated in earlier institutional assessments (Kehoe et al., 2020; Gehring et al., 2024).