EXTENDED ABSTRACT

Title: World income distribution and production chains: linking Global Value Chains to intra- and inter-country inequalities

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Subject area: Desigualdad y cohesión social de los territorios

Abstract:

During the last three decades, the process of globalization has intensified to the extent that the world we live in is fully interconnected. In this sense, the phases of production are internationally fragmented, as commodities are not entirely produced in one country (Feenstra, 1998). In that sense, production is represented by the so-called Global Value Chains (from now GVCs). As a result, the mechanisms of global income distribution are increasingly fragmented (OECD, 2011), and "linking into GVCs" has become one of the important new development challenges for many developed and developing economies (Banga, 2016; Ojala et al., 2008). As noted in Gereffi (1995), Rodrik (2018) or Meng et al. (2020), the engagement of countries in GVCs allows countries to

participate in the global economy exploiting their comparative advantages concentrating in specific production processes and contributing in this way to creating employment and boosting technology transfer. In general, the country's specialization in relatively downstream versus upstream stages of global value chains has been related with higher value-added shares and increased technological complexity (Hagemejer & Ghodsi, 2017; Hummels et al., 2001; Kummritz et al., 2017), allowing economic upgrading. Other literature supports the "*smile curve*" hypothesis (see Mudambi, 2008 and Shin et al., 2012), finding differential benefits in the two tails of the production chains.

However, recent literature has also highlighted that international competition is not an easy task, achieving economic upgrading cannot be taken as granted (Bernhardt & Pollak, 2016), and that economic upgrading does not necessarily lead to positive social outcomes, and even more important, these are neither equally distributed among countries nor social groups (Barrientos et al., 2011; Meng et al., 2020; Rossi, 2013). In other words, the configuration of the global economy around the GVCs and the potential benefits of countries' involvement in them sheds some lights and shadows on what the effect has been on observed trends in inequality between and within countries. In this sense, the process of globalization has generated an interesting debate concerning whether countries are net losers or winners (Shepherd, 2013). Kaplinsky (2000) determined that integration in GVCs can yield heterogeneous and complex effects on income distribution, while Dollar (2017) showed that the outcomes of this processes are indeed unequally distributed among countries. The most usually commented negative effect is that of international competition provoking outsourcing of low-skilled occupations to developing countries, while pushing down wages in developed countries (Krugman, 1995)

In this context, our work explores how the performance of countries in the GVCs conditions the levels of intra- and inter-country inequality. The question is to what extent the "upgrading" of countries in the GVCs (i.e. moving up in the value chain) that has allowed countries to improve their economic outcomes (Baldwin, 2013; Gereffi & Fernandez-Stark, 2016) has also led to social upgrading in terms of income inequality reduction. There also remains to answer which are the roles of structural and technological factors mediating this process.

Our paper suggests a multiregional and multisectoral framework to address these questions in order to capture how structural, technological and trade patterns in the countries influence their economic and social outcomes. The paper aims to shed light on the nature of inequality as a global phenomenon, considering its two perspectives (one

related to inequality between countries, and the other linked to inequality within countries), exploring recent trends in the context of GVCs.

In this regard, according to Bourguignon (2016) and Milanovic (2016), total global inequality, understood as the disparities in the international distribution of income in relation to each country's contribution to global value added, has slightly decreased since the fall of the Berlin Wall. This phenomenon can be explained by the convergence between developed and developing countries, that is to say, by decreases in the inter-country component of global inequality (Chen & Ravallion, 2010; Morelli et al., 2015; Ravallion, 2016). On the contrary, inequality within countries has increased along these years, explained by the impressive increase of top incomes that has been experienced throughout the world (Piketty, 2020). Both outcomes are major consequences of the new configuration of the global economy.

Economic literature has studied the connection of global inequality to the process of globalization, (Dreher, 2006; Zhou et al., 2011). Globalization has been alluded as one of the possible factors behind inequality, among others (Atkinson, 2003). Namely, the phenomenon of globalization, which has accentuated over the past few decades, implies that competition is an international process. As a result, companies outsource activities to developing countries where labor costs are low, which also puts a pressure on wages in the countries of origin (Autor et al., 2014). Furthermore, in this competing globalized world, as processes are externalized and countries are increasingly specializing, commodities and services are not fully produced in one country (Eckel, 2008). This international distribution of production determines the way in which part of global value added or income is appropriated by each country. Hence, the configuration, performance and evolution of GVCs might notably explain the global distribution of income.

The multisectoral and multiregional framework has attracted increasing attention to define different metrics to capture the participation and the positioning of countries in these GVCsBroadly speaking, the concept of participation in GVCs makes reference to the capacity of a sector/country to integrate in these chains, through the generation of value added embodied in their exported goods and services. This degree of participation can either be measured over a country's value added, which would be a measure of trade openness (Los et al., 2015); over global exported value added, which would indicate a country's competitiveness (Bolea et al., 2022); or by using backward and forward linkages, which would respectively indicate participation in imports and exports (Szymczak & Wolszczak-Derlacz, 2022). Meanwhile, position defines a

country's specialization regarding its 'upstreamness', or the distance of its production to final demand. This can either be measured in terms of the distance of intermediate inputs to final use (Antràs et al., 2012; Antràs & Chor, 2018), or by calculating the average length of backward to forward linkages (Szymczak & Wolszczak-Derlacz, 2022).

However, while the characterisation of countries in global chains, their evolution and their relationship to economic performance (economic upgrading) has been widely discussed in the literature, it is only recently that the implications for social upgrading have been studied (Carballa Smichowski et al., 2021; Marcato & Baltar, 2017). And as far as we know, there are very few studies that have connected metrics of GVC participation with income inequality. Timmer et al. (2014) approached income distribution in GVCs by decomposing total value added in labor and capital and finding an increasing contribution of high-skilled labor and capital to the generation of value added from 1995 to 2008, the former being concentrated in high-income countries, while the latter concentrated in emerging countries. Furthermore, studies such as López-González et al. (2015) or Szymczak & Wolszczak-Derlacz (2022) have specifically focused their analyses on effects on the labor market, mainly in employment and wages. More recently, Carpa & Martínez-Zarzoso (2022) study the relationship between participation in GVCs and intra-country income inequality, finding that a higher degree of backward participation (purchases) increases inequality in the short run, while it reduces income inequality in developing countries in the long run.

Our paper builds on this literature and delves into the relationship between the positioning of countries in the GVCs and their impact on inter- and intra-country inequality. More specifically, our paper aims to address whether the positioning of countries in GVCs, in more upstream/downstream positions, has allowed them to obtain substantial earnings in terms of value added, allowing them to close the income gap to other countries, or to achieve a more equal internal distribution of income. In other words, to check not only if economic upgrading, understood as the integration into GVCs, has been translated into social upgrading, but also to study what are the specific ways of achieving a successful integration. However, to the best of our knowledge, this is the first paper addressing the potential effects of position in GVCs on the different dimensions of income inequality, leaving a promising line of research ahead.

We are also interested in exploring spatial and temporal patterns, as well as the role of other mediating factors such as participation (the other great indicator of GVCs performance), tertiary education, employment, foreign direct investment or corruption.

Empirically, our paper takes advantage of the extensive information provided by 2021 Release of the Inter-Country Input-Output (ICIO) database, published by the OECD. These tables cover a long term and relevant period of time (1995-2018), with a detail of 45 industries for 66 countries (plus a Rest of the World account). See Table A.1 in the Annex for a detailed list of the countries in our sample, and a classification according to the geographical and economic criteria of the United Nations WESP report that we used to classify our sample by geographical areas.

The empirical strategy combines both the input–output approach for the definition of GVCs variables and the econometric estimation to capture the relationship between the proposed inequality measures and the variables referred to global supply chains.

Our variables of interest include Gini indexes, that are synthetic measures of internal inequality within countries as well as the share of income held by the top 1% over the bottom 50% share, which is a complementary and transparent measure of intra-country inequality (Piketty, 2022). For inter-country inequality, the proportion of each countries' value added per capita over the world average (which is a measure of international income dispersion, as seen in Chancel et al. (2022)) is also considered.

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Keywords: Global Value Chains, participation, position, multiregional input-output, inequality between and within countries
JEL codes: D30, F15, F60