

Decomposing Factor Income Distributions: The Roles of Trade, Technology and Consumption

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Author: Bart Los

Co-Authors: Gaaitzen de Vries, Marcel Timmer, Robert Stehrer

Recent findings indicate profound changes in the distribution of income across countries and across different classes of labour. In both advanced and emerging countries, incomes of less skilled workers are losing out relative to higher skilled workers. Since long, this divergence has been attributed to various factors, most prominently to skill-biased technological change and increasing international trade. More recently, also changes in consumption patterns have been suggested as a potential determinant of the functional distribution of income. In this paper we study these phenomena through the lens of global value chains that link up changes in expenditure to the functional distribution of incomes.

We decompose changes in the income distribution into changes in the patterns of final demand, technology and international trade, using structural decomposition analysis in a global input-output framework. By using the new industry-level World Input-Output Database (WIOD), we can represent technological change by the changes in the structure of production, evaluating cost shares of various type of labour and capital. Outsourcing and offshoring of intermediate inputs is picked up by changes in the sourcing of inputs from other domestic and foreign industries. Changes in final demand are measured as the changes in the pattern of expenditure across both countries and product groups. An analysis like this can only be done if comparable international input-output tables are available at regular intervals. Within the WIOD project (funded by the European Commission as part of its 7th Framework Programme), the authors constructed a time series of international input-output tables for 40 countries, which together generate about 85% of world GDP. For each country, 35 industries are distinguished. By linking National Accounts data and Supply and Use tables to international trade data, a unique picture of the world can be drawn. This depicts the global economy as a network of global value chains, of which some production factors in some countries benefit considerably, while others do not. In this paper, we disentangle the dynamics that characterize this network and attribute the changes to the effects of changes in trade, changes in technology and changes in consumption patterns.

We start out by establishing the basic changes in the functional income distribution for 40 countries over the period 1995-2008. We find an increase in the income share of high-skilled labour in almost all countries. Also the share of capital increased in 30 countries over this period. On the other hand, the income share of low-skilled workers declined in all countries.

We also establish some stylised facts on the possible determinants in our database. Based on shares in value added, we find increasing cost shares for high-skilled labour and (ICT) capital in most countries, in particular in manufacturing industries, indicating skill-biased technological change. Input-output data from the world IO database indicates increasing offshoring, as foreign inputs as a share of total intermediate inputs are increasing over time for most countries and industries. Finally, we find a shift in global expenditure towards durable goods that are skill and capital intensive, and away from non-durable manufacturing.

Next, we bring these determinants together into one global input-output framework. We decompose the changes in functional income distribution in each country using a structural decomposition analysis. This method is common in the earlier input-output literature (see e.g. Miller and Blair, 2009) and recently used e.g. by Yi, Johnson and Bems (American Economic Review, 2010). This allows us to analyse the contribution of each factor: changes in demand, technical change and international trade to the changes in functional income distributions.