



## **Neocolonialism in agri-food value chains: global trends from 1995-2020**

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### **Introduction**

A growing literature on global agri-food value chains suggests that they may provide global South countries the opportunity to leverage their agricultural production and allied-sectors through trade and specialization, to the benefit of their agricultural producers and the hundreds of millions of people who gain their livelihoods through this sector (Barrett et al., 2021; Bellemare et al., 2021; Reardon & Minten, 2020). Typically, evidence for this narrative is provided through crop- or region-specific case studies of export or ‘high value-added’ commodities. The macroeconomic argument behind the proliferation of global food value chains is that global markets create opportunities for rising revenue through leveraging export crops and high-value added processes.

These claims have recently been subjected to empirical analysis using large-scale trade data maintained as input-output matrices. These studies indicate that agriculture accounts for a small share of the economic value generated throughout agri-food value chains. Agriculture’s share of the “food dollar” has remained constant or fallen over time, and is projected to fall further. This result is based on data from input-output analysis at both the global level (for various categories of consumer expenditure) and domestic levels for the United States of America and Canada where more detailed data is collected and maintained by government authorities. This research breaks down the sectoral earnings from agri-food expenditures, and shows that the ‘post-farmgate’ sectors account for a larger and increasing share of agri-food revenues.

Research also increasingly suggests that global prices of farming and food and beverage industries are “systemically significant” for global inflation. In fact, further, preliminary evidence suggests that food prices are increasingly accounted for by corporate and speculative profiteering. Since food prices are critical for both food security and per-capita incomes of low- and middle-income countries, the distributive elements of the global agri-food value system that determine prices must be studied further.

In this paper, we assess the potential of the global agri-food value system to improve economic outcomes for low- and middle- income countries that rely on agriculture, by analysing earnings associated with final demand food and agricultural expenditures, from multi-regional input output (MRIO) databases. We extend previous empirical work on this issue by decomposing global agricultural incomes across two dimensions simultaneously: (i) across sectors and (ii) across countries, providing the first systematic assessment of the global distribution of value in the agri-food sector. As agricultural production for the global market has increased especially since the



1990s, changing distributional dynamics have led to increasing inequalities generated through the value chain.

We use the OECD’s Inter-Country Input-Output (ICIO) database that provides data for the years between 1995 and 2020. The monetary values of trade in this database are recorded in basic current prices and given in the US dollar. In order to analyse patterns of distribution between countries, we classify countries between two broad categories, the ‘global North’ and the ‘global South’; this is a common classification in the empirical literature on unequal exchange. This categorisation follows the norm in academic literature in the field and is based on the IMF’s categorisation of ‘advanced economies’ and ‘emerging and developing economies’.

We find that the global patterns of agricultural production have changed significantly over time. Production has moved increasingly to the countries comprising the global South. At the same time, the absorption of agricultural commodities for direct human consumption has been limited; a majority of the agricultural produce is absorbed by food manufacturing, for intermediate use within agriculture (presumably for animal feed in industrial meat production), and for other industrial uses. Such material changes in production have come with changes in the distribution of the value generated in the agri-food value system. The global North countries have captured a disproportionate share of the value generated, and especially the tax haven economies of Singapore and Hong Kong have seen growing earnings owing to increasing trade. This suggests the rising influence of profit-shifting, an accounting practice by which multinational companies are able to shift profits from the countries where production occurs to countries where the rate of taxation is minimal or low. Relative value distribution has moved from agriculture to other sectors that ‘service’ the value chain, especially the logistical sectors of transport and retail & wholesale trade.

These findings indicate that the South’s integration into global agri-food value chains is not in fact benefitting economic development in the South’s agricultural sector. The South is undertaking a greater share of the world’s agricultural production, but the value is being captured disproportionately in non-farm sectors, disproportionately in the global North. Agriculture in the global South is effectively subsidising capital accumulation elsewhere. This is consistent with what we would expect from the theory of monopoly capitalism.

## **Results**

Material changes in production, absorption and earnings

Between 1995 and 2020, roughly the period in which the global value system has proliferated and agricultural trade has grown by leaps and bounds, the volume and value of agricultural output produced and traded has increased significantly. Global agricultural output has increased from \$2 trillion in 1995 to \$6 trillion in 2020.

At the same time as total agricultural production is increasing, we find that relative production is moving towards the countries in the global South. We observe that in the 26 years under study, the global South increased its share of the value of global agricultural production from 50% to 80% (figure 1). However, the South’s agricultural earnings as a share of global food expenditure has not increased at the same rate. As figure 1 shows, the South’s share of agricultural output has

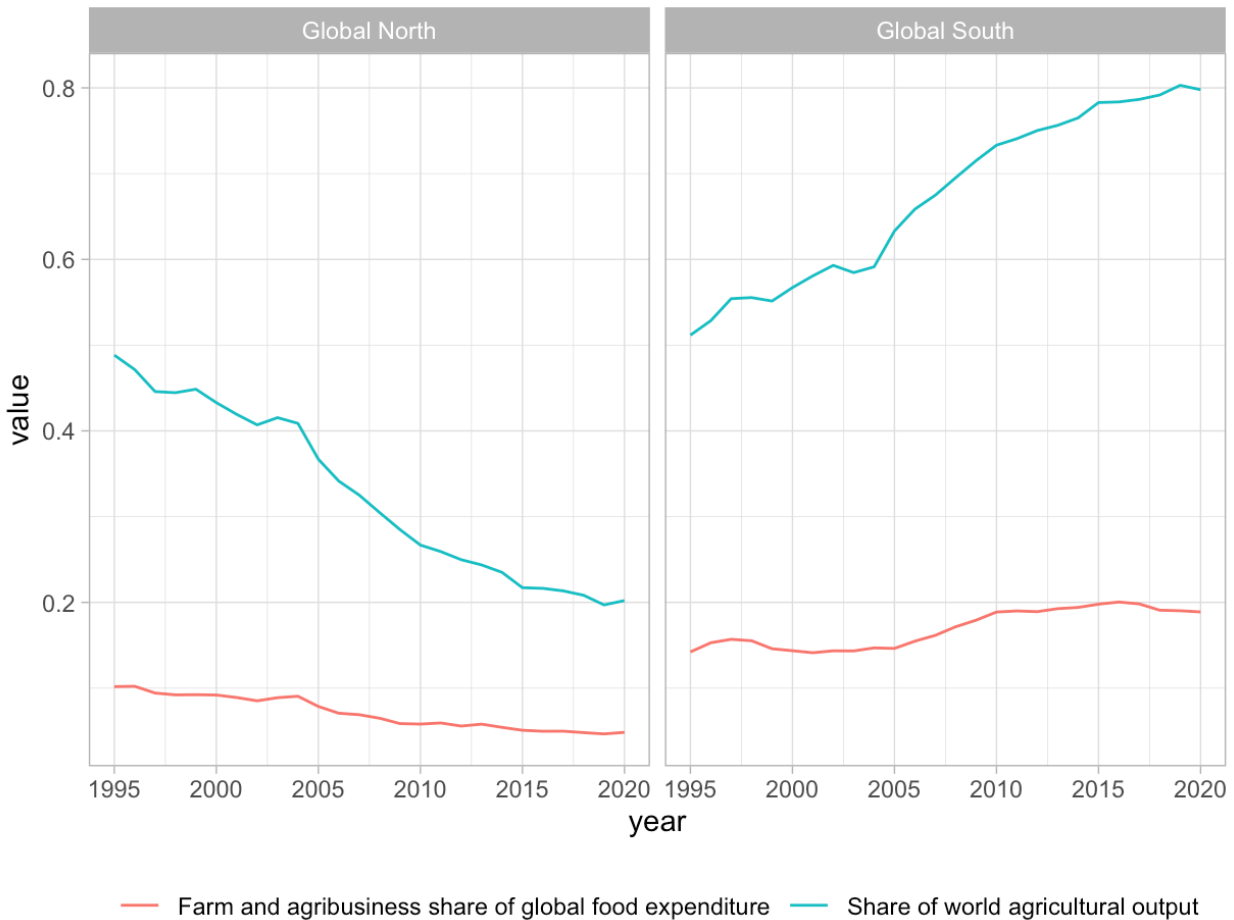


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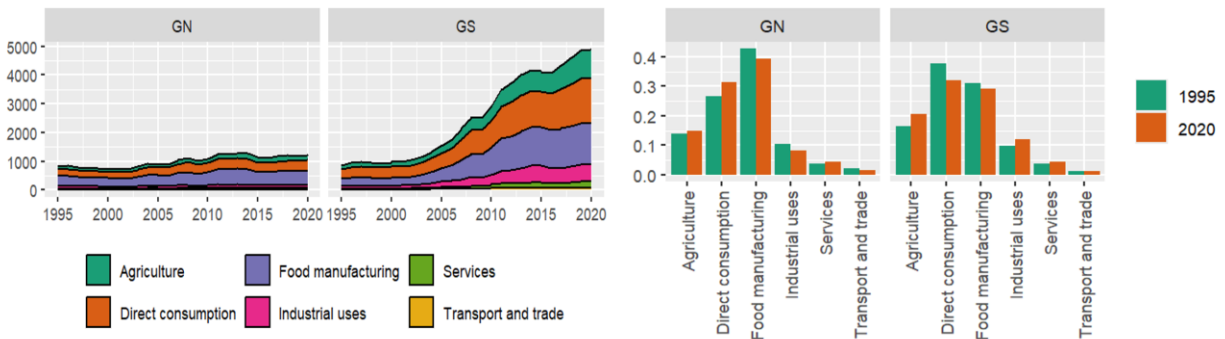
increased by 60% while its agricultural share of food expenditure has increased by only 30% - in other words, only half as much as we would expect. For the North, by contrast, their share of agricultural output has declined by 60% and their agricultural share of food expenditure has also declined by 60%. In other words, this data demonstrates that Southern agriculture is being squeezed. It is responsible for an increasing share of total output but receives a declining share of income from the global food value chain. It is striking that after 2010, improvements in the South's earnings from final demand expenditures have stagnated, even though the relative share of production has continued to grow.

It is important to remember that, with input-output data, we cannot separate small farmers from large-scale or industrial farms within the agricultural sector, and cannot disaggregate the earnings of small farmers from those of agribusinesses within the agricultural sector. The earnings that are accrued in this analysis are those belonging to the economic sector as defined in the system of national accounts, without disaggregating between their different constituents. We notice that the absorption of crops for animal feed has risen in this period, corroborating the rise of industrial meat production.



*Figure 1: Production share of gross global output of the agricultural sector (blue line) and earnings share of the agricultural sector of the “global food dollar” - a dollar expenditure made on food consumption (red line).*

It is important to note that as agricultural production itself has increased at the global level, it is not being primarily used for direct consumption of food, and a smaller proportion still for countries’ own direct consumption (Figure 2). This production is instead being pulled by intermediate uses as industrial feedstock for food manufacturing, pharmaceuticals and others, as well as input within agriculture itself (as animal feed and other residual uses).



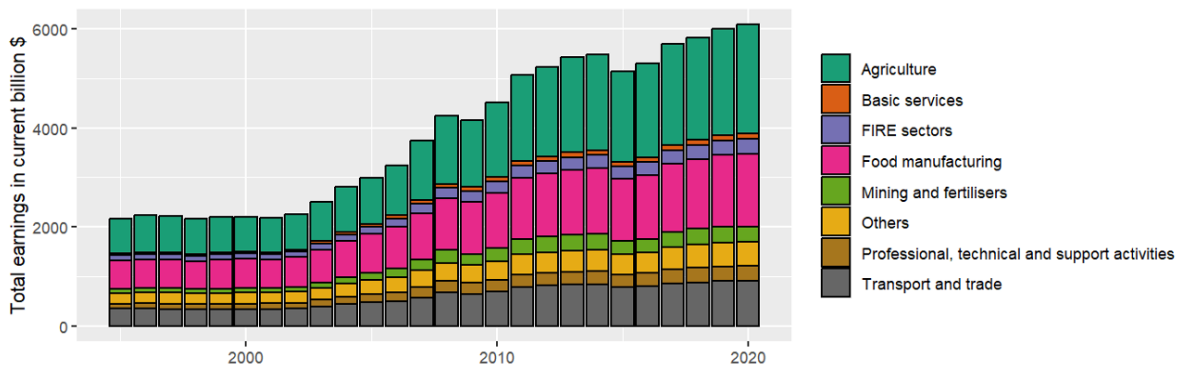
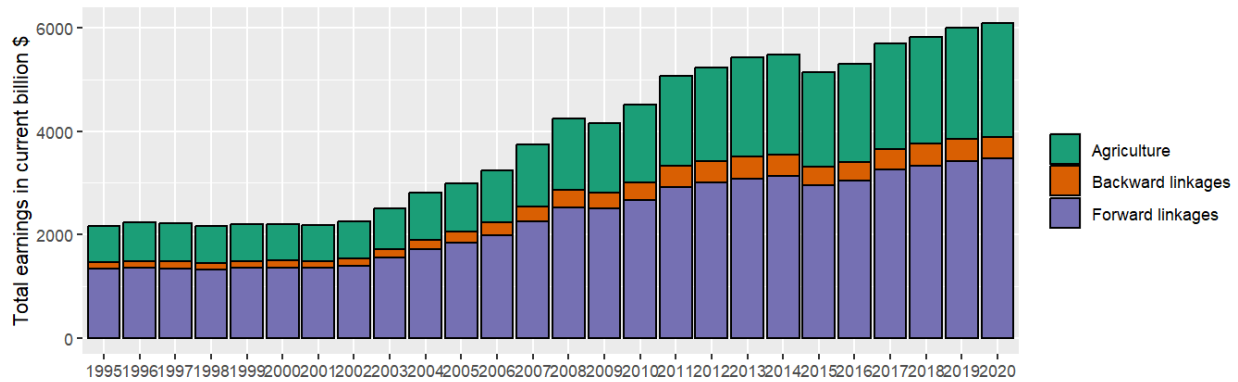
*Figure 2: Absorption of gross agricultural output for different uses. (a) shows the absolute quantities of absorption of agricultural output, (b) shows the relative changes in absorption as a proportion of gross output between 1995 and 2020. In (b), the agriculture bars refer to the absorption of agricultural output by agriculture itself. This comprises animal feed etc. Here, global North is 'GN' and global South is 'GS'.*

### Growing material reliance in the agri-food system

Next, we turn to analysing earnings (or value-added) in the agri-food value chain. We use the categories of forward and backward linkages from the global value chains literature. Forward linkages for agriculture, i.e., industries or sectors that connect agricultural production to final consumers, account for most of the value generated in the agri-food value system. These linkages in the economic literature on global value chains typically comprise the sectors of transportation, retail and wholesale trade, and within the agri-food value systems, we find that forward linkages also comprise the industrial absorption of agricultural feed material, including in meat production and especially within the sector of food manufacturing. This aligns with national level evidence on food consumption across the categories of food-at-home expenditures, food-away-from-home expenditures and food-and-tobacco-at-home expenditures (Canning, 2011; Yi et al., 2021).

Value generation in industrial and processed food manufacturing is on a steady rise, depending on large quantities of agricultural raw material to grow. The growth of food manufacturing within the agri-food value system depends on material from the agricultural sector. In so far as direct consumption of agricultural production is falling and the We find that backward linkages comprising sectors like fertiliser production based on mining and petroleum products are also growing elements in the agri-food value system, suggesting that the reliance of agricultural production on other industrial materials is also growing.

Figure 3 shows the growing role of food manufacturing and other sectors in the value generated in the agri-food value chain. Between 1995 and 2020, sectors other than agriculture and animal rearing have increased their earnings from food production in the global value system from close to 1500 billion USD to close to 4000 billion USD.



*Figure 3: Food value chain earnings (a) of the different linkages of agriculture and (b) the different sectors of production. FIRE refers to the finance, insurance and real estate sectors, for which in the ICIO we have summed up the sectors, “Construction”, “Financial and insurance activities”, “Real estate activities”. Others includes other manufacturing and services. Transport and trade includes all transport sectors and the wholesale and retail trade sectors.*

### International inequality in the distribution of value-added

Disaggregating value-chain incomes according to where they are captured begins to reveal inequalities in the distribution of these sectoral incomes. When taken as a proportion of net agricultural production, the total value-chain earnings of all sectors from the global food system are shown to be grossly unequal. A handful of countries namely, Singapore, Hong Kong, Luxembourg, Iceland and Ireland recorded much more value-added, relative to agricultural production, than the rest of the world. Singapore captures almost 69 times from the global agri-food value chain than it produces from agriculture, which has increased from 36 times in 1995; Hong Kong has increased from 18 to 27. The fluctuations in the growth of this ratio for tax haven economies suggests that these value additions might in fact be due to profit-shifting of value generated elsewhere.

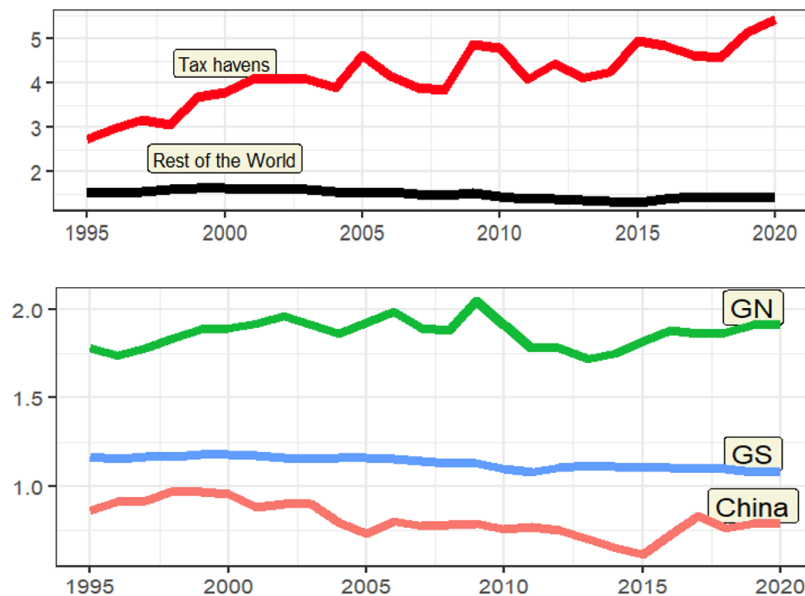
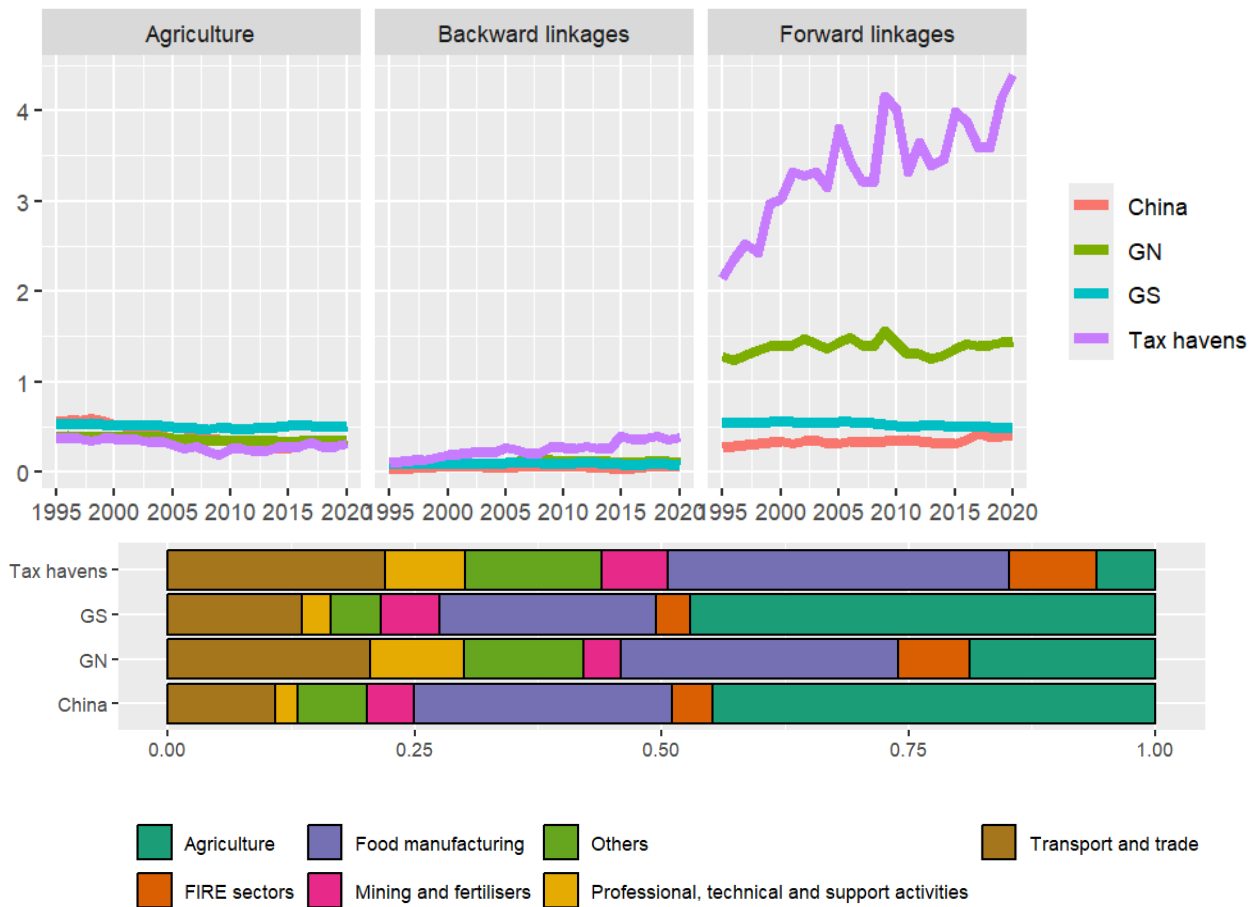


Figure 4: National earnings from the global food value system as a proportion of net national agricultural production (net agricultural production refers to gross output minus agricultural input – for more, refer to Methods). In the second panel, tax haven economies have been removed.

The advanced economies of the global North earn on average 2 times more from global food expenditures than the value of net agricultural production that they undertake. We see that the relative earnings of the Northern countries reduced after the 2008 financial crisis, but began to recover, whereas no such uptick occurs for the global South.

Clearly, the economies that produce significantly more of agriculture, continue to earn less from value additions in the food chain relative to how much agricultural production they undertake. Instead, earnings concentrate in those countries with low agricultural production. From figures 5 and 6, we can see that the value logged in tax havens and global North economies arises disproportionately less from agriculture, and more from food manufacturing, transportation, wholesale and retail trade, the ‘FIRE’ (finance, insurance and real estate) sectors, and profession, scientific and support activities.

In fact, compared over time, we find that as the global food value chains have developed, it is countries of the global North and tax haven economies that have ‘diversified’ away from agriculture, as well as China, but the dependence on agriculture in earnings made from the global agri-food value chain has increased for the rest of the global South.



*Figure 5: Sectoral distribution of national earnings from the global food value system as a proportion of net national agricultural production in 2020.*

Profits registered in tax havens from ‘backward linkages’ have also increased over time; by 2020, these profits have increased to be almost half as much as the value of the net agricultural production that occurs domestically in tax haven countries. The ‘post farmgate’ chain is not only where most of the value additions globally in the food value chain exist, but also where most of the inequalities lie. Profits registered in the industries that comprise forward linkages are increasing over time as a proportion of the value of agricultural production itself.

This is an early indication that the growing role of forward linkages or the post-farmgate segment of the agri-food value chain is leading to the transfer of relative value towards profit generation for the global North and for multinational corporations that are able to use the lax tax regulations of tax haven countries to shift their profits.



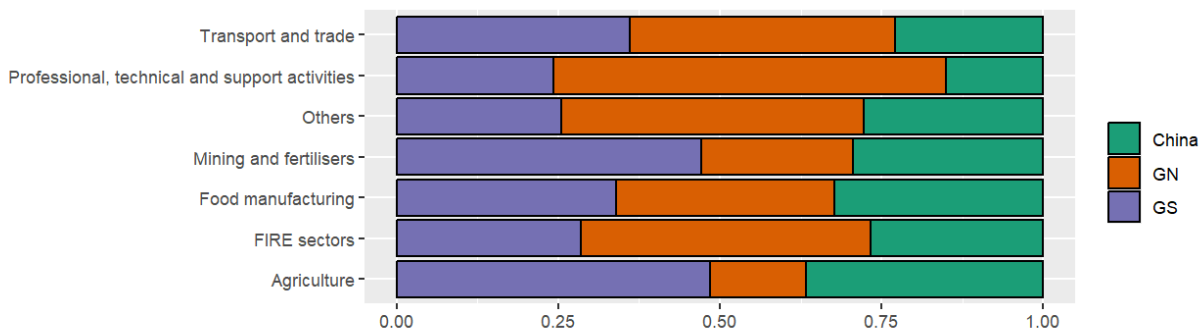


Figure 6: Country contributions to the different sectors involved in the agri-food value system.

### Discussion

The above evidence enables us to understand the global agri-food value chain as a mechanism for orchestrating value distribution in food production, as opposed to a result of changing consumer demand. Further, our results over the time period under study lead us to argue that the current pattern of value distribution in agri-food is creating more inequality over time.

Global agriculture, especially crop cultivation (as opposed to animal husbandry which is increasingly industrial, and therefore relies on distant crop cultivation) occurs mostly in small farms in the global South. The cheapening of the raw material for industry expands the possibility for profit, but it is also essential that the higher costs of expanding production are not passed on to manufacturing and retailing industries. The industries that absorb the falling earnings of farming, are in fact those that are increasingly witnessing monopolisation i.e., a few giant firms account for an increasing market share for final consumer products, and are able to assume a stronger role as the ‘lead firm’ in global value chains.

Agriculture plays a ‘subsidising’ role in the global economy - an expansion of production occurs at disadvantageous terms to it - such that retailing and trade sectors as well as those branches of production that rely on agricultural commodities as critical and base feed stock and industrial raw material, are in turn able to grow in terms of revenue and profit. At the same time, the pressures generated on agricultural production from these ‘post farmgate’ industries, provide a ground for accumulation for sectors that increase short-term productivity.

**The net result of the residual role of agriculture is that there is an expansion of(?) capital accumulation and profits from agriculture. Placed in the global political economy, the pursuit of this goal has an important corollary: global markets (i.e., agriculture’s increasing incorporation as raw material to industrial production and for foreign markets), have not expanded the earning possibilities for agriculture. In fact, global markets cannot deliver for agriculture precisely because they depend on the reduction of agriculture’s profitability vis-a-vis those branches of production that it produces raw material for. So, global agriculture earns less so that global capital can earn more.**



## Appendix

How has relative value generation changed over time?

