OUTSOURCING AND THE GLOBALIZATION OF EXPLOITATION: AN ANALYSIS OF DECLINING LABOR SHARES IN GLOBAL VALUE CHAINS

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Abstract: This paper empirically investigates the association between outsourcing production through global value chains (GVCs) and the globalization of exploitation in developing and developed countries. To this aim, I assess the impact of higher participation rates in manufacturing GVCs on labor shares of value added. I find that a rise in a country's participation rate index in manufacturing GVCs is associated with a decline in its labor share of value added for manufacturing workers in both developing and developed countries. GVCs subsume labor across borders to global capital in the pursuit of profits with an increase in the overall rate of exploitation. I also construct two new indices of GVC participation and find the decline in labor shares to be significantly associated with the market share, or the importance of the country, in the GVC. Workers in both developing and developed countries are squeezed by global capital for profits regardless of value addition which highlights the monopsony power that controls production with cost mark-ups. Lastly, I find that countries compete at low levels of participation with highly disaggregated production across borders and race to the bottom in their provisioning of cheap labor to attract global capital.

Keywords: labor share, GVC participation, exploitation

JEL Codes: F66, E25, F14, F16

1. INTRODUCTION

The collapse of Rana Plaza in Bangladesh in 2013 resulted in the death and injury of thousands of workers. It highlighted the exploitation of workers in sweatshops for an international production network and brought into focus the power structure of the global capitalist economy in discussions on Global Value Chains (GVCs). GVCs are systems of globally disaggregated production that are embedded in the asymmetric architecture of institutions. Intangible assets that are abundant in Global North economies are protected via intellectual property rights but labor and natural resources that are abundant in Global South economies are subordinated to global capital (Roy, 2019; Bair et al, 2023). This structure feeds the unequal distribution of income between labor and capital that explains the rising labor exploitation and declining labor share of income in GVCs.

The internationally disaggregated production process of GVCs is controlled by Transnational Corporations (TNCs) and Multinational Corporations (MNCs) and can take two basic forms. It can be based on an in-house relation through FDI from the parent company to its offshore subsidiaries or it can be based on an arms-length relation with the parent company outsourcing

production to independent supplier firms. The neoliberal globalization of production is characterized by the latter form of increased outsourcing of segments of the production process to supplier firms (Milberg & Winkler 2011; Smith 2016). This pattern of outsourced production has shifted the dynamic of competition from being between firms across countries to now a monopsonistic TNC or MNC that controls production in GVCs and enforces competition between subcontracted supplier firms to attract global capital. The increased competition amongst small supplier firms triggers a race to the bottom to remain competitive for global capital with an overall increase in the rate of exploitation. Global corporate capital concentrates and centralizes to integrate workers in both the North and the South into its control of the production process (Vasudevan, 2019).

In this paper, I ask what is the impact of higher participation rates in manufacturing GVCs by developing and developed countries on their labor shares of value added? Labor is understood to be the source of surplus value creation and yet there is a noted decline in the labor share of income across countries in GVCs. Timmer et al (2014) illustrate an increase in the international fragmentation of production along with a shift in recorded value added towards developed economies through capital and high-skilled labor from developing countries through low-skilled labor. Their decomposition analysis sets a foundation to empirically explore the consequences of increased integration in GVCs. My contributions to the literature are two. One, I empirically analyze the impact of increased integration in GVCs on the labor share of value added for both developing and developed countries. Milberg and Winkler (2013) restrict their analysis to the US and find labor losing to capital through increasing offshoring intensity in manufacturing. Guschanski and Onaran (2023) restrict their analysis to seven developing countries and also find low-skilled labor to have lost with GVC integration. I combine an empirical analysis of manufacturing labor in both developing and developed countries to find that increasing GVC participation by countries over time contributes to their declining labor share across stages of development. Two, I construct two indices of participation - a backward linkages index and a forward linkages index. The indices capture the market importance of the country in the GVC or, in other words, the share of value added absorbed or contributed by the country in the GVC. Roy (2020) measures the net gains of a country from GVC participation from the ratio of the domestic value added contribution to the foreign value added absorption. He finds that increased GVC participation results in lower net gains for developing countries and higher net gains for developed countries. I instead center my analysis on the labor in GVCs, rather than the net gains for the country, and I explain the decline in labor share with an increased index of integration in GVCs.

I use a linear fixed effects model to answer how higher participation rates in manufacturing GVCs impacts labor shares of value added among manufacturing workers in developing and developed countries. Using the 2021 edition of the OECD datasets on Trade in Value Added (TiVA) and Trade in Employment (TiM), I construct a panel of 64 developing and developed countries for the period of 1995-2018. I then separately test for the effect of the participation rate index, the backward linkages index, and the forward linkages index on the labor share. Across the analysis,

I test for the set of all countries, as well as separately for developing and developed countries. My paper has three main findings.

First, a rise in a country's participation rate index in manufacturing GVCs is associated with a decline in its labor share of value added. The participation rate index accounts for both the domestic value added in foreign exports, or forward linkages, and the foreign value added in domestic exports, or backward linkages, in total GVC participation by all countries. As a country increases its integration in a manufacturing GVC, the distribution of income from value addition declines for workers. This happens in both developing and developed countries, indicating a rise in the overall rate of exploitation and a trend of labor being subordinated to global capital. Further, the finding holds for countries increasing their foreign value added absorption (backward linkage index) or their domestic value added contribution (forward linkage index) relative to the rest of the world. In other words, an increase in commanded market share of backward linkages or forward linkages are associated with a decline in labor share. Contrary to the argument that increased economic integration would lead to better bargaining power and labor share, I note a social degradation from the race to the bottom with a decline in the labor share.

Second, the decline in labor share is associated more significantly with the indexed measures of GVC participation which captures the importance of the country to the GVC than with the direct measures which conversely captures the importance of the GVC to the country. Simply put, the commanded market shares of the countries in the GVC explains the decline in labor shares to a greater extent than the shares of GVC production in the countries' domestic economies. A country experiences a decline in labor share even as it becomes a larger player in the international production network and the decline in labor share is explained more so by a rise in its market share of value addition. The empirical evidence supports the argument that MNCs and TNCs control the production process in GVCs such that a country could level up participation but still experience a fall in its labor share as its workers are subjugated to the monopsony power of global capital.

Third, countries are clustered at lower levels of participation by value added in GVCs as production is disaggregated across many competing countries and, in the race to the bottom, countries experience a fall in labor share with rises to higher quartiles of GVC participation. The decline of labor shares is greater from an increase in the backward linkages index when upgrading from the first to the second quartile for developing countries and throughout higher quartiles for developed countries. This is further evidence of the race to the bottom that is driven by the exploitation of labor in not only developing countries at lower levels of value addition but also developed countries at higher levels of value addition. Developing countries compete with each other by driving down unit labor costs that adversely impacts their labor share, and the competitive dynamic also holds for developed countries. Labor is losing out to capital at different levels of participation but in similar ways across development sets of countries.

The rest of the paper is structured as follows. Section 2 reviews the literature on declining labor shares and rising participation rates in GVCs. Section 3 outlines the analytical framework of the

paper with the circuit of capital and the system of unequal exchange. Section 4 details the data and descriptive statistics, Section 5 the empirical framework, and Section 6 the results and discussion. Section 7 concludes.

2. INTEGRATION AND LABOR SHARE IN GVCs

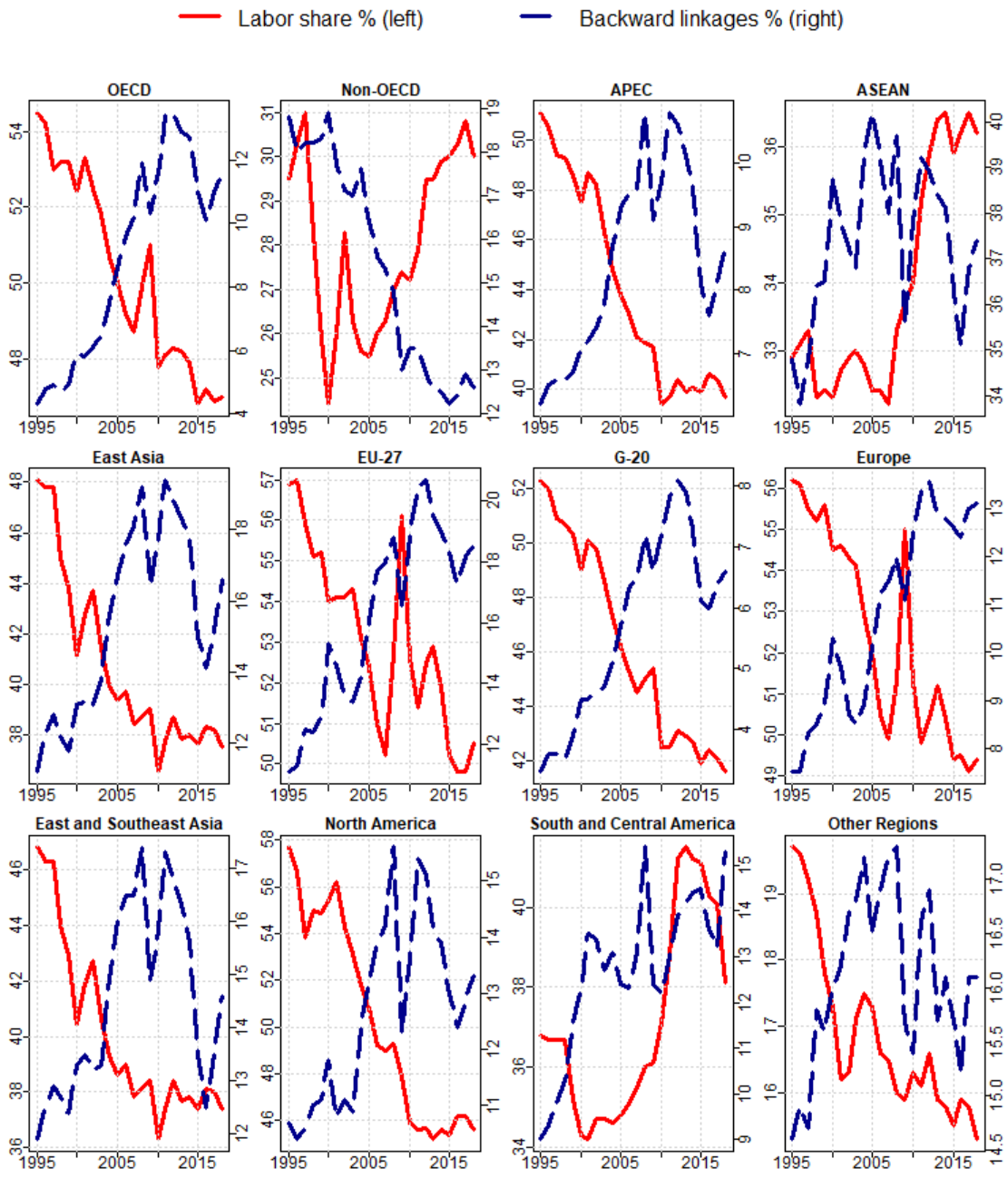
In the history of globalization, global commodity chains underwent two stages of unbundling (Roy, 2020; Baldwin, 2012). The first unbundling was catalyzed by steam power and made profitable by scale economies and absolute cost reductions. Then, spaces of production and consumption were separated by competitive advantages that were derived from the matching of the abundance of a factor in a region to its particular factor intensity. The development of railways and steamships with steam power essentially led to a fall in transportation costs that resulted in increased global trade and migration as well as the concentration of production in certain regions. Concentrated production necessitated more efficient and cost-effective coordination across distances. The second unbundling was then catalyzed by the information and communication technology revolution that allowed networks of production to no longer be fixed in space but instead span across borders with a system of transactions (Baldwin 2012; Roy 2020). Improved information and communication technology essentially led to a fall in coordination costs that resulted in disaggregated production with different stages in different countries according to factor intensities, competitive advantages, and unequal exchange (Roy 2020; Smith 2016).

Advances in information and communication technology induced firms to substitute labor for capital to the extent that it caused a decline in the aggregate labor share of income. Karabarbounis and Neiman (2014) illustrate a decline in the global labor share from the early 1980s across most countries and industries with a decline in the relative price of investment goods due to advances in information and communication technology. The spread of the trend of declining labor shares is contextualized in a system of globalization of production that concurrently began in the 1980s through offshoring and subcontracting productive activities across borders (Milberg & Winkler, 2013). Particularly indicative of the trend is the increase in trade of intermediate inputs and rise in shares of foreign value added as a proportion of gross exports (Caraballo & and Jiang, 2016).

Graph 1 illustrates the parallel trends of rising foreign value added in gross exports, or rising backward linkages in GVCs, and declining labor shares across regions of the world over the period 1995-2018. Empirically, much research has been done on connecting economic upgrading with economic growth and trade, but not on the interlinkages between economic and social upgrading (Milberg & Winkler 2011). Economic upgrading is "the possibility of (developing country) producers to move up the value chain, either by shifting to more rewarding functional positions or by making products that have more [domestic] value added invested in them and that can provide better returns to producers" (Gibbon and Ponte, 2005). It can be achieved by upgrading capital with investments in new machinery/technology or by upgrading labor with investments in labor-enhancing technology. Social upgrading includes improvements in wages, working conditions,

workers' protections and rights and do not necessarily follow from economic upgrading (Milberg & Winkler, 2011).

Graph 1: Trends of Labor Share and Backward Linkages across Aggregated Regions, 1995-2018



Note: The graph illustrates the trends of labor share and backward linkages in the different regions in the OECD dataset. Labor shares are represented by the solid red line and are scaled on the left-hand y-axis. Backward linkages are represented by the dashed blue line and are scaled on the right-hand y-axis. The x-axis represents the years from 1995 to 2018.

Contributions to the literature on the lack of social upgrading emphasize the declining labor share and point to increased integration in GVCs but decreased bargaining power as explanatory factors. Milberg and Winkler (2013) analyze the parallel trend of increasing offshoring and increasing profit share in the US. They examine the effect of offshoring intensity on labor share for the US and find that increased offshoring leads to a decrease in the labor share. Guschanski and Onaran (2023) analyze the effect of GVC participation on the labor share for seven emerging economies and find that integration into GVCs with advanced economies reduces the labor share in emerging economies in manufacturing and service industries, particularly for medium-skilled workers. They find the fall in wage share to be explained more significantly by the fall in bargaining power due to offshoring than by a rise in technological change. Kumar (2020) explains the association of bargaining power and income distribution with the degree of monopoly power and levels of unemployment. A higher degree of monopoly power increases a firm's bargaining power, and a higher level of unemployment decreases workers' bargaining power. Together, the two factors explain the falling labor share or rising profit share. Barrientos, Gereffi, and Rossi (2011) also argue that social upgrading in a GVC typically results from a complex bargaining process. Pahl and Timmer (2019) employ a long view in their study of GVC participation and upgrading in the manufacturing sector. They find strong evidence for positive effects on productivity growth, and economic upgrading, but no evidence for employment generation or social upgrading. To sum up, increased offshoring and outsourcing through GVCs are associated with decreased labor shares. The mechanisms that drive the decreasing labor shares are increasing exploitation rates and cost mark-ups from monopsony power.

In GVCs, the declining labor share from higher rates of exploitation and higher degrees of monopsony power can be analytically framed in the circuit of capital. The circuit of capital outlines the cyclical and expansionary process of capital accumulation that is controlled by MNCs and TNCs. The drive to accumulate global capital squeezes global labor in the distribution of income across developing and developed countries.

3. ANALYTICAL FRAMEWORK

Marx (Capital II) formulated the circuit of capital to explain the cyclical and expansionary process of value circulation and capital accumulation. The circuit of money capital (M – C … P … C' – M') represents the objective of an individual capitalist in investing money capital (M) through production (P) of commodities from C to C' to obtain a greater magnitude of money capital (M') in return. Money is reinvested in subsequent cycles to expand production and accumulate capital. In the global market, MNCs and TNCs are the sites of power that invest capital and coordinate production across stages in different countries (Smith, 2016). MNCs and TNCs outsource the employment of workers for production but appropriate the surplus value that is created in circulation. In the system of international production, they suppress wages to remain competitive and counter the tendency of the rate of profit to fall (Smith, 2016). The suppression of wages and,

consequently, the lower labor share is based on an intensification of the rate of exploitation to drive the accumulation of capital on the global scale.

The internationalization of capital through production in GVCs raises global competition and necessitates capital accumulation by firms and countries to remain competitive. This plays out differently in developing and developed countries but with the same result of suppressing wage rates for the expansion of global capital. Coveri and Zanfei (2022) provide empirical support of a functional division of labor of intangible-intensive activities in the Global North and production in the Global South. The functional division of labor further feeds the value capture from the production process later along the smile curve in intangible-intensive activities. Basu and Vasudevan (2021) also argue that the monopoly power of lead firms in the Global North from the ownership and control of intangible assets, along with competition amongst supplier firms, results in an asymmetry in value capture. Labor in supplier firms loses to global capital with intangible assets (Vasudevan, 2019; Roy, 2020).

In developed countries, offshoring production to low-wage low-cost supplier firms in the Global South reduces bargaining power and labor share. In developing countries, loose labor laws to attract foreign capital again reduces bargaining power and labor share. Moreover, limiting labor mobility while allowing capital mobility across the globe further contributes to the transfer of surplus value from developing countries to developed countries. The limited labor mobility, on one hand, keeps developing countries competitive in their endowments of abundant labor by increased offshoring and subcontracting. The free capital mobility, on the other, allows for greater flows through the circuit of capital for expanded production and reproduction that is coordinated by MNCs and TNCs. The control of the circuit of capital with the monopsony power of MNCs and TNCs along with capital mobility further enforces labor competition amongst supplier firms while keeping labor segregated across political borders.

Palloix (1977) argues that the international self-expansion of capital supports the tendency towards the equalization of profit rates, but the tendency towards equalization is immediately checked by the differentiation of conditions of production and exchange. He defines internationalization as "the spatial extension of the capitalist mode of production" with the movement of industrial branches overseas (p.3) – an early recognition of the prevalence of GVCs. The tendency towards the equalization of profit rates occurs with the movement of surplus value from industries with a lower organic composition to those with a higher organic composition. In GVCs, this registers as a movement of surplus value from low-cost low-wage manufacturing to high-cost high-wage research, development, advertising, etc. However, Palloix (1977) emphasizes the movement of offshoring and subcontracting production denotes not a tendency to equalization but a tendency to differentiation. The internationalization process implies a shifting of industrial activities to developing economies from developed economies due to differential conditions. Differentiation refers to the differences in resource availability, labor productivity, and technological progress that attract capital and perpetuate an uneven development. The differential conditions direct the transfer of value within a sector of production, such as manufacturing, with many competing supplier firms

and one or a few monopsonistic buyer firm. Hence, the differential conditions for the extraction of absolute and relative surplus value from productive activities are ensured, and these differential conditions form the basis for unequal exchange between social classes in the production process.

Emmanuel (1972) highlighted the flexibility in sourcing decisions from the core as the effect of capital mobility and a characteristic of unequal exchange that is reflected in global trade networks. With capital mobility, competitive pressures amongst subcontractors in the periphery limit the scope of raising production costs as it would consequently trigger a loss of output and profits. Emmanuel (1972), however, centers the "labor aristocracy" in developed countries as the beneficiaries of unequal exchange from differential conditions of workers in different industries in different countries. Ricci (2019) challenges Emmanuel's notion of a labor aristocracy in developed countries that benefits off the exploitation of the labor in developing countries. He shows that globalization induces greater intra-industry transfers relative to inter-industry transfers. The persistence of unequal exchange in the modern capitalist global economy contests the neoliberal belief that trade is mutually beneficial for all partners (Ricci, 2019). There is an expanding pattern of intra-industry transfers with globally disaggregated production and a social distribution of gains and losses from unequal exchange between wages and profits rather than between developed countries and developing countries. Heintz (2006) focuses on buyer-driven commodity chains to illustrate the distributive consequences of expanding production of globalized manufactures on the economic welfare of the workers who produce manufactures for exports. In highly competitive conditions, subcontractors and production workers are unable to capture the benefits of productivity enhancements that instead accrue to brand-name MNCs and final consumers. The MNCs and TNCs possessing higher degrees of market power determine the distribution of productivity gains (Heintz, 2006). In the next three sections, I empirically analyze the distribution of value added between labor and capital from increased integration in GVCs by developing and developed countries.

4. DATA AND DESCRIPTIVE STATISTICS

4.1 SOURCES OF DATA

I use the 2021 edition of the OECD TiVA and TiM indicators for my analysis that provides insights on value added, employment, and compensation of employees by GVCs. Indicators are available for 66 economies, 17 regions and country groups, and 25 industry aggregates for the years 1995 to 2018. I restrict my analysis to 64 countries and the industry aggregate of total manufactures. To balance the panel, I drop Chinese Taipei and Saudi Arabia due to lack of data. I source the data on GDP and exchange rates from the database on the External Wealth of Nations by the Brookings Institution for the 64 countries over the years 1995 to 2018. For my analysis of developing and developed countries, I categorize the countries in accordance with the UNCTAD classification.

4.2 VARIABLES

I analyze variables of employment, labor share of value added, gross exports, and components of value added. Horvát et al (2020) describe the sources and methods used to produce the indicators of employment and labor share for the TiM database. Total employment is defined as the number of people engaged in production activity within the domestic territory and includes both employees and the self-employed. The compensation of employees includes wages and salaries of employees paid by employers, along with contributions to social security, private pensions, health insurance, life insurance, etc. Then, domestic labor share of value added of a country is defined as the domestic compensation of employees in value added as a percentage of total value added.

Martins et al (2022) describe the indicators in the TiVA database. A country's total gross exports are measured as the sum of exports in intermediate and final goods and services adjusted for re-exports. It includes cross-border flows and direct expenditures by non-residents within its domestic boundary. The integration of the country in the GVC is captured more closely by value-added and the contribution of the country to the production of global commodities in manufacturing. The domestic value added content of gross exports represents the exported value added generated in the domestic economy. The foreign value added content of gross exports represents the value of imported intermediate goods and services embodied in a domestic industry's exports. It includes re-imported foreign value added previously exported by the domestic industry, i.e. the foreign value added could originate from any upstream industry in the value chain. Domestic value added content of foreign exports represents the domestic value addition in the gross exports of an industry in foreign countries. The foreign value added share of gross exports becomes the country's backward linkages in the GVC and the domestic value added share of foreign exports becomes the country's forward linkages in the GVC.

$$Backward\ Linkages = \frac{Foreign\ Value\ Added\ Content\ of\ Gross\ Exports_{ct}}{Gross\ Exports_{ct}} \quad (1)$$

$$Forward\ Linkages = \frac{Domestic\ Value\ Added\ Content\ of\ Foreign\ Exports_{ct}}{Gross\ Exports_{ct}} \quad (2)$$

I construct the participation index from the data, as defined in Roy (2020) and Banga (2014), as a measure of a country's integration in the GVC. It captures the share of a country's backward participation (foreign value added content of gross exports) and forward participation (domestic value added content of foreign exports) in the total created value added of the world. That is, for each country, its backward and forward participation are added, and the share of that country in the aggregate of individual sums of countries is computed.

$$Participation\ Index = \frac{(Domestic\ Value\ Added\ in\ Foreign\ Exports + Foreign\ Value\ Added\ in\ Gross\ Exports)_{ct}}{\Sigma_c(Domestic\ Value\ Added\ in\ Foreign\ Exports + Foreign\ Value\ Added\ in\ Gross\ Exports)_t} \quad (3)$$

I also construct indices of backward linkages and forward linkages, in my contribution to the literature, as a measure of the importance of the country downstream or upstream in the GVC. The index of backward linkages captures the significance of the country in manufacturing GVCs through its foreign value added content of gross exports or its imports of intermediate inputs,

relative to other countries' absorption of foreign inputs. It is constructed as the share of a country's backward participation in the total of backward participation across all countries in a year.

$$Backward\ Linkages\ Index = \frac{(Foreign\ Value\ Added\ Content\ of\ Gross\ Exports)_{ct}}{\Sigma_c(Foreign\ Value\ Added\ Content\ of\ Gross\ Exports)_t} \quad (4)$$

The index of forward linkages similarly captures the significance of the country in manufacturing GVCs through its domestic value added content of foreign exports, relative to other countries' contribution of value added as intermediate inputs to the GVC. It is constructed as the share of a country's forward participation in the total of forward participation across all countries in a year.

$$Forward\ Linkages\ Index = \frac{(Domestic\ Value\ Added\ Content\ of\ Foreign\ Exports)_{ct}}{\Sigma_c(Domestic\ Value\ Added\ Content\ of\ Foreign\ Exports)_t} \quad (5)$$

I construct the indices of backward and forward linkages to capture the significance of the country in manufacturing GVCs whereas the direct measures of backward linkages (foreign value added share of gross exports) and forward linkages (domestic value added share of foreign exports) conversely capture the significance of manufacturing GVCs in the country. The direct measure shows the reliance on GVCs to access international markets while the indexed measure shows the supplier firms competing down unit labor costs to command a greater market share (Basu & Vasudevan, 2021; Suwandi, 2019). GDP serves as the control variable for the size of the country in international trade. It captures production excluding intermediate inputs. The exchange rate is taken to measure the relative value of the domestic currency and capture the competitiveness of the country through its impact on relative prices.

4.3 DESCRIPTIVE STATISTICS

The sample consists of 64 countries of which 28 are developing and 36 are developed, according to the UNCTAD classification of countries (Table 1). There is a stark difference in the averages of employment and labor shares of workers in GVCs between developing and developed economies. Developing countries employed more workers (23.5 million persons) with a lower labor share (34.7%), on average, than developed countries with fewer workers (3.5 million persons) and a higher labor share (49.8%). The gross exports, total value added, domestic value added content, and foreign value added content are all higher for developed countries than for developing countries implying a greater value addition concentration in the Global North. The higher participation index in developed countries along with the higher employment but lower labor share in developing countries suggests that value is created by workers in the Global South but is realized with big markups on production costs at the point of consumption in the Global North. Developing countries have a higher index of backward linkages than of forward linkages while developed countries conversely have a higher index of forward linkages than of backward linkages. Further, developed countries have a higher index of both forward and backward linkages than developing countries. A higher backward linkages index for developing countries implies their integration through backward participation and, similarly, a higher forward linkages index for developed countries implies their integration through forward participation. All indices,

Table 1: Descriptive Statistics

	All			Developing			Developed	
	N	Mean	SE	N	Mean	SE	N	Mean	SE
Employment	1536	12281.51	1029.285	672	23537.54	2265.264	864	3526.82	209.3918
Labor Share	1536	43.22357	0.295673	672	34.74048	0.375044	864	49.82153	0.275821
Gross Domestic Product	1536	791927.5	52200.92	672	488645	49339.89	864	1027814	83647.76
Exchange Rate	1536	0.4058925	0.024018	672	0.3097911	0.046071	864	0.480638	0.022929
Gross Output	1536	442381.8	32565.55	672	411123.7	61504.87	864	466693.7	32622.88
Value Added	1536	106920.6	5159.655	672	77796.1	8053.03	864	129573	6603.358
Gross Exports	1536	139108.9	9262.143	672	109150.7	14479.53	864	162409.8	11960.03
Foreign Value Added Content of Gross Exports	1536	30244.69	1236.456	672	22153.14	1823.612	864	36538.12	1648.724
Foreign Value Added Share of Gross Exports (BL)	1536	32.18255	0.319945	672	29.70655	0.541228	864	34.10833	0.369756
Domestic Value Added Content of Gross Exports	1536	76675.95	4038.438	672	55642.96	6364.782	864	93034.93	5134.546
Domestic Value Added Share of Gross Exports	1536	67.82845	0.319954	672	70.30476	0.541244	864	65.90243	0.369763
Domestic Value Added Content of Foreign Exports	1536	15923.28	817.1518	672	10790.12	1126.309	864	19915.74	1141.086
Domestic Value Added Share of Foreign Exports (FL)	1536	13.78581	0.145816	672	14.83542	0.269603	864	12.96944	0.146671
Participation Index	1536	1.5625	0.058601	672	1.025398	0.071128	864	1.980246	0.085658
Backward Linkages Index	1536	1.5625	0.054187	672	1.073543	0.071634	864	1.9428	0.076148
Forward Linkages Index	1536	1.5625	0.073871	672	0.9414372	0.079015	864	2.045549	0.113408

nonetheless, being higher for developed countries illustrates their dominance in manufacturing GVCs through forward and backward participation. Both developing and developed countries, however, have higher backward participation (foreign value added in domestic exports) than forward participation (domestic value added in foreign exports), indicating greater integration into manufacturing GVCs through foreign value added or foreign intermediate inputs. Labor is increasingly subjugated to foreign capital across developing and developed economies.

5. EMPIRICAL FRAMEWORK

I analyze the impact of GVC participation on the labor share of value added while controlling for GDP, employment, and the exchange rate for countries across time. The variables are transformed with their natural log transformations to normalize skewed data and to account for the multiplicative relationship between GVC participation and labor share. I use a linear fixed effects model such as the one outlined in Milberg and Winkler (2013). The equation estimated is:

$$\ln(Labour\ Share)_{ct} = \beta_0 + \beta_1 \ln(Index\ of\ Participation)_{ct} + \beta_2 \ln(Employment)_{ct} + \beta_3 \ln(GDP)_{ct} + \beta_4 \ln(ExchangeRate)_{ct} + \theta_c + \theta_t + \varepsilon_{ct} \quad (6)$$

For the index of participation, I separately test for the effect of the participation index, the backward linkages index, and the forward linkages index on the labor share of income. I also test for the set of all countries, as well as separately for developing and developed countries. All regressions control for country and year fixed effects (θ_c and θ_t) and incorporate an error term (ε_{ct}). I expect that the greater participation by a country in a GVC would be associated with an adverse impact on its labor share ($\beta_1<0$). A positive coefficient on the log of employment (β_2) would imply that a 1% increase in the employment of manufacturing workers of a country would also be associated with an increase the labor share of income of manufacturing workers by 1%. Similarly, a positive coefficient on the log of GDP (β_3) would mean that an increase in the GDP would be associated with an increase the labor share of workers in manufacturing. Lastly, an increase in the log of the exchange rate (β_4) would mean that an appreciation of a country's exchange rate would be associated with an increase its labor share of manufacturing workers.

I further test the effect of shifting up quartiles of the participation index, the backward linkages index, and the forward linkages index on the labor share in value added of the country with the same set of control variables. The equation estimated is:

$$\ln(Labour\ Share)_{ct} = \delta_0 + \delta_1(Q2\ of\ Participation)_{ct} + \delta_2(Q3\ of\ Participation)_{ct} + \delta_3(Q4\ of\ Participation)_{ct} + \delta_4 \ln(Employment)_{ct} + \delta_5 \ln(GDP)_{ct} + \delta_6 \ln(ExchangeRate)_{ct} + \theta_c + \theta_t + \varepsilon_{ct} \quad (7)$$

For quartiles of participation, I separately test for quartiles of the participation rate index, backward linkages index, and forward linkages index with the first quartile taken to be the reference category.

Quartiles are held constant when shifting the analysis from all countries to separately for developing and developed countries, so developing countries are still concentrated in lower quartiles of participation. As before, I test for all countries and separately for developing and developed countries. All regressions control for country and year fixed effects (θ_c and θ_t) and incorporate an error term (ε_{ct}). I expect that the increase in participation by a country from the first quartile to a higher quartile would be associated with an adverse impact on its labor share ($\delta_1<0$). The coefficients are interpreted as follows: δ_1 captures the impact of a shift by a country from the first to second quartile of participation on its labor share of income; δ_2 captures the impact of a shift from the first to third quartile; δ_3 captures the impact of a shift from the lowest to highest quartile. The coefficients of the logs of employment, GDP, and exchange rate are interpreted as previously explained.

6. RESULTS AND DISCUSSION

6.1 IMPACT OF INDEXED MEASURES OF PARTICIPATION ON LABOR SHARES

A rise in the participation rate index adversely impacts the labor share for all countries, both developing and developed, as does a rise in the indices of backward linkages and forward linkages. Table 2 reports the regression results for labor share of value added on the participation rate index (columns 1-3), the backward linkages index (columns 4-6), and the forward linkages index (columns 7-9). A 1% increase in the participation rate index is associated with a 0.1% decrease in labor share on average for all countries, statistically significant at the 1% level. The result is negative and significant for both developing countries (0.03% fall) and for developed countries (0.20% fall). All results are jointly significant at the 1% level. Increasing either or both of backward linkages and forward linkages, the domestic value added contribution or the foreign value added absorption, in the GVC is adversely associated with a fall in the labor share of workers in the manufacturing sector of a country – whether developing or developed.

The participation rate index accounts for both the domestic value added in foreign exports, or forward linkages, and the foreign value added in domestic exports, or backward linkages, in total GVC participation by all countries. The constructed indices test the impact of a country's increased backward linkages (and forward linkages) relative to the total of all countries' backward linkages (and forward linkages) on its labor share of value added. I find that a country's increased GVC dominance with backward linkages is negatively associated with its labor share but so its increased GVC dominance with forward linkages. The fall in labor share is explained to a greater magnitude from increasing the GVC market share with forward linkages than with backward linkages. From Table 2, a country experiences a greater fall in its labor share by expanding its forward linkages index (0.1% fall in labor share) than by expanding backward linkages index (0.08% fall in labor share). This is evidence of increased market domination in GVCs not resulting in a more equitable distribution of income; rather being driven by a high rate of exploitation for greater profit shares.

Table 2: Impact of Indices of Participation by Countries in GVCs on Labor Share over 1995-2018

Dependent Variable	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed
ln(Labor Share)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln (PRI)	-0.103***	-0.0335***	-0.199***						
	(0.00794)	(0.0103)	(0.0118)						
ln (BLI)				-0.0804***	-0.0189**	-0.178***			
				(0.00727)	(0.00899)	(0.0111)			
ln (FLI)							-0.103***	-0.0422***	-0.190***
							(0.00839)	(0.0111)	(0.0129)
ln (Employment)	0.0939***	0.0546**	0.231***	0.0897***	0.0568**	0.223***	0.0796***	0.0429*	0.197***
	(0.0177)	(0.0221)	(0.0362)	(0.0180)	(0.0222)	(0.0367)	(0.0178)	(0.0224)	(0.0372)
ln (GDP)	0.0929***	0.0334**	0.132***	0.0672***	0.0204	0.0927***	0.106***	0.0431***	0.149***
	(0.0108)	(0.0145)	(0.0181)	(0.0103)	(0.0137)	(0.0175)	(0.0117)	(0.0153)	(0.0200)
ln (Exchange Rate)	0.00920*	0.0137**	-0.0900***	0.00996*	0.0140**	-0.0943***	0.00714	0.0121**	-0.0851***
	(0.00525)	(0.00560)	(0.0161)	(0.00534)	(0.00566)	(0.0163)	(0.00527)	(0.00558)	(0.0167)
Constant	1.927***	2.679***	0.925***	2.272***	2.827***	1.469***	1.862***	2.641***	0.884**
	(0.174)	(0.249)	(0.324)	(0.169)	(0.243)	(0.315)	(0.180)	(0.247)	(0.349)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,535	671	864	1,535	671	864	1,535	671	864
Countries	64	28	36	64	28	36	64	28	36
Joint Significance	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000
R-squared	0.168	0.114	0.360	0.144	0.105	0.342	0.159	0.120	0.314

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Squeezing global labor in the drive for greater profits occurs in both developing and developed countries.

6.2 IMPACT OF DIRECT MEASURES OF PARTICIPATION ON LABOR SHARE

Table 3 reports the regression results for labor shares of value added on direct measures of backward linkages (columns 1-3) and forward linkages (columns 4-6). Testing backward linkages, an increase in a country's backward linkages is negatively associated with its labor share, on average, for all countries. The result is negative and statistically significant for developed countries but positive and statistically insignificant for developing countries. Testing for forward linkages, an increase in a country's forward linkages is negatively associated with its labor share but the result is statistically insignificant, on average, for all countries. For developing countries an increase in their forward linkages by 1% is associated with a decrease in their labor share by 0.07%, statistically significant at the 1% level. This implies that developing countries could increase their value contribution to the GVC, relative to their exports, but their labor share still declines. For developed countries an increase in their forward linkages by 1% is associated with an increase in their labor share by 0.08%, statistically significant at the 1% level. This implies that an increase in developed countries' contribution to value added in manufacturing GVCs indeed increases the labor share for domestic manufacturing workers. All results are jointly significant at the 1% level.

Table 3: Impact of Backward and Forward Linkages in GVCs on Countries' Labor Share over 1995-2018

Dependent Variable	All	Developing	Developed	All	Developing	Developed
ln(Labor Share)	(1)	(2)	(3)	(4)	(5)	(6)
ln (BL)	-0.0401**	0.000164	-0.181***			
	(0.0179)	(0.0189)	(0.0362)			
ln (FL)				-0.0212	-0.0730***	0.0795**
				(0.0214)	(0.0263)	(0.0342)
ln (Employment)	0.0832***	0.0598***	0.104**	0.0784***	0.0523**	0.0739*
	(0.0188)	(0.0224)	(0.0407)	(0.0187)	(0.0223)	(0.0407)
ln (GDP)	0.00834	0.00856	-0.0612***	0.0171*	0.00942	-0.0229
	(0.0102)	(0.0129)	(0.0198)	(0.00961)	(0.0124)	(0.0183)
ln (Exchange Rate)	0.00564	0.0127**	-0.106***	0.00372	0.0115**	-0.113***
	(0.00559)	(0.00578)	(0.0184)	(0.00553)	(0.00563)	(0.0188)
Constant	3.194***	2.968***	4.755***	3.054***	3.191***	3.745***
	(0.181)	(0.245)	(0.355)	(0.168)	(0.246)	(0.323)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,535	671	864	1,535	671	864
Countries	64	28	36	64	28	36
Joint Significance	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000
R-squared	0.074	0.099	0.157	0.072	0.110	0.137

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

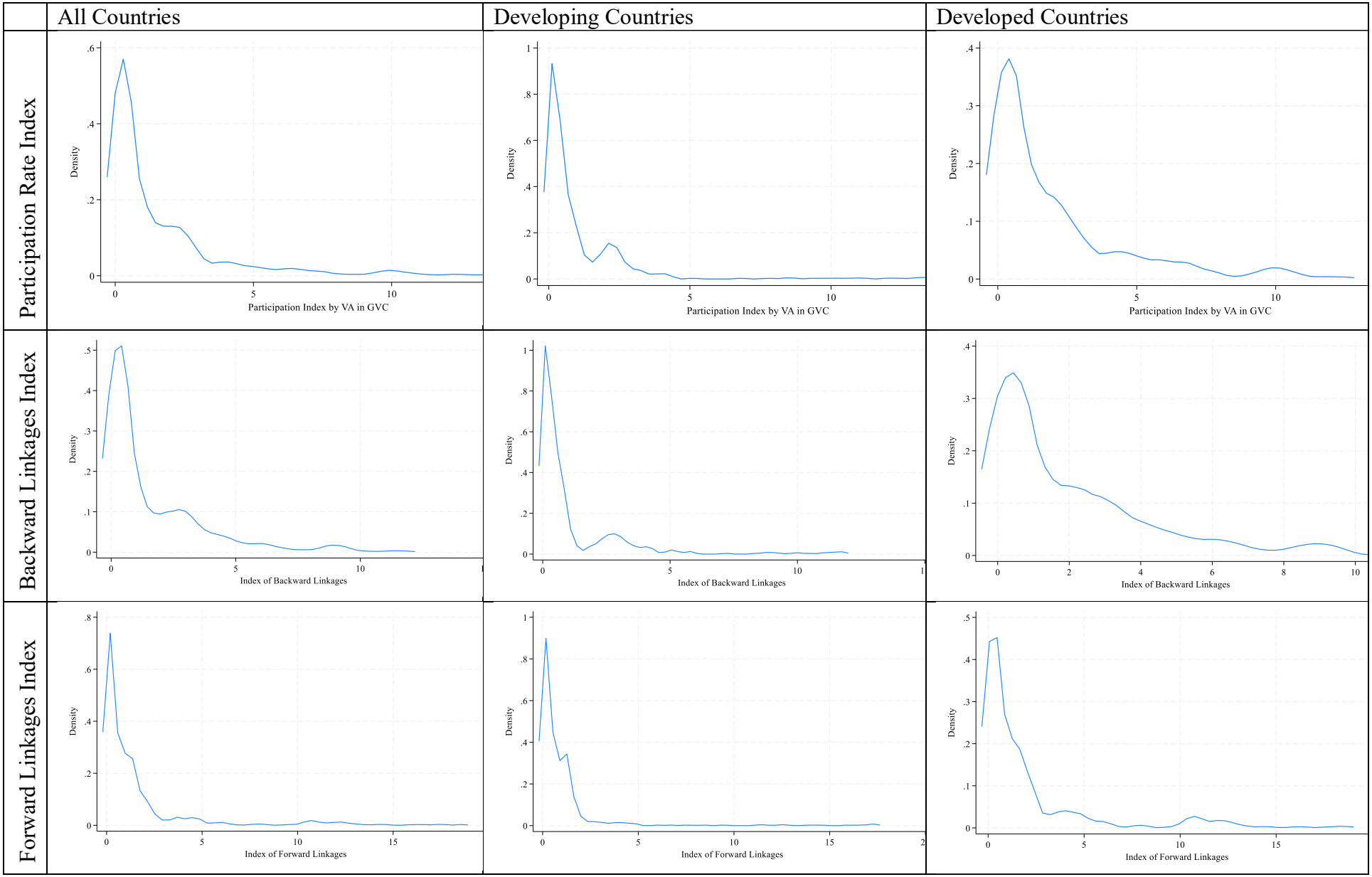
From Tables 2 and 3, I note that the importance of the country to the GVC explains the variation in labor shares of manufacturing income more significantly than the importance of the GVC to the country. The models with the indices to capture the importance of the country in the GVC exhibit a higher R-square than the models with the direct measures of backward and forward participation that capture the importance of the GVC to the country. Recall that the direct measures of participation show the reliance of the country on the GVC while the indexed measures show the reliance of the GVC on the country. For developing countries, an increase in the direct measure of backward linkages does not impact labor share with statistical significance but an increase in the indexed measure is associated with a decrease in the labor share. Both direct and indexed measures of forward linkages adversely impact the labor share in manufacturing, indicating the command of greater market share through competitively reduced labor shares. For developed countries, an increase in both direct and indexed measures of backward linkages decreases labor share but there are differing results for forward linkages. An increase in the direct measure positively impacts labor share whereas an increase in the indexed measure negatively impacts labor share. Therefore, manufacturing labor shares in GVCs generally declined in both developing and developed countries despite a rise in integration and commanded market share. This indicates a concentration of monopsony power amongst MNCs and TNCs that coordinate the GVC and mark up costs for profits while suppressing labor shares.

6.3 THE RACE TO THE BOTTOM

The smaller magnitude of fall in labor shares for developing countries requires further exploration considering the greater employment and smaller labor share compared to developed countries (Table 1). It is likely due to the lower level of labor incomes in developing countries that contributes to their cost competitiveness. The kernel density estimates also indicate that the countries are clustered around the lower levels of participation indices in manufacturing GVCs; most sharply in backward participation among developing countries (Graph 2). This leads to the hypothesis that most countries, especially developing countries, are competing at lower levels of participation and the decline in labor share is experienced more significantly by increasing participation at lower levels of value added.

An increase in a country's participation rate index from the first quartile to a higher quartile of integration adversely impacts its labor share of income. Table 4 reports the regression results for the labor share of value added on quartiles of the participation rate index (columns 1-3), forward linkages index (columns 4-6), and backward linkages index (columns 7-9). An increase in a country's participation rate index to the second quartile decreases its labor share by 0.10%, to the third quartile by 0.07% and to the fourth quartile by 0.11%, statistically significant at the 1% level. The adverse result for labor shares holds for both developing and developed countries with the

Graph 2: Kernel Density Estimates of Indices of Participation for All Countries, Developing Countries, and Developed Countries



Note: The estimates use the epanechnikov kernel with a bandwidth of 0.2922.

larger decreases in the jumps to the second and fourth quartiles. Along with the observation from the kernel density estimates that most countries are clustered around the lower quartiles of participation (Graph 2), the reduction in labor share from increasing participation to the second quartile holds economically significantly.

Next testing separately for indices of backward and forward linkages, I find a negative impact of an increase in both backward and forward linkage indices on the labor share across developing and developed countries. However, countries are concentrated at lower levels of participation and strongly compete to upgrade to the second quartile. For developing countries, an increase in the backward linkages index from the first to second quartiles decreases labor share by 0.09% and an increase in the forward linkages index from the first to second quartile decreases labor share by 0.07%, statistically significant at the 1% level. For developed countries, an increase in backward integration from the first to second quartile decreases labor share by 0.14% and an increase in forward integration from the first to second quartile decreases labor share by 0.13%. Hence, the fall in the labor share is greater from an increase in the backward linkages index than from an increase in forward linkages index when upgrading from the first to the second quartile for developing countries and throughout higher quartiles for developed countries. The results are jointly significant at the 1% level.

Table 5 reports the regression results for labor share of value added on the quartiles of backward linkages (columns 1-3) and quartiles of forward linkages (columns 4-6). An increase in a country's backward linkages from the first quartile to the second quartile, on average, positively impacts the labor share but the result is statistically insignificant. An increase in a country's forward linkages from the first to second quartile adversely impacts the labor share, statistically significant at the 5% level. For developing countries, increasing backward linkages decreases labor share but not statistically significantly till the highest quartile and increasing forward linkages also decreases labor share, statistically significantly, from the first to second quartile. With most developing countries competing at low levels of participation, this suggests that integrating with absorptions of value from foreign intermediate inputs does not significantly impact the country's labor share but scaling up contributions of value to foreign exports significantly decreases labor share. For developed countries, increasing backward linkages decreases labor share only jumping to the fourth quartile, and increasing forward linkages also decreases labor share only jumping to higher quartiles of integration. This suggests that developed countries experience a greater fall in their labor share through forward participation than backward participation and command greater market power at higher quartiles of integration.

From Tables 4 and 5, I note a higher R-squared for the models with indexed measures of quartiles of participation. The direct measure of backward linkages does not have a statistically significant result to explain the variation in labor share till countries in the highest quartile of participation. The indexed measure, however, consistently shows a negative impact of increased participation on labor share across quartiles of backward linkages. The indexed measure of forward linkages also shows a consistently negative result on labor share across quartiles of participation while the

Table 4: Impact of Indices of Participation by Quartiles on Labor Share

	Participation Index			Backward Linkages Index			Forward Linkages Index		
Dependent Variable	All	Developing	Developed	All	Developing	Developed	All	Developing	Developed
ln(Labor Share)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2nd Quartile	-0.104***	-0.0568***	-0.183***	-0.112***	-0.0863***	-0.137***	-0.0794***	-0.0744***	-0.126***
	(0.0141)	(0.0161)	(0.0250)	(0.0164)	(0.0235)	(0.0228)	(0.0154)	(0.0164)	(0.0331)
3rd Quartile	-0.0744***	-0.0170	-0.160***	-0.107***	-0.0708***	-0.149***	-0.0844***	-0.0976***	-0.119***
	(0.0184)	(0.0226)	(0.0299)	(0.0199)	(0.0272)	(0.0286)	(0.0199)	(0.0241)	(0.0371)
4th Quartile	-0.112***	-0.0630**	-0.190***	-0.149***	-0.101***	-0.205***	-0.111***	-0.134***	-0.140***
	(0.0225)	(0.0269)	(0.0369)	(0.0237)	(0.0318)	(0.0349)	(0.0240)	(0.0303)	(0.0418)
ln(Employment)	0.0742***	0.0603***	0.0184	0.0796***	0.0610***	0.0487	0.0622***	0.0320	0.0553
	(0.0183)	(0.0219)	(0.0407)	(0.0185)	(0.0223)	(0.0406)	(0.0193)	(0.0239)	(0.0418)
ln(GDP)	0.0276***	0.0152	-0.00215	0.0222**	0.00436	0.00967	0.0281***	0.0185	-0.0121
	(0.00979)	(0.0126)	(0.0186)	(0.00960)	(0.0125)	(0.0186)	(0.00982)	(0.0125)	(0.0186)
ln(Exchange Rate)	-0.00196	-0.00895	0.108***	-0.00484	-0.0126**	0.113***	-0.00406	-0.0113**	0.110***
	(0.00541)	(0.00560)	(0.0181)	(0.00545)	(0.00563)	(0.0183)	(0.00548)	(0.00558)	(0.0186)
Constant	2.990***	2.931***	4.211***	3.024***	3.061***	3.866***	3.058***	3.124***	4.036***
	(0.160)	(0.230)	(0.321)	(0.160)	(0.235)	(0.317)	(0.166)	(0.244)	(0.328)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,535	671	864	1,535	671	864	1,535	671	864
Joint Significance	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000
R-squared	0.114	0.136	0.189	0.106	0.124	0.177	0.090	0.135	0.148
Countries	64	28	36	64	28	36	64	28	36

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Impact of Backward and Forward Linkages by Quartiles on Labor Share

	Backward Linkages			Forward Linkages		
Dependent Variable	All	Developing	Developed	All	Developing	Developed
ln(Labor Share)	(1)	(2)	(3)	(4)	(5)	(6)
2nd Quartile	0.00189	-0.0106	0.0163	-0.0220**	-0.0251**	-0.0179
	(0.0117)	(0.0137)	(0.0196)	(0.00910)	(0.0108)	(0.0152)
3rd Quartile	-0.00793	-0.00513	-0.00557	-0.0284**	0.000568	-0.0367*
	(0.0149)	(0.0196)	(0.0237)	(0.0124)	(0.0148)	(0.0209)
4th Quartile	-0.0684***	-0.0400*	-0.0841***	-0.0662***	0.0224	-0.108***
	(0.0180)	(0.0236)	(0.0277)	(0.0162)	(0.0204)	(0.0263)
Employment	0.0839***	0.0627***	0.0863**	0.0742***	0.0601***	0.0934**
	(0.0185)	(0.0223)	(0.0403)	(0.0187)	(0.0223)	(0.0408)
ln(GDP)	0.0118	0.00483	-0.0187	0.0156	0.00356	-0.0180
	(0.00965)	(0.0126)	(0.0185)	(0.00956)	(0.0125)	(0.0183)
ln(Exchange Rate)	-0.00229	-0.0125**	0.116***	-0.00387	-0.0151***	0.0931***
	(0.00546)	(0.00565)	(0.0183)	(0.00550)	(0.00565)	(0.0191)
Constant	3.036***	2.998***	3.809***	3.068***	3.013***	3.723***
	(0.163)	(0.236)	(0.314)	(0.162)	(0.237)	(0.314)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,535	671	864	1,535	671	864
Joint Significance	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000	p>F=0.0000
R-squared	0.098	0.109	0.177	0.083	0.116	0.159
Countries	64	28	36	64	28	36

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

direct measure has mixed results for developing and developed countries. Developing countries experience a fall in labor share with increased forward linkages, statistically significant for the jump from the first to second quartile but not significant for higher quartiles. Developed countries conversely experience the fall statistically significantly not in the jump to the second quartile but in jumps to higher quartiles. For developing countries, the fall in labor share is explained less by increased contribution relative to their gross exports and more by increased competitiveness relative to other countries. Developing countries are clustered in the lower levels of participation and compete with each other by driving down unit labor costs that also impacts their labor share. The competitive dynamic also holds for developed countries but at higher levels of participation. Labor is losing out to capital at different levels of participation but in similar ways across development sets of countries.

Lastly, the export of manufactured goods from South to North must be seen as the globalization of production, rather than simply trade, and as the evolution of the social relation of exploitation of labor by capital (Smith, 2016). As a robustness check for the impact of GVC participation on labor shares, I test for the impact of trade openness on labor share of value added (Appendix A.1). I use the ratio of trade-to-GDP as an indicator of trade openness and I find that a 1% increase in trade openness explains a 0.04% decrease in labor share for all countries, statistically significant at the 1% level, with an R-square of 0.08 for the model. The explanation of falling labor share from trade openness holds less explanatory power than from the GVC participation index (an R-square of 0.16), and a lower magnitude of impact as compared to the participation index (recall an impact of a fall by 0.1%). Moreover, while the negative and statistically significant result holds for developed countries, it does not hold for developing countries which show an insignificant impact of a rise in labor share by 0.01%. Hence, the trade of manufactures must be analyzed not in trade volumes but with the disaggregation of value addition in GVCs to capture the unequal social distribution between labor and capital within a sector in different countries.

7. CONCLUSION

Neoliberal policy has constructed export-oriented industrialization and economic upgrading in GVCs as the strategy for developing economies to be internationally competitive. However, the asymmetric structure of global production, with competition among sellers of inputs and monopolies of buyers, forms the basis of hierarchies and inequalities between labor and capital (Roy, 2020). The relocation of global production towards developing economies, essentially in the pursuit of profits, was instigated by the difference between costs and markups due to the global labor arbitrage (Kumar, 2020).

In my paper, I find that increased integration into GVCs is negatively associated with labor shares of value added. The fall in labor shares of value added across countries, both developing and developed, is further explained by the international integration of countries into GVCs significantly more so by their index of participation or their market importance in the GVC than

by their direct linkages of participation or the domestic importance of the GVC to the country. The globalization of production, beyond the globalization of trade, extends the system of unequal exchange from between industries and countries to between labor and capital within an industry across countries. GVCs are structured to subsume labor under global capital with an increase in the overall rate of exploitation. MNCs and TNCs control the process of production in GVCs with their monopsony power that drives the race to the bottom amongst countries to produce manufactured commodities with cheap exploited labor.

Vasudevan (2019) points to the increased interconnectedness of global capital as heightened vulnerability to upheavals that can disrupt the accumulation of capital. GVCs deepen the embeddedness of buyer and supplier firms through the concentration and centralization of capital. Kumar (2020) also argues this leads to a change in the relationship between buyers and sellers as well as a rise in the bargaining power of workers towards negotiating a larger share of value from their now value-laden employer. Hence, the dynamics of rising costs, state interventions, and commodity chain consolidation eventually returns the struggle to the point of production with the worker at the center with the scope of workers and unions to bargain for better wage shares of income.

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APPENDIX

Table A.1: Impact of Trade Openness of Countries on Labor Share over 1995-2018

Dependent Variable	All	Developing	Developed
ln(Labor Share)	(1)	(2)	(3)
ln(Trade/GDP)	-0.0415***	0.0175	-0.0872***
	(0.0110)	(0.0144)	(0.0161)
ln(Employment)	0.0806***	0.0609***	0.0762*
	(0.0186)	(0.0222)	(0.0401)
ln(GDP)	-0.00561	0.0189	-0.0567***
	(0.0112)	(0.0151)	(0.0193)
ln(Exchange Rate)	0.00428	0.0127**	-0.105***
	(0.00551)	(0.00564)	(0.0184)
Constant	3.219***	2.857***	4.241***
	(0.170)	(0.251)	(0.317)
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Joint Significance	p>F=0.0000	p>F=0.0000	p>F=0.0000
Observations	1,536	672	864
R-squared	0.080	0.101	0.161
Countries	64	28	36

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1