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IZA DP No. 12852

Labor Income Share at the Firm Level: Global Trends

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ABSTRACT

Labor Income Share at the Firm Level: Global Trends

Micro-level studies provide insightful knowledge on the drivers of the labor income share. This paper introduces a novel firm-level dataset on the labor income share. Using the World Bank Enterprise Survey data, we put together an unbalanced panel comprising 146,666 firms from 139 countries and spanning a period from 2002 to 2017. We define the firm-level labor income share following three alternative approaches and compare these estimates across income groups, regions, firm sizes, and ownership types. The estimates average around .45, with considerable variations across regions and firm characteristics. Manufacturing firms tend to have a lower labor income share as the firm size increases. Large firms in services, both foreign and state-owned, pay a higher share of income to laborers. Regression results indicate that laborers in more productive firms enjoy a lower share of income; however, we do not find any strong correlation between globalization and the labor income share at the firm level.

JEL Classification: E24, E25, J30
Keywords: labor income share, cross-country data, income distribution

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1. INTRODUCTION

Between 1994 and 2014, the labor income share dropped in 29 out of 50 countries[1] (Dao, Das, Koczan, and Lian, 2017). A decline in the labor income share indicates a slower growth rate of product wages than the growth in the average productivity of labor. To this extent, micro-level studies provide insightful knowledge on the drivers of the labor income share. Studies at the firm or sectoral level could potentially explain the rising gap between the rate of growth in labor productivity and that of wages using globalization, labor market regulations, and other institutional factors. A recent study by Böckerman and Maliranta (2012) using longitudinal plant-level data on Finland show that micro-level restructuring could explain a significant part of the differences between the declining labor income share and increasing labor productivity. They also show that a growing level of international trade catalyzes this process. Aghion and Howitt (2006), in an earlier paper, argued that micro-level restructuring is an important factor in understanding the industrial productivity growth. A similar concern is echoed in the trade literature (Melitz, 2003; Bernard and Jensen, 2004). It argues that in the presence of heightened competitiveness due to globalization, resources are reallocated from the less efficient to the more efficient firms.

At the firm level, the labor income share can be defined as the portion of the firm's value added that goes to the laborers. Firm-level restructuring can lower the labor income share in various ways. Böckerman and Maliranta (2012) find that productive firms are less likely to hire more employees at least in the short run because they use the existing set of inputs more efficiently. Consequently, a hiring freeze could restrict the growth rate of the total wage bill, anticipating that wages do not change in the short-run. At the same time, a higher productivity growth resulting from the efficient allocation of resources increases the return to capital per unit of labor. Furthermore, complementarity between skilled labor and capital can induce firms to replace unskilled laborers with capital if the latter becomes relatively cheaper. All these mechanisms could potentially lead to a lower share of income for labor.

While there is no lack of consensus that studies at disaggregated levels have the potential to provide a deeper understanding of the drivers of the aggregate labor income share, the unavailability of quality data bottlenecks such efforts. At the sectoral level, labor income share data is available only for the OECD countries (EU KLEMS database). In a recent study, Oishi and Paul (2018) put together a novel dataset comprising 54 countries at the sectoral level. However, to the best of our knowledge, cross-country data at the firm level is non-existent. This paper bridges this knowledge gap by introducing a novel firm-level dataset on the labor income share. Using the World Bank Enterprise Survey data, we put together an unbalanced panel of 146,666 firms from 139 countries, spanning a period of 15 years (2002 to 2017). We define the firm-level labor income share following three alternative approaches and compare these estimates across income groups, regions, firm sizes, and ownership types. The estimates of the labor income share average around .45, with considerable variation across regions and firm characteristics. Manufacturing firms tend to have a lower labor

[1] Accounting for almost two-thirds of the world's GDP.

income share as the firm size expands. Both foreign- and state-owned large firms in services have a higher labor income share. A set of simple regression results indicate that laborers in more productive firms enjoy a lower share of income; however, we do not find any strong correlation between globalization and the labor income share at the firm level.

The main contribution of this paper lies in the introduction of a panel dataset on the firm-level labor income share for 139 countries. This dataset creates opportunities for empirical analysis to study the link between firm-level restructuring and the movements in the labor income share across countries and by regions as well as income groups. This dataset can also be used to test various theoretical propositions, for example the role of the informal sector in the movement of labor income share and the effect of globalization on the labor income share by firm size. We organize the rest of the paper as follows. In section 2, we discuss three alternative definitions that we use to calculate the labor income share. Section 3 compares the descriptive evidence from these three different measures of the labor income share. In section 4, we extend the analysis by considering time series trends of the labor income share in a select few countries. We conclude with a discussion of the regression results on the relationship between globalization and the labor income share at the firm level.

2. DEFINITIONS OF LABOR INCOME SHARE AT THE FIRM LEVEL

The labor income share is essentially a macroeconomic concept, defined as the share of national income allocated to labor, and is generally computed from aggregate data by dividing total labor compensation by national income (GDP). The labor compensation should encompass not only wages and salaries but also bonuses and social payments, which are considered non-wage compensation, for the accuracy of calculation. However, even this computation does not give us the labor income share that we seek to obtain because it overlooks contributions from self-employment (Krueger, 1998; Gollin, 2002). If the earnings of the self-employed are taken as capital income as in the conventional method, then it may underestimate the true value of labor income share and bias international comparisons (Guerriero, 2012). Thus, in the macro framework, researchers suffer from the limitation of how to take self-employment into account to gain a less biased labor income share.

In this paper, however, we do not compute the aggregate level of labor income share. Rather, we use the information on compensation at the firm level, which is less susceptible to problems related to the mixed income that arises from self-employment. The Enterprise Survey (ES) asks the same set of questions of enterprises that have employer–employee relationships, so we are not concerned about the comparison within our dataset. However, we should be careful when comparing firm-level and aggregate-level labor income share calculated with national income. At the firm level, little research has been done specifically on the measurement issues. For this reason, we try to estimate the plant-level labor income share using three definitions of the labor income share.

2.1 Definition 1

At the national level, the empirical literature usually calculates labor income share (LIS) as a relation of compensation of employees to total value added produced in country *c* in year *t* (GDP):

$$LIS_{c,t} = \frac{Compensation\ of\ employees_{c,t}}{GDP_{c,t}}$$

By contrast, as our dataset is at the firm level, this study follows Gomme and Rupert (2004) for the LIS definition, which takes the following form:

$$LIS_{i,t} = \frac{Compensation\ of\ employees_{i,t}}{Value\ added_{i,t}}$$

The subscript *i* denotes an individual firm. The ES asks a question on the compensation of employees but not on value added directly. In the calculation of value added for each firm, this paper relies on a definition that the World Bank employs in estimating the firm-level total factor productivity by utilizing the same dataset, ES. In its analysis, the difference between the total annual sales of the establishment and total annual cost of inputs acts as a proxy for value added, so that we can finally measure the labor income share such that

$$LIS_{i,t} = \frac{Compensation\ of\ employees_{i,t}}{total\ annual\ sales_{i,t} - total\ annual\ cost\ of\ inputs_{i,t}}$$

2.2 Definition 2

Relying on the definition of capital that the World Bank (2018) utilizes in the calculation of total factor productivity, we also define labor income share as follows:

$$LIS_{i,t} = \frac{Compensation\ of\ employees_{i,t}}{compensation\ of\ employees_{i,t} + total\ cost\ of\ capital_{i,t}}$$

Likewise, LIS2 is only available in the manufacturing sector because only firms in that sector are asked a question about the total cost of capital.[2] LIS2 essentially excludes the profits of firms and capitalists and captures how much of the total cost of inputs come from labor.

[2] The total cost of capital is measured by variable n7a, with the corresponding question in the ES as follows:
"Hypothetically, if this establishment were to purchase [machinery, vehicles, and equipment] it uses now, in their current

2.3 Definition 3

Following the definition of labor income share that Zhou (2016) employs, LIS3 is defined as

$$LIS_{i,t} = \frac{Compensation\ of\ employees_{i,t}}{total\ sales_{i,t}}$$

The advantage of this definition is that we can use almost all observations in our dataset, including services and other sectors. However, LIS3 could includesome undesirable noise. It is possible that firms without any procurement have larger LIS3 than those procuring inputs. Under this definition, the labor income share may encompass not only labor's share of income but also the amount of input used in production, possibly making LIS3 biased against the ideal value, which captures how much value added is allocated to labor.

3. EMPIRICAL FINDINGS

This paper uses the ES as a dataset, collected and constructed at the firm level by the World Bank. The survey includes 135,000 firms spread across 139 countries and collects information on a broad range of topics, including access to finance, corruption, infrastructure, crime, competition, labor, obstacles to growth, and performance measures. The dataset spans the period 2002 to 2017. Roughly 10% of the firms were successfully re-contacted so that they have more than one year of information, which makes this dataset an unbalanced panel. In this paper, we treat panel pairs as different firms in enumerating firms and calculating summary statistics of labor income share at the aggregate level.

Table 1 presents countries in the dataset by region and income group, showing the composition of those in all sectors and the manufacturing sector. The share of high-income countries is relatively small because the objective of ES is to understand how the business environment affects firm performance, particularly in developing countries. Considering the current world population by region, the dataset includes fewer firms from the Middle East and North Africa. The percentages of total firms in all sectors and in the manufacturing sector by region and income group are analogous to each other.

condition and regardless of whether the establishment owns them or not, how much would they cost, independently of whether they are owned, rented, or leased?"

Table 1: Income Group and Regions

Income Group: All Sectors			Income Group: Manufacturing Sector		
	Frequency	Percent		Frequency	Percent
Low income	32,344	22.05	Low income	16,592	21.76
Lower middle income	60,070	40.96	Lower middle income	31,639	41.49
Upper middle income	44,917	30.63	Upper middle income	23,758	31.15
High income	9,335	6.36	High income	4,274	5.6
Total	146,666	100	Total	76,263	100
Region Group: All Sectors			Region Group: Manufacturing Sector		
	Frequency	Percent		Frequency	Percent
East Asia and the Pacific	18,348	12.51	East Asia and the Pacific	10,621	13.93
Europe and Central Asia	29,381	20.03	Europe and Central Asia	12,672	16.62
Latin America & the Caribbean	34,715	23.67	Latin America & the Caribbean	18,939	24.83
Middle East and North Africa	9,613	6.55	Middle East and North Africa	5,926	7.77
South Asia	18,205	12.41	South Asia	13,392	17.56
Sub-Saharan Africa	36,404	24.82	Sub-Saharan Africa	14,713	19.29
Total	146,666	100	Total	76,263	100

Source: Authors' own calculations

Table 2 shows the percentage of categorized firms by firm size and ownership. With regard to firm size, there are larger share of micro-sized firms in all sectors than in the manufacturing sector, which implies that service sector is more likely to be operated by a small number of people, probably due to lower initial costs to start a business.[3] Yet micro and small firms are still a majority in the manufacturing sector. The dataset consists of few state-owned firms and a large number of private domestic firms, with the remainder consisting of private foreign firms.[4] The composition appears a little skewed, but it could be justified by the fact that the aim of ES is to focus on private enterprises in the first place.

[3] A firm size is defined as "Micro" for 0–5 employees, "Small" for 6–20, "Medium" for 21–50, and "Large" for 51 or more, following the International Labour Organization (ILO) definition.

[4] We employ Zhou's definition of ownership categorization. Foreign firms are defined as those with the proportion of foreign shareholders being equal to or greater than 10%. Private and state-owned firms are determined by the greater proportion of state-owned and private shareholders.

Table 2: Firm Size and Ownership

Firm Size: All Sectors			Firm Size: Manufacturing Sector		
	Frequency	Percent		Frequency	Percent
Micro	15,040	10.32	Micro	5,169	6.81
Small	55,621	38.16	Small	26,085	34.37
Medium	32,300	22.16	Medium	17,422	22.95
Large	42,790	29.36	Large	27,223	35.87
Total	145,751	100	Total	75,899	100
Ownership: All Sectors			Ownership: Manufacturing Sector		
	Frequency	Percent		Frequency	Percent
State-owned	1,105	0.76	State-owned	444	0.59
Private	126,257	87.35	Private	65,984	87.49
Foreign	17,180	11.89	Foreign	8,989	11.92
Total	144,542	100	Total	75,417	100

Source: Authors' own calculation

3.1 Labor Income Share Trends Using Definition 1

In this section, we employ labor income share definition 1 and thus conduct an analysis only for the manufacturing sector. Before scrutinizing labor income share, some observations are found far beyond its expected range. These values may bias our estimation, so we attempted to detect outliers as follows: First, the LIS values are transformed into ln(*LIS*). Then we apply the three-standard-deviation rule: observations that are more than three standard deviations away from the mean are then marked as outliers and turned into missing. Finally, we get the LIS1, which we use in this section. The percentage of missing values is shown in Appendix B, including those which are lost during the calculation under definition 1. Panel A of Figure 1 illustrates the distribution for the observation whose value is from 0 to 2 because only 0.88% of them are beyond two The mean value of LIS1 is 0.39, and its distribution is skewed to the left.

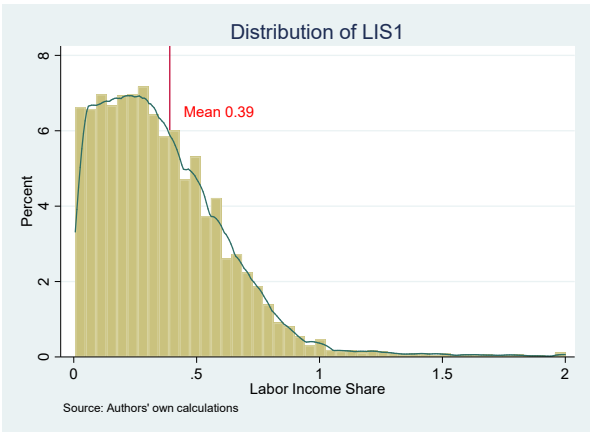
In this paper, we utilize weights in calculating the average value of labor income share. The weight is basically the inverse of the probability of the selection of a particular firm and has already been computed by World Bank.[5] In Panel B of Figure 1, high-income countries have the highest labor income share of all, which is the same result as Guerriero (2012) using a similar definition, but the other countries show different results from hers. LIS1 is the lowest in upper-middle-income countries, and second lowest in low-income countries. As illustrated

[5] See "Methodology for weight computation" on the World Bank website for more detailed information on the method of the weight computation.

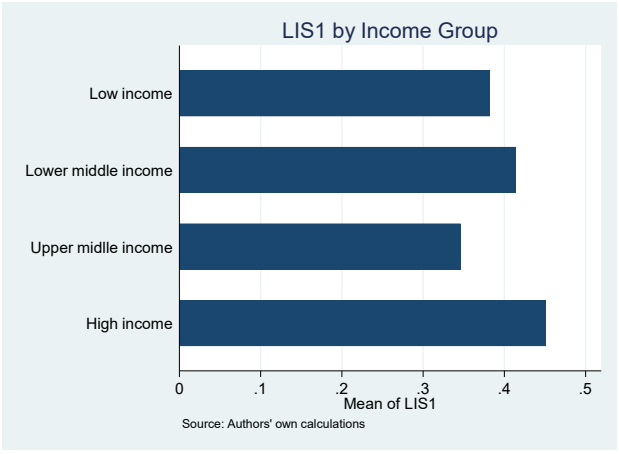
in Panel C of Figure 1, Europe and Central Asia as well as Latin America and the Caribbean obtain a relatively high labor income share, followed by sub-Saharan Africa, and, lastly, South Asia. The results are almost comparable to what Oishi and Paul (2018) found from the sector-level labor income share, although North American countries are not included in the ES respondent countries.

Figure 1: LIS1 Distribution and Comparison by Income Group and Region

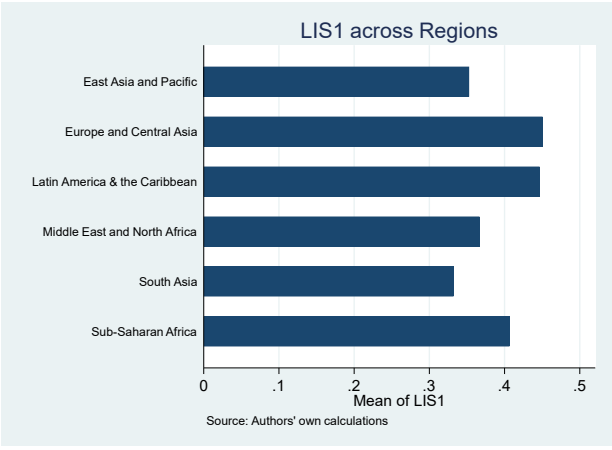
A. LIS1 Distribution



B. LIS1 by Income Group



C. LIS1 across Regions



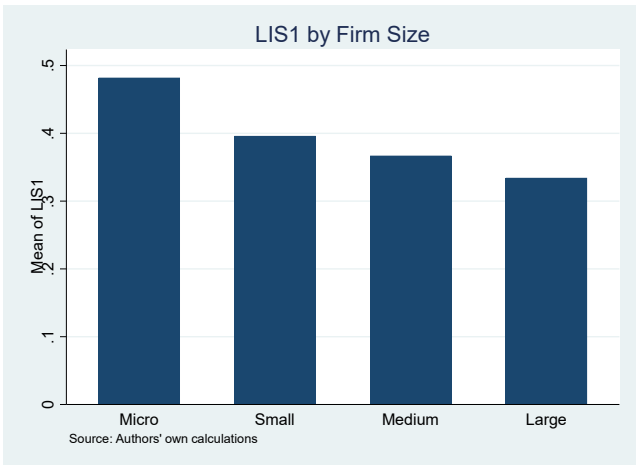
Source: Authors' own calculation

In this sub-section, we compare labor income share by firm characteristics: firm size and ownership type. Panel A of Figure 2 indicates that labor income share decreases as the firm size expands. Theoretically, the optimal decision of a firm with market power is to pay workers less than their value of marginal product. Since large firms tend to gain more market power, it is understandable that labor income share is negatively correlated with firm size. The correlation is the most conspicuous in low-income and lower-middle-income countries,

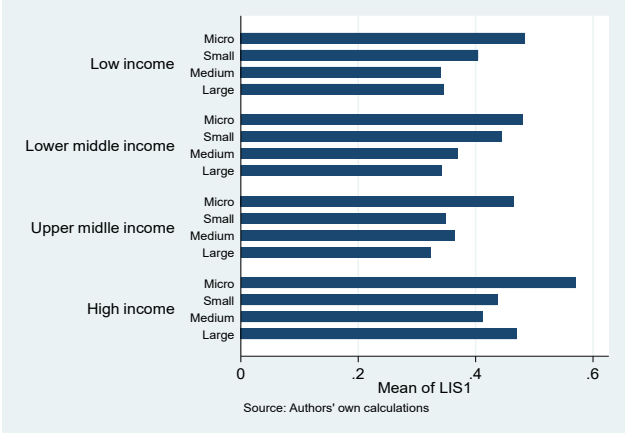
while it becomes less obvious in upper-middle-income and high-income countries (Figure 2, Panel B). Across regions, the negative relationship between firm size and labor income share seems to hold, but in sub-Saharan Africa, there is little variation in labor income share by firm size (Figure 2, Panel C).

Figure 2: LIS1 by Firm Size

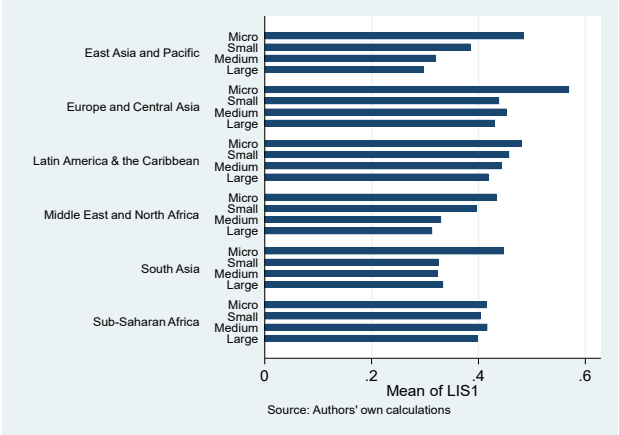
A. LIS1 by Firm Size



B. LIS1 by Firm Size and Income Group



C. LIS1 by Firm Size across Regions



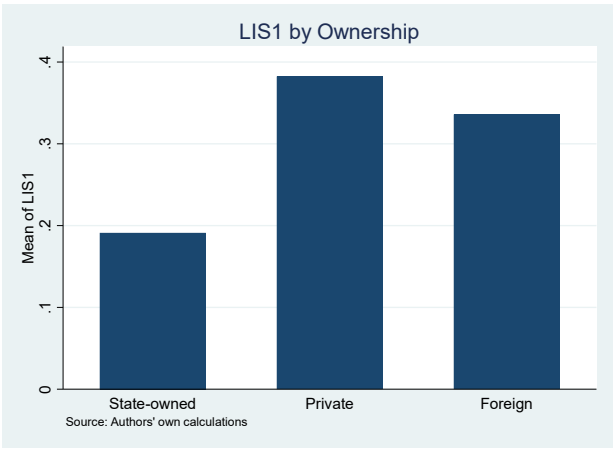
Source: Authors' own calculation

As illustrated in Panel A of Figure 3, labor income share is highest in domestic private firms, with foreign private firms next, followed by state-owned firms. Zhou (2016) argues that LISs > LISp > LISf (LIS: labor income share, s stands for state-owned, p for private, and f for foreign) should hold when labor productivity is sorted as ys < yp < yf. This is because productive firms, which he assumes are predominantly foreign firms, pay wages based not on labor productivity but on the average productivity of all firms in the economy, whereby

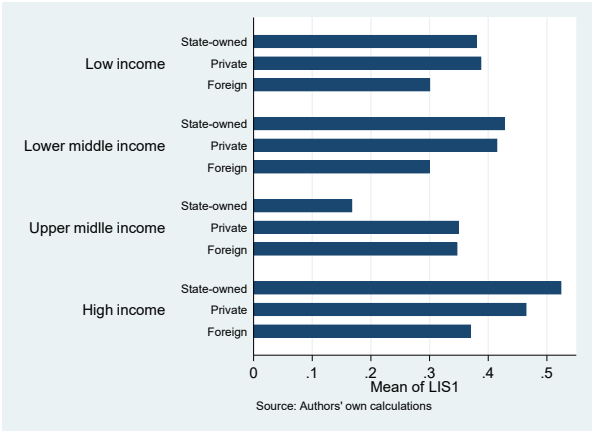
foreign ownership is associated with low labor income share. However, while that prediction does not hold here, it seems to hold if we take total factor productivity as a measure of productivity (see Appendix D). There appears to be no consistent and obvious trend between ownership and labor income share by income group (Figure 3, Panel B). As for regions, LIS1 is sorted as LISs > LISp > LISf in Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, and South Asia (Figure 3, Panel C).

Figure 3: LIS1 by Ownership Type

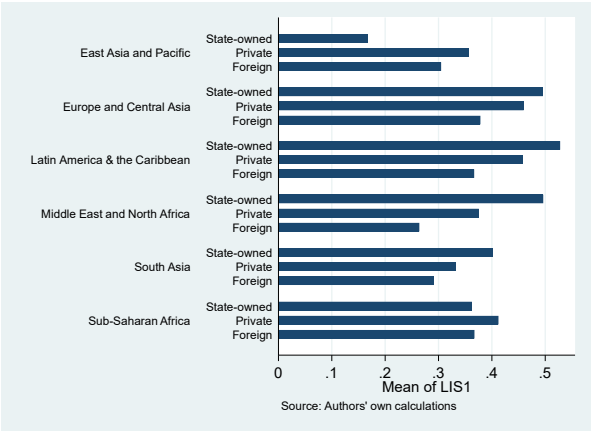
A. LIS1 by Ownership



B. LIS1 by Ownership and Income Group



C. LIS1 by Ownership across Regions



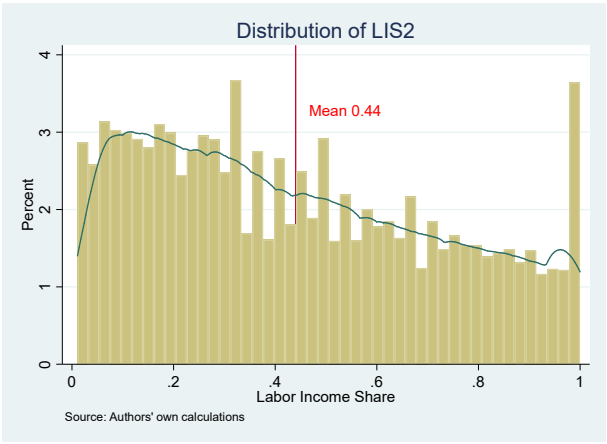
Source: Authors' own calculation

LIS1 is calculated as labor compensation over firm-level value added with the average value of .39 (Panel A, Figure 1). High-income economies enjoy the highest share of 0.45, as opposed to the Heckscher and Ohlin model or Stolper-Samuelson model, suggesting advanced economies would concentrate on capital-intensive goods and lowering labor income share relative to developing economies. Comparing LIS1 by firm size and type of

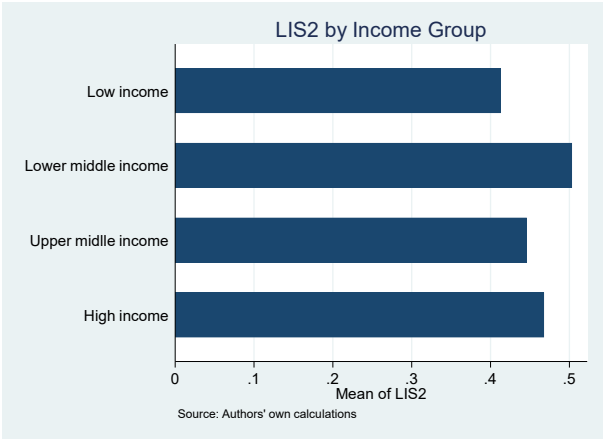
ownership, LIS1 varies more or less in a predictable way: smaller firms have lower LIS1 and state-owned firms have higher LIS1. The latter pattern is not observed at the aggregate level because the proportion of state-owned firms with lower LIS in both upper-middle-income and East Asia and the Pacific countries is higher than in other regions and economies.

Figure 4: LIS2 Distribution and Comparison by Income Group and Regions

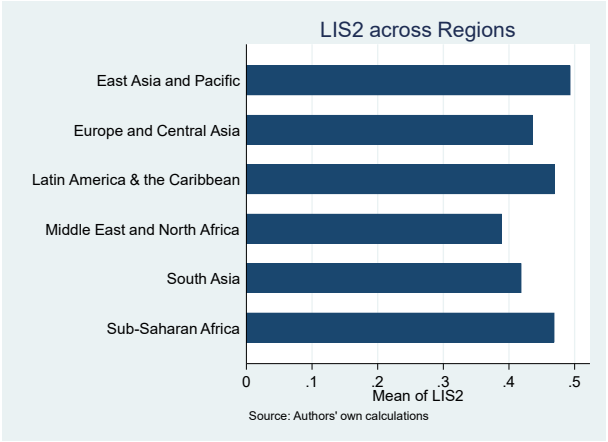
A. LIS2 Distribution



B. LIS2 by Income Group



C. LIS2 across Regions



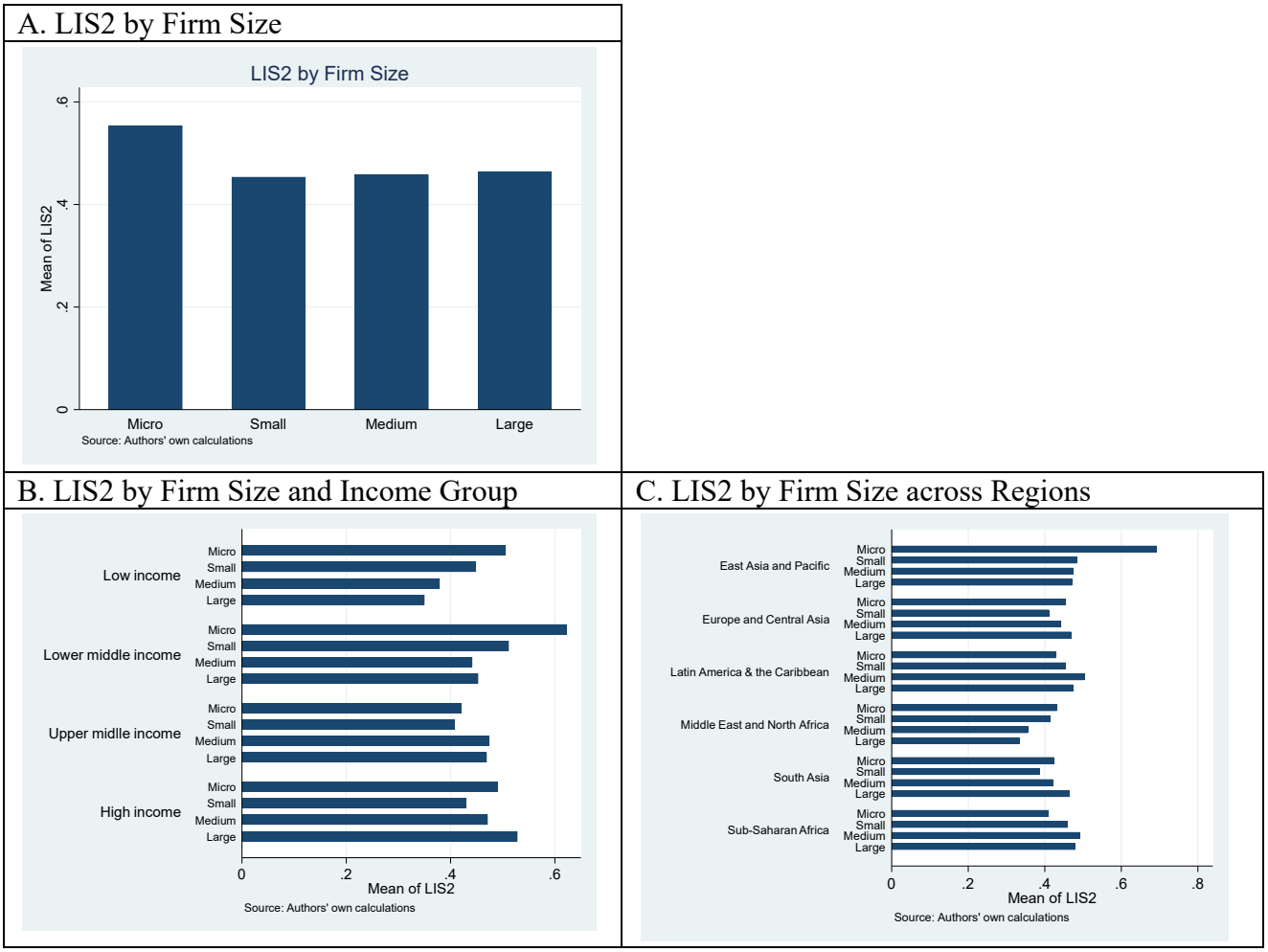
Source: Authors' own calculation

3.2 Labor Income Share Trends Using Definition 2

This section uses definition 2 to analyze labor income share in the manufacturing sector. We employ the same method of detecting and eliminating the outliers as in definition 1 and get the distribution of LIS2 (Panel A, Figure 4. The mean value is 0.44, and LIS2 is somewhat evenly distributed relative to LIS1 except for the observations bunching up around 1. In

definition 2, firms without any capital used in production take the value of 1. Another point to note is that definition 2 lost the most observations out of the three definitions during the process of calculating and eliminating outliers, which may make our estimates less representative (See Appendix B). Panel B of Figure 4 shows a different picture from Panel B of Figure 2 in that lower-middle-income countries rather than high-income countries have the largest labor income share. The East Asia and the Pacific region, which was second lowest for LIS1, has the highest labor income share in definition 2 (Panel C, Figure 4).

Figure 5: LIS1 by Firm Size

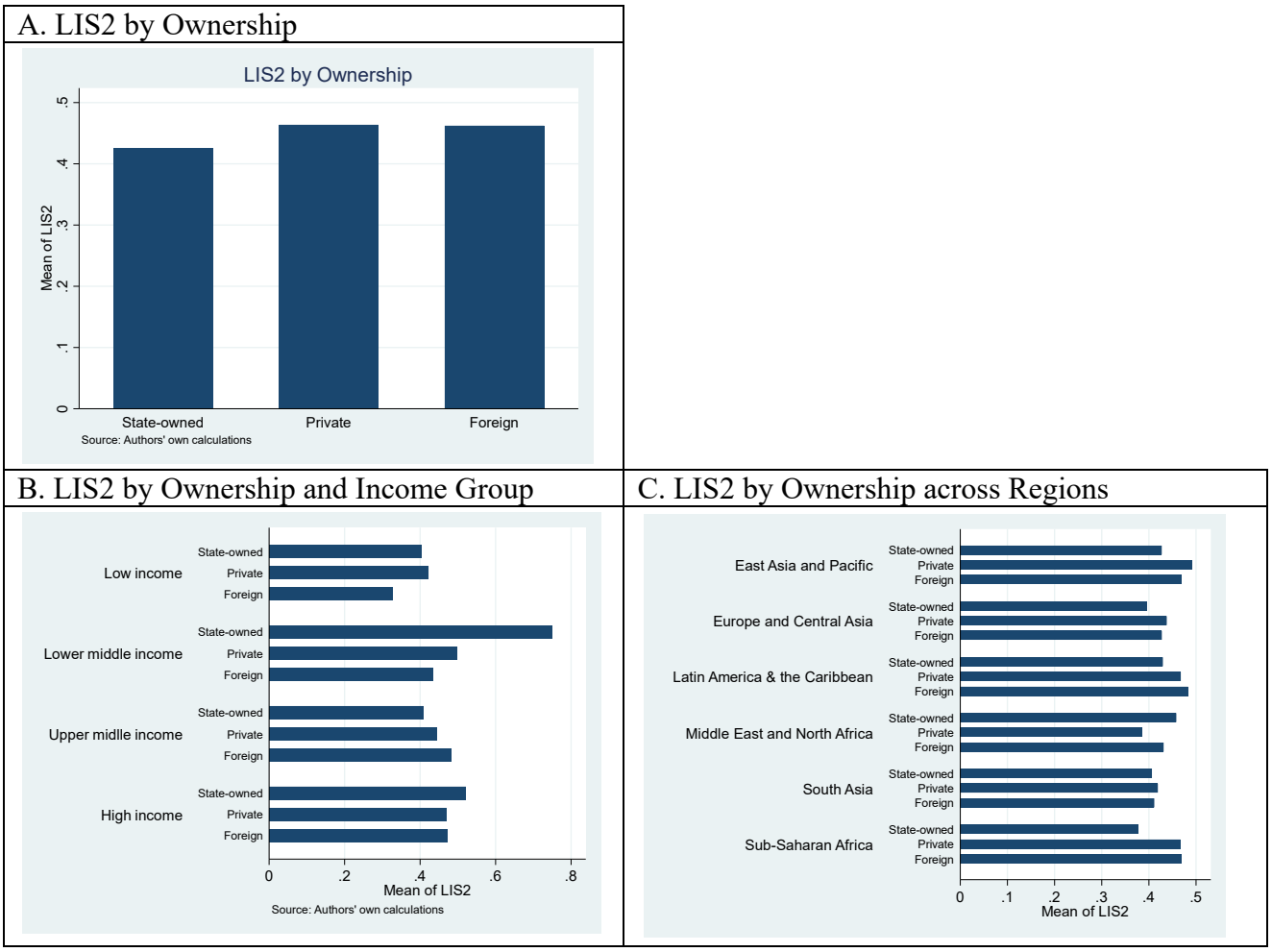


Source: Authors' own calculation

The labor income share is the highest in micro-sized firms but there is almost no difference among the other three sizes under definition 2 (Figure 5, Panel A). In low- and lower-middle-income economies, the labor income share falls as the firm size grows, whereas the

relationship between the two is unclear in high- and upper-middle-income economies (Figure 5, Panel B). The difference in labor income share across firm sizes is greatest in the East Asia and the Pacific region, where micro firms gain the highest average LIS2 value of .68.

Figure 6: LIS2 by Ownership Type

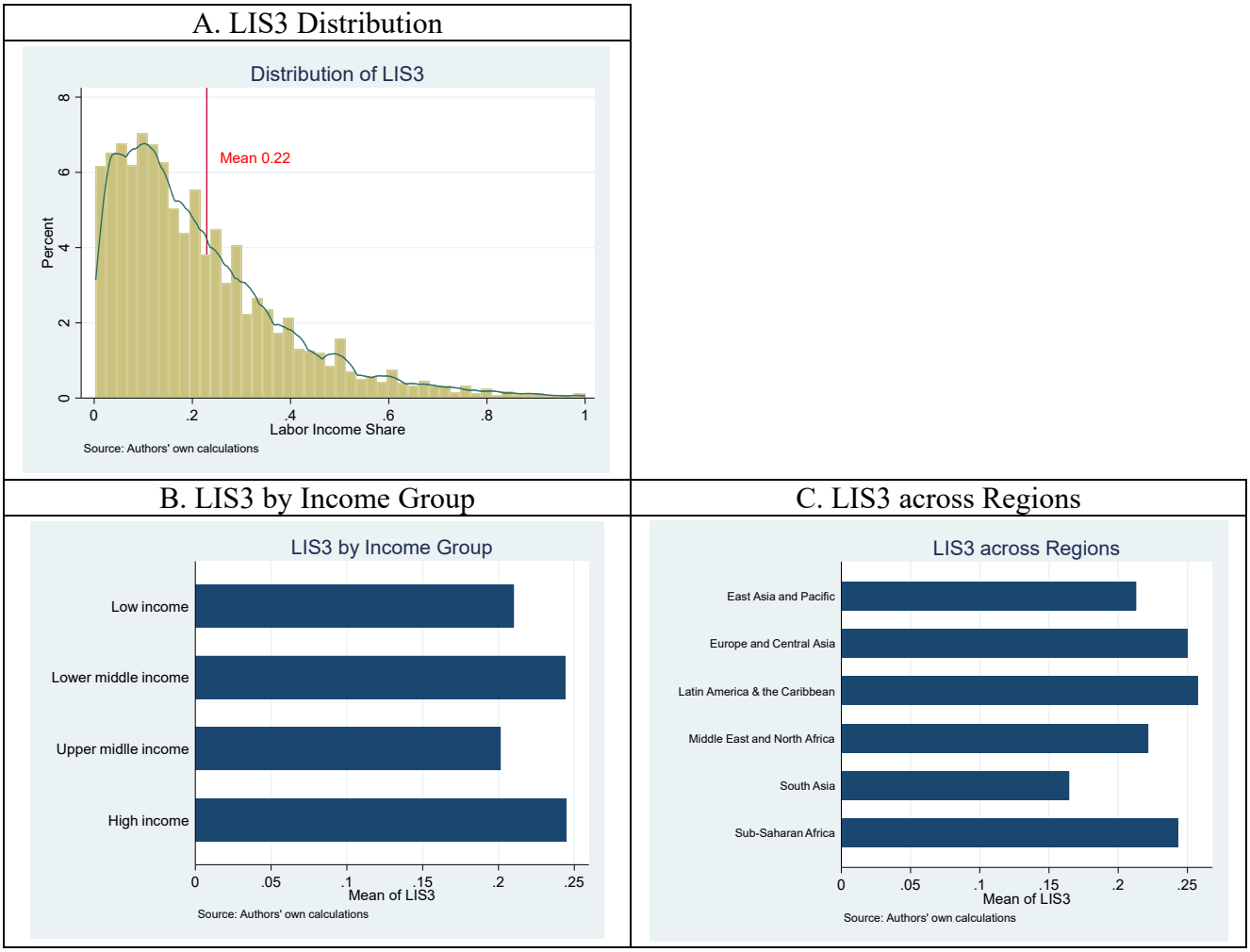


Source: Authors' own calculation

As shown in Panel A of Figure 6, the average values of LIS2 do not vary by type of firm ownership, and hovers in the vicinity of .45. However, the variation is slightly higher when we compare these figures across ownership types and income groups (Figure 6, Panel B). The average LIS2 of state-owned firms in the lower-middle-income group is estimated to be around .76, whereas foreign-owned firms have an average LIS2 of .34.

Differences in the average LIS2 is also noticeable when we compare LIS2 across regions and ownership types (Figure 6, Panel C). Panels B and C of Figure 5 show that micro firms, on average, have a higher LIS2 compared to larger firms. The gap in LIS across firm sizes is largest in the East Asia and the Pacific region. This could be driven by the predominance of the own-account firms in this region because we also find evidence for private firms having a value of LIS2 higher than the average (Figure 6, Panel C). On the other hand, state-owned firms in sub-Saharan Africa have a lower labor income share than private and foreign firms.

Figure 7: LIS3 Distribution and Comparison by Income Group and Regions



Source: Authors' own calculation

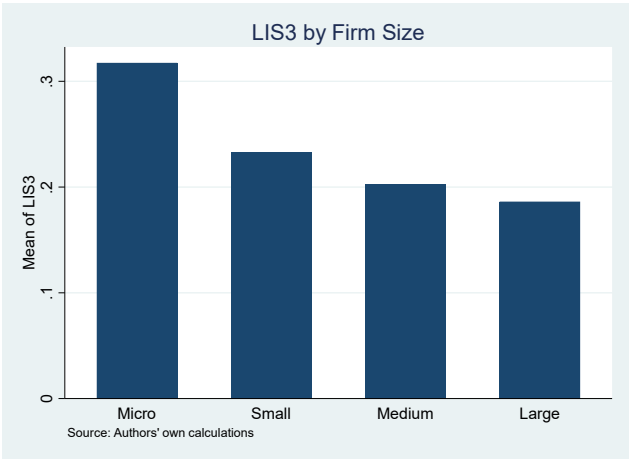
3.3 Labor Income Share Trends Using Definition 3

3.3.1 Firms in the Manufacturing Sector

As mentioned in the section 2, LIS3 could be the most biased labor income share out of three. LIS3 is likely to be influenced partly by the amounts of inputs used in production. LIS3 will deviate from the ideal value, which captures how much value added is allocated to labor, unless the proportion of inputs are homogeneous across firms. Even though definition 3 uses samples in our dataset to the full, we should interpret the results conservatively. This definition is also concentrated in the manufacturing sector. We employ the same method of eliminating the outliers as in definitions 1 and 2. Panel A of Figure 7 illustrates the distribution for the observation whose value is from 0 to 1, because only 0.49% of the values are beyond this range. The mean value of LIS1 is 0.22, and its distribution is skewed to the left. In Panel B of Figure 7, high- and lower-middle-income economies show the highest labor income share, and Latin America and the Caribbean are the highest across regions (Figure 7, Panel C).

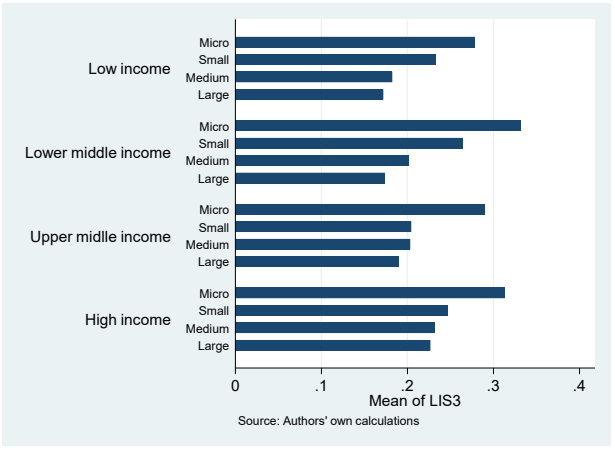
Figure 8: LIS3 by Firm Size

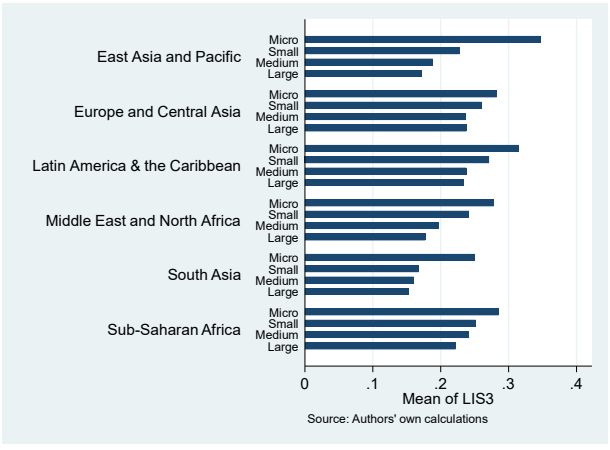
A. LIS3 by Firm Size



B. LIS3 by Firm Size

C. LIS3 by Firm Size





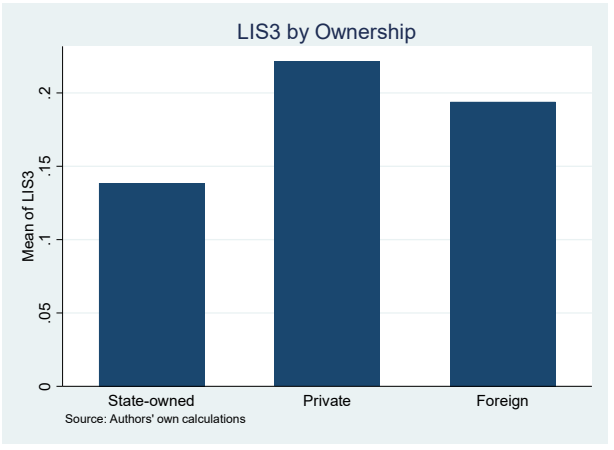
Source: Authors' own calculation

Using definition 3, we find a negative relationship between labor income share and firm size: the more a firm grows, the lower labor income share becomes. Even comparing by income group and region, this correlation does not change (Figure 8).

Private domestic firms have the highest labor income share at the aggregate level and by income group while, across regions, state-owned firms show the highest in Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, and South Asia (Figure 9).

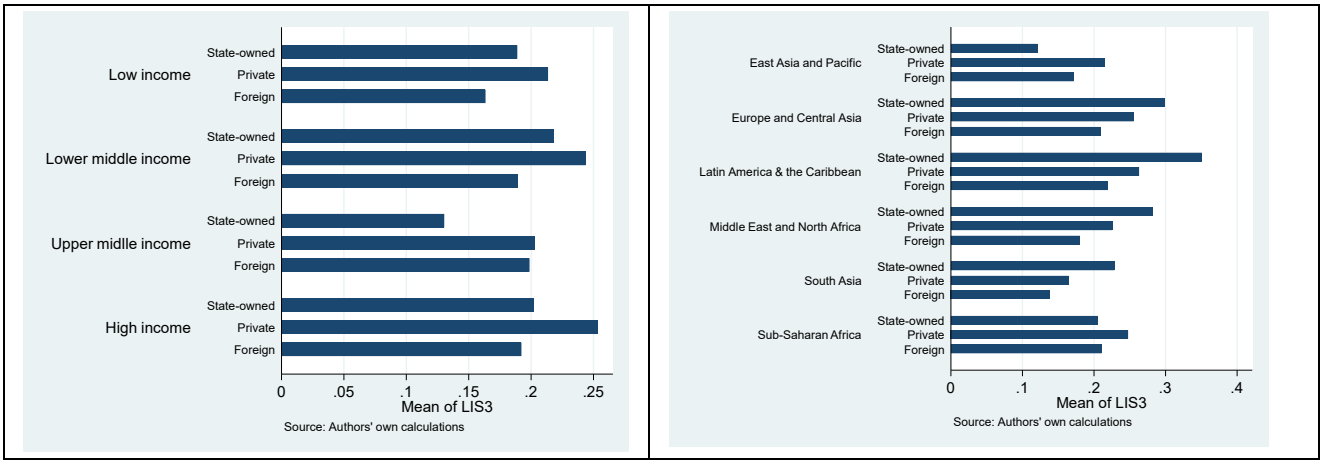
Figure 9: LIS2 by Ownership Type

A. LIS2 by Ownership



B. LIS2 by Ownership and Income Group

C. LIS2 by Ownership across Regions



Source: Authors' own calculation

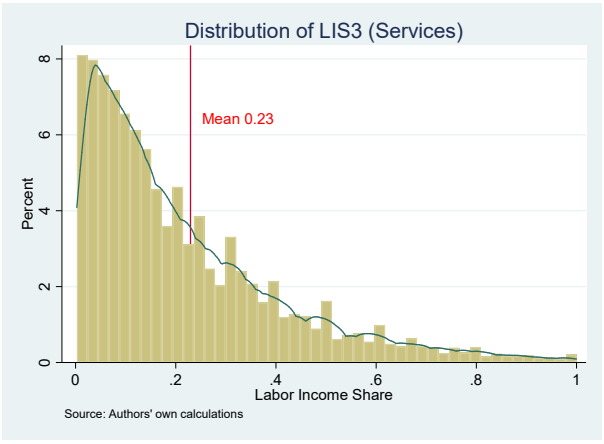
We found LIS3 to be the lowest figure of all the definitions, with a mean value of .22, as the total sale alone is taken as a denominator. LIS3 varies across regions and is the lowest in South Asia, the mean of which is 0.16 (Figure 7, Panel C). This could be because private domestic firms do not reap a large share of income to labor. As with the other definitions, larger firms tend to enjoy a lower LIS in definition 3, and its variation is the most conspicuous in the East Asia and the Pacific region, with an LIS3 of .34 for micro firms and .17 for large ones (Figure 8, Panel C).

3.3.2 Firms in the Service Sector

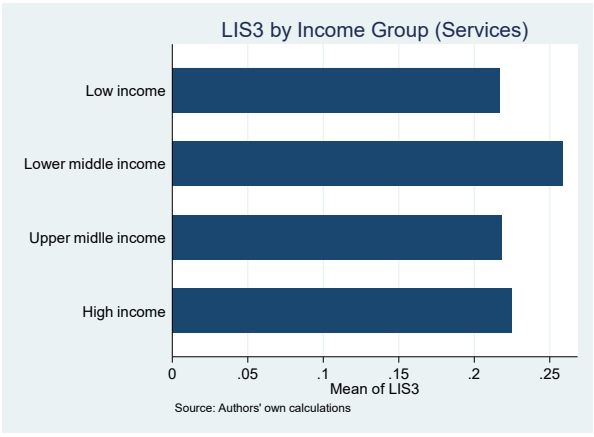
In this section, we also follow definition 3 but focus on the service sector. The outliers are detected and taken out of the sample through the same methodology used in the previous sections. Panel A of Figure 10 shows that the average of LIS3 in the service sector, 0.23, is almost the same as that in the manufacturing sector, 0.22, although the sector comparison should be cautiously made because the labor income share gap across sectors may merely capture the input effects. If the manufacturing sector procures more materials or intermediate goods than the service sector, which are not deducted from sales in definition 3, LIS3 might reflect the sector difference in procurement. In the service sector, lower-middle-income economies have the highest labor income share, while no obvious differences are not found among the other three economies (Figure 10, Panel B).

Figure 10: LIS3 Distribution and Comparison by Income Group and Regions

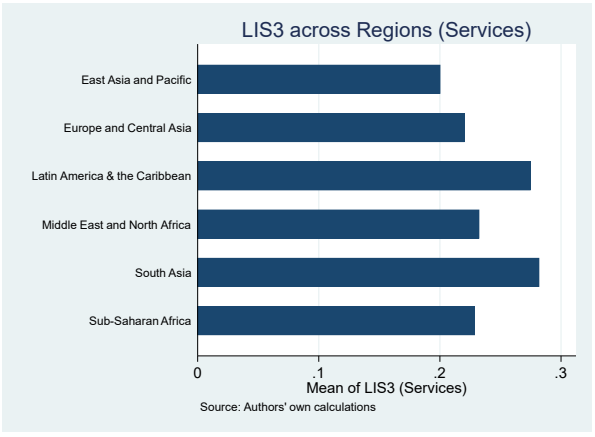
A. LIS3 Distribution (Service)



B. LIS3 by Income Group (Service)



C. LIS3 across Regions (Service)

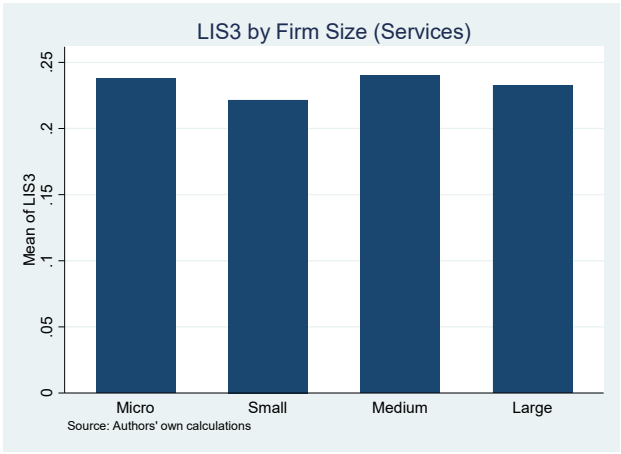


Source: Authors' own calculation

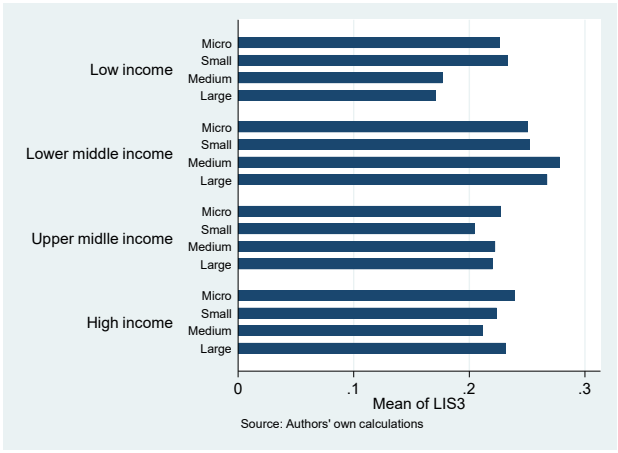
LIS3 in the service sector does not seem to vary by firm size, even after dividing the sample into income groups and regions (Figure 11).

Figure 11: LIS3 by Firm Size (Service)

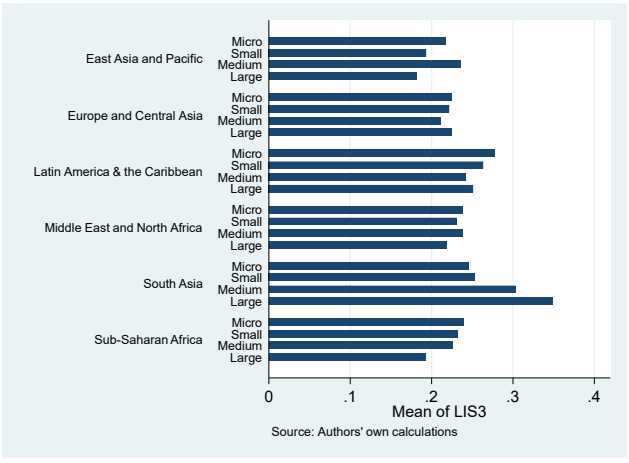
A. LIS3 by Firm Size (Service)



B. LIS3 by Firm Size and Income Group (Service)



C. LIS3 by Firm Size and Regions (Service)

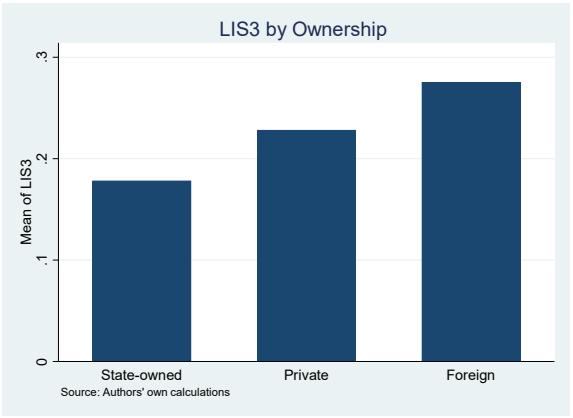


Source: Authors' own calculation

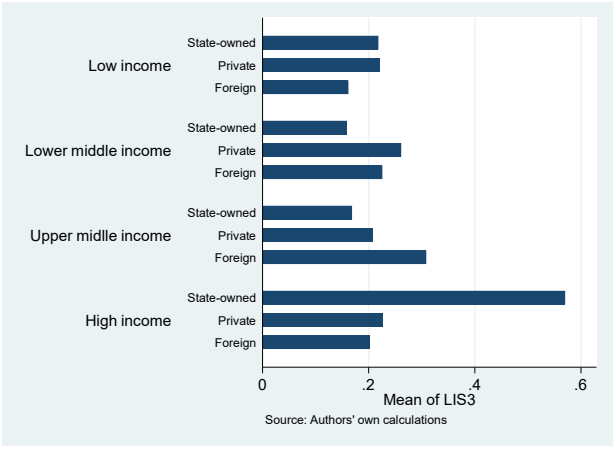
Taking a look at ownership, LIS3 in the service sector has the lowest value in state-owned firms and the second lowest in private domestic firms. Moreover, state-owned firms have the highest LIS in high-income economies as well as in South Asia (Figure 12, Panels B and C), where we can observe a heterogeneous ownership–LIS3 relationship in the service sector.

Figure 12: LIS3 by Ownership Type (Service)

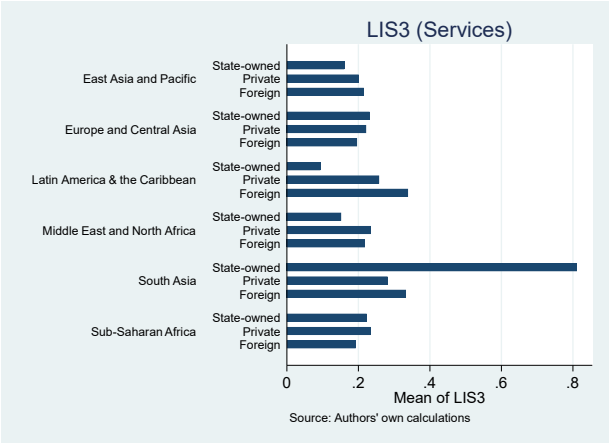
A. LIS3 by Ownership (Service)



B. LIS3 by Ownership and Income Group (Service)



C. LIS3 by Ownership across Regions (Service)



Source: Authors' own calculation

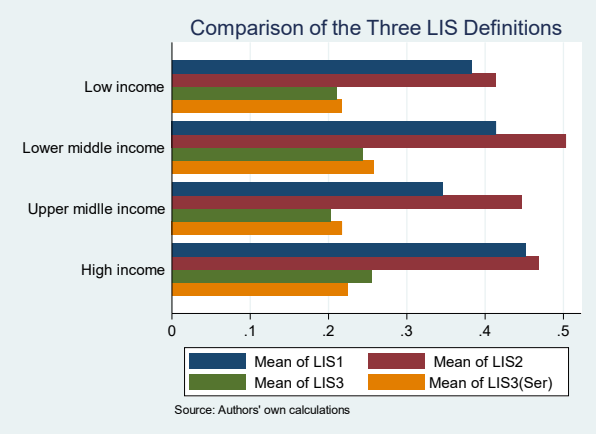
LIS presents a different picture under the third definition in the service sector, even from LIS3 in the manufacturing sector in the previous section. The most striking difference is that LIS3 has little variation across firm sizes, hovering around .21 (Figure 11, Panel A). Smaller firms no longer maintain a higher labor income share in the service sector. The gap in LIS across firm sizes is greatest in South Asia (Figure 11, Panel C). At the aggregate level, private foreign firms earn the highest LIS and private domestic firms come second (Figure 12, Panel A), which is also a different pattern from LIS3 in the manufacturing sector, where private domestic firms are the highest. Yet the heterogeneous trends are seen by income group and across regions, such that in high-income and South Asian countries state-owned firms reap by far the highest share of income, with an LIS of .56 and .81, respectively (Figure 12, Panels B and C).

4. DISCUSSION

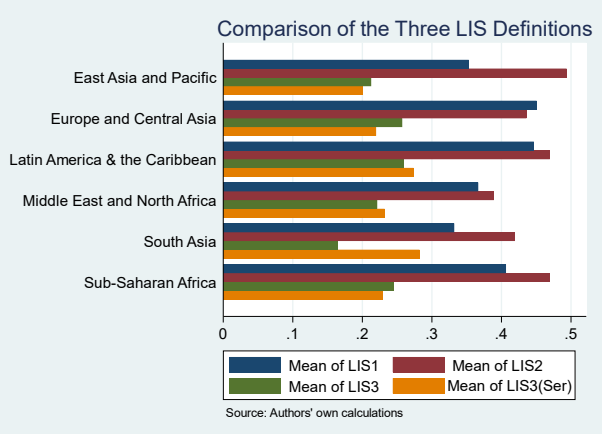
This section highlights the synergies between the four sets of estimates of the labor income share. We first compare the average LIS estimates by income groups (Figure 13, Panel A). The income-group averages from the first two definitions (LIS1 and LIS2) are significantly higher than those from the third definition (for both manufacturing and services), and this result is robust across different income groups. We find similar trends when the LIS statistics are compared across regions (Figure 13, Panel B), firm sizes (Figure 13, Panel C), and ownsership types (Figure 13, Panel D).

Figure 13: Comparison of LIS Estimates

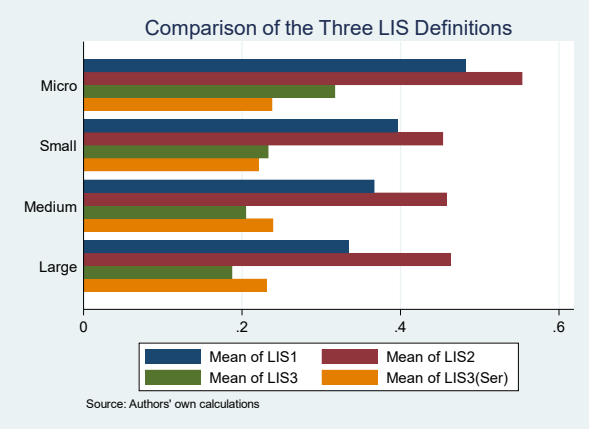
A. Income Groups



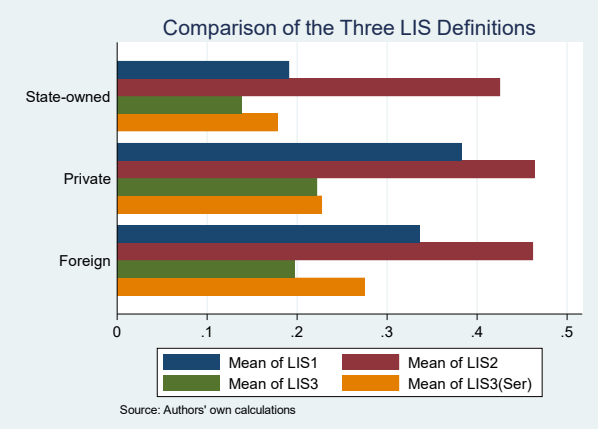
B. Regions



C. Firm Sizes



D. Ownership Types



Source: Authors' own calculation

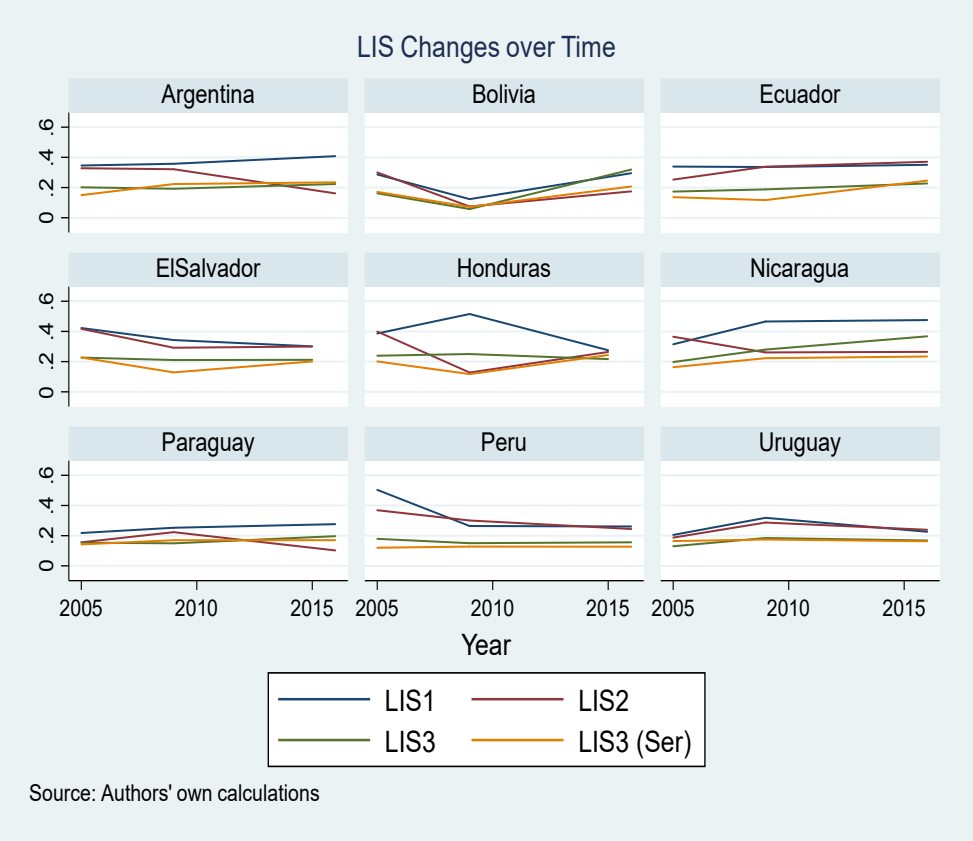
The numerator across different definitions measures compensation of employees; however, in the denominator, we follow alternative approaches as a proxy for the firm-level value added. We use the gap between the total annual sales on the one hand and the cost of inputs,

compensation of employees plus total cost of capital, and total sales, on the other hand, as the denominator for LIS1, LIS2, and LIS3, respectively. The figures for total sales for LIS3, on average, are higher than the estimates of the denominators for LIS1 and LIS2, which broadly explains the gap in the labor income share estimates between different approaches within a particular region, income group, or ownership type. However, the gap between the LIS estimates varies considerably across regions. Firms in South Asia show a much smaller gap compared to firms in East Asia and the Pacific and sub-Saharan Africa. Micro firms clearly top the ranking based on LIS1, LIS2, and LIS3-manufacturing, but there is not a clear leader in the service (LIS3) sector when firms of different sizes are compared. On the other hand, foreign-owned firms top the ranking based on LIS3-services, while the average labor income share for private-owned firms is the highest using LIS1.

Definition 3 allows us to directly compare the labor income share between the manufacturing and service sectors. For medium and large firms, laborers in the service sector enjoy a higher share of income compared to their counterparts in the manufacturing sector. This result particularly holds for foreign and state-owned firms. In contrast, micro and small firms enjoy a higher labor income share in manufacturing than in services. By ownership type, private domestic firms have the highest labor income share in the manufacturing sector. The average labor income share for manufacturing firms is higher than that in services in countries from the high-income group, and most of them are also located in Europe and Central Asia. Overall, the evidence suggests that manufacturing firms tend to have a lower labor income share as the firm size increases. Such causal links can be related to capital-intensive technologies if larger firms tend to use them more with greater economies of scale.

We next compare the time series trends of labor income share for a select few countries. To explore the labor income share trend over time for the three LIS definitions, we selected countries that have at least three years of data. This left us with only 11 countries, out of which nine are from Latin America and the Caribbean. For this reason, we compare the time series trends only for this region (Figure 14). The outcomes show mixed evidence as the time series plots vary across LIS definitions within a country with the exception of Bolivia, Ecuador, and Peru, where the LIS trends are somewhat consistent. We group these countries into five categories. First are countries where most of the LIS measures show an upward trend (Argentina, Ecuador, Nicaragua, and Paraguay). Second are countries with a downward trend based on most of the definitions (El Salvador and Peru). The third group consists of Bolivia, where most of the LIS trends look U-shaped. Uruguay forms the fourth group, where the LIS trends conform to an inverted U-shaped pattern, and the final group consists of Honduras, where the time series plots move in every possible direction. We conclude that the time series trends do not correspond to a regional decline in the labor income share.

Figure 14: Time Series Trends for Latin America and the Caribbean



Source: Authors' own calculations

As a final step, we conduct regression analysis utilizing this novel dataset. In this estimation, we employ the first definition, LIS1, to examine how globalization affects the labor income share, using the firm-level data. We apply the regression framework of Zhou (2016), who investigates the ownership difference of labor income share, using the ES data in China. We also add variables related to recent research by Doan and Wan (2017). Our baseline model is specified as:

$$LIS_{i,t} = \beta_0 + \beta_1 for_{i,t} + \beta_2 state_{i,t} + \beta_3 size_{i,t} + \beta_4 skill_{i,t} + \beta_5 export_{i,t} + \beta_6 export^2{}_{i,t} + \beta_7 import_{i,t} + \beta_8 TFP_{i,t} + \beta_9 KtL_{i,t} + \sum \omega_i country_i + \sum \varphi_t year_t + \varepsilon_{i,t}$$

where

- *LIS* stands for labor income share
- *for* is a dummy variable of foreign-owned firms (Foreign firms are defined as those with the proportion of foreign shareholders equal to or greater than 10%, following Zhou's definition.)
- *state* is a dummy variable of state-owned firms (Private and state-owned firms are

determined by the greater proportion of state-owned and private shareholders.)

- *size* takes 0–3 ordinal index to measure a firm's size (a firm size is defined as "Micro" for 0–5 employees, "Small" for 6–20, "Medium" for 21–50, and "Large" for 51 or more, following the International Labour Organization (ILO) definition.)
- *export* is a log variable of share of exports to total sales
- *KtL* is the capital–labor ratio in log form
- *import* is the proportion of intermediate goods or materials imported from abroad
- *TFP* indicates a total-factor productivity, which is already estimated by the World Bank
- *skill* denotes the proportion of skilled labor to total full-time employment
- *country* is a dummy variable control for the country effect
- *year* denotes the time dummy

We estimate this equation by within-group estimator, and we do not interpret the estimated coefficients to be causal relationships. The main goal is to learn whether there is some degree of correlation between the set of independent variables and the measure of the labor income share. Table 3 summarizes the estimation results of the baseline equation. The coefficient of export share is significant and negative when we take the country as a unit, while it becomes insignificant with the firm treated as a unit. In columns (1) to (3), the variable *export* seems to encompass any impact on labor income share and any selection effect of exporting firms. If unobserved individual effects such as management skill or corporate culture influence the decision-making on exports, the coefficients of export with country as the unit will be more or less biased. However, adding firm fixed effects will be arguably closer to the causal effect if the selection is heterogeneous across individual firm characteristics, which do not change over time. Columns (4) to (6) show the results when controlling unobserved firm characteristics, and they suggest that exports do not have a significant impact on changes in labor income share.

Table 3: Regression Outcomes

	FE model: unit (country)			FE model: unit (firm)		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Export	-0.007***	-0.037***	-0.039***	-0.020	-0.026	-0.030
	(0.002)	(0.007)	(0.007)	(0.013)	(0.041)	(0.040)
Export^2		0.008***	0.008***		0.002	0.004
		(0.002)	(0.002)		(0.012)	(0.012)
Import			0.001			-0.009*
			(0.002)			(0.005)
TFP	-0.065***	-0.065***	-0.069***	-0.142***	-0.143***	-0.143***
	(0.008)	(0.008)	(0.006)	(0.019)	(0.019)	(0.019)

Capital intensity	-0.030***	-0.029***	-0.029***	-0.019***	-0.019***	-0.017***
	(0.002)	(0.002)	(0.003)	(0.007)	(0.006)	(0.007)
Skill	0.034***	0.033***	0.030**	-0.037	-0.038	-0.049
	(0.012)	(0.012)	(0.012)	(0.039)	(0.039)	(0.041)
Firm size	-0.013***	-0.011***	-0.013***	-0.031*	-0.030*	-0.030*
	(0.004)	(0.004)	(0.003)	(0.017)	(0.017)	(0.017)
Foreign		-0.016**	-0.015**		-0.024	-0.018
		(0.007)	(0.007)		(0.037)	(0.038)
State		-0.016	-0.013		-0.094	-0.096
		(0.036)	(0.036)		(0.151)	(0.149)
Constant	0.930***	0.924***	0.947***	1.177***	1.179***	0.956***
	(0.074)	(0.073)	(0.070)	(0.098)	(0.098)	(0.144)
Observations	35,083	35,083	32,950	35,083	35,083	32,950
R-squared	0.065	0.066	0.068	0.094	0.094	0.094
Number of countries	110	110	110			
Number of firms				33,328	33,328	31,220

Notes: Standard errors in parentheses adjusted clustering by the country level, ***p < 0.01, **p < 0.05, *p < 0.1. The dependent variable is labor income share. Year dummy is included.

In line with previous research (Bentolila and Saint Paul, 2013), total-factor productivity has a negative and significant impact. This result does not change by model of the unit employed, country or firm. The data show that the TFP of the firm is on a growth trajectory over the past decade, which may be partly attributed to the recent technological advancement. Its negative sign means that output per worker will grow faster than wage changes. If globalization makes it easier to acquire new knowledge and technology, then labor income share will fall under globalization through technological progress. Other variables of the equation except for capital intensity do not show much significant effect when adding firm fixed effects.

Overall, we find that trade does not have significant impacts on labor income share when including firm-specific effects, although exporting firms tend to have a lower labor income share than non-exporting firms. In contrast, technological progress, which may be partly promoted by globalization, is a strong driver of labor income share decline, as previous research points out. Another promising channel to explore the effect of globalization is through structural change. We leave this task for our future research.

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Appendix A: Country Composition Table

	Survey Year																Total
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Afghanistan	0	0	0	0	0	647	0	526	0	0	0	410	0	0	0	0	1,583
Albania	0	0	0	0	304	0	175	0	0	0	360	0	0	0	0	0	839
Angola	0	0	0	425	0	0	0	360	0	0	0	0	0	0	0	0	785
Antigua and Barbuda	0	0	0	0	0	0	0	151	0	0	0	0	0	0	0	0	151
Argentina	0	0	0	1,063	0	0	0	1,054	0	0	0	0	0	0	991	0	3,108
Armenia	0	0	0	0	0	0	374	0	0	0	360	0	0	0	0	0	734
Azerbaijan	0	0	0	0	0	0	380	0	0	0	390	0	0	0	0	0	770
Bahamas	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	150
Bangladesh	0	0	0	0	1,504	0	0	0	250	0	1,442	0	0	0	0	0	3,196
Barbados	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	150
Belarus	0	0	0	0	0	273	0	0	0	0	360	0	0	0	0	0	633
Belize	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	150
Benin	0	197	0	0	0	0	150	0	0	0	0	0	0	150	0	0	497
Bhutan	0	0	0	0	0	0	250	0	0	0	0	0	253	0	0	0	503
Bolivia	0	0	0	613	0	0	0	362	0	0	0	0	0	0	364	0	1,339
Bosnia and Herzegovina	0	0	0	0	0	0	361	0	0	0	360	0	0	0	0	0	721
Botswana	0	0	0	342	0	0	0	268	0	0	0	0	0	0	0	0	610
Brazil	1,642	0	0	0	0	0	1,802	0	0	0	0	0	0	0	0	0	3,444
Bulgaria	0	0	0	0	1,015	0	288	0	0	0	293	0	0	0	0	0	1,596
Burkina Faso	0	0	0	139	0	0	394	0	0	0	0	0	0	0	0	0	533
Burundi	0	0	0	270	0	0	0	0	0	0	0	157	0	0	0	0	427
Cambodia	0	0	0	0	0	0	0	0	0	0	472	0	0	373	0	0	845
Cameroon	0	0	0	207	0	0	363	0	0	0	0	0	0	361	0	0	931

Cape Verde	0	0	0	98	0	0	156	0	0	0	0	0	0	0	0	0	254
Central African Republic	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	150
Chad	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	153	303
Chile	0	0	0	1,017	0	0	0	1,033	0	0	0	0	0	0	0	0	2,050
People's Republic of China	0	0	0	0	0	0	0	0	0	2,700	0	0	0	0	0	0	2,700
Colombia	0	0	0	1,000	0	0	0	942	0	0	0	0	0	0	993	0	2,935
Congo	0	0	0	0	0	0	151	0	0	0	0	0	0	0	0	0	151
Costa Rica	0	0	0	0	0	0	0	538	0	0	0	0	0	0	0	0	538
Croatia	0	0	0	0	633	0	159	0	0	0	360	0	0	0	0	0	1,152
Czech Republic	0	0	0	0	0	0	250	0	0	0	254	0	0	0	0	0	504
Côte d'Ivoire	0	0	0	0	0	0	526	0	0	0	0	0	0	361	0	0	887
DRC	0	0	0	340	0	0	0	359	0	0	529	0	0	0	0	0	1,228
Djibouti	0	0	0	0	0	0	0	0	0	0	266	0	0	0	0	0	266
Dominica	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	150
Dominican Republic	0	0	0	0	0	0	0	360	0	0	0	0	0	359	0	0	719
Ecuador	453	0	0	658	0	0	0	366	0	0	0	0	0	0	361	0	1,838
Egypt	0	0	0	0	0	0	0	0	0	0	2,897	0	0	1,814	0	0	4,711
El Salvador	0	0	0	693	0	0	0	360	0	0	0	0	0	719	0	0	1,772
Eritrea	0	0	0	0	0	0	179	0	0	0	0	0	0	0	0	0	179
Estonia	0	0	0	0	0	0	273	0	0	0	273	0	0	0	0	0	546
Eswatini	0	0	0	307	0	0	0	0	0	0	0	0	0	150	0	0	457
Ethiopia	0	0	0	0	0	0	0	0	644	0	0	0	848	0	0	0	1,492
Fiji	0	0	0	0	0	0	164	0	0	0	0	0	0	0	0	0	164
FYR Macedonia	0	0	0	0	0	0	366	0	0	0	360	0	0	0	0	0	726

Gabon	0	0	0	0	0	0	179	0	0	0	0	0	0	0	0	0	179
Gambia	0	0	0	174	0	0	0	0	0	0	0	0	0	0	0	151	325
Georgia	0	0	0	0	0	373	0	0	0	0	360	0	0	0	0	0	733
Ghana	0	0	0	0	494	0	0	0	0	0	720	0	0	0	0	0	1,214
Grenada	0	0	0	0	0	0	0	153	0	0	0	0	0	0	0	0	153
Guatemala	0	0	0	522	0	0	0	590	0	0	0	0	0	0	345	0	1,457
Guinea	0	0	0	223	0	0	0	0	0	0	0	0	0	150	0	0	373
Guinea Bissau	0	0	0	159	0	0	0	0	0	0	0	0	0	0	0	0	159
Guyana	0	0	0	0	0	0	0	165	0	0	0	0	0	0	0	0	165
Honduras	450	0	0	436	0	0	0	360	0	0	0	0	0	332	0	0	1,578
Hungary	0	0	0	0	0	0	291	0	0	0	310	0	0	0	0	0	601
India	0	0	0	0	0	0	0	0	0	0	0	9,281	0	0	0	0	9,281
Indonesia	0	0	0	0	0	0	1,444	0	0	0	0	0	1,320	0	0	0	2,764
Iraq	0	0	0	0	0	0	0	0	756	0	0	0	0	0	0	0	756
Israel	0	0	0	0	0	0	0	0	0	0	483	0	0	0	0	0	483
Jamaica	0	0	0	0	0	0	0	376	0	0	0	0	0	0	0	0	376
Jordan	0	0	0	0	0	0	0	0	0	0	573	0	0	0	0	0	573
Kazakhstan	0	0	0	0	0	0	544	0	0	0	600	0	0	0	0	0	1,144
Kenya	0	0	0	0	657	0	0	0	0	0	781	0	0	0	0	0	1,438
Kosovo	0	0	0	0	0	0	270	0	0	0	202	0	0	0	0	0	472
Kyrgyz Republic	0	0	0	0	0	0	235	0	0	0	270	0	0	0	0	0	505
Lao PDR	0	0	0	0	0	0	360	0	0	379	0	0	0	368	0	0	1,107
Latvia	0	0	0	0	0	0	271	0	0	0	336	0	0	0	0	0	607
Lebanon	0	0	0	0	0	0	0	0	0	0	561	0	0	0	0	0	561
Lesotho	0	0	0	0	0	0	151	0	0	0	0	0	0	150	0	0	301
Liberia	0	0	0	0	0	0	150	0	0	0	0	0	0	0	151	0	301
Lithuania	0	0	0	0	0	0	276	0	0	0	270	0	0	0	0	0	546

Madagascar	0	0	0	0	0	0	445	0	0	0	532	0	0	0	0	0	977
Malawi	0	0	0	0	0	0	150	0	0	0	0	523	0	0	0	0	673
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	0	0	1,000
Mali	155	0	0	0	490	0	0	360	0	0	0	0	0	185	0	0	1,190
Mauritania	0	0	0	237	0	0	0	0	0	0	0	150	0	0	0	0	387
Mauritius	0	0	0	0	0	0	398	0	0	0	0	0	0	0	0	0	398
Mexico	0	0	0	1,480	0	0	0	1,480	0	0	0	0	0	0	0	0	2,960
Micronesia	0	0	0	0	0	0	68	0	0	0	0	0	0	0	0	0	68
Moldova	0	0	0	0	0	0	363	0	0	0	360	0	0	0	0	0	723
Mongolia	0	0	0	0	0	0	362	0	0	0	360	0	0	0	0	0	722
Montenegro	0	0	0	0	0	0	116	0	0	0	150	0	0	0	0	0	266
Morocco	0	0	0	0	0	0	0	0	0	0	407	0	0	0	0	0	407
Mozambique	0	0	0	0	479	0	0	0	0	0	0	0	0	0	0	0	479
Myanmar	0	0	0	0	0	0	0	0	0	0	0	632	0	607	0	0	1,239
Namibia	0	0	0	329	0	0	0	0	0	0	0	580	0	0	0	0	909
Nepal	0	0	0	0	0	0	368	0	0	0	482	0	0	0	0	0	850
Nicaragua	452	0	0	478	0	0	0	336	0	0	0	0	0	333	0	0	1,599
Niger	0	0	125	0	0	0	150	0	0	0	0	0	0	0	151	0	426
Nigeria	0	0	0	0	1,891	0	3,157	0	0	0	0	2,676	0	0	0	0	7,724
Pakistan	0	0	0	0	935	0	0	0	0	0	1,247	0	0	0	0	0	2,182
Panama	0	0	0	604	0	0	0	365	0	0	0	0	0	0	0	0	969
Papua New Guinea	0	0	0	0	0	0	0	0	0	0	0	0	65	0	0	0	65
Paraguay	0	0	0	613	0	0	0	361	0	0	0	0	0	0	364	0	1,338
Peru	0	0	0	632	0	0	0	1,000	0	0	0	0	0	0	1,003	0	2,635
Philippines	0	0	0	0	0	0	1,326	0	0	0	0	0	1,335	0	0	0	2,661
Poland	0	0	0	0	0	0	455	0	0	0	542	0	0	0	0	0	997
Romania	0	0	0	0	0	0	541	0	0	0	540	0	0	0	0	0	1,081

Russian Federation	0	0	0	0	0	0	1,004	0	0	4,220	0	0	0	0	0	0	5,224
Rwanda	0	0	0	212	0	0	0	0	241	0	0	0	0	0	0	0	453
Samoa	0	0	0	0	0	0	109	0	0	0	0	0	0	0	0	0	109
Senegal	0	0	0	0	506	0	0	0	0	0	0	601	0	0	0	0	1,107
Serbia	0	0	0	0	0	0	388	0	0	0	360	0	0	0	0	0	748
Sierra Leone	0	0	0	0	0	0	150	0	0	0	0	0	0	0	152	0	302
Slovak Republic	0	0	0	0	0	0	275	0	0	0	268	0	0	0	0	0	543
Slovenia	0	0	0	0	0	0	276	0	0	0	270	0	0	0	0	0	546
Solomon Islands	0	0	0	0	0	0	0	0	0	0	0	0	151	0	0	0	151
South Africa	603	0	0	0	937	0	0	0	0	0	0	0	0	0	0	0	1,540
South Sudan	0	0	0	0	0	0	0	0	0	0	0	738	0	0	0	0	738
Sri Lanka	0	0	0	0	0	0	0	0	610	0	0	0	0	0	0	0	610
St. Kitts and Nevis	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	150
St. Lucia	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	150
St. Vincent and the Grenadines	0	0	0	0	0	0	0	154	0	0	0	0	0	0	0	0	154
Sudan	0	0	0	0	0	0	0	0	0	0	0	662	0	0	0	0	662
Suriname	0	0	0	0	0	0	0	152	0	0	0	0	0	0	0	0	152
Sweden	0	0	0	0	0	0	0	0	0	0	0	600	0	0	0	0	600
Tajikistan	0	0	0	0	0	360	0	0	0	0	359	0	0	0	0	0	719
Tanzania	0	0	0	419	0	0	0	0	0	0	813	0	0	0	0	0	1,232
Thailand	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	0	1,000
Timor-Leste	0	0	0	0	0	0	150	0	0	0	0	0	126	0	0	0	276
Togo	0	0	0	0	0	0	155	0	0	0	0	0	0	150	0	0	305
Tonga	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	150

Trinidad and Tobago	0	0	0	0	0	0	0	370	0	0	0	0	0	0	0	0	370
Tunisia	0	0	0	0	0	0	0	0	0	0	592	0	0	0	0	0	592
Turkey	0	0	0	0	0	1,152	0	0	0	0	1,344	0	0	0	0	0	2,496
Uganda	0	0	0	563	0	0	0	0	0	0	762	0	0	0	0	0	1,325
Ukraine	0	0	0	0	0	851	0	0	0	0	1,002	0	0	0	0	0	1,853
Uruguay	0	0	0	621	0	0	0	607	0	0	0	0	0	0	347	0	1,575
Uzbekistan	0	0	0	0	0	366	0	0	0	0	390	0	0	0	0	0	756
Vanuatu	0	0	0	0	0	0	128	0	0	0	0	0	0	0	0	0	128
Venezuela	0	0	0	120	0	0	0	320	0	0	0	0	0	0	0	0	440
Viet Nam	0	0	1,150	0	0	0	1,053	0	0	0	0	0	996	0	0	0	3,199
West Bank and Gaza	0	0	0	0	0	0	0	0	0	0	434	0	0	0	0	0	434
Yemen	0	0	0	0	0	0	0	477	0	0	353	0	0	0	0	0	830
Zambia	0	0	0	0	484	0	0	0	0	0	720	0	0	0	0	0	1,204
Zimbabwe	0	0	0	0	0	0	0	0	599	0	0	0	0	600	0	0	1,199
Total	3,755	197	1,275	14,994	10,329	4,022	22,819	15,205	3,250	7,299	26,729	17,010	6,094	8,162	5,222	304	146,666

Appendix B: Missing observations

Variable	Missing	Total	Percent Missing
LIS1	19,127	76,263	25.08
LIS2	30,654	76,263	40.2
LIS3	13,981	76,263	18.33

Source: Authors' own calculations

Appendix C1: Income Group and Regions, All Sectors

	Income Group				
	LIC	LMIC	UMIC	HIC	Total
Region					
East Asia and the Pacific	1,278	6,156	3,187	0	10,621
Europe and Central Asia	435	2,509	7,438	2,290	12,672
Latin America & the Caribbean	452	5,559	11,166	1,762	18,939
Middle East and North Africa	372	4,709	623	222	5,926
South Asia	4,463	8,929	0	0	13,392
Sub-Saharan Africa	9,592	3,777	1,344	0	14,713
Total	16,592	31,639	23,758	4,274	76,263

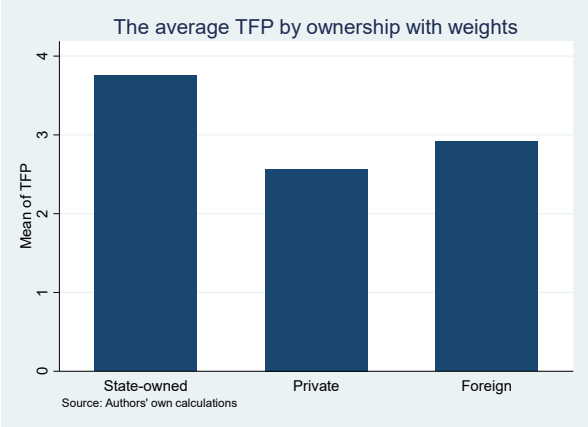
Source: Authors' own calculations

Appendix C2: Income Group and Regions, Manufacturing Sector

	Income Group				
	LIC	LMIC	UMIC	HIC	Total
Region					
East Asia and the Pacific	3,195	10,289	4,864	0	18,348
Europe and Central Asia	1,224	5,826	16,546	5,785	29,381
Latin America & the Caribbean	452	11,856	19,340	3,067	34,715
Middle East and North Africa	830	7,166	1,134	483	9,613
South Asia	6,564	11,641	0	0	18,205
Sub-Saharan Africa	20,079	13,292	3,033	0	36,404
Total	32,344	60,070	44,917	9,335	146,666

Source: Authors' own calculations

Appendix D: Total-Factor Productivity by Ownership



Appendix E: Correlation Table

VARIABLE	LIS1	Export	Import	TFP	KtL	Skill	Firm size	Foreign	State
Labor income share (LIS1)	1								
Export	-0.0274	1							
Import	-0.002	0.2315	1						
TFP	-0.2256	0.0116	0.013	1					
Capital intensity (KtL)	-0.071	-0.0202	0.009	-0.0426	1				
Skill	0.0363	-0.0139	-0.0811	-0.0247	-0.0507	1			
Firm size	-0.0577	0.3563	0.1726	0.043	0.0161	-0.1188	1		
Foreign private dummy	-0.0301	0.2312	0.1636	0.0286	0.0245	-0.0167	0.2079	1	
State-owned dummy	-0.0072	0.0054	-0.0073	0.0166	0.0106	0.0111	0.0607	-0.0268	1

Source: Authors' own calculations