Inequality and Market Power in Latin America and the Caribbean

Marcela Eslava
Universidad de los Andes

Alvaro García-Marín
Universidad de los Andes, Chile

Julián Messina
Universidad de Alicante

LSE International Inequalities Institute

IDB

NOVEMBER 2023

IFS Institute for Fiscal Studies

Yale *Economic Growth Center*

Marcela Eslava
Universidad de los Andes

Alvaro García-Marín
Universidad de los Andes, Chile

Julián Messina
Universidad de Alicante

≠ LACIR

LATIN AMERICA AND CARIBBEAN
INEQUALITY REVIEW

LSE International
Inequalities Institute

Inequality and Market Power in Latin America and the Caribbean[*]

Marcela Eslava
Universidad de los Andes

Alvaro García-Marín
Universidad de los Andes, Chile

Julián Messina
Universidad de Alicante

Abstract

Firms' market power may exacerbate income inequality. We investigate this relationship among firms in Latin America and the Caribbean (LAC), where this phenomenon remains understudied. We use firm-level data for formal firms in 16 countries in LAC and 31 peer economies with similar levels of GDP per capita but much less inequality. We study 1) The extent and dispersion of market power among LAC's firms compared to firms in peer economies; 2) the relationship between market power and the labor share of revenue at the firm level; and 3) the implications of that relationship for the aggregate labor share of income, which depends on the joint distribution (across firms) of market power, the labor share, and firms's ize. Markups (markdowns) measure product (labor) market power. Our results indicate that the average markup in the region is 20 percent above marginal costs, while average wages are 46 percent below the marginal revenue product of labor. The negative relationship at the firm level between the labor share and combined market power is driven by labor rather than product market power. Finally, we show that labor market power is more pronounced among larger firms, magnifying the effect of market power on the aggregate labor share and income distribution. However, there is no indication that market power is more acute or dispersed in LAC than in its peers, nor does it appear to induce more inequality than in those countries.

---

1 Introduction

Firms matter for earnings inequality (Card et al., 2018). Recent trends in wage inequality are well traced by differences in pay across firms. In developed economies, including the U.S. and Germany, labor earnings inequality increased in recent decades hand in hand with differences in pay across firms (Card et al., 2013; Song et al., 2019; Criscuolo et al., 2020). In Latin America, by contrast, earnings inequality sharply declined during 2002-2015 (Messina and Silva, 2018). Narrowing between-firm pay differentials in the formal sector was a fundamental driver of the observed trends (Alvarez et al., 2018; Messina and Silva, 2019).

A prominent reason why firms may matter for inequality is market power. Firms with power in product markets charge higher prices, depressing demand and employment. Firms' power in the labor market takes the form of reduced wages for given marginal revenue productivity of labor, thus further depressing the part of revenue that goes to workers. Moreover, dispersion in labor market power across firms implies wage dispersion not explained by productivity differentials. In sum, product and labor market power are fundamentally linked to inequality through their influence on the labor share in income and wage dispersion (Brooks et al., 2021; Autor et al., 2020).

Across developed countries, firms exhibit substantial market power in product and labor markets (De Loecker et al., 2019; Sokolova and Sorensen, 2021; Manning, 2021). The evidence is more scattered for Latin America, although a rapidly growing literature yields results for the formal labor market of specific countries that are surprisingly similar to those in the literature for advanced economies (Tortarolo and Zarate, 2020; Amodio and de Roux, 2021; Amodio et al., 2022; Casacuberta and Gandelman, 2023). We provide a broad picture of how the level and distribution of product and labor market power among formal firms in Latin America relate to the share of labor in revenue and to excess wage dispersion beyond what can be explained by productivity differentials. Understanding this relationship is particularly important for a region where inequality is high. Our main contribution is to provide basic stylized facts for a wide range of countries in the region and contrast them with economies with similar levels of development but lower levels of inequality.

Building on the work of Eslava et al. (2023), this paper provides an overview of the extent of product and labor market power across Latin American and Caribbean (LAC) countries

and its relationship to wages and the labor share of income. We provide stylized facts that address three questions: 1) The extent and dispersion of market power across firms; 2) the relationship between market power and the labor share of revenue at the firm level; and 3) the implications of that relationship for the aggregate labor share of income, which depends on the joint distribution (across firms) of market power and firms' size.

For comparison, we also examine other middle-income countries with similar GDP per capita, which we label as "peers". This comparative analysis is not only of intrinsic interest but also holds significance due to the considerably lower levels of inequality observed among the peer group of countries. The average Gini coefficient in the LAC countries of our sample is 46.4, compared to 39.4 among the peers. Thus, our analysis sheds light on the extent to which higher inequality in LAC is associated with the exacerbated exercise of market power by firms when compared to peer economies.

We capture a firm's product market power through its markup, i.e., the margin between the price it charges and its marginal cost. In turn, our measure of the firm's labor market power is its markdown: the (inverse of the) wedge between the wage received by its workers and those workers' contribution to the firm's revenue, measured by the marginal revenue product of labor. To compute firm-level measures of markups and markdowns in each country, we build on the recent work of De Loecker and Eeckhout (2018), Brooks et al. (2021) and Yeh et al. (2022). Once measures of market power are obtained, we explore the relationship at the firm level between market power and firms' labor shares out of revenue. Macroeconomic implications are derived by studying the associations between micro measures of labor shares, market power, and firms' size.

The main source of information for the analysis is the World Bank's Enterprise Survey conducted, depending on the country, in any year between 2010 and 2017. These firm-level surveys are representative of formal firms above five employees in manufacturing and services and are collected using a consistent methodology across countries and years. The wide coverage among developing countries renders this survey unique to benchmark Latin America and the Caribbean against other middle-income regions.

We find that product and labor markets in LAC are far from perfectly competitive. The average manufacturing firm charges a markup of 20 percent over the marginal cost and pays wages 46 percent below the marginal revenue product of labor. However, average markups

and markdowns in the region do not differ much from those observed in peer economies with significantly lower inequality. In fact, markups and markdowns in our peer country sample are higher than in Latin America: the average firm markup is 32 percent over the marginal production cost, and the average markdown is such that the marginal revenue product of labor exceeds the wage paid by the firm by 53 percent.

We find that the negative correlation at the firm level that arises by construction between our combined measures of market power and the labor share of revenue is primarily driven by labor market power, represented by markdowns, rather than product market power, characterized by markups. At the aggregate level, the influence of market power on functional inequality is exacerbated by larger firms extracting higher markdowns. While these two dimensions of market power are undoubtedly significant contributors to inequality in the region, they are not unique to Latin America. In fact, evidence from peer countries mirrors our findings in LAC, suggesting that market power among formal firms is not the sole culprit for the excessive levels of inequality observed in the region.

Organization of the paper. Section 2 outlines the production function approach methodology we apply to derive firm-level measures of markups and markdowns. Section 3 discusses the central features of the data. Section 4 analyzes the properties of the estimated markups and markdowns and studies the extent to which markups and markdowns correlate to firms' sizes and labor shares. Section 5 concludes.

2 Market Power in Product and Labor Markets

2.1 Deriving Firms' markups and markdowns

Firms operating in perfectly competitive markets can sell the products or services they produce but cannot influence the price at which those products are sold. They can hire as many workers as they need to produce those goods or services but cannot set their wages. Wages, instead, are determined by market dynamics through the interplay of supply and demand forces.

When product markets are imperfectly competitive, firms can influence prices and market outcomes. Firms exerting market power in product markets will distort competition, leading

to higher prices, reduced employment and output. We quantify this phenomenon using the concept of markups, which measure the gap between the price at which a product is sold and the cost the firm incurs to make one more unit of it; more formally, the ratio between the selling price of goods or services and the marginal cost of producing the last unit. Markups exceeding one indicate the presence of market power within product markets.

In labor markets, companies wielding market power keep wages at lower levels to maximize their profits. To gauge this, we use the concept of markdown, which reflects the relationship between the wage a company pays and the value a worker contributes to the company's productivity. More precisely, we measure a firm's markdown as the ratio between its marginal revenue product of labor and the wage paid to its workers. If the markdown exceeds one, it means that workers are generating more value for the company than they are receiving in labor compensation. Markdowns don't always have to be greater than one; they can also be less than one, indicating that the company is sharing some of the extra rents obtained in product markets with its employees.

The methodology for estimating markups and markdowns at the firm level follows the production approach proposed by Hall (1986) for markups, further refined by De Loecker and Warzynski (2012), and subsequently expanded to markdowns by numerous researchers (e.g., Yeh et al. (2022)). This approach allows us to calculate markups and markdowns without relying on complex market-level demand or supply data or strong assumptions about market structure. Instead, it relies solely on standard information about a firm's inputs and outputs, and the assumption that a firm tries to minimize the cost of producing its optimal quantity of product.

In this framework, firms choose the quantity they produce and the optimal mix of inputs, trying to minimize their costs. They have enough market power that the price at which they sell is not taken as given, but varies as a function of the quantity produced. They also influence the wages paid to their employees within the constraints of labor supply schedules. One key assumption is that in the market for at least one input of production, such as material inputs, the firm takes the price of that input as given, ensuring a degree of competitive forces within the production process.

The firm's cost minimization problem is the following:

$$\min_{\{X_i^k\}_{k=1}^K \in \mathbb{R}_+} \sum_{k=1}^K V_i^k(X_i^k) X_i^k \text{ s.t. } F(X_i^1, \ldots, X_i^K; \omega_i) \geq Q_i \tag{1}$$

where we allow the price of input k, V_i^k to potentially depend on the level of the input used by the firm, X_i^k. The production function $F(\cdot)$ is twice continuously differentiable. Assuming input k' is fully flexible, static, and not subject to monopsony forces, the first order condition with respect to input k' allows deriving De Loecker and Warzynski (2012) markups formula for firm i at time t:

$$\underbrace{\mu_i}_{\text{Markup}} \equiv \frac{P_i}{MC_i} = \underbrace{\left(\frac{\partial F(\cdot)}{\partial X_i^{k'}} \frac{X_i^{k'}}{Q_i}\right)}_{\text{Output Elasticity}} \cdot \underbrace{\left(\frac{V_i^{k'} X_i^{k'}}{P_i Q_i}\right)^{-1}}_{\text{Factor Share}} \tag{2}$$

The markup, μ_i, equals the ratio of the output elasticity of the flexible and perfectly competitive input with respect to the cost share of that input in total revenues. When the firm does not have market power in its product market this ratio equals one, implying that the contribution of each flexible factor of production to output equals its cost share in revenues.

In addition, the firm can have market power in other factors of production. We consider imperfect competition in labor markets. If labor is a flexible input not subject to adjustment costs, but firm i has the power to affect wages, then the first order condition for labor can be rearranged to derive the wage markdown for firm i at time t:

$$\underbrace{\nu_i}_{\text{Markdown}} \equiv \left[\frac{\partial w_i(l_i)}{\partial l_i} \frac{l_i}{w_i(l_i)} + 1\right] = \frac{1}{\mu_i}\left[\underbrace{\left(\frac{\partial F(\cdot)}{\partial l_i} \frac{l_i}{Q_i}\right)}_{\text{Output Elasticity}} \underbrace{\left(\frac{w_i(l_i)l_i}{P_i Q_i}\right)^{-1}}_{\text{Labor Share}}\right] \tag{3}$$

Equations (3) and (2) are very similar. In the absence of monopsony power in labor markets or any other frictions preventing labor from adjusting to their perfectly competitive levels instantaneously, the term in brackets on the right-hand side of eq. (3) equals the markup, and the markdown would be equal to one. However, because of labor market power, the price of labor is not given to the firm. Departures from the competitive price of labor introduce a wedge in labor markets between the output elasticity of employment and the factor share that leads

5

to markdowns different from one.

Note that labor market power, as captured by the markdown, is not independent from product market power. Indeed, equation (3) shows that for given output elasticity to labor and labor share, there is a negative direct relationship between markups and markdowns. This reflects that when markups are high for a given labor share of income, the firm is willing to accept less productive workers for a given wage.

A key advantage of the production function approach to markups and markdown estimation is that it only requires balance-sheet data. Total revenue and the costs incurred for variable production inputs such as labor and materials are readily available in typical firm-level datasets, as they are in our data. Input-output elasticities can be estimated using the same information. The next section describes in more detail the data, as well as the implementation of (2) and (3) to estimate markups and markdowns.

3 Data and Key Variables

We rely on the World Bank Enterprise Surveys (WBES) to derive measures of markups and markdowns. The WBES is a firm-level survey of a representative sample of an economy's formal private sector. The surveys cover a broad range of business environment topics and firm-level outcomes. Relevant to our analysis, it includes information on firms' revenues and a series of costs incurred to hire production inputs. The questions are standardized and formulated in a similar format across countries, guaranteeing comparability. Although the WBES has several limitations compared to other national firm-level datasets, the key advantage of the WBES for our analysis is the availability of (comparable) firm data representative of the entire formal segment of production for a wide range of developing economies. The coverage of these countries is limited and far from representative in other data sets that cover firms in a wide range of countries in a comparable fashion, such as Compustat.

The WBES has a sample design stratified by sector of economic activity, firm size, and geographical location. The sampling frame excludes firms with less than 5 employees and fully government-owned firms. Sampling sizes and sectoral coverage vary by country depending on the size of the economy, as measured by Gross National Income (GNI). In all countries, the sample is designed to be representative of manufacturing (Group D, ISIC Rev 3) and retail

trade (ISIC 52). In larger economies, as represented by their GNI, other sectors of particular relevance for the country are included.

The main variables we exploit in our analysis are sales, expenditures on materials, and labor costs. In the WBES database, the values for these variables are reported by firms for the last fiscal year. Sales consider the value of all produced goods or services purchased by third parties over the period. Material expenditures include the overall cost of raw materials and intermediate goods used in production. Finally, the payment to labor in the survey corresponds to overall employee compensation, including wages, salaries, and bonuses.

While the WBES is rich in covering a wide range of countries with a standard methodology, it has certain limitations that we deal with by performing data cleaning procedures. First, we drop data from firms reporting arbitrary or unreliable figures (5.8 percent of the sample) and only consider data coming directly from books or estimated with some precision by managers.[1] Second, we drop observations with missing values for sales (10.2 percent of the sample). Third, when labor cost or materials expenditure are missing in the data, we impute them as the predicted value from country-specific log-log regressions, using sales and 2-digit industry-year fixed effects as predictors.[2] Fourth, we drop observations with variable cost shares (the sum of the labor and material cost shares in total revenues) below the 2nd or above the 98th percentiles of the distribution across all countries and sectors. Finally, we truncate variable costs that exceed revenues (3.4% of the sample) while keeping unaltered the ratio between material and labor costs.

The main analysis considers information for the last surveyed year for LAC and peer countries. We define peers as countries with a real per capita income between USD\$3,000 and USD\$15,000 in 2019, as measured by the World Bank's World Development Indicators data. This income range roughly mimics the distribution of per capita income in our sample of LAC countries. Table A.1 presents the final set of countries included in the analysis. The final

---

[1]Interviewers are required to complete a brief questionnaire after the WBES interview. This questionnaire assesses whether managers' responses regarding quantitative information requested during the interview were checked with their books or obtained through appropriate inquiries to ensure the trustworthiness of their responses. We only consider firm-level observations where interviewers believed these necessary checks were conducted.

[2]This procedure is necessary primarily for imputing material expenditures. This procedure should not introduce significant bias to our estimates for two reasons. First, log sales and log materials expenditure show a tight relationship (with an R-squared above 99 percent in many cases). Second, materials expenditure enters into our markup and markdown estimates as a proportion of sales. Thus, if anything, the procedure should mostly affect the dispersion and not the level of our measures of market power.

sample encompasses data for a year between 2009 and 2022 for 16 Latin American and Caribbean nations and 31 Peer countries.[3] Once expansion factors are used, the total number of firms represented by the survey in these countries is 1,481,788, with 27 percent located in LAC. LAC comprises information for Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Trinidad and Tobago, and Uruguay. The set of peer countries considers data for emerging economies in Africa (6 countries), Asia (13 countries), and Europe (12 countries).

Markups and Markdowns. To estimate markups and markdowns using (2) and (3), we assume that intermediate material inputs are fully flexible and not subject to market power by the firm. We also assume that labor is subject to no other friction than labor market power. This last assumption is somewhat strong as contracts and firing costs may prevent firms from automatically adjusting labor to their optimal level. However, available evidence (see Yeh et al., 2022, for U.S. evidence) suggests that the resulting bias in the estimation of markups and markdowns is, most likely, of second-order.

The estimation of markups and markdowns requires values for the input elasticities and their corresponding expenditure share in firms' revenues. While we can compute the latter directly from the WBES data, input elasticities need to be estimated. For this, we specify a constant-returns-to-scale Cobb Douglas production function for each sector, using labor and materials as inputs (as well as other inputs, such as the capital stock) to produce output. We further assume that the same technology is available to all firms in the sector, independent of the country where the firm operates. These assumptions allow us to compute input elasticities for each sector as the average cost share across all firms in the WBES dataset. By averaging cost share across firms, we avoid the estimated input elasticities to reflect the choices of individual firms, which, in turn, are likely to be affected by market power. This choice limits the variability of input elasticities across firms, effectively shutting down one potentially important source of variability in markups and markdowns. In Eslava et al. (2023), we show that findings such as the ones we report in this paper for Latin America continue to hold when utilizing production function estimation techniques that allow for cross-firm variation in output elasticities to inputs.

---

[3]We exclude information for 2020 to avoid non-representative results due to the COVID-19 pandemic. Moreover, we only consider countries with at least 250 productive units with information for all relevant variables (e.g., sales, materials, and employment cost).

4 Results

4.1 Markups and Markdowns in Latin America

We begin by providing a basic characterization of firms' market power in Latin American and peer economies. We are interested in both the average level of markups and markdowns and their dispersion across firms within a country. The former is informative about the overall presence of market power in the country or region and the functional distribution of income. The dispersion of market power across firms within a country has implications for inter-personal inequality, as it provides more space for unequal earnings of workers across firms.

Table 1 displays average estimated markups and markdowns in manufacturing and all sectors for each LAC country in our sample and the average country in our LAC and peer samples. The findings are broadly consistent with significant market power in product and labor markets in LAC, with average levels of markups and markdowns considerably above one. However, the comparison with peer countries also indicates that market power in the region is not systematically higher. Indeed, market power appears less pronounced in LAC than in peer countries when considering the average estimated levels of markups and markdowns.

Focusing first on product market power, average markups in LAC are in the region of 1.2. There is a striking similarity between the manufacturing and service sectors, with an average estimated markup of 1.24 in manufacturing and 1.20 when considering all sectors. With the notable exception of Brazil, which stands out with a significant markup of 3.31 driven by services sectors, the range of estimated markups across countries remains limited, especially in manufacturing, where it varies from 1.77 in Brazil to as low as 0.83 in Jamaica.[4] Turning to power in the labor market, markdowns are notably larger than markups. The average markdown in LAC when sectors other than manufacturing are added is 1.85, ranging from 0.71 in Brazil to 2.4 in Peru.

Despite the fact that both average markups and markdowns are estimated to be significantly

---

[4]Estimating markups and markdowns below one for a significant fraction of firms is common in the literature that uses the production function approach, as discussed below in this section, together with possible reasons for this phenomenon. Average markups below 1, as observed in Jamaica and the manufacturing sectors of Trinidad and Tobago (0.89) and the Dominican Republic (0.92), however, suggest the presence of considerable measurement error. Nevertheless, it is reassuring that in these cases, the estimated markups are below but remain close to one.

Table 1. Average markups and markdowns by countries and regions

	Markups		Markdowns	
	All Sectors	Manufacturing	All Sectors	Manufacturing
Argentina	0.971	1.207	1.525	1.196
Bolivia	1.120	1.455	2.128	0.818
Brazil	3.309	1.764	0.712	1.185
Chile	1.128	1.250	1.718	1.732
Colombia	1.184	1.243	1.962	1.918
Costa Rica	1.765	1.083	1.017	1.312
Dominican Republic	0.920	0.999	1.876	1.758
Ecuador	0.964	1.611	2.305	1.425
El Salvador	0.985	1.202	2.013	1.368
Jamaica	0.710	0.831	2.172	1.581
Mexico	0.929	1.178	2.470	1.547
Nicaragua	1.137	1.109	1.891	1.234
Paraguay	1.248	1.306	1.479	1.360
Peru	1.103	1.067	2.423	2.312
Trinidad and Tobago	0.890	1.198	1.755	1.003
Uruguay	0.905	1.301	2.136	1.585
Unweighted average of country values				
Latin America	1.204	1.238	1.849	1.458
Peers	1.316	1.611	2.109	1.831

above one in the region, they are lower in LAC than in peer-group countries. This difference is especially pronounced in the manufacturing sector, of which the survey is representative in all sample countries. In this sector, the average markup is 1.23 in LAC compared to 1.61 in peer countries, while the average markdown is 1.46 in LAC vs. 1.83 in peers. Although smaller, the difference vs. peers continues to be important and negative when considering all sectors. Eslava et al. (2023) also report that markups in middle-income countries, including most of our LAC sample, are smaller than those in the high-income countries covered by the Enterprise Survey, at least for manufacturing.

There are also interesting regularities in the ranking of LAC countries in terms of their measures of market power. First, the ranking is similar if considering only manufacturing or all sectors. This is especially true for product market power (Figure 1, panel a), but the panel b of Figure 1 shows that the association across countries of markdowns in manufacturing and all sectors is also positive and statistically significant.

Figure 1. Manufacturing vs. All Sectors: markups and markdowns

(a) Markups
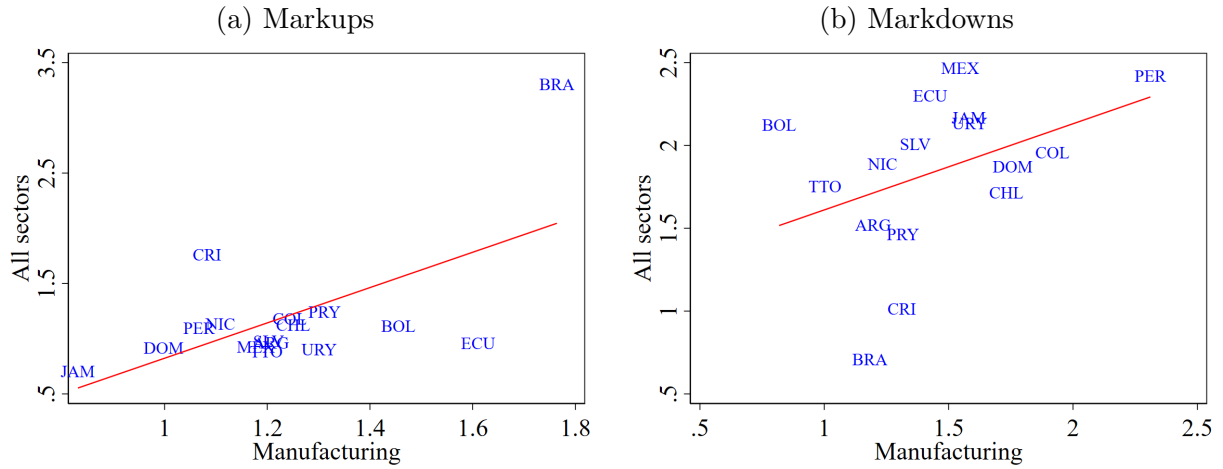
(b) Markdowns

Second, as shown in Figure 2, markups and markdowns exhibit a negative correlation across countries. That is, markups tend to be lower in countries with higher markdowns. This holds consistently when considering all sectors (panel a) and when focusing on country averages obtained from manufacturing firms only (panel b). While equation (3) highlights that the markup appears in the denominator in the computation of the markdown, the negative relationship observed is not merely mechanical. It reflects the interplay of changes in markups with variations in the output elasticity of labor and the share of labor in a firm's revenue.

Figure 2. The Relationship Between Markups and Markdowns: Country Averages

(a) All Sectors

(b) Manufacturing
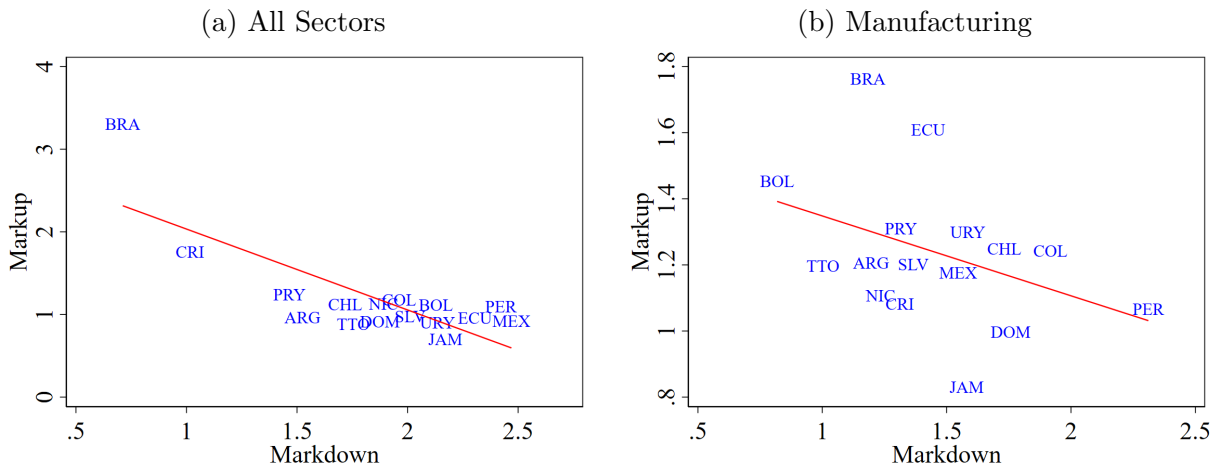
We now turn our attention from the average levels of markups and markdowns to their dispersion across firms within countries. Figure 3 displays the distribution across firms of

markups and markdowns in LAC and peer countries. While there is a sizable dispersion in both measures of market power, it is evident from the figure that the dispersion is particularly large in markdowns. In LAC, for instance, the standard deviation of markdowns (2.20) is almost 1.5 times larger than for markups (0.90). Such dispersed exercise of labor market power is consistent with large cross-firm wage dispersion not explained by gaps in worker productivity. Therefore, this dispersion serves as a source of inequality that cannot be accounted for by differences in productivity. At the same time, Figure 1 shows that markdowns are even more dispersed in peer economies (st.dev=2.57), as compared to LAC, while the dispersion of markups is similar in the two groups (0.9 in LAC and 0.87 in peers). In that sense, there is no broad indication that greater wage inequality in LAC arises from greater dispersion in market power.

Figure 3. Markup and Markdown Distributions
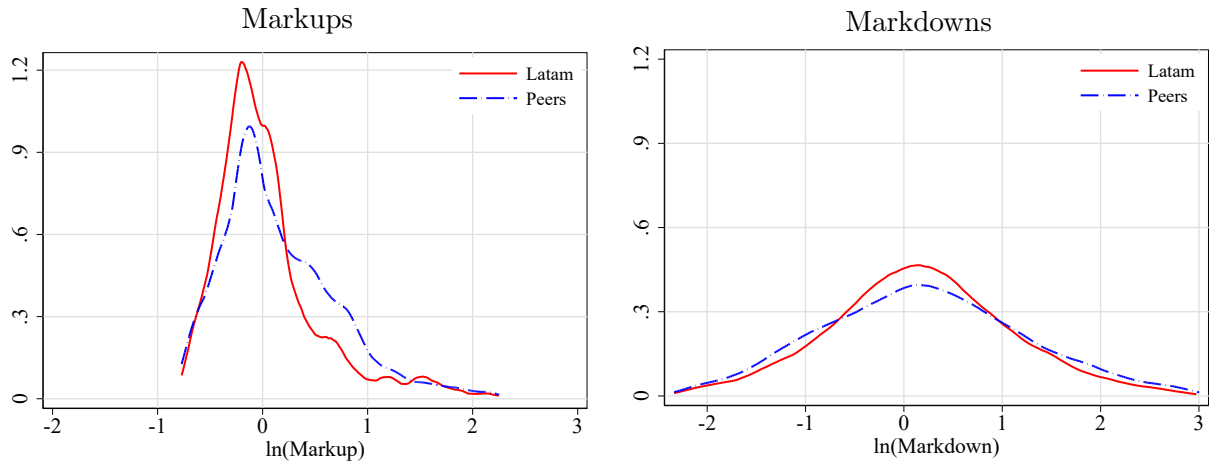
It is worth noting that a sizable fraction (43%) of LAC firms have markdowns below 1, some of them significantly. Taken at face value, this would indicate that a non-negligible part of the firms' spectrum pays wages above the marginal contribution of workers to their revenues. Markups below one are also not rare (63%), but they remain close to one in most cases. Markdowns below one are possible in models of efficient bargaining if workers hold sufficient bargaining power (Mertens, 2022). Markups could also be below one temporarily. Although these facts may explain the presence of below-one markups and markdowns, the substantial fraction of observations for which this occurs in studies that use the production function approach suggests that the estimates of markups and markdowns may be subject to considerable measurement error. If such error arises from reporting conventions or other factors

that are constant across firms, the average markup and markdown levels must then be taken with more caution than their dispersion.

## 4.2 Market Power and the Labor Share: Firm-level Evidence

One of the reasons why market power in the product and labor markets is important for inequality is that a firm's labor revenue share will be lower if its market power is higher. By construction, estimated markups and markdowns combined are closely related to the share of firms' revenues that go to pay workers. Equation (3) directly captures this relationship. Rewriting:

$$s_i = \frac{w_i(l_i)l_i}{P_iQ_i} = \frac{\alpha_i}{\nu_i\mu_i}, \tag{4}$$

where $\alpha_i = \frac{\partial F(\cdot)}{\partial l_i}\frac{l_i}{Q_i}$, and s_i is the labor revenue share in firm i. In plain English, holding constant the elasticity of product to labor, α_i, the share of labor in the firm's i revenue is inversely proportional to the product between the firm's i markup and markdown. The intuition is simple: a higher markup means that the firm is extracting more revenue for each dollar of marginal cost (considering all variable inputs in that cost), while a higher markdown means that specifically for labor, each worker is paid a wage lower keeping the marginal revenue generated constant. Both mechanisms contribute to a lower labor share in the firm's revenues.

When computing firms' markups and markdowns, we assume that all firms in a given sector use the same technology across countries (i.e., they share the same α_i) so that the variation in α_i is effectively very limited. Figure 4 shows that the relationship between the labor share and the combined markup-markdown, in fact, holds almost perfectly in our data, confirming that the effective variation in α_i is very limited. The Figure depicts (the logarithm of) the labor revenue share against the (logarithms of) the product between markups and markdowns across firms operating in LAC (panel a) and peer countries (panel b). All variables are demeaned with respect to the country-level mean. The bin scatter plots show these relationships across quantiles of the distribution of the logs of markups, markdowns, and the firms' labor revenue share. The coefficient of the regression line across points is almost a perfect one.

Figure 4. Micro-Level Labor Revenue Share and Market Power in LAC and Peer Countries

A. <u>LAC Countries</u>   B. <u>Peer Countries</u>
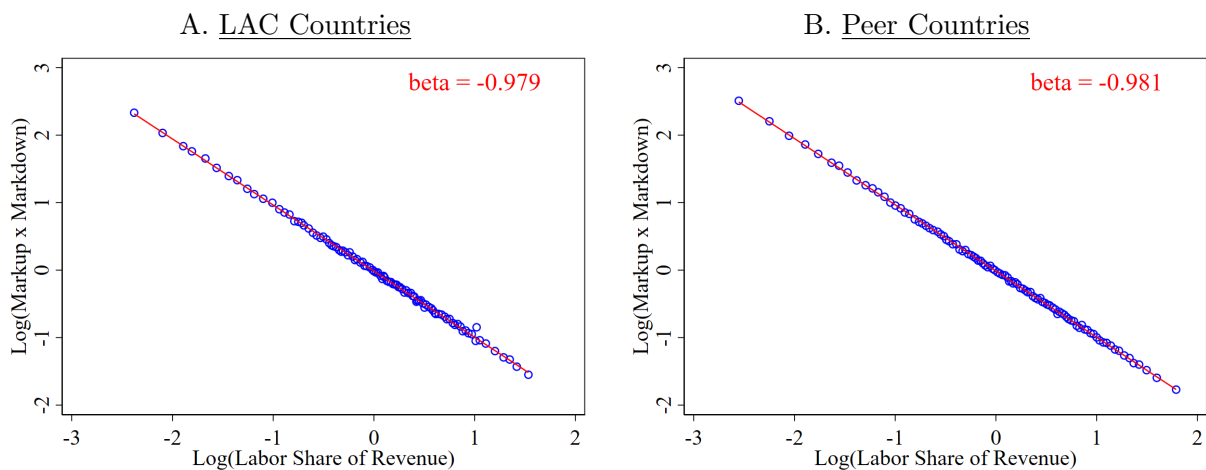
The question we tackle in this section is what roles product and labor market power play in this almost perfect negative relationship. To this end, Figure 5 reproduces Figure 4 separately for markups (left panels) and markdowns (right panels). As evident from inspection, markdowns dominate the close relationship with the labor share. Although higher markups reduce the labor share for a given markdown, reflecting the extraction of higher revenue per unit of marginal cost, this is empirically irrelevant.

Figure 5. Micro-Level Markups, Markdowns and Labor Revenue Share in LAC and Peers

A. LAC Countries
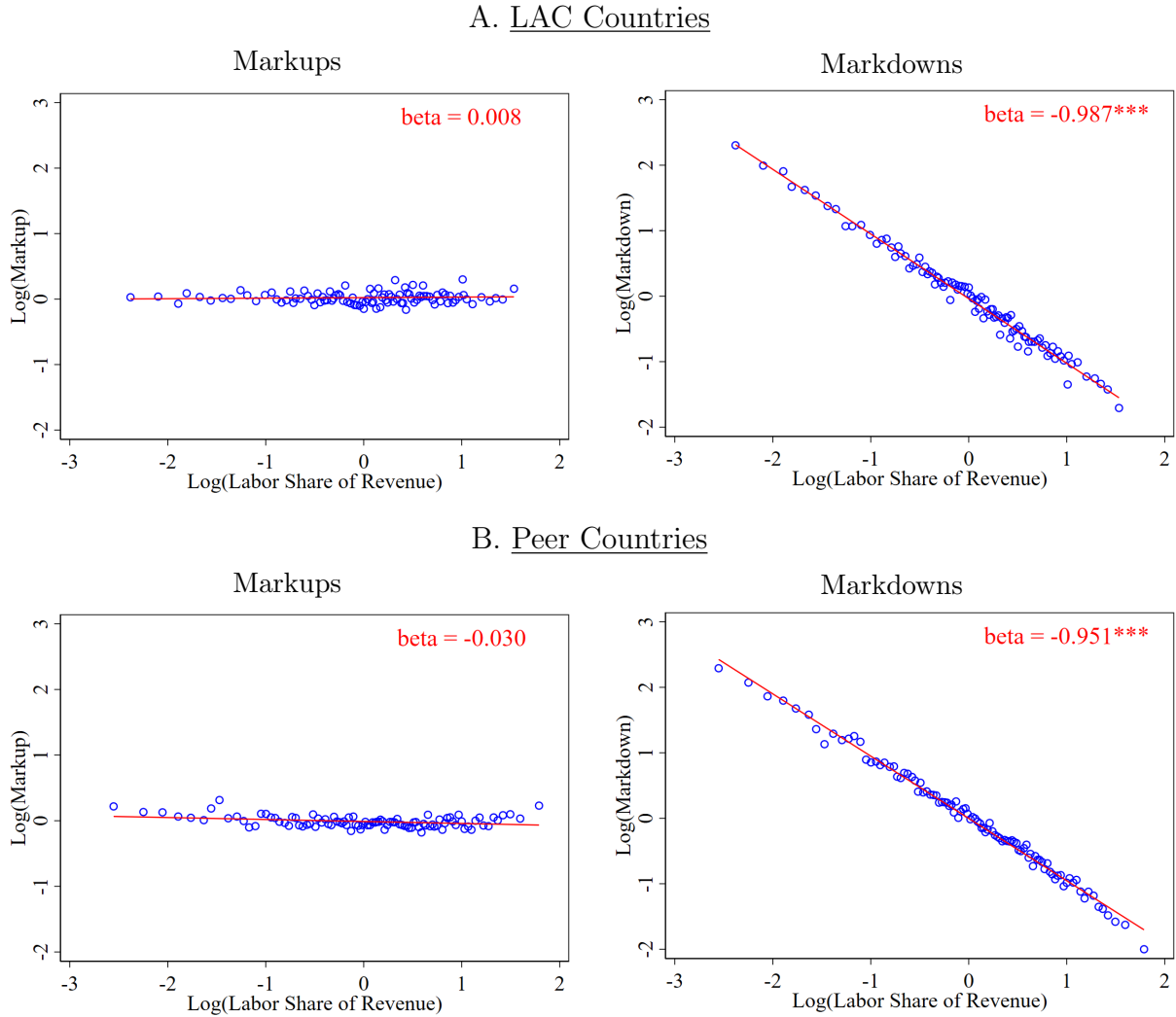
In particular, the labor share and markdowns exhibit a strong negative correlation at the firm level. In essence, firms that lower wages further below the marginal revenue product of labor tend to have a lower labor revenue share. The beta coefficient in this relationship for LAC is -0.99 and holds high statistical significance. This negative correlation holds not only within LAC but also among firms in the peer group of countries. The beta coefficient for the binned scatter plot in the peer group reflects a similar relationship (represented by a beta coefficient of -0.95). This cross-regional consistency suggests that the connection between the labor share and markdowns is a fundamental aspect of firm behavior and not a peculiarity of Latin America.

Conversely, when examining market power in product markets (as measured by markups), no significant correlation is observed with the labor revenue share. Again, this absence of asso-

ciation isn't unique to LAC. Firms in peer countries exhibit a very similar pattern. Essentially, firms with varying price markups over marginal costs seem to be extracting this higher margin from factors of production other than labor.

Summarizing the evidence presented so far, market power in LAC is substantial overall, exhibiting significant variation across firms, particularly in the labor market. The dispersion of markdowns across firms is closely associated with the dispersion of labor shares: firms with considerable power in the labor market tend to pay their workers a smaller proportion of their revenue compared to other firms. This level of market power within the formal firm sector contributes to income inequality in LAC, affecting wage differentials across firms not accounted for by differences in workers' productivity and the distribution of income between workers and firm owners. However, it's important to note that market power in LAC is not notably higher or more dispersed than in comparable regions, and the negative correlation between markdowns and labor shares at the firm level is similar in peer countries as in LAC. Consequently, the high levels of inequality in the region do not appear to be primarily explained by exacerbated market power effects, at least at the firm level. We now investigate if these conclusions change at the aggregate level (of the formal sector covered by our data).

4.3   From Micro to Macro: Market Power and Firms' Size

At the aggregate level, market power matters for inequality not only as a direct reflection of the firm-level dimensions that we have already explored. In particular, the influence of firms' market power on the aggregate labor share of revenue is exacerbated when the firms that hold more power also happen to be large. Intuitively, because large firms contribute more to the total revenue in the economy and have more weight in aggregate payments to workers, the aggregate labor share is low not only if the average labor share is low but also if the largest firms (in terms of revenue) are also those with the lowest labor shares. Since we know that market power, particularly labor market power, is inversely related to the labor share, this also means that markdowns will reduce the labor share more if the largest firms exhibit the highest markdowns. We will now further investigate to what extent large firms are also those that exhibit the greatest market power.

Figure 6 shows that the impact of market power is amplified at the aggregate level due to a

strong positive correlation between markdowns and firms' revenue shares. The figure presents several binned-scatter plots for LAC (left panels) and peer countries (right panels), consistently displaying the (log) firms' shares in aggregate revenue on the horizontal axis. As we move from top to bottom, the top panels illustrate the relationship with the firm's labor share, while the middle and bottom panels replicate the analysis for markups and markdowns, respectively.

The firms' labor share tends to be lower among those firms that possess a larger market share (i.e., a higher share of revenue in the total market revenue). This negative relationship is highly significant across LAC countries (-0.17) and even slightly more negative in the case of peer countries (-0.22). The primary driver of this negative association is markdowns. The positive association between markdowns and firms' revenue share is both positive and significant across LAC countries (0.13), and it is even stronger in the case of peer countries (0.20). Markups, on the other hand, exhibit a very weak but positive association with revenue shares, with beta coefficients of 0.02 for LAC countries and 0.01 for peer countries.

In summary, market dynamics significantly magnify the impact of firms' market power on the labor share. This is so because larger firms exercise more market power over their workers and pay them wages significantly below their contribution to firms' revenue. However, this multiplier effect alone does not account for the exceptionalism in inequality observed within the LAC region. Intriguingly, the relationship between firms' labor market power and size appears even more pronounced when examining peer countries.

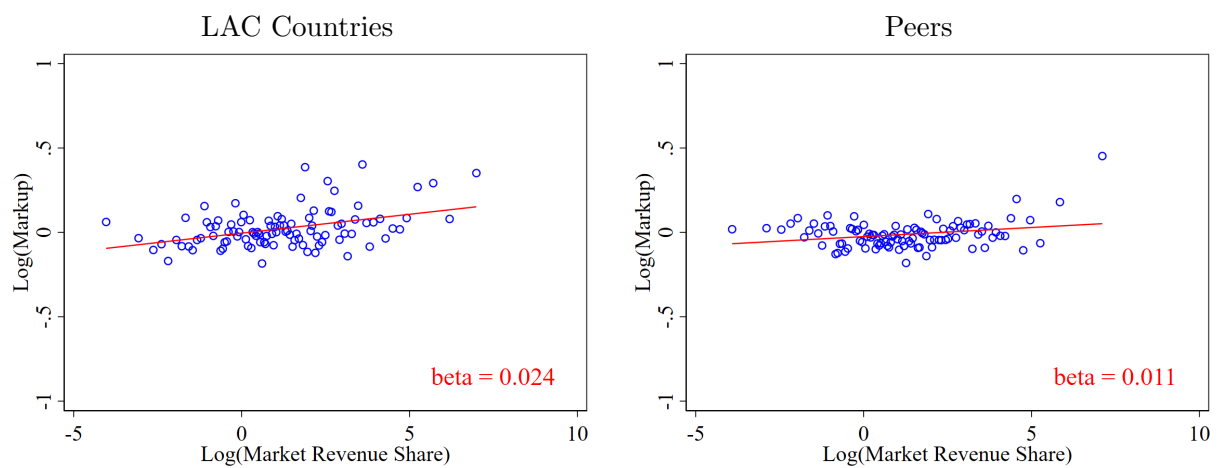# Figure 6. Micro-Level Markups, Markdowns and Market Revenue Share in LAC and Peers

A. <u>Labor Share of Revenue</u>
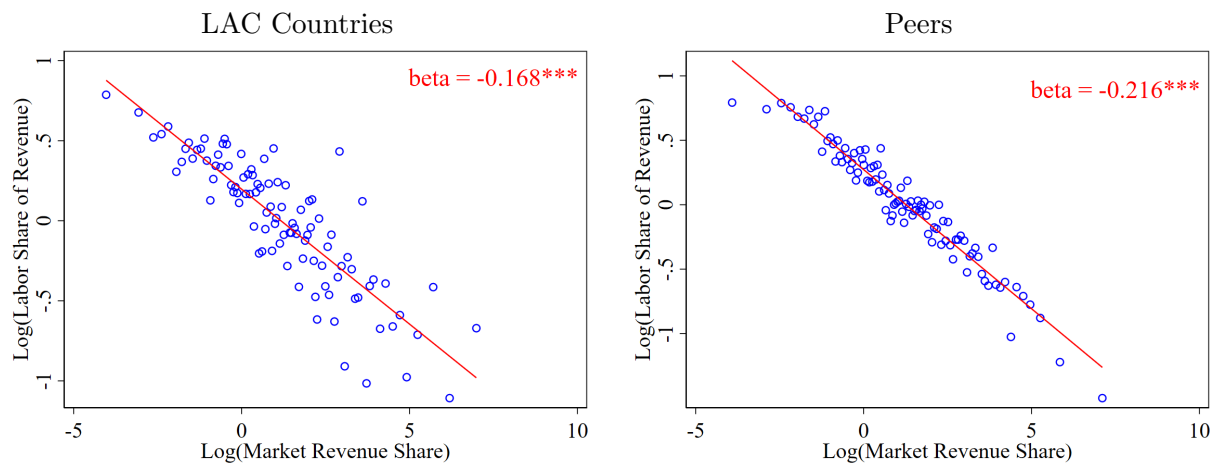
B. <u>Markdown</u>
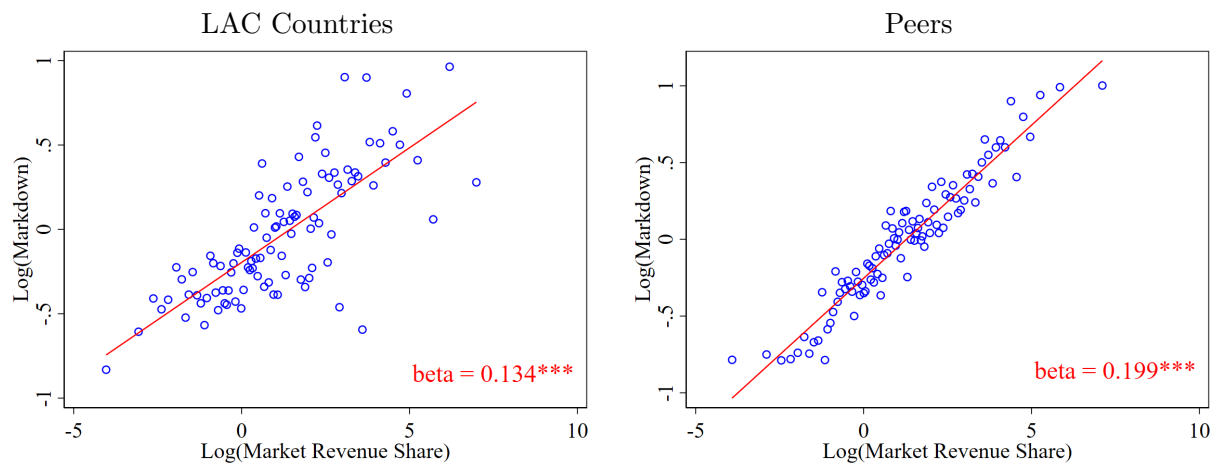
C. <u>Markup</u>

5 Conclusions

This study contributes to the understanding of market power in LAC shedding light on its potential implications for income distribution. Our findings underscore a negative association between market power among regional firms, as measured by markdowns and markups, and the labor share. This phenomenon is compounded by the fact that formal firms in the region are predominantly owned by the wealthiest families. Consequently, the increased profits and capital returns linked to market power serve to exacerbate existing economic inequality.

Furthermore, we find considerable variation in labor market power among firms operating within the economy. This variance contributes to inter-firm wage inequality beyond that explained by productivity differentials. This secondary mechanism through which market power intensifies inequality aligns with an extensive body of literature that links interpersonal inequality dynamics to the evolution of wage differentials between firms.

Our paper distinguishes between two distinct manifestations of market power: labor market power and product market power. Notably, it is labor market power—specifically, the ability of firms to set wages below the marginal contributions of workers to firm revenue—that predominantly drives our results. We observe a significant negative correlation between labor market power and the labor share at the firm level. Furthermore, we identify a multiplier effect through the interplay with the firm size distribution. Given that labor market power is more pronounced among firms with higher revenues, which exert greater influence on the aggregate labor share, the impacts of market power on income distribution are magnified.

Our research also contributes to benchmarking LAC by comparing regional market power with countries possessing similar GDP per capita but lower levels of inequality. The evidence gleaned from this analysis is enlightening. While market power undeniably plays a significant role in regional inequality, LAC does not distinctly stand out in any of the dimensions we've explored. Thus, the roots of Latin American and Caribbean inequality exceptionalism likely lie elsewhere.

References

Alvarez, Jorge, Felipe Benguria, Niklas Engbom, and Christian Moser, "Firms and the Decline in Earnings Inequality in Brazil," *American Economic Journal: Macroeconomics*, January 2018, *10* (1), 149–189.

Amodio, Francesco and Nicolás de Roux, "Labor Market Power in Developing Countries: Evidence from Colombian Plants," Documentos CEDE 019267, Universidad de los Andes. Facultad de Economía CEDE May 2021.

_ , **Pamela Medina, and Monica Morlacco**, "Labor Market Power, Self-Employment, and Development," IZA Discussion Papers 15477, Institute of Labor Economics (IZA) August 2022.

Autor, David, David Dorn, Lawrence F Katz, Christina Patterson, and John Van Reenen, "The Fall of the Labor Share and the Rise of Superstar Firms*," *The Quarterly Journal of Economics*, 02 2020, *135* (2), 645–709.

Brooks, Wyatt J., Joseph P. Kaboski, Yao Amber Li, and Wei Qian, "Exploitation of labor? Classical monopsony power and labor's share," *Journal of Development Economics*, 2021, *150*, 102627.

Card, David, Ana Rute Cardoso, Joerg Heining, and Patrick Kline, "Firms and Labor Market Inequality: Evidence and Some Theory," *Journal of Labor Economics*, 2018, *36* (S1), S13–S70.

_ , **Jörg Heining, and Patrick Kline**, "Workplace Heterogeneity and the Rise of West German Wage Inequality," *The Quarterly Journal of Economics*, 2013, *128* (3), 967–1015.

Casacuberta, Carlos and Néstor Gandelman, "Wage councils, product markups and wage markdowns: Evidence from Uruguay," *International Journal of Industrial Organization*, 2023, *87*, 102916.

Criscuolo, Chiara, Alexander Hijzen, Cyrille Schwellnus, Erling Barth, Wen-Hao Chen, Richard Fabling, Priscilla Fialho, Katarzyna Grabska-Romagosa, Ryo Kambayashi, Timo Leidecker, Oskar Nordström Skans, Capucine Riom, Duncan Roth, Balazs Stadler, Richard Upward, and Wouter Zwysen, "Workforce composition, productivity and pay," *OECD Economics Department Working Papers*, 2020, *1603*.

De Loecker, Jan and Frederic Warzynski, "Markups and Firm-Level Export Status," *American Economic Review*, 2012, *102* (6), 2437–71.

_ **and Jan Eeckhout**, "Global Market Power," CEPR Discussion Papers 13009, C.E.P.R. Discussion Papers June 2018.

_ , **Jan Eeckout, and Simon Mongey**, "Quantifying Market Power," Technical Report 2019.

Eslava, Marcela, Alvaro García-Marín, and Julián Messina, "Market Power, Development, and the Labor Share," *Unpublished Manuscript*, 2023.

Hall, Robert E., "Market Structure and Macroeconomic Fluctuations," *Brookings Papers on Economic Activity*, 1986, *17* (2), 285–338.

Manning, Alan, "Monopsony in Labor Markets: A Review," *ILR Review*, 2021, *74* (1), 3–26.

Mertens, Matthias, "Micro-mechanisms behind declining labor shares: Rising market power and changing modes of production," *International Journal of Industrial Organization*, 2022, *81*, 102808.

Messina, Julian and Joana Silva, *Wage Inequality in Latin America* number 28682. In 'World Bank Publications - Books.', The World Bank Group, November 2018.

_ **and** _ , "Twenty Years of Wage Inequality in Latin America," *The World Bank Economic Review*, 12 2019, *35* (1), 117–147.

Sokolova, Anna and Todd Sorensen, "Monopsony in Labor Markets: A Meta-Analysis," *ILR Review*, 2021, *74* (1), 27–55.

Song, Jae, David J Price, Fatih Guvenen, Nicholas Bloom, and Till von Wachter, "Firming Up Inequality," *The Quarterly Journal of Economics*, 2019, *134* (1), 1–50.

Tortarolo, Dario and Roman D. Zarate, "Imperfect competition in product and labour markets. A quantitative analysis," Discussion Papers 2020-05, Nottingham Interdisciplinary Centre for Economic and Political Research (NICEP) 2020.

Yeh, Chen, Claudia Macaluso, and Brad Hershbein, "Monopsony in the US Labor Market," *American Economic Review*, July 2022, *112* (7), 2099–2138.

A Appendix Tables

Table A.1. Observations per country

	Country	Period	Obs.		Country	Period	Obs.
Latin America		—	**404,444**	**Peers (cont'd)**		—	
1	Argentina	2017	39,706	24	Indonesia	2015	161,516
2	Bolivia	2017	4,534	25	Iraq	2022	2,264
3	Brazil	2009	223,701	26	Jordan	2019	3,697
4	Chile	2010	12,478	27	Kazakhstan	2019	40,500
5	Colombia	2017	10,194	28	Lebanon	2019	4,599
6	Costa Rica	2010	4,210	29	Malaysia	2019	47,957
7	Dominican Republic	2010	5,481	30	Mauritius	2009	3,520
8	Ecuador	2017	16,536	31	Moldova	2019	2,775
9	El Salvador	2016	9,104	32	Mongolia	2019	4,739
10	Jamaica	2010	2,220	33	Morocco	2019	11,103
11	Mexico	2010	52,704	34	Namibia	2014	2,401
12	Nicaragua	2016	5,538	35	North Macedonia	2019	4,600
13	Paraguay	2017	3,865	36	Philippines	2015	36,305
14	Peru	2017	5,389	37	Romania	2019	28,871
15	Trinidad and Tobago	2010	4,890	38	Russia	2019	290,739
16	Uruguay	2017	3,895	39	Serbia	2019	10,717
Peers		—	**1,077,344**	40	South Africa	2007	85,564
17	Albania	2019	6,226	41	Sri Lanka	2011	15,862
18	Belarus	2018	24,815	42	Thailand	2016	10,341
19	Bosnia and Herzegovina	2,019	5,336	43	Tunisia	2013	12,196
20	Bulgaria	2019	35,275	44	Turkiye	2019	114,404
21	Croatia	2,019	14,986	45	Uzbekistan	2019	18,305
22	Egypt, Arab Rep.	2016	71,901	46	Vietnam	2015	71,435
23	Georgia	2019	3,881	47	West Bank and Gaza	2019	7,295
					Total		**1,481,788**