Distributional structures and incomes by decile in four Latin American economies (2019-2022)

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Abstract

This study seeks to determine the factor and personal income distribution structures by decile between 2019 and 2022. It finds that during the covid-19 pandemic, the share of wages in GDP decreased in all economies except Mexico, where it increased. In analyzing the different components of value added by production sector, Chile, Colombia, Mexico and Peru show different behaviors that reflected various peculiarities beyond an apparent common history. Both the levels and the evolution of the distribution by decile are different among the economies and the years analyzed. The average income of the highest-income decile is similar to that of the world's wealthiest economies. In contrast, in the lowest decile, they coexist with citizens living at African levels.

Keywords: production structure; functional and personal income distribution; inequality indicators.

1. INTRODUCTION

Statistics is the science that proves that if my neighbor
ate a chicken and I went hungry, we each ate half a chicken.

José Ramón Busto S. J. (2019).

The issue of economic inequalities was introduced into economics by the first classical economists. However, neoclassical economics then relegated it and it has once again reappeared on the agenda of many economists and politicians, becoming a global concern and challenge. Likewise, the future that is envisioned due to the impact of new technologies such as Artificial Intelligence (AI), robotics, etc., increases concerns on the subject. The list of factors explaining these increasing disparities is long, multidimensional and multifactorial, with origins ranging from historical and ethnic factors to concentration of ownership, structure, and production processes, as well as diverse variables and economic, social and political dynamics (Alarco et al., 2019).

This paper investigates economic inequality from the perspective of the productive structure of four Latin American economies: Chile, Colombia, Mexico and Peru. The central hypothesis is that, although these economies share a common history, they also have many unique elements, not only due to the non-economic explanatory factors mentioned above, but also due to the different weight or importance of predominant technologies and production processes and the configuration of businesses in different economic activities. This paper will only provide details of the results of what

happened, without addressing the nature of these differences or those that could arise from implemented policies and reactions to the Covid-19 pandemic.

The specific objectives of the text are: first, to determine certain characteristics of the distributional structures at the level of the functional income distribution from three components: remuneration, mixed income and operating surplus (profits) by economic activity in 2019 and 2022, before and after the Covid-19 pandemic. Second, to present and analyze the structure of personal income distribution in 10 deciles, identifying changes between the two periods. Third, to show levels and distances between income by decile in the four analyzed economies, comparing them with other international benchmarks.

The text is composed of six sections, including the introduction. The second section presents the conceptual framework on the subject. The third section presents the methodology, protocols and sources of information to determine the functional and personal distributional structures for the analyzed years. The fourth section presents the results and the comparative analysis for the functional distribution across 11 economic activities and the personal distribution divided into 10 deciles, using various inequality indicators. The fifth section takes advantage of the distributional information to establish income levels by decile for the analyzed economies in 2019 and 2022, using constant USD$ at 2010 prices and purchasing power parity in constant 2011 USD$. The final section presents the conclusions.

The study does not assess whether distributional structures reflect high inequality; nor does it discuss their negative effects on economic growth, social cohesion or political governance. There is no sociological view in which society is divided into classes, groups or social strata. Only official information obtained from national accounts and national household surveys was used, without any adjustments or corrections. In the case of the latter, general problems of underestimating income in the middle and upper strata were omitted when extrapolating to the aggregate level. Thus, if the calculated inequalities are significant, they would be even more so if the capital income of the richest individuals was fully included. Finally, a single price index was used to obtain real income by decile, although each decile could have a differentiated structure and prices, among other considerations.

2. CONCEPTUAL FRAMEWORK

The analysis presented here follows on from a previous study by Alarco (2022), which sought to explain income distribution based on the issue of structural heterogeneity (SH) and its changes over time. However, unlike that study, here we carry out a comparative analysis of certain characteristics of productive structures, as well as the personal distribution of income and its changes in four economies of the region during the complex period of 2019 and 2022.

Chena (2016) recalls that SH is one of the main problems of Latin American underdevelopment, both for Latin American structuralism and for its neo-structuralist successors. The early recognition of this fact led that school of thought to study the relationship between income distribution and economic growth, from a different perspective than that used to understand the same phenomenon in the central economies. According to this author, structuralism highlights the fact that in Latin America, the power to appropriate social income primarily stems from minority control over the means of introducing technical progress from central countries.

The concept of SH emerged in the 1970s from Pinto (1970) to characterize the industrialization of Latin America during its transition from dual to heterogeneous; a concept that has been refined over time. Chena (2016) also notes that, in addition to the problem of SH, to explain inequalities, elements such as technological incompatibility with factor endowment, the presence of transnational companies, the nature of international insertion, the concentration of property, the effects of the sumptuary consumption of the proprietary classes and external restrictions are included. More recently, neo-structuralism has addressed the technological aspects of the phenomenon, highlighting the fact that it originates from

the limited ability to generate and distribute technical progress in the region through reduced productive chains due to inadequate productive specialization.

Furthermore, this document's analysis of personal income distribution follows traditional methodology and protocols. On this particular point, a recent study by Del Castillo (2023) analyzes how value generated from labor (intellectual and manual) and natural resources (which also contribute value) is created (GDP), allocated (national income), distributed (disposable income), used (spending and savings) and accumulated (wealth). Likewise, Amarante et al. (2023) note that the high levels of concentration of wealth and income continue to be a major problem in Latin America. They describe the main trends of inequality in the region from 1990 to the present day and propose several elements for the inequality reduction agenda.

One final issue to highlight is the disparity in income and inequality levels across the region. In a study conducted nearly 50 years ago, Figueroa (1976) noted that, in an analysis for the Andean region, that apart from income disparities between countries, inequalities in distribution within each country must also be considered. Figueroa noted that inequality in Brazil and Mexico fell within the average detected for the Andean nations, while Argentina's was much lower. He also noted that not all the inhabitants of these countries are poor. Those at the top of the income distribution pyramid have incomes similar to or even higher than the average in the more industrialized nations. This allows them to emulate the consumption and living patterns prevailing in these countries.

3. METHODOLOGY AND SOURCES OF INFORMATION

The following section analyzes the distributive structures of the four economies in terms of the functional and personal distribution of income across 10 deciles. For functional distribution, we examine the structure in terms of 11 economic activities that have been standardized,[1] divided into three components: remuneration, net operating surplus (profits) and mixed income.[2] This information is always presented in relative terms, expressed as a percentage of sectoral value added, as shown in equation (1).

$$\theta_{i,t} = \sum_{1}^{11} \frac{C_{i,j}}{VA_{j,t}} \qquad (1)$$

Where, $\theta_{i,t}$ is the participation or quota of the mass of remunerations, net operating surplus and mixed income of the entire economy in a particular year; while, $C_{i,j}$ is the mass of each one of the three aforementioned components of each economic activity relative to its sectoral value added ($VA_{j,t}$). The source of information for the functional distribution of income is each country's national accounts for 2019 and the most recent available data from 2022. In Chile, the data comes from the Central Bank of Chile (BCCh) for 2021. For Colombia, information from the National Administrative Department of Statistics (DANE) was used. For Mexico, the accounts of the National Institute of Statistics and Geography (INEGI) were consulted. For Peru, the information was extracted from the National Institute of Statistics and Informatics (INEI).

For the personal income distribution of the four economies, the results of the 2019 and 2022 household surveys were processed.[3] According to the Economic Commission for Latin America and the Caribbean (ECLAC) (2021), household budget surveys are crucial for understanding how people obtain and use their economic resources. These surveys also provide vital information for updating the consumer price index (CPI), constructing the institutional account of the household sector in national accounts statistics, determining the basic food basket and the poverty line threshold.

In Chile, the results of the Supplementary Income Survey, a complementary module of the National Employment Survey, were used. In Colombia, the Integrated Household Survey conducted by DANE was used to analyze income distribution. In Mexico, the INEGI database was used, specifically the National Household Income and Expenditure Survey (ENIGH). In Peru, the INEI's "Summary" microdata module was used to obtain the distribution of total household income. In all cases the microdata was processed in Stata.

It should be noted that national household surveys often face problems of representativeness because they do not accurately reflect the income reported in a country's GDP for a given year. Davies and Shorrocks (2000) point out that household surveys have coverage issues due to sampling or reporting errors, such as unskilled households, refusal to answer, under-reporting of capital income, among others. Additionally, Alarco and Castillo (2020) state that these surveys tend to omit high-income and upper middle-income sectors, as well as capital gains. The underestimation for the four analyzed economies fluctuates between 40 and 70%, reaching its maximum level in 2020 due to the Covid-19 pandemic.

For the analysis of personal income distribution, the information processed from 10 deciles was used. Various inequality indicators were considered. First, the Gini coefficient was considered using equation (2), in which the maximum value is 1 in situations of extreme inequality, while 0 represents perfect equality. Second, the quotient of the total income of the tenth highest income decile (D10) and the income of the lowest income decile (D1) expressed in equation (3) was considered. This is used to quantify the distance between the two groups.

$$G = 1 - \sum_{i=1}^{n}(X_{t-1} - X_t) * (Y_{t-1} + Y_t) \quad (2)$$

Where X_t denotes the cumulative proportion of income earners and Y_t represents the cumulative proportion of the population's income.

$$\text{Distance D10 in relation to D1} = (D10/D1) \quad (3)$$

Equation (4) shows the Palma index, which indicates the disparity between the income of the tenth decile (D10) and the set of lower income groups belonging to the first four deciles of income distribution (D1 to D4). Equation (5) presents the Theil index, which makes it possible to differentiate between inter-group or inter-decile inequality, defined as T1 in equation (6), and intra-group or intra-decile inequality, defined as T2 in equation (7). The result of formula (5) is the summand of both components according to equation (8).

$$P = \frac{D10}{D1+D2+D3+D4} \quad (4)$$

$$T = \sum_{i=1}^{n} x_i * \ln(x_i * n) \quad (5)$$

Where n is the number of individuals i receiving income and x_i denotes the individual shares of the total accumulated income. Additionally, the index can be broken down by groups of individuals, allowing us to express income inequality within groups (T_1) and between groups (T_2). In this context, v_j represents the share of group j in the total (in this case, the deciles), z_{ij} indicates the share of individual i within group j, and n_j corresponds to the number of individuals per group or decile.

$$T_1 = \sum_{j=1}^{n} v_j * \sum_{j=1}^{n}(z_{ij} * ln(z_{ij} * n_j)) \quad (6)$$

$$T_2 = \sum_{j=1}^{k} v_j * ln\,(v_j * n/n_j) \quad (7)$$

$$T = T_1 + T_2 \quad (8)$$

The fifth section of the paper estimates the average annual income per decile for the four economies and uses the following formulas. First, equation (9) determines the population per decile $P_{i,t}$ in decile *i* and year *t*. This equation calculates the proportion of the population allocated to decile *i* in year *t*. Here, PT_t represents the total population of the selected country in year *t* and variable $\alpha_{i,t}$ denotes the number of samples in decile i during the same year *t*, while β_t represents the total number of respondents in year *t*.

$$P_{i,t} = PT_t * \frac{\alpha_{i,t}}{\beta_t} \quad (9)$$

Equation (10) represents the per capita income per decile $I_{i,t}$ in decile *i* and year *t*. In the expression, GDP_t denotes the gross domestic product (GDP) at constant 2010 prices in USD$ and at 2011 purchasing power parity prices in USD$, both from the World Bank (WB) for the selected country in year *t* (2019 and 2022). The variable θ_{it} represents the share of total income by decile in selected economies for year *t*. In addition, $P_{i,t}$ is the proportion of the population assigned to decile *i* in year *t*.

$$I_{i,t} = PIB_t * \frac{\theta_{i,t}}{P_{i,t}} \quad (10)$$

4. DISTRIBUTIONAL STRUCTURES WITH OFFICIAL INFORMATION

This section presents the results of the distributional structures at the functional income distribution level (between remuneration, operating surplus—profit– and mixed income) by economic activities for the four selected economies for 2019 and 2022. As previously mentioned, changes in the share of remuneration in total gross value added (VA)[4] depend mainly on what happens within each sector and its share in total value added. Similarly, personal income distribution in 10 deciles is presented for the same years to evaluate changes between 2019 and 2022.

Table 1 shows the share of remuneration with respect to value added (VA) and the share of VA of economic activity with respect to the total VA of the economy. Surprises arise when comparing the burden of remuneration in each sector and in the sectoral shares in each analyzed economy. For instance, the share of compensation in the sectoral VA of public administration and defense is logically the highest among all sectors. However, this activity varies between 3.6% and 15% of total VA. Meanwhile, both the quotas for each of the three income components as well as the share of GDP differ among the four economies. In Chile, the highest wage quotas are found in financial services, commerce-restaurants and hotels, other services, construction and business services. In contrast, the lowest quotas are found in electricity and water, followed by mining.

Table 1. Share of wages in sectoral VA (%) 2019 and 2022

	*Chile**	*Colombia*	*Mexico*	*Peru*
Agriculture, livestock, hunting, forestry and fishing				
2019	25.87	24.00	17.74	15.21
2022	26.99	13.80	21.58	12.27
Participation (%VAB 2022)	3.92	9.87	4.10	7.79
Mining				
2019	18.59	17.30	7.23	24.40
2022	10.06	9.84	7.71	14.79
Participation (%VAB 2022)	15.78	8.03	3.80	13.64
Manufacturing				
2019	37.85	32.42	22.06	27.84
2022	36.77	28.27	26.64	25.33
Participation (%VAB 2022)	9.54	12.51	22.57	13.57
Electricity, gas, water and waste management				
2019	16.96	15.19	16.78	15.66
2022	21.36	12.46	14.33	16.47
Participation (%VAB 2022)	2.79	4.16	2.15	2.55
Construction				
2019	47.86	26.41	27.09	40.81
2022	49.15	34.28	24.46	33.46
Participation (%VAB 2022)	6.45	4.38	6.44	8.38
Commerce, restaurants and hotels				
2019	59.57	39.81	14.42	29.70
2022	51.95	37.17	22.74	27.35
Participation (%VAB 2022)	12.66	15.38	23.01	16.09
Transportation and communications				
2019	39.28	29.89	23.18	22.17
2022	40.09	33.21	26.04	24.76
Participation (%VAB 2022)	8.31	7.86	9.07	7.30

	*Chile**	*Colombia*	*Mexico*	*Peru*
Financial Services				
2019	65.40	39.63	22.89	30.79
2022	67.36	42.18	23.12	31.13
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Participation (%VAB 2022)	3.91	4.31	4.15	4.73
Business Services				
2019	44.07	79.09	57.16	38.29
2022	44.55	81.09	38.91	40.29
Participation (%VAB 2022)	9.75	3.85	1.61	4.72
Other services				
2019	49.43	17.90	35.06	48.84
2022	48.11	16.62	36.02	47.75
Participation (%VAB 2022)	21.82	14.71	19.55	15.92
Public administration and defense				
2019	81.81	76.79	97.47	83.44
2022	81.41	75.32	97.49	84.43
Participation (%VAB 2022)	5.08	14.92	3.55	5.31
Share of remuneration in GDP (%)				
2019	40.84	38.21	26.56	31.62
2022	36.98	30.84	27.37	29.59

Note: * Chile's information for 2022 corresponds to the year 2021.

Sources: prepared by the author based on the national accounts of BCCh, DANE, INEGI and INEI.

In Colombia, the highest wage quotas are in business services, followed by commerce-restaurants and hotels, financial services and manufacturing. The lowest quotas are again in electricity and water, mining and other services. In Mexico, the highest shares are observed in business services, other services, construction and transportation. Once again the lowest shares are in mining and electricity. It is also worth noting that Mexico's sectoral compensation quotas are generally lower than those of other analyzed economies. Finally, in Peru, the highest remuneration quotas are observed in other services, business services, construction and financial services, while the lowest levels are in agriculture, fishing and electricity.

Evaluating distributional outcomes based on sectoral information is complex because it varies from economy to economy over time. Based on the information by economic activities, we explain the national results for the wage quota relative to GDP. These decreased between 2019 and 2022 in Chile, Colombia and Peru, and increased in Mexico (see last rows of Table 1). Wage quotas rise in the transportation and financial services sectors in all economies and in business services, except Mexico. The wage quota for public administration increased, except in Chile and Colombia. The wage quota for the construction sector increased, except in Mexico and Peru. The wage quota for the agriculture and fishing sector increased, except for Colombia and Peru. Conversely, the wage quota decreased in all economies except for Mexico in mining, commerce, manufacturing and other services, which would also account for Mexico's higher wage quota between 2019 and 2022.

Tables 2 and 3 show the quota of mixed income and operating surplus in relation to sectoral VA. Note that mixed income refers to income simultaneously involving direct labor and capital income. Table 2 shows differentiated levels and dynamics in the different productive sectors. The agriculture-fisheries sector has the highest levels of the mixed income

quota, which rise between 2019 and 2022. In Peru, the mixed income quota relative to GDP tends to be higher than in Colombia, particularly in sectors where micro and small business owners predominate, such as agriculture-fishing, manufacturing, commerce-restaurants-hotels, transportation and business services.

Table 2. Share of mixed income in sectoral VA (%) 2019 and 2022

	Colombia	*Peru*
Agriculture, livestock, hunting, forestry and fishing		
2019	60.29	74.11
2022	70.13	76.97
Mining		
2019	10.95	2.77
2022	9.42	0.34
Manufacturing		
2019	11.63	16.21
2022	13.29	16.74
Electricity, gas, water and waste management		
2019	2.09	1.40
2022	2.93	1.37
Construction		
2019	38.60	18.59
2022	39.98	15.85
Commerce, restaurants and hotels		
2019	35.51	45.60
2022	41.78	41.76
Transportation and communications		
2019	22.94	39.91
2022	22.61	34.13
Financial Services		
2019	1.74	0.35
2022	2.42	0.35
Business Services		
2019	5.71	24.51
2022	4.51	23.56
Other services		
2019	26.42	13.25
2022	24.22	11.59
Public administration and defense		
2019	3.78	-
2022	4.83	-
Mixed income as a percentage of GDP (%)		
2019	19.18	22.16
2022	21.56	20.06

Source: prepared by the author based on the national accounts of BCCh, DANE, INEGI and INEI.

Table 3. Share of operating surplus in sectoral VA (%) 2019 and 2022

	Chile, ***	*Colombia*	*Mexico***	*Peru*
Agriculture, livestock, hunting, forestry and fishing				
2019	72.99	14.64	83.93	10.59
2022	71.95	14.93	78.42	10.67
Mining				
2019	80.47	70.36	92.50	72.19
2022	89.46	79.09	91.93	84.35
Manufacturing				
2019	60.55	52.63	77.07	54.77
2022	61.75	55.22	72.34	56.84
Electricity, gas, water and waste management				
2019	79.01	80.05	82.68	79.20
2022	74.63	82.38	85.16	78.42
Construction				
2019	50.92	32.67	72.32	40.34
2022	49.63	23.48	74.87	50.43
Commerce, restaurants and hotels				
2019	38.45	20.20	85.11	24.29
2022	46.45	16.48	76.70	30.50
Transportation and communications				
2019	64.21	44.49	76.82	35.53
2022	61.51	41.80	73.90	37.98
Financial Services				
2019	30.25	55.59	74.87	68.27
2022	27.90	52.89	74.80	67.93
Business Services				
2019	55.08	13.25	42.41	36.50
2022	54.75	12.97	60.33	35.40
Other services				
2019	47.21	50.86	64.58	37.54
2022	48.41	54.39	63.56	40.30
Public administration and defense				
2019	17.96	17.12	0.50	16.52
2022	18.35	17.75	0.49	15.50
Share of operating surplus in GDP (%)				
2019	47.80	34.15	68.53	37.20
2022	51.03	34.56	67.16	42.29

Notes: *the information for Chile for 2022 corresponds to the year 2021; **the operating surplus in Chile and Mexico includes mixed income

includes mixed income.

Source: prepared by the author based on the national accounts of BCCh, DANE, INEGI and INEI.

Meanwhile in Colombia, the mixed income quota is higher in mining, construction and other services. Between 2019 and 2022, the mixed income quota increased not only in the agriculture-fishing sector, but also in manufacturing.. However, there were reductions in transportation-communications, business services and other services. In the case of commerce, the mixed income quota increased in Colombia and decreased in Peru. Overall, the mixed income quota relative to GDP increased in Colombia between 2019 and 2022, while it decreased in Peru.

Table 3 shows the changes in operating surplus where only Colombia and Peru could be compared and, in contrast, Chile and Mexico, which include mixed income in the operating surplus. In this respect, the operating surplus quota plus mixed income relative to Mexican sectoral VA is higher than in Chile in all sectors, except public administration. Notably, the operating surplus quota plus mixed income relative to GDP increased in Chile between 2019 and 2022, primarily due to growth of quotas relative to the sectoral VA of mining, manufacturing, other services and public administration. However, it fell overall in Mexico between 2019 and 2022, except in the electricity and construction sectors.

Meanwhile, the profit quota relative to sectoral VA is higher in Peru in the mining, manufacturing, construction, commerce, financial services and business service sectors. It is also higher in Colombia in agriculture-fishing, electricity, transportation, other services and public administration. Regarding the comparison between Colombia and Peru, the profit quota relative to GDP is higher in Peru than in Colombia, though it rises in both countries between 2019 and 2022.

Tables 4 and 5 present personal income distribution by decile for the base year of 2019 and various income inequality indicators for 2019 and 2022. In these cases, the information is national since there is no data by decile at the sectoral level. Table 4 first shows that the lowest income D1 accounts for only 0.9% to 1.4% of total income. Mexico has the highest share, followed by Peru, Chile and Colombia. For an intermediate decile such as D5, the total income share is between 4.7 and 6.1%, with Mexico having the largest share, followed by Peru, Chile and Colombia. On the other hand, in the highest income decile, income shares fluctuate between 37.1% and 48.9% of income, with Colombia and Chile having the highest shares and Mexico and Peru having the lowest.

Table 4. Share of total income by decile 2019 (% of total)

Decile	*Chile**	*Colombia*	*Mexico***	*Peru*
1	0.92	0.87	1.33	1.01
2	1.65	2.19	2.63	1.84
3	2.26	3.23	3.72	2.79
4	3.71	4.28	4.78	3.93
5	5.04	4.68	6.02	5.36
6	7.09	5.38	7.45	7.23
7	7.74	7.25	9.12	9.59
8	10.84	9.42	11.69	12.80
9	15.27	13.77	15.85	18.32
10	45.48	48.93	37.40	37.13

Notes: *Chile's Supplementary Income Survey only covers salaried income and mixed income in 2021 and 2022; **Mexico's Income and Expenditure Survey for 2019 corresponds to 2018.

Source: prepared by the author based on the INE, DANE, INEGI and INEI household surveys

Table 5. Total income inequality indicators 2019 and 2022

	Gini	*Decile 10/ Decile 1*	*Palma*	*Theil*		
				Total	*T1*	*T2*
Chile						
2019	0.55	49.49	5.32	0.50	0.08	0.42
2022	0.52	53.22	3.86	0.28	0.04	0.24
Colombia						
2019	0.55	56.03	4.62	0.74	0.25	0.49
2022	0.54	47.55	4.58	0.67	0.21	0.46
Mexico						
2019	0.47	28.02	3.00	0.39	0.07	0.32
2022	0.49	35.58	3.86	0.36	0.07	0.29
Peru						
2019	0.51	36.74	3.88	0.36	0.03	0.33
2022	0.46	26.20	2.76	0.37	0.03	0.34

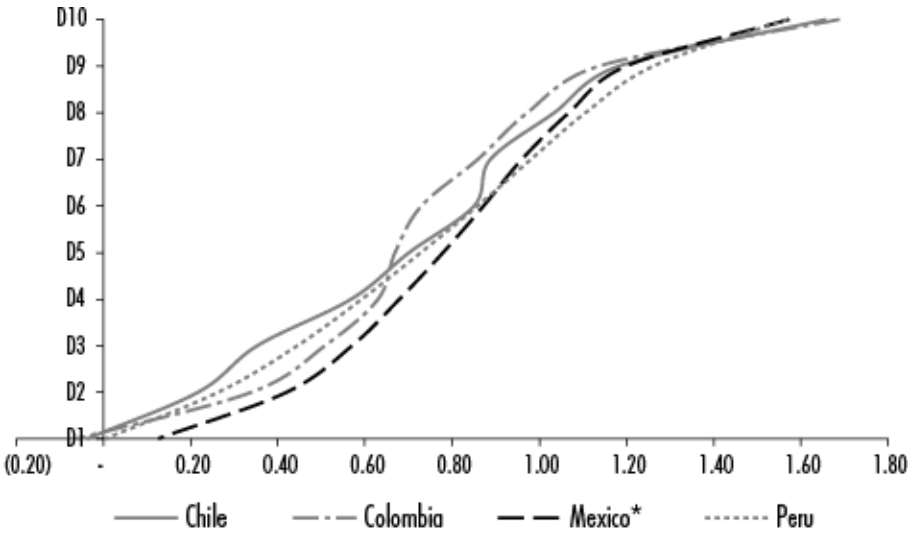
Source: prepared by the author based on the INE, DANE, INEGI and INEI household surveys.

The information in Table 5 regarding the different income inequality indicators is not entirely conclusive because the results and conclusions vary depending on the indicator. According to microdata from household surveys, Mexico

increased its levels of inequality between 2019 and 2022 according to the Gini coefficient, the D10/D1 ratio and the Palma index. However, inequality decreased when using the Theil index. Similarly, Chile's income inequality levels would have increased according to the D10/D1 ratio. Likewise, according to Theil, Peru would have marginally increased its intergroup and total inequality. Only Colombia would have reduced its inequality levels based on all the presented indicators between 2019 and 2022.

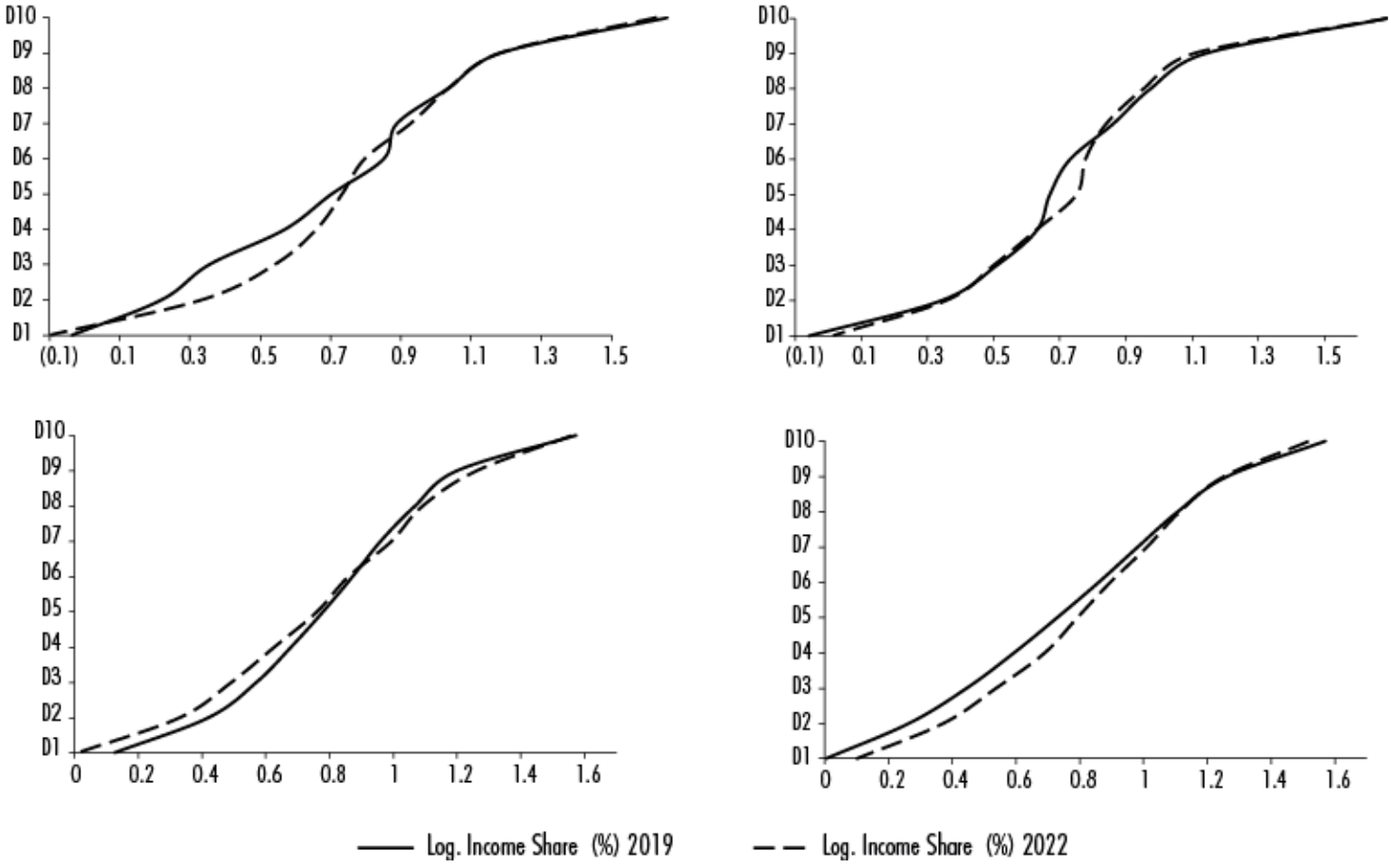
Figures 1 and 2 are useful for comparing both the income share structures by decile of the four analyzed economies in the base year 2019, as well as the respective variations of the same shares for each economy between 2019 and 2022. As mentioned regarding the functional distribution of income, a common history and many specific explanatory elements coexist (Alarco, 2017). Likewise, before addressing the analysis of these results, it should be noted that we have chosen to present the income shares by decile converted to logarithms in both figures as this is a better way to visualize the differences between the different economies and years.

Figure 1. Share of total income by decile 2019 (in Log)



*Note: *Mexico Income and Expenditure Survey for 2019 corresponds to 2018.*
Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

Figure 2. Total income share by decile 2019 and 2022



Source: prepared by the author based on the INE, DANE, INEGI and INEI household surveys.

Figure 1 shows the main variations in the distributional patterns for each economy in 2019. The Mexican economy generally shows the highest income shares for the lowest income deciles from D1 to D4. In contrast, Chile shows the lowest income shares between deciles D1 and D4 and is negatively outperformed by Colombia between deciles D5 and D9. Peru's first deciles D1 to D4 are closer to Chile´s with lower income shares, while its income shares from decile D6 to D9 are the best of all the countries analyzed. As mentioned previously, Colombia has the highest income share in decile D10, followed by Chile, Mexico and Peru.

Figure 2 shows the changes in the distributional patterns of the four economies between 2019 and 2022. Based on official information, the impacts of the Covid-19 pandemic, the policies implemented in each country and the international environment stand out during this period. An increase in Chile's income share from D2 to D6 is observed. In the case of Colombia, there is a marginal improvement in D1 and D2, as well as in the middle deciles D5 and D6. Mexico shows improvement in the middle and upper-middle sectors from deciles D6 to D9. Peru shows an improvement in participation from D1 to D7 with a slight loss in the high-income deciles from D8 to D10.

5. INCOME LEVELS AND EVOLUTION BY DECILE 2019-2022

This section illustrates the evolution of average income by decile from 2019 to 2022. To accomplish this, we use the survey-derived structures of the four selected economies –with no adjustment whatsoever— and the GDP of each economy. This information allows us to evaluate what happened before and after the Covid-19 pandemic and to compare the annual income by decile of the selected economies with the averages of other countries outside the region.

Table 6 shows the estimated averages for a cross-sectional comparison from 2019 to 2022. The lowest incomes associated with D1 in 2019 are observed in Colombia, followed by Peru, Chile and Mexico which have the highest incomes but barely exceed USD$112 per month. Using official information to 2022, we find that only Colombia and Peru experienced income increases, while Chile and Mexico experienced decreases. Meanwhile, at the intermediate D5 level, Chile, Mexico, Peru and Colombia had the highest incomes in 2019. By 2022 all, except Mexico, had higher per capita incomes. In the middle-high income deciles from D7 to D9, an increase in income is observed in all economies, including Mexico. Chile outperforms Mexico, Colombia and Peru by a wide margin in terms of the income of the richest decile, D10. According to official information, the ratio of D10 to D1, an indicator of inequality was 56.8 in Chile, 47.5 in Colombia, 35.6 in Mexico and 26.2 in Peru in 2022.

Table 6. Evolution of total per capita income by decile 2019 and 2022 (USD$, 2010=100)

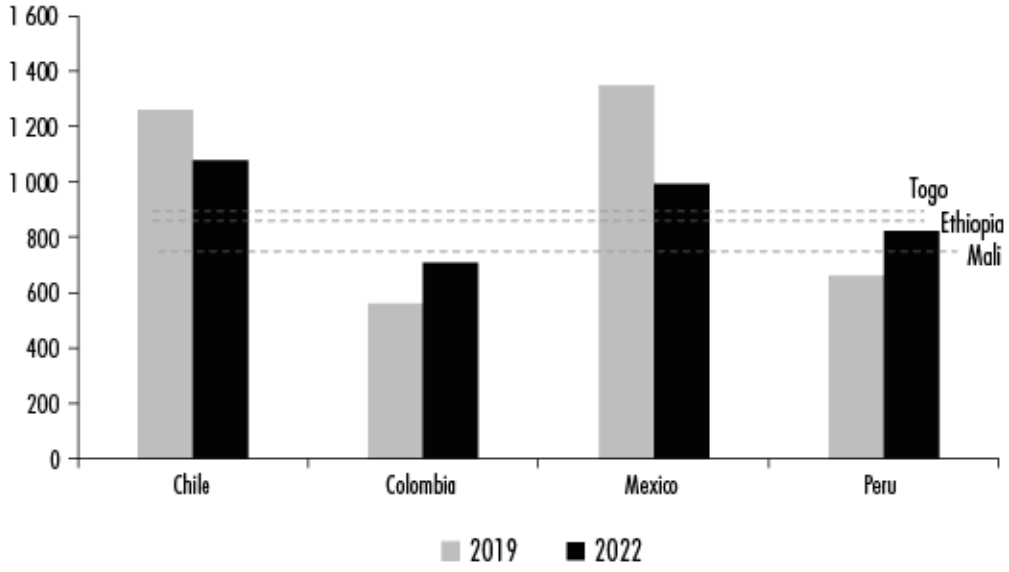
		*Chile**	*Colombia*	*Mexico***	*Peru*
D1					
	2019	1 259	559	1 351	662
	2022	1 079	708	992	824
D2					
	2019	2 263	1 405	2 667	1 205
	2022	3 311	1 560	2 081	1 540
D3					
	2019	3 139	2 071	3 766	1 829
	2022	5 009	2 169	3 023	2 260
D4					
	2019	5 022	2 740	4 835	2 572
	2022	6 350	2 917	4 128	3 207
D5					
	2019	7 054	2 995	6 090	3 512
	2022	8 079	3 856	5 610	4 065
D6					
	2019	9 081	3 446	7 539	4 739
	2022	7 928	4 101	7 046	5 153
D7					
	2019	11 505	4 641	9 229	6 279
	2022	14 159	4 736	9 609	6 714
D8					
	2019	14 880	6 030	11 829	8 383
	2022	15 294	6 147	12 031	8 506
D9					
	2019	21 063	8 818	16 045	11 997
	2022	22 448	8 728	17 750	11 700
D10					
	2019	62 591	31 335	37 858	24 327
	2022	61 240	33 656	35 290	21 583
Average					
	2019	13 761	6 404	10 120	6 550
	2022	14 358	6 858	9 756	6 555

Notes: * Chile's Supplementary Income Survey only covers salaried income and mixed income in 2022; ** Mexico's 2019 Income and Expenditure Survey corresponds to 2018.

Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

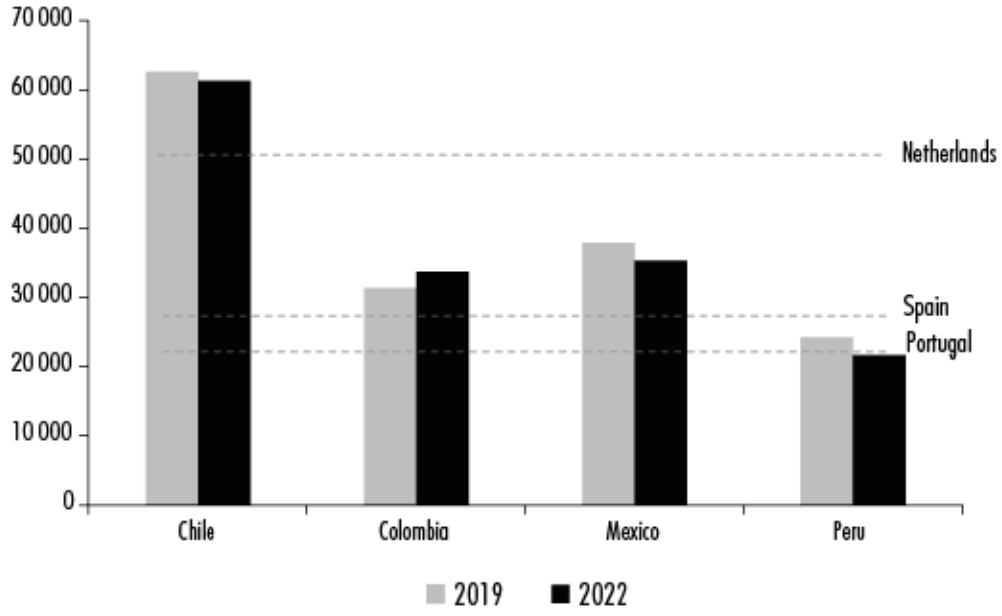
Figures 3 and 4 show the per capita income levels of the D1 and D10 deciles compared to certain economies outside the region with similar average per capita products to those of the reference group. In the case of the D1 decile, the average income levels of the four economies in our region are similar to those of African countries such as Ethiopia, Mali and Togo. However, the D10 decile with the highest incomes is compared to developed economies such as Spain, Portugal, and the Netherlands in the case of Chile. These economies include citizens with average incomes similar to those of the highest-income economies, as well as citizens living at African levels. If we considered citizens with average incomes from D1 to D4, the benchmark would be other African economies, such as Angola, Cape Verde, and Ghana.

Figure 3. Total per capita income levels of D1 between 2019 and 2022 (USD$ 2010)



Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

Figure 4. D10 total per capita income levels between 2019 and 2022 (USD$ 2010)



Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

Table 7 shows the average income per decile for the four analyzed economies between 2019 and 2022, considering the GDP of purchasing power parity in USD at 2011 prices, as calculated by the World Bank (WB). Note that the purchasing power of $1 USD varies by economy due to local currency prices and exchange rates, while considering the same global basket of goods. It is also important to note that the index is based on the United States. For example, $100 USD would purchase the same goods in the US economy as in Colombia ($44 USD), Mexico ($48 USD), Peru ($51 USD), and Chile ($55 USD), which has the highest domestic price level. Furthermore, before commenting on the results, note that the index is applied equally to all deciles since indexes by decile do not exist.

Table 7. Evolution of total per capita income by decile between 2019 and 2022 (PPA USD$, 2011=100)

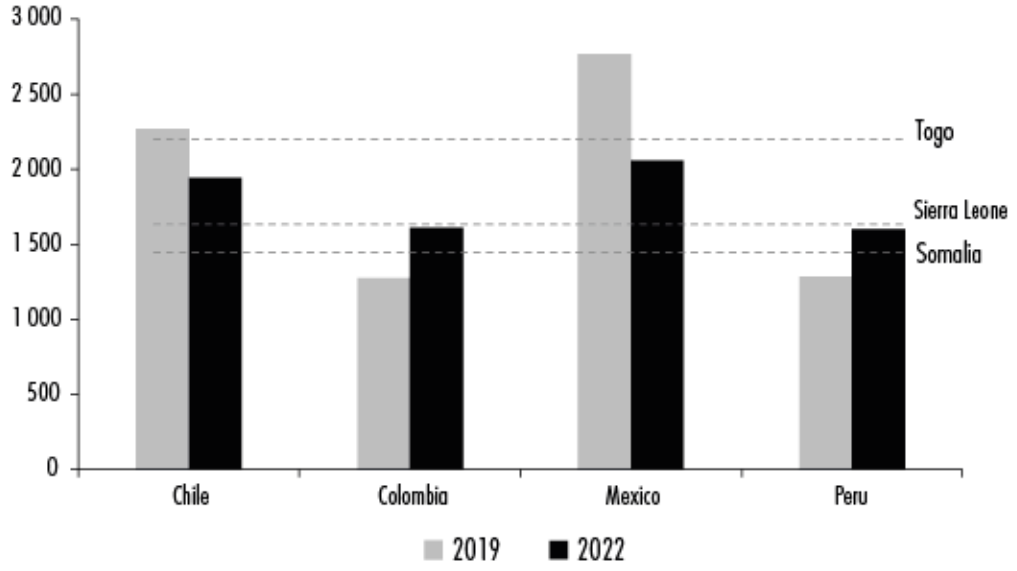
		Chile	*Colombia*	*Mexico*	*Peru*
D1					
	2019	2 270	1 276	2 767	1 287
	2022	1 946	1 612	2 059	1 601
D2					
	2019	4 079	3 207	5 463	2 343
	2022	5 969	3 553	4 321	2 995
D3					
	2019	5 659	4 727	7 715	3 556
	2022	9 030	4 939	6 276	4 393
D4					
	2019	9 053	6 253	9 904	5 001
	2022	11 448	6 643	8 571	6 236
D5					
	2019	12 718	6 836	12 475	6 829
	2022	14 565	8 780	11 647	7 903
D6					
	2019	16 373	7 865	15 444	9 214
	2022	14 293	9 340	14 629	10 019
D7					
	2019	20 742	10 593	18 905	12 208
	2022	25 527	10 785	19 951	13 052
D8					
	2019	26 826	13 763	24 233	16 298
	2022	27 573	13 997	24 979	16 536
D9					
	2019	37 974	20 125	32 868	23 325
	2022	40 470	19 876	36 853	22 747
D10					
	2019	112 843	71 517	77 552	47 295
	2022	110 407	76 643	73 269	41 961
Average					
	2019	24 810	14 616	20 732	12 735
	2022	25 886	15 617	20 255	12 744

Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

The results in Table 7 differ from those in Table 6 in terms of absolute levels, while the changes between 2019 and 2022 are similar. For the lowest income (D1), Mexico, Chile, Colombia, and Peru had the highest purchasing power in both 2019 and 2020. However, Chile's higher nominal incomes lose purchasing power compared to Mexico's. Similarly, the purchasing power of Peru's D1 citizens decreases relative to Colombia's lower nominal incomes. Citizens can earn more, but if domestic prices in USD are higher, their purchasing power is lower. At the intermediate level (D5), however, Chilean citizens have greater purchasing power, followed slightly by Mexicans. Conversely, Colombians have greater purchasing power than Peruvians at this level. In D10, the difference in income between Chilean and Mexican citizens is clearly greater, followed by Colombian and Peruvian citizens.

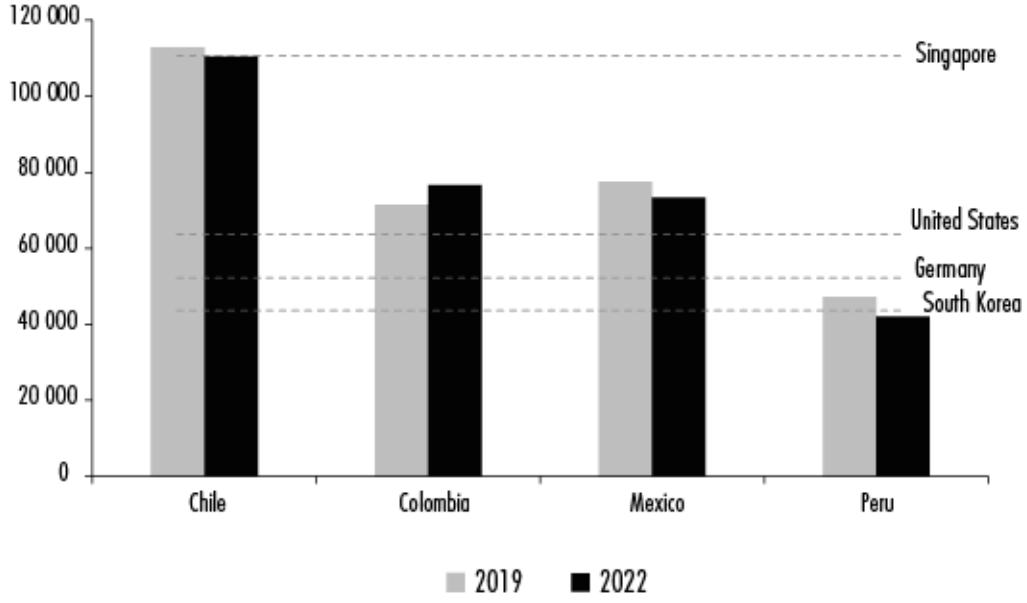
Figures 5 and 6 show the results for deciles D1 and D10 of the four analyzed economies in relation to the average GDP per capita of nearby economies outside the region. In D1, incomes are similar to those in some African economies, including Somalia. Furthermore, when reference is made to D10 incomes, the comparison is with some of the world's highest income developed economies, such as Germany, South Korea and the United States due to the lower purchasing power of the USD$ in those economies. Additionally, Chile's richest citizens, who are part of D10, have average incomes similar to Singapore's.

Figure 5. Total per capita income levels in D1 between 2019 and 2022 (PPP USD$, 2011=100)



Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

Figure 6. Total per capita income levels in D10 between 2019 and 2022 (PPP USD$, 2011=100)



Source: prepared by the author based on WB data (2024) and the INE, DANE, INEGI and INEI household surveys.

6. CONCLUSIONS

The analysis of remuneration quotas, mixed income, and profits in terms of economic activity and the total economy yields interesting results. In some cases, a shared history emerges, though the unique characteristics of each economy and the events between 2019 and 2022 take precedence. First, the remuneration quota in the GDP was lower in Mexico than in Chile, Colombia, and Peru in 2019. In contrast, operating surplus (including mixed income) was highest in Mexico in the base year, while it was lowest in Chile, Colombia, and Peru. Likewise, Peru has a higher mixed income quota than Colombia.

A sectoral analysis of the base year shows that the remuneration quota is highest in trade and services in all economies and lowest in mining, electricity, and water. Among the other economic activities, differentiated behaviors occur among the economies studied. In Chile, the finance sector has the second-highest remuneration quota after public administration, while the agricultural, forestry, and fishing sector in Peru has the lowest remuneration quota in the region due to the greater presence of the mixed income quota. Conversely, the largest earnings quota is generated in mining and electricity.

Between 2019 and 2022, the share of earnings relative to GDP increased in Mexico, where sectoral performance is likely associated with minimum wage policies; meanwhile, it decreased in Chile, Colombia, and Peru. Similarly, while the operating surplus rises in the latter economies, it decreases in Mexico. In the first three economies, the higher quota of profits is explained by the fall in the remuneration quota in mining, commerce, manufacturing, and other services. In contrast, in Mexico, it rises in these sectors. At the same time, the mixed income quota rises in Colombia and falls in Peru. Notably, while the share of mixed income rises in the aforementioned countries for agriculture, forestry, fishing, and manufacturing, it falls in construction and services in Peru.

When analyzing personal income distribution in ten deciles, we observe that the lowest decile (D1) represents only 0.9 to 1.4% of total income. Mexico has the highest share, followed by Peru, Chile, and Colombia. Meanwhile, the highest income decile (D10) fluctuates between 37.1% and 48.9% of total income. Colombia and Chile have the highest shares, while Mexico and Peru have the lowest. Information regarding different income inequality indicators is inconclusive because results vary depending on the indicator. In 2019, Chile, Colombia, Peru, and Mexico are unequal in descending

order, but by 2022, Colombia's inequality indicators have decreased, and Peru's have decreased slightly, while Chile and Mexico have no categorical results.

The distributional patterns of personal income by decile in the base year and in 2022 are dissimilar. For instance, the Mexican economy generally shows the highest income shares for the lowest deciles (D1 to D4) in 2019, while the opposite is true for Chile. By 2022, Chile's income share has increased from D2 to D6. Colombia shows a marginal improvement in deciles D1 and D2, as well as in the middle deciles D5 and D6. Mexico shows improvement in the middle and upper-middle deciles, from D6 to D9. Peru shows an improvement in income share from D1 to D7, with a slight loss in the highest deciles, D8 to D10.

The final section of the study shows average income levels by decile in 2010 and 2011 USD purchasing power parity. The lowest incomes associated with D1 in 2019 are observed in Colombia, followed by Peru, Chile, and Mexico, whose highest incomes barely exceed $112 USD per month. Similarly, Chile stands out significantly compared to Mexico, Colombia, and Peru in terms of the income of the richest decile (D10). According to official data, the ratio of D10 to D1, an indicator of inequality, was 56.8 in Chile, 47.5 in Colombia, 35.6 in Mexico, and 26.2 in Peru in 2022.

Finally, it should be noted that the income levels of D1 are similar to the average income level of African economies such as Ethiopia, Mali, and Togo. However, the highest income decile (D10) is comparable to that of developed economies such as Spain, Portugal, and the Netherlands. In terms of purchasing power parity, D10's income is close to the average income in Germany, South Korea, and the United States. Meanwhile, Chile's income is comparable to Singapore's. The average income of the top decile is similar to that of the highest-income economies, while coexisting with citizens (D1) living at African levels.

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[1] Some readjustments had to be made to the activities using the International Standard Industrial Classification (ISIC), especially for Colombia, Mexico and Peru.

[2] In the case of Chile and Mexico, only information related to remuneration and gross operating surplus, which includes net operating surplus-

profit-and mixed income is presented since it is not possible to differentiate between income from labor and income related to capital.

[3] In Mexico, surveys were only applied for the years 2018, 2020 and 2022, every two years as required by lawee. In the case of Chile, so far, complete information is only available up to 2020, while the information for 2021 and 2022 only includes information on recipients of remuneration and mixed income, without capital income.

[4] In all cases, the information is presented in terms of VAT, since the GDP of these economies does not break down product taxes and subsidies by sector for each economic activity.