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Inequality Reduction in Mongolia: A Dynamic Income Source Analysis

Manlaibaatar Zagdbazar¹

Abstract

Between 2007 and 2022, Mongolia's Gini coefficient decreased by 26 percent. Structural economic shifts, labor market changes, and evolving income composition drive this reduction. Using dynamic income source decomposition on household survey data, this study finds that reduced shares and concentration of imputed housing consumption and self-employment income were the main equalizing forces. In contrast, rising wage shares exerted upward pressure on inequality despite declining wage concentration. The expansion of employment in the mining, trade, and finance sectors, along with broad coverage of social welfare programs, especially child benefits, played a significant role. Pandemic-era transfers amplified the effect of the social transfers. However, gender wage gaps, regional disparities, and vulnerability of herder households persist. The results underscore the importance of targeted labor market policies, improved social transfer design, and resilience measures for rural livelihoods in resource-dependent developing economies.

Keywords: Developing economies, household income composition, income inequality, income sources dynamic decomposition

JEL codes: D31, D33, D63

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1. Introduction

Mongolia has experienced a substantial decrease in income inequality between 2007 and 2022. This period was marked by a mining boom and bust cycle, and other significant socio-economic transformations, including demographic shifts, intense urbanization, and accumulations of human capital and wealth. So this experience provides a valuable case for understanding the dynamics of income inequality reduction in a transition economy.

Global trends indicate a moderate decrease in income inequality in developing countries (Alvaredo & Gasparini, 2015), particularly in transition economies² with a 10 percent decrease in the Gini coefficient between 2005 and 2022, on average. Among these countries, those reliant on commodities³ with an 11 percent decrease (World Bank, 2024), and Mongolia's case is particularly striking. Following a sharp rise in inequality during the transition period in the 1990s and the early 2000s, Mongolia has experienced a substantial reduction in income inequality over the past 15 years, with the Gini coefficient of household per capita income falling by 26 percent.

This research contributes to the literature on the dynamics of income inequality in developing economies in several ways. First, it examines how socio-economic transformations have shaped Mongolia's inequality change across *all* income sources. We disaggregated income sources as much as possible. Second, this study uses a dynamic decomposition method and estimates contributions to the *change* in inequality during the studied time interval. In contrast, most studies used a static approach and estimated contributions of income sources to the *level* of inequality at a certain point in time. Third, moving beyond solely monetary measures, it adopts a comprehensive approach, combining with non-monetary well-being such as income from own consumption of housing, durables, etc. Interestingly, the non-monetary income source contributed most to the decrease in inequality. Fourth, it examines the income distribution in a transition economy characterized by its socialist legacy, unique social policies, dependency on mining, and a significant portion of the population engaged in pastoral livestock farming.

To understand the evolving drivers of inequality reduction, this study utilizes a dynamic income source decomposition methodology. This approach is rooted in the seminal work of Pyatt, Chen, and Fei (1980), Shorrocks (1980; 1982), Lerman and Yitzhaki (1985), and Milanovic (1998). This methodology is well-suited to analyze how the changing contributions of different income sources drive overall inequality dynamics, specifically as measured by the Gini coefficient.

Utilizing household income data from the National Statistics Office of Mongolia between 2007 and 2022, this study empirically investigates the effect of changes in income components, such as labor

² In 2000, the IMF listed 29 countries with transition economies (<https://www.imf.org/external/np/exr/ib/2000/110300.htm>). The World Bank added five more countries later.

³ UNCTAD member States are considered commodity dependent if more than 60% of their merchandise export value comes from commodities. (https://unctad.org/system/files/official-document/ditccom2023d3_en.pdf)

earnings, agricultural income, government transfers, and asset-based income, on the distribution of total income. This analysis enables a quantifiable assessment of how structural economic transformations, urbanization, and policy interventions contribute to inequality through shifts in income composition. Moreover, the approach facilitates an analysis of how these changes affect different population groups, providing a deeper understanding of the substantial distributional impacts of economic transformations.

The rest of this paper is organized as follows. Section 2 reviews the relevant literature. Section 3 introduces the decomposition method to estimate the contribution of different income sources to levels and changes in inequality. Section 4 provides details of the data and presents summary statistics on household income and its composition in Mongolia. Section 5 presents the main results of the analysis. Section 6 discusses the findings and their policy implications. Section 7 offers concluding remarks and summarizes the key findings of the study.

2. Literature review

Household income composition, and consequently income inequality, varies with the level of economic development (Lee & Lee, 2024). Therefore, this review focuses exclusively on studies conducted in developing economies. Earlier inequality studies that employed the income source decomposition mainly concentrated on the role of agricultural income. Adams and Alderman (1992) identified agricultural income as a primary driver of inequality in rural Pakistan, while livestock income had an equalizing effect. This study suggests that sub-components of agriculture, such as livestock, crops, and other farm activities, can have contrasting effects on income distribution depending on access to land, capital, and markets. In Egypt, Adams (1999) also found agricultural income as a major contributor to inequality, while in rural Nigeria, Awoyemi and Adeoti (2004) identified agrarian income as the most significant contributor, followed by wage and self-employment income. These cases reflect a context where agriculture's concentration among better-off households makes it inequality-increasing.

However, other studies show that agricultural income can reduce inequality. In Uganda, Ssewanyana et al. (2004) found farm income to be equalizing, while non-farm income raised inequality. A similar picture was observed in rural Nigeria (Babatunde, 2008). Such contrasts indicate the importance of agricultural structure, crop types, and rural market integration. Azam and Shariff (2011) introduced a temporal dimension. They found that while agriculture remained important for inequality in rural India, its contribution declined as the economy diversified.

Non-farm and self-employment incomes exhibit similarly mixed effects. In Zimbabwe, Piesse et al. (1998) found that non-farm income reduced inequality in urban areas but increased it in rural areas, likely due to unequal access to such opportunities. In Nigeria, Oyekale et al. (2006) found that paid employment increased inequality, while agricultural and urban non-farm incomes had

weaker impacts. These differences highlight that the inequality effects of non-farm income depend on the nature of activities, entry barriers, and rural–urban economic linkages.

More recent studies on income source decomposition in developing countries show employment income as the dominant contributor to inequality. In South Africa, Leibbrandt et al. (2000) identified wage income as a primary driver of inequality, even in rural areas, while in transition economies, Milanovic (1998) found rising wage inequality as a key factor. Comparative study by Rani and Furrer (2016) across G20 countries confirmed that wage income is the most significant contributor universally, followed by self-employment and capital income. Regional studies support these results. Keifman and Maurizio (2012) and Amarante (2016) emphasized the labor market formalization and minimum wage policy in Latin America. Maglad and Mustafa (2022) found that wages ranked first in contribution to overall inequality, but were declining in Sudan. Graca-Gelert (2022) reported that in Poland, employment income contributed approximately two-thirds of inequality. Agrawal and Agrawal (2022) showed that wage and agricultural incomes contributed most to inequality in rural areas, while wage and business incomes dominated in urban areas.

Transfers and social benefits generally have equalizing effects. In South Africa, Argentina, and Brazil, Rani and Furrer (2016) found non-contributory transfers significantly reduced inequality, while contributory benefits played a similar role in China. Private transfers, including remittances, were also important in emerging economies and Korea for supporting low-income households. Graca-Gelert (2022) observed that in Poland, social security benefits reduced inequality and their contribution declined over time, while Agrawal and Agrawal (2022) confirmed the equalizing role of government transfers in India. But transfers and benefits alone cannot address the issue of rising inequalities in countries where unemployment continues to be high (Rani & Furrer, 2016).

In light of Mongolia's recent economic transformation, marked by the growth driven by the mining sector and the expansion of the formal labor market, the observed role of wage income in driving inequality becomes especially relevant. Mongolia's post-socialist development path, characterized by the retention of broad social protection coverage and state dominance in public service provision (including education, health, energy, and utilities), together with its substantial herding population, is another factor that must be taken into account. These distinctive structural features prompt questions about whether the factors contributing to the reduction in inequality align with broader global trends or reflect context-specific dynamics. Additionally, income from own consumption of housing and durables, which can fluctuate significantly during periods of economic transition, has received limited attention in existing literature. This study addresses these gaps by applying a dynamic decomposition methodology to Mongolian household income microdata, thereby providing a more nuanced understanding of the changing drivers of inequality.

3. Methodology

Two traditional approaches are commonly used to decompose income inequality: one focuses on the effect of different population subgroups, while the other estimates the contribution of various income sources (Shorrocks, 1982). This study follows the latter approach and employs the standard Gini coefficient decomposition method developed by Lerman and Yitzhaki (1985). A distinct advantage of this method is a complete decomposition of the Gini coefficient, the most widely used measure of inequality, into the contributions of individual income sources, leaving no unexplained residual. Notably, this method can also be extended to decompose inequality by population subgroups (e.g., gender, location) by using their respective income sources, offering a more detailed analysis of the drivers of inequality.

The Lerman and Yitzhaki method expresses the overall Gini coefficient as the sum of contributions from various income sources, as shown in the following equation.

$$G = \sum_{k=1}^K S_k \cdot G_k \cdot R_k \quad [1]$$

where S_k is the share of k -th income source in total income, G_k is the own Gini coefficient of k -th income source or the inequality within the income source, and R_k is the correlation between k -th income source and the rank of total income⁴. The rationale behind this method is straightforward. A higher share of an income source combined with a greater inequality within that source leads to a larger contribution to overall income inequality. Additionally, a stronger positive correlation between that income source and the total income amplifies its contribution to inequality. Conversely, a negative correlation suggests that this source is more important for lower-income households and has an equilibrating effect.

Another advantage of this decomposition method is that it allows for the quantification of the marginal contribution of individual income sources to overall inequality. Taking the partial derivative of equation [1] with respect to the percentage change in the k -th income source yields equation [2]:

$$\frac{\partial G}{\partial e_k} = S_k \cdot (G_k \cdot R_k - G) \quad [2]$$

Subsequently, dividing both sides by the Gini coefficient yields equation [3]:

$$\frac{\partial G / \partial e_k}{G} = \frac{S_k \cdot G_k \cdot R_k}{G} - S_k \quad [3]$$

This equation enables the estimation of the percentage change in the overall Gini coefficient resulting from a 1% variation in an individual income source.

⁴ To calculate the total and marginal contributions of income sources to the Gini index, researchers often employ statistical software packages like DESCOGINI or DASP (Araar & Duclos, 2007). However, these packages may not accommodate survey weights. To obtain country-wide results, I implemented the Gini decomposition procedure with survey weights.

Although the above decompositions estimate the contributions of income sources to the *level* of inequality at a given point, they do not capture contributions of income sources to *changes* in inequality over time. Milanovic (1998) addressed this by transforming equation [1] into the following simplified equation:

$$G = \sum_{k=1}^K S_k \cdot C_k \quad [4]$$

where C_k represents the concentration coefficient, which is defined as the product of the Gini coefficient of the income source (G_k) and its correlation with total income (R_k).

To decompose changes in the Gini coefficient between two time periods, 0 and 1, we take the difference of equation [4] and add and subtract $S_{k,1} \cdot C_{k,0} + S_{k,0} \cdot C_{k,1}$ at the same time. This transformation yields the following equation for the change in the Gini coefficient:

$$\Delta G = \sum_{k=1}^K \Delta S_k \cdot C_{k,0} + \sum_{k=1}^K S_{k,1} \cdot \Delta C_k \quad [5]$$

In this equation, the first term represents the effect of the share, capturing how changes in the relative importance of income sources contribute to changes in inequality. The second term represents the effect of the concentration, reflecting the contribution of changes in the inequality within each income source. This decomposition method is often referred to as dynamic decomposition.

This method offers a comprehensive decomposition of the commonly used Gini coefficient, providing efficiently interpretable results. Notably, it allows for the decomposition of the Gini coefficient into contributions from all potential income sources included in the household survey data. Using this method enables the estimation of how small percentage changes in specific income sources affect overall income inequality, offering more direct and policy-relevant insights than other approaches (Giangregorio, 2022).

Beyond broad income categories like wages, household business income, pensions, and other sources, this study also estimates the contributions to inequality of specific subcomponents within these categories. For instance, wage income was analyzed by sector of employment and gender of household members, pension and transfer income was categorized by type (e.g., old-age pension, child benefit, disability benefits), household business income was divided into agriculture, animal husbandry, non-agricultural business, and household consumption of own products.

4. Data and Household Income Composition

This study utilizes Household Socio-Economic Survey (HSES) data of the National Statistical Office of Mongolia (NSO)⁵. The timeframe spans 2007-2022, corresponding to the turning point in inequality evolution discussed in the Introduction. This period represents the most extended

⁵ When NSO first conducted HSES, it covered the last half of 2007 and the first half of 2008. From 2009 onwards, it covers the entire year.

possible duration for which data is available. The raw data from the HSES is publicly available through the website of the NSO Mongolia.⁶

The HSES is an annually conducted, cross-sectional survey employing a random sample of households nationally. Every two years, the NSO performs a comprehensive survey to estimate official poverty and inequality indicators. It is important to note that Mongolia's official inequality indicators are based on household consumption, whereas this study focuses on income-based inequality. Income-based measures offer valuable insights, such as the contribution of different income sources to inequality and the distributional effects of labor market dynamics and redistribution policies.

For practical reasons, due to data availability, disposable income, as defined in the Canberra Handbook (2011), is the most appropriate and widely used concept for this research. Disposable income refers to the amount remaining after deducting direct taxes paid to the government, and adding pension and welfare transfers to primary income from employment, household production, and property ownership.

The primary reason disposable income is often used in income distribution analyses is its ability to reflect resources available for household consumption and savings. Additionally, it allows for easier estimation from household-level sample surveys (UNECE, 2011). Consequently, this study utilizes household residual income as the primary indicator, including imputed rents from housing and consumer durables.

The unit of analysis in this study is the household. To account for differences in household size, each income component is expressed on a per capita basis. To ensure the generalizability of research findings at the national level, household and population weights are incorporated into all estimates. For long-term comparisons of household income, the Consumer Price Index (CPI) at provincial and capital city levels is used to adjust income to 2010 base prices.

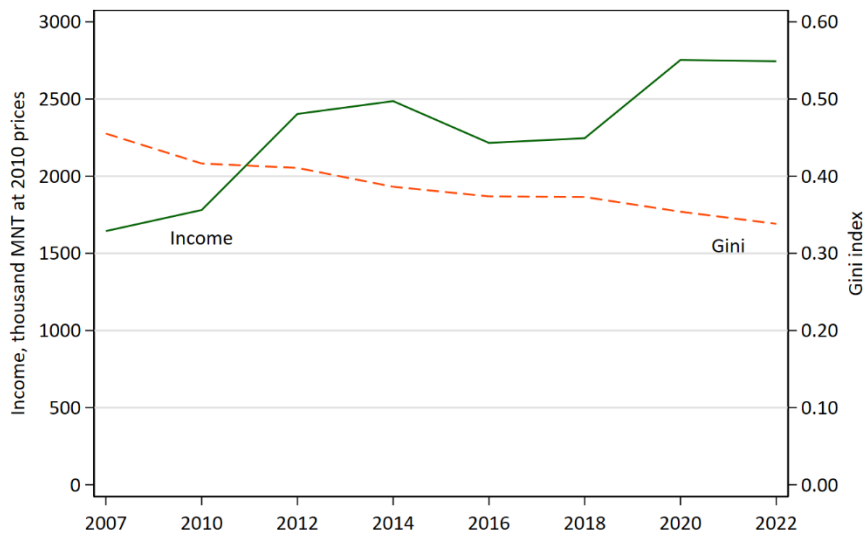
Between 2007 and 2022, the Mongolian economy experienced significant growth, resulting in a 67 percent increase in real per capita household income. The growth trajectory can be divided into distinct phases (Figure 1). A period of rapid income growth occurred between 2007 and 2012, followed by a downturn lasting until 2018. Subsequent growth resumed after 2018, although stagnation has been observed since 2020 (for detailed figures on household income components, refer to Table A1 in the Appendix).

Concurrently, income inequality, as measured by the Gini coefficient, exhibited a notable decline, decreasing from 0.455 in 2007 to 0.338 in 2022, representing a 25.7 percent reduction. This trend reflects the fluctuations in average income with some temporal variations. Specifically, the Gini coefficient demonstrated a consistent downward trend from 2007 to 2014, followed by a period

⁶ <http://web.nso.mn/nada/index.php/catalog/HSES/dataset>

of relative stability until 2018. Interestingly, a significant reduction in income inequality coincided with the COVID-19 pandemic.

Figure 1. Income per capita and Gini coefficient

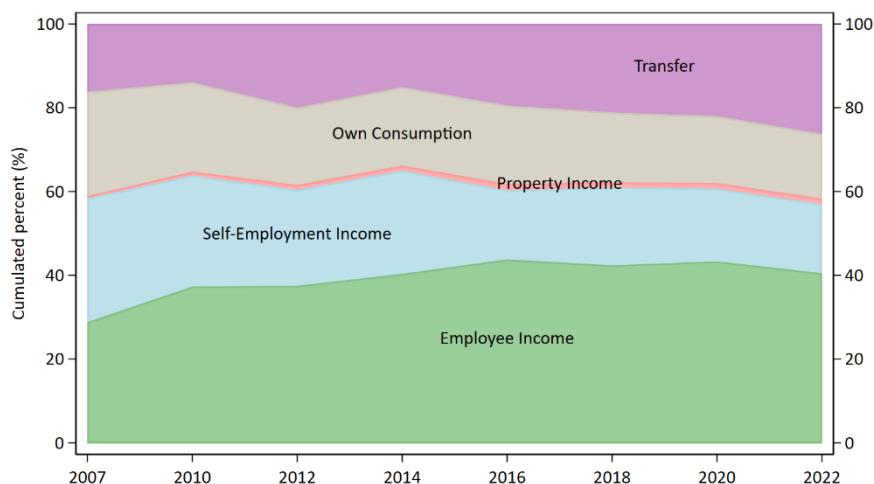


Note: Income is annual per capita household income at 2010 constant prices (MNT).

Source: Author's calculation based on NSO's HSES data.

Alternative measures of inequality confirm the sustained decrease in income disparities. Over the same period, the income Theil index declined from 0.408 to 0.206, while the p90/p10 ratio decreased from 7.88 to 4.50. Furthermore, as noted in the Introduction, the consumption-based Gini coefficient, as calculated by NSO, also declined from 0.380 to 0.310.

Figure 2. Household income composition



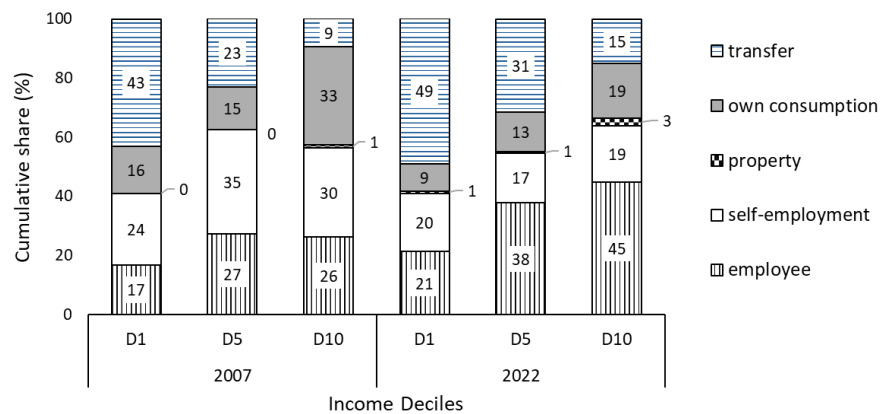
Source: Author's calculation based on NSO's HSES data.

While various factors may have contributed to the long-term decline in income inequality in Mongolia, this study focuses on the impact of household income components. Figure 2 illustrates a long-term trend of increasing shares for labor income and government transfers, while the share

of farm and non-farm business income has decreased significantly. The share of employee income and government transfers rose from 28.8 percent and 16.2 percent to 40.5 percent and 26.3 percent, respectively. Conversely, the share of farm and non-farm business income dropped from 29.5 percent in 2007 to 16.5 percent in 2022.

Income source shares vary significantly across income groups. Poorer households rely more on current transfers (e.g., 43% in 2007 and 49% in 2022), while wealthier households depend more on wages, imputed rents of housing and durables, and property income (Figure 3). For self-employment income, middle-income households had a larger share in 2007 (35%), followed by rich and poor households. However, by 2022, this order had reversed, with poor households holding the largest share (20%), followed by wealthy and middle-income households. The differences in these shares among income groups, however, have narrowed.

Figure 3. Household income composition by selected income deciles



Note: D1 = poorest decile, D5 = middle decile, D10 = richest decile.

Source: Author's calculation based on NSO's HSES data.

Despite these variations, the direction of change in income source shares is consistent across all groups. The shares of employee income, property income, and current transfers increased across all income groups between 2007 and 2022. Conversely, the shares of self-employment income and income from own consumption decreased for all groups. However, the magnitude of these changes was more pronounced for the wealthiest group, with significantly larger increases in the share of wages and property income and a much more substantial decrease in the share of income from own consumption (housing and durables such as a car) compared to other income groups.

Household characteristics also evolved during this period. The household size decreased noticeably, while the number of children and the elderly per household increased (see Table 1). This shift partly contributed to the rising share of transfer income in total household income.

Simultaneously, the share of salaried workers within the working-age population expanded significantly, while self-employment activities, including livestock and crop farming, and non-farm businesses, contracted dramatically. These trends partially explain the increasing share of labor

income and decreasing share of self-employment income. In addition, housing conditions and household assets improved significantly (see Tables A2 - A4 in the Appendix for detailed results by year).

Table 1. Household socio-economic characteristics

	2007	2022
Average household size	3.9	3.4
Average number of children (aged 14 or less)	1.1	1.2
Average number of elders (aged 60 or higher)	0.3	0.4
Share of salaried workers in population 15-64, %	23.2	37.3
Share of households whose primary income source is employee income, %	36.6	42.8
Share of households with livestock farm, %	36.3	26.2
Share of households with crop farm, %	5.7	2.8
Share of households with non-farm business, %	18.6	10.3
Share of households living in an apartment/house, %	53.6	64.3
Average area of house (square meters)	35.2	48.3
Share of households with access to a centralized water system, %	22.1	32.5
Share of households with access to home internet, %	2.5	44.8
Share of households with a car, %	17.2	48.8

Source: Author's calculation based on NSO's HSES data.

Over the long term, real average wages have exhibited significant volatility, with a general upward trend. Notably, real wages declined during 2015-2018 and 2021-2022, primarily due to a slowdown in nominal wage growth and accelerating inflation. Examining these trends in employment, wages, and wage inequality by economic sector is particularly interesting, as the sectoral structure of the economy underwent significant transformations during this period, coinciding with the mining boom and subsequent bust. Economic sectors were categorized into eight broad categories. Table 2 compares employment and wage indicators for these sectors, focusing on the initial and final years of the study period for a general overview (see Tables A5-A7 in the Appendix for detailed results by year and sector).

Table 2 demonstrates a shift in the sectoral composition of the salaried workers, with notable increases in the share of employees in the mining, trade, and finance sectors. The latter two sectors are closely linked to the growth of the mining sector. In contrast, manufacturing, services, professional and technical, and administrative support sectors experienced a decline in their share of total employment. The share of workers in other sectors remained relatively unchanged.

In 2007, workers in the mining and financial sectors earned the highest average salaries, and this hierarchy persisted in 2022, albeit with a widening gap. However, a notable trend emerged: the average wages of education, health, professional and technical, and administrative support sectors, which employ a significant portion of the workforce, were close to the national average in 2007 but fell significantly below it by 2022.

Despite these sectoral variations, wage differentials within sectors have narrowed. For instance, the Gini coefficient of wages in the mining sector, known for its significant wage gap, decreased from 0.379 to 0.310. Similarly, the Gini coefficient for employee income in the education and health sectors declined from 0.305 to 0.237.

Table 2. Employment, wages, and wage inequality by sector

Sector	Share of total workers		Average monthly salary, thousand MNT at 2010 prices		Gini coefficient of sectoral wage	
	2007	2022	2007	2022	2007	2022
Manufacturing	23.4%	21.1%	226.4	437.8	0.355	0.277
Mining	5.7%	8.9%	345.5	690.0	0.379	0.310
Trade	10.0%	11.3%	211.4	384.9	0.380	0.306
Services	16.9%	15.1%	227.8	428.3	0.346	0.322
Finance	2.7%	3.3%	291.2	468.4	0.293	0.278
Professional and Administrative	16.3%	15.6%	246.8	361.3	0.318	0.253
Education and Health	21.8%	22.0%	239.0	340.8	0.306	0.237
Other	3.0%	2.7%	179.0	309.8	0.517	0.404
Total / Average	100%	100%	238.0	415.7	0.352	0.307

Source: Author's calculation based on NSO's HSES data.

5. Results

5.1. Contributions of income sources to the reduction in inequality

The decrease in the Gini coefficient between 2007 and 2022 was 0.117. Using equation [5] from the Methodology section, we can decompose the reduction in inequality into contributions of income components. The self-employment income and income from own consumption mainly explain the reduction of inequality (Figure 4). Changes in these income sources have the inequality-reducing effect with contributions of 60.8 percent and 70.6 percent, respectively. In contrast, contributions from employee income, transfers, and property income have opposite effects. Changes in these sources have the inequality-increasing effect with contributions of 23.4 percent, 5.0 percent, and 2.8 percent, respectively.

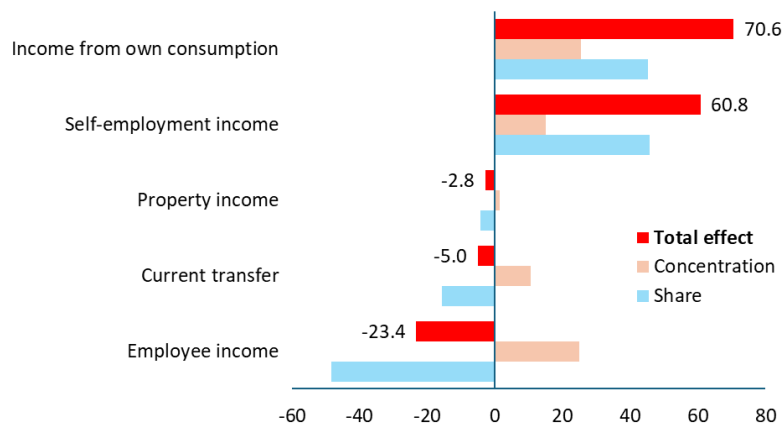
The share effect of each income component (except property income) has a greater absolute magnitude than its respective concentration effect, although their directions differ. For instance, self-employment income and income from own consumption exhibit strong equalizing share effects, while other sources have share effects that tend to raise inequality.

As noted earlier, the increasing number of salaried employees and the declining number of self-employed individuals contributed to the rising share of wage income in household income and the decreasing share of self-employment income. Slower growth in rental prices led to a decrease in

the share of imputed rent in total income, despite improvements in housing conditions. The share of transfers increased due to an aging population and the expansion of public welfare programs, particularly child benefits.

However, the concentration effect of all income sources contributed to reducing inequality. Overall, concentration effects explain 77.4 percent of the observed inequality reduction. Factors such as improved equality within salary income, income from imputed rent and durables, pension and benefits, and property income, coupled with a weakened correlation between self-employment income and total income, have contributed to this equalizing concentration effect.

Figure 4. Effect of change in income components on the reduction in Gini coefficient between 2007 and 2022, in percent



Note: Positive values indicate the inequality-decreasing contribution, while negative values indicate the inequality-increasing contribution. The sum of all total effects (red bars) equals 100. For each income source, the total effect is the sum of its concentration effect and share effect.

Source: Author's calculation based on NSO's HSES data.

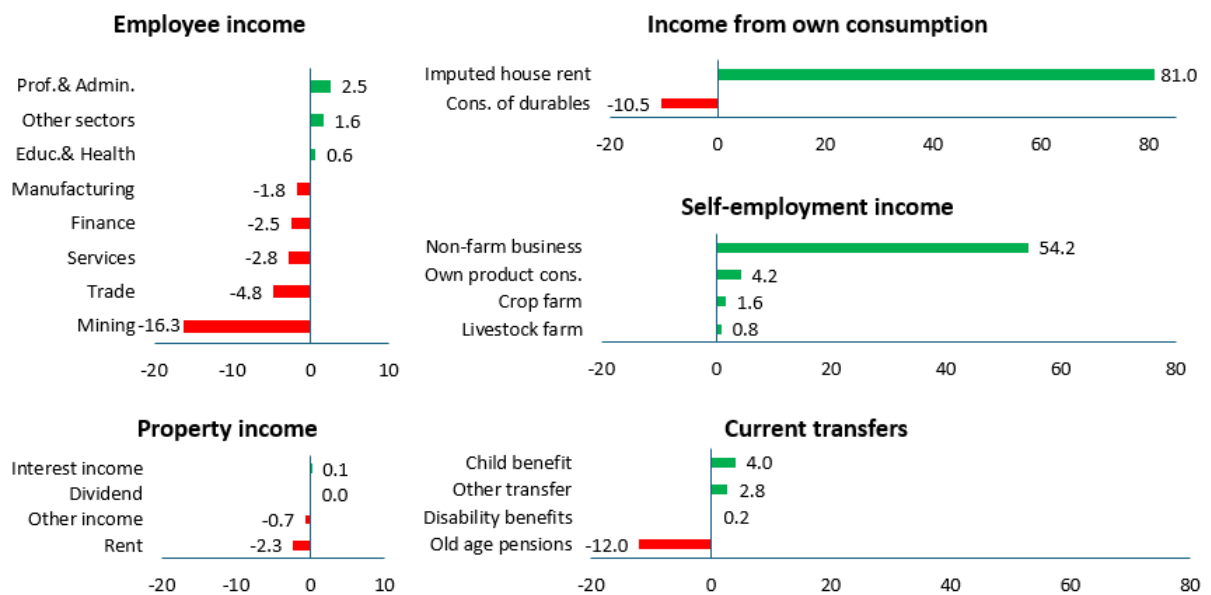
The contributions of income sources to changes in inequality, as illustrated above, can be compared to their respective contributions to the *level* of income inequality in 2007 and 2022. In 2007, income from own consumption was the largest contributor to overall inequality, followed by wages, self-employment income, current transfers, and property income (see Table A8 in the Appendix). By 2022, this ranking had shifted significantly. The contribution of wages to income inequality more than doubled, making it the dominant source and accounting for nearly half of the total inequality. In contrast, the contributions of income from own consumption and self-employment income each declined by half, becoming the second and third largest contributors, respectively. Although the contributions of current transfers and property income increased notably, their relative positions in the ranking remained unchanged.

Figure 5 presents the contribution of sub-components for each source (shown in Figure 4) to the reduction of inequality. Between 2007 and 2022, the changes in income sub-components had varying effects on the reduction of the Gini coefficient. Among sectoral labor incomes, changes in mining wages had the largest negative impact, contributing 16.3 percent to the rise in inequality.

Other sectors closely linked to mining, such as trade, services, finance, and manufacturing, also exhibited inequality-increasing effects. In contrast, changes in wages in the professional and administrative sectors, as well as in education, health, and other public services, contributed positively to reducing inequality, although their effects were modest.

Changes in income from own consumption demonstrated a strong inequality-reducing effect, particularly through changes in imputed house rent, which contributed 81.0 percent to the reduction in the Gini coefficient. However, consumption of durables had a negative impact, increasing inequality by 10.5 percent. Similarly, self-employment income played a significant role in reducing inequality. Changes in non-farm business income were the most impactful, contributing 54.2 percent to the decline in inequality. Additional, though smaller, positive contributions came from changes in own product consumption, crop farming, and livestock farming incomes.

Figure 5. Effect of change in income sub-components on the reduction in Gini coefficient between 2007 and 2022, in percent



Note: Positive values indicate the inequality-decreasing contribution, while negative values indicate the inequality-increasing contribution.

Source: Author's calculation based on NSO's HSES data.

Property income changes had minimal and mostly negative effects. Changes in interest income and dividend income had almost no effect. Changes in rent-related incomes and property incomes increased the inequality slightly.

Interestingly, changes in current transfers generally had an inequality-increasing effect. While child benefit transfers and other social transfers contributed slightly to reducing inequality, their impact was limited. In contrast, pensions had a substantial inequality-increasing effect, accounting for a 12.0 percent increase in the Gini coefficient.

5.2. Gender, location, and inequality reduction

The income source decomposition method allows for measuring the effect of income changes within various population groups on overall inequality. Utilizing this approach, this section examines the contribution of gender- and location-based differences in income sources to changes in income inequality from 2007 to 2022.

Table 3 presents the impact of variations in the income of men and women on the inequality reduction. Income sources are disaggregated into three categories: men’s income, women’s income, and shared household income. Data limitations necessitate this categorization, as some income sources (e.g., wages, transfers, property income) are gender-identifiable, whereas others (e.g., household business income, income from own consumption) are not. Gender-decomposable income sources exhibited inequality-increasing effects, thus requiring further gender-based decomposition. The contribution of shared income to inequality reduction remains consistent across both tables.

Table 3. Effect of change in men’s and women’s income on the reduction in Gini coefficient between 2007 and 2022, in percent

Income sources	Share effect	Concentration effect	Total effect
Men’s income	-40.9	17.5	-23.4
Employee income	-33.4	11.2	-22.2
Old-age pension	-4.1	1.7	-2.3
Child money	1.7	0.1	1.8
Other benefits	-1.9	3.5	1.6
Property income	-3.2	1.0	-2.2
Women’s income	-22.1	14.1	-8.0
Employee income	-11.1	9.8	-1.3
Old-age pension	-9.1	-0.4	-9.6
Child money	1.7	-0.2	1.5
Other benefits	-2.2	4.2	2.0
Property income	-1.3	0.6	-0.7
Shared income	90.8	40.5	131.4
Household business income	45.6	15.1	60.8
Income from own consumption	45.2	25.4	70.6
Total	27.9	72.1	100.0

Note: Table values may vary slightly due to rounding. Positive values indicate the inequality-decreasing contribution, while negative values indicate the inequality-increasing contribution.

Source: Author’s calculation based on NSO’s HSES data.

Over the 15 years, changes in men’s and women’s individual incomes contributed –23.4 percent and –8.0 percent, respectively, to the reduction in the Gini coefficient. These negative values indicate that changes in their individual incomes had an inequality-increasing effect. For men, increased employment, rising wages among lower-income earners, and a decline in the

concentration of welfare and property income contributed to reduced income concentration. This reduction accounted for a 17.5 percent decrease in overall inequality. However, the growing share of men’s income, particularly from wages, had the opposite effect, contributing to a 40.9 percent increase in inequality.

Similarly, for women, the increasing share of wages, welfare, and property income contributed to a 22.1 percent rise in inequality. In contrast, reduced concentration within these income sources led to a 14.1 percent decline. The negative share effect of old-age pensions was greater for women (–9.1%) than for men (–4.1%).

The geographical distribution of inequality mitigation demonstrates additional complexities. As illustrated in Table 4 , the relative contribution of various income sources to inequality reduction exhibits considerable spatial variation. Ulaanbaatar, serving as both the national capital and residence to approximately half of Mongolia’s population, represents 52.1 percent of the aggregate inequality reduction observed. This substantial contribution is predominantly attributable to a marked decline in both the proportional share and concentration of income derived from the imputed rental value of owner-occupied housing and durable goods within the capital, accounting for 57.1 percent of the total reduction.

Table 4. Effect of change in urban and rural households’ income on the reduction in Gini coefficient between 2007 and 2022, in percent

Income sources	Share effect	Concentration effect	Total effect
<i>Ulaanbaatar</i>	-4.4	56.5	52.1
Employee income	-38.0	12.9	-25.1
Self-employment income	17.7	11.3	29.0
Property income	-2.3	0.7	-1.6
Income from own consumption	35.6	21.5	57.1
Current transfer	-17.3	10.0	-7.4
<i>Provincial center</i>	9.6	16.9	26.5
Employee income	-3.7	4.7	1.0
Self-employment income	9.3	3.8	13.2
Property income	-1.1	0.3	-0.9
Income from own consumption	7.2	5.0	12.2
Current transfer	-2.1	3.1	1.0
<i>Rural area</i>	10.1	11.2	21.3
Employee income	-4.1	4.6	0.5
Self-employment income	15.5	3.1	18.6
Property income	-0.7	0.3	-0.3
Income from own consumption	0.9	0.3	1.2
Current transfer	-1.6	2.9	1.3
Total	15.3	84.6	100.0

Note: Table values may vary slightly due to rounding. Positive values indicate the inequality-decreasing contribution, while negative values indicate the inequality-increasing contribution.

Source: Author’s calculation based on NSO’s HSES data.

Conversely, in rural regions where pastoralism and livestock husbandry represent the predominant economic activities, self-employment income contributed 18.6 percent to the overall inequality reduction. This phenomenon results from concurrent decreases in both the relative importance and concentration of this particular income component within rural areas.

Of particular significance is the spatially heterogeneous nature of employee income effects across different geographical contexts. While contributing to substantially increased inequality in Ulaanbaatar, wage income had an inequality-reducing effect in other regions. A similar pattern emerges for current transfers. In Ulaanbaatar, these transfers exacerbated inequality (-7.4%), whereas they exerted a marginally inequality-reducing influence in provincial centers (1.0%) and rural areas (1.3%). This differential impact across locations suggests the importance of considering spatially targeted policies when addressing income inequality.

5.3. Marginal contributions of income sources to inequality

To provide a more precise quantification of these phenomena, we computed the marginal contributions of individual income sources to aggregate inequality utilizing equation [3]. The marginal contribution represents the proportional change in the aggregate Gini coefficient attributable to a one percent increment in a particular income source, holding all other variables constant under *ceteris paribus* conditions.

As depicted in Figure 6, an increase in employee income tends to raise income inequality, while an increase in pensions and benefits reduces income inequality. For example, in 2022, a 1 percent increase in wages for all employees would raise the country's Gini coefficient by 0.08 percent, while a 1 percent increase in pensions and benefits would decrease it by 0.13 percent.

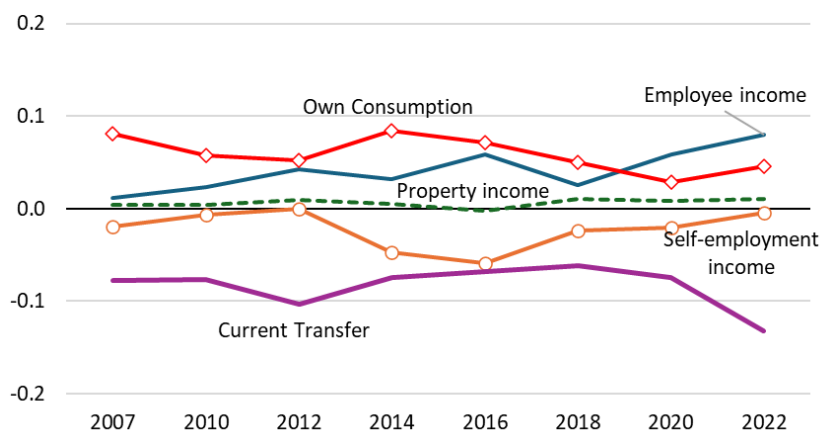
The marginal positive effect of employee income on inequality generally rose during the study period despite some fluctuations. Conversely, the marginal impact of self-employment income on increasing inequality has weakened steadily since 2014, but has shown a sign of increase in recent years.

The marginal effect of transfers on reducing inequality tended to weaken until 2018 but has since rebounded. In 2012, a one-time government cash transfer to all individuals before the election led to a temporary increase in this effect. Since 2020, the marginal equalizing effect has strengthened due to the expansion of cash transfers during the COVID-19 pandemic. However, this effect appears to be sustained, as child benefit has increased fivefold,⁷ and now constitute the majority of government transfers, have remained at their elevated levels.

⁷ Early in 2020, the monthly child benefit per child was MNT 20,000 (approximately USD 7.1). However, the government subsequently increased it to MNT 100,000 (approximately USD 35.5). For comparison, the national poverty line in 2020 was MNT 184,747 (approximately USD 65.7) per month per person.

Initially, income from own consumption exhibited a more substantial inequality-increasing marginal effect, but this effect has diminished in recent years as its share in total income decreases. Property incomes have consistently demonstrated a positive marginal impact on inequality, albeit relatively small. In contrast, self-employment income, including farm and non-farm business, has consistently exhibited an adverse marginal effect on inequality. Between 2014 and 2016, the inequality-decreasing marginal effect of self-employment income sharply increased, becoming comparable to the marginal effect of transfers as its concentration decreased more rapidly. However, since 2018, this marginal effect has been steadily waning.

Figure 6. Marginal contribution of income sources to inequality, percentage



Source: Author's calculation based on NSO's HSES data.

The sectoral contribution to total wage inequality becomes more pronounced when analyzing marginal effects. The mining sector's wage exhibits an inequality-increasing marginal impact that has been steadily growing (see Figure A1 in the Appendix). By 2022, a 10 percent increase in wages in the mining sector would raise overall inequality by 0.44 percent. Professional, administrative support, trade, and finance sectors demonstrate moderate inequality-raising marginal effects, while manufacturing, education, and health sectors have weaker but inequality-reducing marginal effects. Employee income from other sectors, such as agriculture and household business, exhibits strong inequality-reducing marginal effects.

For self-employment income, non-farm business has a strong inequality-increasing marginal contribution, while livestock and food consumption from own production have a strong inequality-decreasing marginal effect. However, the inequality-related effects of these income sources have weakened over time, primarily due to the decline in their relative importance. In contrast, the marginal impact of crop farm income remains inequality-neutral due to its small income share.

For income from own consumption, the marginal contribution of imputed rent has a positive and more substantial effect, although it has been weakening as its income share decreases. The marginal contribution of durables to inequality is also positive but minimal, and its impact has been strengthening due to its growing income share.

Regarding current transfers, their components marginally contribute to reducing inequality. However, between 2016 and 2018, old-age pensions exhibited an inequality-increasing marginal contribution. More recently, the marginal effect of pensions has become inequality-neutral as its increasing income share and decreasing concentration offset each other. The marginal effect of child benefits on reducing inequality has further strengthened since 2020, due to its sharply increasing income share. Disability benefits and other benefits continue to maintain their relatively strong inequality-decreasing marginal effects.

6. Discussion

Between 2007 and 2022, income inequality in Mongolia significantly decreased, with the Gini coefficient falling by 0.117, representing a substantial reduction of 26 percent. This observed decrease can be attributed to a confluence of socio-economic transformations during this period, impacting various income sources.

Firstly, declining self-employment income share and concentration significantly reduced inequality. Initially, a crucial post-socialist safety net due to widespread unemployment and limited private sector jobs, self-employment has since decreased. Economic growth from the mid-2000s spurred wage employment in expanding private and public sectors. Simultaneously, increased competition from larger industrial and service enterprises limited the income potential of micro and small businesses. Rising tertiary education attainment, especially among young women, and the need for formal income documentation further incentivized a shift towards salaried jobs.

Secondly, the decreasing share and concentration of income from own consumption have significantly contributed to inequality reduction. It is mainly due to the relatively slow growth of imputed rent compared to other income sources, a consequence of high homeownership rates and weak rental demand. Furthermore, the widespread improvement in housing conditions, with a shift from traditional dwellings to modern apartments equipped with amenities, has reduced the concentration of imputed income from housing. Government policies such as subsidized mortgages and leasing loan programs for household assets also played an important role in this equalizing effect.

Conversely, the substantial increase in employee income exerted an upward pressure on overall inequality, primarily due to the rising share of wage income in household portfolios, despite a concurrent reduction in wage income concentration. It is mainly attributable to robust economic growth, particularly the mining boom since the mid-2000s, which spurred job creation and consequently increased the proportion of wage earners. While minimum wage increases and the expansion of employment in high-growth sectors like mining, construction, and finance contributed to a decrease in wage income concentration, the heightened reliance on wage income amplified the sensitivity of overall inequality to wage disparities across the workforce. The differing

trends in wage income between men and women have notable implications. While the increase in men's wage income has been a driving factor in widening disparities, the growing share of women's wage income has had a negligible offsetting effect. This disparity is partly explained by slower growth in employment and average wages in female-dominated sectors (education, health, trade) compared to male-dominated industries (mining, transportation). Although within-group wage inequality decreased for both genders, there are concerns about trends in declining female employment rates and a widening gender wage gap (Batchuluun, 2021). Addressing these gender disparities in the labor market, particularly by narrowing wage gaps and increasing wages in traditionally lower-paid sectors with high female employment, is therefore crucial for mitigating overall income inequality in Mongolia.

Moreover, in Mongolia, the pension and welfare system has generally reduced inequality, as literature suggests, though the impact varies by program. A key limitation is the prevalent non-income-contingent benefit structure, which weakens the targeted effects, with the food support program being a limited exception. Notably, the universal child money allowance has significantly reduced inequality, with potential for greater impact through targeted delivery to low- and middle-income households. During the COVID-19 pandemic, increased child benefits, food assistance, pension payments, utility subsidies, and direct cash transfers played a significant role in reducing income inequality. Conversely, the lack of inflation indexation for old-age pensions has eroded the real value of early pensions, partially offsetting their equalizing effect, and especially hurt the growing number of older women.

Furthermore, the analysis reveals a nuanced impact of agricultural income, particularly from livestock, on overall income inequality between 2007 and 2022. While the declining proportion of herder households and the diminishing share of livestock income in total household income had a slight equalizing effect, this was offset by increasing income disparity within the herder community. This rising income disparity among herders directly reflects the livestock number disparity. Additionally, the growing vulnerability of livestock-based livelihoods to environmental shocks—such as the severe dzud of 2010—has exacerbated income inequality among herder households, with those owning smaller herds bearing a disproportionate burden. It indicates an urgent need for comprehensive disaster prevention and mitigation strategies, such as effective insurance schemes.

Regarding property income, encompassing rent, dividends, and interest, its contribution to equalizing income distribution in both urban and rural Mongolia has been limited. This is partly due to an underdeveloped rental market and a shallow stock market with low household participation. The socialist era legacy of minimal private property ownership also contributes to low property income levels. In 2011, the government distributed shares in Erdenes Tavan Tolgoi, Mongolia's largest state-owned coal company, to share resource benefits with the public. However, since then, the distribution of dividends from the shares has been irregular, which limits the effectiveness of the policy. This could offer a valuable case for examination at a time when resource nationalism is on the rise in mining-dependent countries, yet no clear global trend exists toward the direct

distribution of resource revenues to the general public (Gupta, Segura-Ubiergo, & Flores, 2014; Blanco & Middleton, 2025). In addition, a substantial gender gap in property income persists. Women earn significantly less than men, which exacerbates intra-household inequality. This disparity likely reflects unequal access to asset ownership and economic opportunities.

The tax system's progressivity is another important topic. Mongolia shifted from a progressive income tax system to a flat tax in 2007 and reverted to a progressive model in 2023. However, its contribution to inequality during the study period was likely minimal. The introduction of a 10 percent tax on savings interest for large deposits in 2012, extended to all deposits in 2017, is expected to have reduced inequality, given that higher-income households typically hold larger savings. The 2016 introduction of a 20 percent Value Added Tax (VAT) refund mechanism is also likely to have had a slight progressive effect because VAT is itself a regressive tax in Mongolia (Freije & Yang, 2018). Despite these policy changes, the absence of a broad-based property tax and inconsistent livestock tax implementation have limited the tax system's potential to reduce income inequality. Another important issue to consider is tax evasion, which may significantly undermine the redistributive capacity of fiscal policy.

Finally, this study acknowledges inherent data and methodological limitations. As is typical of household surveys, reported incomes, particularly property income, are prone to underreporting, which may lead to an underestimation of income inequality, given its concentration among higher-income groups. However, the focus on changes over time assumes relatively consistent underreporting throughout the study period, a notion supported by the observed slight fluctuation of Mongolia's shadow economy, ranging from 13.7 percent to 9.2 percent of GDP between 2010 and 2018 (NSO, 2020). While cross-sectional surveys are the main data source, future research should explore alternative data or correction methodologies for underestimation biases. Methodologically, the employed decomposition technique assumes independence between income sources, which may not always hold, as households adapt income strategies to shocks. Although decomposition reveals valuable insights for policymakers in developing strategies to address inequality and evaluating redistributive policy effectiveness across income sources, it identifies associations rather than causes. So there is a need for further study with complementary analytical approaches and broader consideration of demographic, geographic, and socio-economic factors.

7. Conclusion

This study analyzed income inequality in Mongolia from 2007 to 2022 using household survey data and the standard Gini coefficient decomposition (Lerman and Yitzhaki) method. The results show that there is a significant decline in inequality, driven by shifts in income composition. The increased share of wage and government transfers, and the decreased share of self-employment income and income from own consumption are the most significant contributors. Structural economic changes, such as formal labor market expansion and mining sector growth, played a

crucial role. While wage income became a larger contributor to inequality, its concentration decreased. Improved housing conditions had an equalizing effect by reducing the concentration of own consumption income. Government transfers, particularly child benefits, significantly reduced inequality, a role amplified by pandemic-era social safety nets.

Gender disparities in employment and wages increased overall inequality, with men's income changes having a greater impact. Regional differences also shaped inequality trends, with declining self-employment and own consumption having a larger equalizing effect in rural areas. At the same time, wage income changes were more influential in urban areas.

Policy implications include addressing wage disparities in high-growth sectors, enhancing social safety net targeting, implementing inflation-adjusted indexation, keeping inflation at a lower rate, implementing disaster mitigation for herders, leveraging progressive taxation, and introducing wealth taxes.

By examining both monetary and non-monetary income sources, this study contributes to the understanding of inequality in resource-rich developing and transition economies.

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Appendix

Table A1. Average income per capita, by income source (thousand MNT at 2010 prices)

Year	Total	Employee income	Self-employment income	Property income	Income from own consumption	Current transfer
2007	1644	474	486	58	409	217
2010	1781	664	473	69	380	195
2012	2404	901	551	103	444	404
2014	2487	1003	614	94	466	310
2016	2216	970	365	112	415	354
2018	2246	952	419	116	374	386
2020	2753	1192	479	145	440	498
2022	2745	1112	453	113	425	643

Note: The average income for each source includes all households, with zero income assumed for households not receiving income from that source.

Source: Author's calculation based on NSO's HSES data.

Table A2. Evolution of average household characteristics

Year	Household size	Number of children	Number of elders (+60)	Share of salaried workers in the population 15-64, %	Share of households whose primary income source is wage, %
2007	3.87	1.09	0.26	23.2	36.6
2010	3.80	1.04	0.26	29.6	45.2
2012	3.64	1.04	0.24	32.5	43.7
2014	3.52	1.05	0.25	33.4	46.9
2016	3.47	1.08	0.26	32.5	49.3
2018	3.57	1.17	0.28	34.7	47.3
2020	3.61	1.22	0.32	35.9	47.1
2022	3.45	1.16	0.36	37.3	42.8

Source: Author's calculation based on NSO's HSES data.

Table A3. Housing conditions and assets

Year	Share of households living in an apartment or a house	Average area of a house	Share of households' access to centralized heating, %	Share of households' access to centralized water, %	Share of households that have access to home internet, %	Share of households who has a car, %
2007	53.6	35.2	26.1	22.1	2.5	17.2
2010	57.2	37.0	25.6	25.0	9.3	21.8
2012	54.7	38.3	24.2	23.6	14.3	28.0
2014	56.0	40.0	25.9	25.7	20.8	31.3
2016	58.0	42.0	26.1	26.0	23.6	30.9
2018	59.4	44.6	27.5	27.5	36.5	36.8
2020	62.9	46.6	30.3	30.1	39.8	45.2
2022	64.3	48.3	32.6	32.5	44.8	48.7

Source: Author's calculation based on NSO's HSES data.

Table A4. Households with farm and non-farm businesses

Year	Share of households with livestock, %	Number of animals in herder households	Gini coefficient of livestock among herder households	Share of households with crop, %	Share of households with non-farm business,%
2007	36.3	159	0.543	5.7	18.6
2009	38.1	190	0.518	5.5	16.2
2010	29.8	165	0.560	5.9	17.0
2011	29.8	169	0.576	6.1	13.9
2012	29.1	169	0.574	4.7	16.1
2013	30.3	204	0.570	4.3	15.4
2014	29.7	223	0.561	3.4	14.8
2015	29.2	237	0.560	4.2	13.3
2016	24.6	219	0.586	3.0	12.5
2017	26.2	247	0.586	2.9	12.7
2018	25.9	245	0.589	3.3	13.1
2019	25.7	272	0.574	3.3	12.0
2020	26.6	278	0.578	3.3	12.2
2021	28.2	296	0.543	3.1	10.0
2022	26.2	268	0.575	2.8	10.3

Source: Author's calculation based on NSO's HSES data.

Table A5. Sectoral composition of all salaried workers, %

Year	Manufacturing	Mining	Trade	Services	Finance	Prof & Admin	Educ & Health	Other	Total
2007	23.4	5.7	10.0	16.9	2.7	16.3	21.8	3.0	100
2010	21.1	6.3	11.7	18.5	3.2	14.7	21.0	2.9	100
2012	25.0	7.3	11.6	15.7	2.8	14.0	20.5	2.6	100
2014	24.4	6.2	10.8	16.0	3.5	14.6	20.8	3.3	100
2016	21.0	6.2	11.9	15.4	3.6	17.5	21.5	2.7	100
2018	20.9	8.0	12.6	15.8	3.4	15.7	20.3	3.0	100
2020	21.9	8.8	11.1	14.4	3.4	15.9	21.6	3.0	100
2022	21.1	8.9	11.3	15.1	3.3	15.6	22.0	2.7	100

Source: Author's calculation based on NSO's HSES data.

Table A6. Average monthly salary (thousand MNT at 2010 prices)

Year	Manufacturing	Mining	Trade	Services	Finance	Prof & Admin	Educ & Health	Other
2007	226.4	345.5	211.4	227.8	291.2	246.8	239.0	179.0
2010	274.1	422.3	245.9	277.6	338.9	274.4	243.5	185.0
2012	361.0	535.0	311.5	331.2	399.0	342.5	307.3	293.5
2014	403.3	574.5	350.5	370.5	472.6	353.9	323.9	235.4
2016	384.9	585.1	322.3	350.7	427.2	379.6	327.1	265.9
2018	374.9	576.7	320.9	364.3	417.5	356.2	298.1	230.0
2020	450.8	711.6	401.1	434.3	496.2	400.7	360.1	327.9
2022	437.8	690.0	384.9	428.3	468.4	361.3	340.8	309.8

Source: Author's calculation based on NSO's HSES data.

Table A7. Concentration coefficient of sectoral wage

Year	Manufacturing	Mining	Trade	Services	Finance	Prof & Admin	Educ & Health	Other
2007	0.295	0.612	0.235	0.286	0.502	0.386	0.324	0.251
2010	0.289	0.683	0.186	0.307	0.515	0.309	0.117	0.059
2012	0.342	0.670	0.204	0.259	0.439	0.305	0.132	0.239
2014	0.358	0.677	0.225	0.268	0.499	0.220	0.054	-0.068
2016	0.324	0.707	0.121	0.213	0.431	0.302	0.085	0.060
2018	0.343	0.712	0.169	0.315	0.458	0.274	0.026	-0.042
2020	0.347	0.713	0.206	0.306	0.455	0.195	0.044	0.155
2022	0.367	0.711	0.219	0.345	0.440	0.138	0.055	0.096

Note: The concentration coefficient of an income source (e.g., wages in a specific sector) is calculated as the product of the Gini coefficient of that income source and its correlation with total income. It reflects both the degree of inequality within the income source and the extent to which it is associated with overall income levels. A high positive correlation indicates that the income source is concentrated among higher-income households, whereas a negative correlation suggests it is more prevalent among lower-income households.

Source: Author's calculation based on NSO's HSES data.

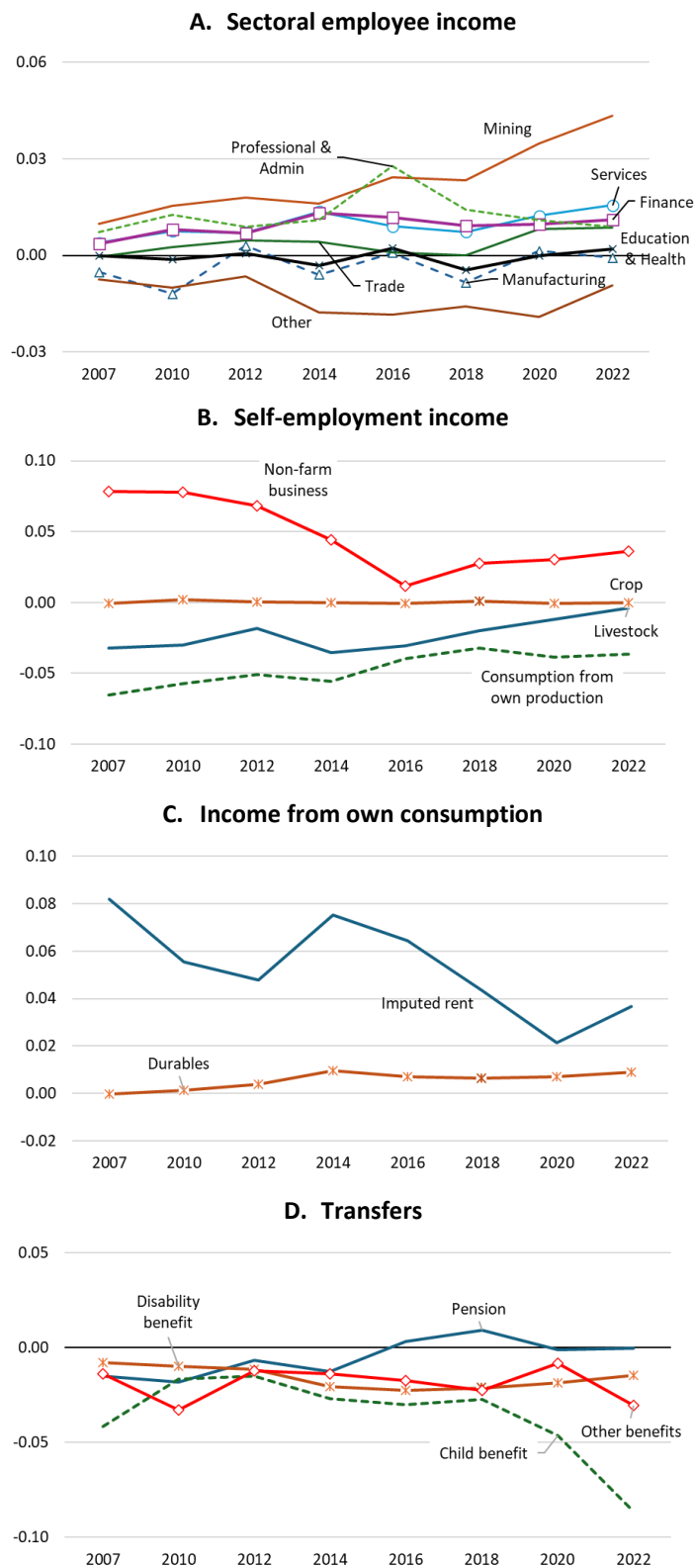
Table A8. Overall contribution of income sources to the inequality LEVEL in 2007 and 2022

	2007				2022			
	Share S _k	Gini G _k	Corr. R _k	Contri- bution	Share S _k	Gini G _k	Corr. R _k	Contri- bution
Employee income	28.8%	0.713	0.665	30.0%	40.5%	0.608	0.666	48.5%
Manufacturing	5.7%	0.923	0.450	5.2%	7.7%	0.897	0.374	7.7%
Mining	2.2%	0.982	0.671	3.2%	5.6%	0.956	0.629	9.9%
Trade	2.3%	0.967	0.461	2.3%	3.9%	0.947	0.436	4.8%
Services	4.3%	0.943	0.528	4.7%	5.7%	0.930	0.463	7.3%
Finance	0.9%	0.988	0.644	1.3%	1.5%	0.982	0.605	2.6%
Public Admin	4.6%	0.942	0.560	5.3%	5.4%	0.920	0.429	6.3%
Educ & Health	5.6%	0.917	0.496	5.6%	7.1%	0.890	0.391	7.3%
Other	3.1%	0.941	0.369	2.4%	3.6%	0.934	0.268	2.7%
Self-employment income	29.5%	0.767	0.554	27.6%	16.5%	0.820	0.402	16.1%
Livestock farm	8.1%	0.859	0.321	4.9%	6.8%	0.916	0.347	6.4%
Crop farm	0.7%	0.991	0.405	0.6%	0.2%	0.997	0.339	0.2%
Own product consumption	7.6%	0.760	0.086	1.1%	3.7%	0.816	0.005	0.0%
Non-farm business	13.1%	0.950	0.766	21.0%	5.8%	0.950	0.577	9.5%
Property income	0.6%	0.996	0.832	1.0%	1.3%	0.932	0.663	2.3%
Rent	0.4%	0.997	0.832	0.7%	0.8%	0.993	0.778	1.7%
Dividend	0.0%	0.999	0.850	0.0%	0.0%	0.999	0.820	0.1%
Interest income	0.1%	0.998	0.808	0.1%	0.0%	0.999	0.797	0.1%
Other income	0.1%	0.999	0.830	0.2%	0.5%	0.844	0.391	0.4%
Income from own consumption	24.9%	0.744	0.813	33.0%	15.5%	0.565	0.776	20.1%
Imputed rent	23.9%	0.756	0.808	32.1%	11.5%	0.621	0.718	15.2%
Consumption of durables	1.0%	0.646	0.678	0.9%	4.0%	0.559	0.745	4.9%
Current transfer	16.2%	0.575	0.411	8.4%	26.3%	0.485	0.347	13.1%
Pension	7.1%	0.858	0.419	5.6%	11.7%	0.825	0.409	11.6%
Disability benefit	1.0%	0.950	0.126	0.3%	1.8%	0.924	0.064	0.3%
Child benefit	3.5%	0.393	-0.226	-0.7%	6.4%	0.372	-0.326	-2.3%
Other benefits	4.6%	0.833	0.384	3.2%	6.5%	0.661	0.270	3.4%
Total	100.0%	0.455	-	100.0%	100.0%	0.338	-	100.0%

Note: The contribution of each income source to the overall level of inequality, as measured by the Gini coefficient in each year, is calculated using equation [1]. Specifically, for income source k , the product of its income share (S_k), its Gini coefficient (G_k), and its correlation with total income (R_k), divided by the Gini coefficient of total income, yields the percentage contribution of that source to inequality. The sum of contributions from broad income categories equals 100 percent. Likewise, the sum of contributions from sub-components corresponds to the total contribution of their respective broad income category. Due to the inclusion of households with zero income from specific sources, the calculated inequality measures (G_k) for those sources tend to be high, in some cases approaching 1.

Source: Author's calculation based on NSO's HSES data.

Figure A1. Marginal contribution of income sources to inequality



Note: Positive values indicate the inequality-increasing marginal contribution, while negative values indicate the inequality-decreasing marginal contribution.

Source: Author's calculation based on NSO's HSES data.