

Task 3A - Milanovic: Building a simplified global “elephant curve”

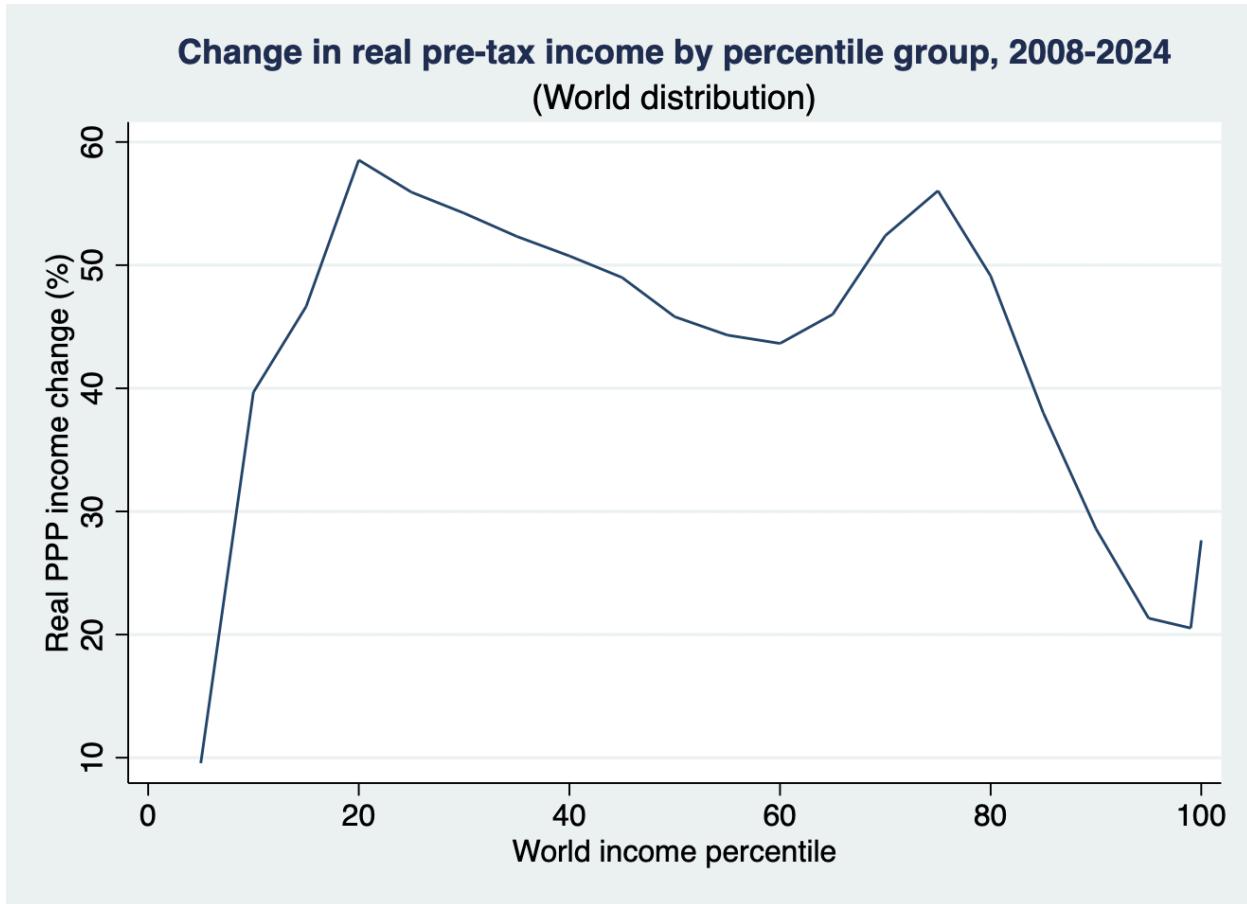


Fig 1. Simplified Global Elephant Curve for 2008-2024

The global elephant curve decomposes the change in real income for each percentile group over a time period. The methodology follows the simple percentage change formula for each income percentile group:

$$\text{real income change} = \frac{(\text{Time period 2 real income} - \text{Time period 1 real income})}{\text{Time period 1 real income}}$$

To replicate this global elephant curve, “time period 2 real income” represents the average global real income in 2024 for each percentile group, and “time period 1 real income” represents the average global real income in 2008 for each percentile group. The income percentiles were

segmented into increments of 5, such as “1st to 5th percentile, 6th-10th percentile” and so forth, with the exception that the top 5 percent were divided into “96-98th percentile” and “99-100th percentile” in order to decompose for the top 1 percent. This decision matches the same methodology that Milanovic used to promote reproducibility and allow comparisons. However, I chose a different time period of 2008-2024 to extend Milanovic’s findings by creating comparisons between different time periods (as Milanovic initially chose 1988-2008). Finally, real income (in PPP) was chosen as price differences between countries should be accounted for to allow an accurate use of global income data.

When examining figure 1, a similar elephant curve shape can be observed as the one in Milanovic’s paper. At extreme income percentiles (lower and upper bound), both ours and Milanovic’s findings show a very low positive income change for lower income percentiles, and a larger change in income for the top 1% than the remaining upper class (e.g. around top 10-15%). However, a major difference is that Milanovic found the ‘nonwinners,’ those experiencing the smallest change in income to be those around the 75th-90th percentile groups. However, our findings based on a more recent time period instead highlights the lower income percentiles (1-10th percentile) as the group with the least income change. There are also differences in the top 1% upper bounds. Despite both graphs demonstrating that the top 1% experience a higher income change than the 70/85-90th percentiles, Milanovic found that between 1988-2008, the top 1% experienced an increase in income by approximately 65%, whereas our findings from 2008-2024 illustrate a much smaller positive change of only 28%.

The most major differences however, were in the middle income percentiles. Milanovic highlighted the biggest winners as those between the 50th and 60th percentile, which experienced the highest income change of approximately 75%. Our findings from 2008-2024 however, show that two major groups experienced the largest income increase: the 20th percentile which experienced a change of almost 60%, and between the 70-80th percentiles which saw an income increase by 50-55%.

These differences can be attributed to data limitations. Milanovic highlighted that data is often missing for the poorest and richest countries. Focusing on poorer countries, the omission of

poorer countries likely caused inequality to be underestimated. However, through technological advancements and globalization over time, survey data access may have increased for poorer countries and allowing the inclusion of them in the dataset. This may explain why the 2008-2024 period shows a much lower income change for the lowest income percentiles than in 1988-2008. Perhaps after being able to account for the poorest countries which still remain poor today, the underestimation of global inequality was corrected and the graph now reflects a more accurate reality that the poorest groups have not grown much in income. For richer countries, Milanovic also mentions reluctance amongst the rich to participate in surveys. This causes data gaps for upper income percentiles as well and if this sentiment has strengthened over time, it may explain why 2008-2024 illustrated a significantly lower income change for the richest group than in 1988-2008, as the richest groups increasingly evade participation in survey data.

Despite excitement surrounding developing economies ‘catching up’ with richer economies, especially with success cases such as China and India, recent data illustrates that inequality continues to persist on a global scale. Although the inclusion of missing data for the poorest and richest income percentiles may paint an even more discouraging image, it is important to continue highlighting global inequality if it is still an issue.