A Report on "Capitalism and Extreme Poverty: A Global Analysis of Real Wages, Human Height, and Mortality Since the Long 16th Century" by Sullivan and Hickel (2023)

Reviewer 2

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> I am wiser than this person; for it is likely that neither of us knows anything fine and good, but he thinks he knows something when he does not know it, whereas I, just as I do not know, do not think I know, either. I seem, then, to be wiser than him in this small way, at least: that what I do not know, I do not think I know, either.
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> Plato, *The Apology of Socrates*, 21d

> To err is human. All human knowledge is fallible and therefore uncertain. It follows that we must distinguish sharply between truth and certainty. That to err is human means not only that we must constantly struggle against error, but also that, even when we have taken the greatest care, we cannot be completely certain that we have not made a mistake.
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> Karl Popper, 'Knowledge and the Shaping of Reality'

Overview

Citation: Sullivan, D., and Hickel, J. (2023). Capitalism and Extreme Poverty: A Global Analysis of Real Wages, Human Height, and Mortality Since the Long 16th Century. *World Development*. Vol. 161, 106026.

Abstract Summary: This paper assesses the claim that global human welfare only began to improve with the rise of capitalism, by examining extant data on real wages, human height, and mortality in five world regions since the long 16th century. The analysis concludes that extreme poverty was not the natural condition of humanity, and that the rise of capitalism was associated with a deterioration in human welfare, with progress only beginning much later due to progressive social movements and public provisioning systems.

Key Methodology: Analysis of extant historical data on three empirical indicators of human welfare: real wages (welfare ratios with respect to a subsistence basket), average adult male height, and mortality rates, across five world regions (Europe, Latin America, sub-Saharan Africa, South Asia, and China) since the long 16th century.

Research Question: Did global human welfare only begin to improve with the rise of capitalism, and did around 90% of the human population live in extreme poverty prior to the 19th century?

Summary

Is It Credible?

Sullivan and Hickel present a provocative challenge to the "standard public-facing narrative" that extreme poverty was the natural condition of 90% of humanity until the rise of capitalism (p. 1). By synthesizing data on real wages, human height, and mortality across five world regions, the authors argue that extreme poverty was historically less prevalent than commonly assumed and that the integration of peripheral regions into the capitalist world-system often coincided with a deterioration in human welfare (p. 2). They further contend that significant progress in welfare indicators typically appeared only in the mid-20th century, driven by progressive social movements rather than market mechanisms alone (p. 4).

The authors' critique of the standard narrative—specifically its reliance on backward-projected national accounts (GDP) which fail to capture non-market provisioning—is methodologically sound. By shifting the focus to "welfare ratios" (the ability of a wage to purchase a subsistence basket), they provide a necessary corrective to the assumption that low GDP equates to absolute destitution (p. 2). However, the credibility of their counter-narrative rests on the robustness of their chosen proxies, which face their own limitations. The analysis relies heavily on the wages of unskilled urban laborers to represent the "global population" (p. 1). Given that the vast majority of the historical population in these regions was agrarian, it is open to question whether urban wage trends accurately reflect the lived experience of the rural peasantry. The authors attempt to mitigate this by triangulating wage data with biological indicators like height and mortality, arguing that these physical metrics would capture broad-based welfare changes even in rural areas (p. 4).

Furthermore, the conclusion that pre-capitalist populations generally lived above the poverty line is often tested against an assumption that laborers worked 250 days per

year (p. 5). The authors acknowledge this figure is arbitrary. However, it is worth noting that in several regions—such as 18th-century Mexico and China—wages were reportedly high enough (often double the poverty line) that laborers could have worked significantly fewer days and still remained above subsistence (pp. 8, 13). Thus, while the "250 days" figure is a standard convention, the finding that it is "unlikely that 90% of the human population lived in extreme poverty" appears robust to some degree of underemployment, though it remains sensitive to extreme seasonality (p. 1).

The article's most striking quantitative claim—that British capitalism caused approximately 165 million excess deaths in India between 1880 and 1920—requires careful scrutiny regarding its baseline (p. 12). To generate this upper-bound figure, the authors use the average death rate of 16th- and 17th-century England as the counterfactual "normal" mortality rate for late 19th-century India. While they justify this by citing research suggesting rough parity in living standards between the regions in the 1600s, applying a pre-industrial European demographic profile to a tropical colony centuries later is a significant methodological leap (p. 3). It is important to note, however, that the authors also calculate excess mortality using an internal baseline (India's average death rate from 1881–1890), which yields a more conservative estimate of 50 million excess deaths (supplementary p. 18). While the article provides strong internal evidence that mortality rates in India did indeed rise during this period, the precise magnitude of "165 million" represents the most aggressive interpretation of the data (p. 12).

Finally, there is a methodological tension in the authors' approach to measurement. They rightly critique GDP for failing to account for "non-commodity forms of provisioning" like foraging or commons access (p. 2). Yet, their primary alternative metric—real wages—is also a market-based indicator. The authors resolve this by arguing that wages track the specific purchasing power of the poor, whereas GDP tracks aggregate economic activity which can rise even as the poor are immiserated.

They contend that if a wage falls below subsistence, it signals a crisis that market income cannot resolve, particularly if access to the commons is simultaneously lost (p. 4). Additionally, the subsistence baskets used to calculate these wages vary in caloric content and composition across regions (e.g., roughly 1,940 calories for Latin America versus 2,251 for Ghana), which introduces uncertainty into the global comparative analysis (supplementary pp. 8–10). Despite these issues, the article convincingly demonstrates that the "90% poverty" baseline is likely an overestimate and that the trajectory of human welfare under capitalism was far more turbulent than the standard narrative suggests.

The Bottom Line

Sullivan and Hickel successfully destabilize the popular narrative that extreme poverty was the universal human condition prior to capitalism, showing that historical GDP data likely underestimates pre-industrial welfare. However, their specific counter-claims—particularly regarding the precise scale of excess mortality in India and the universality of pre-colonial abundance—rely on aggressive assumptions about demographic baselines. While the evidence strongly supports a trend of welfare stagnation or decline during the colonial era, the specific quantitative estimates should be treated as indicative rather than definitive.

Potential Issues

Contestable baseline for excess mortality calculation in India: The article's striking claim of "165 million excess deaths in India between 1880 and 1920" is derived by using the average crude death rate of 16th- and 17th-century England as the "normal" mortality baseline (p. 12). The use of a European country's death rate from 300 years prior as a counterfactual for late 19th-century India is a significant methodological choice. The authors justify this comparison by citing research that found India's extreme poverty rate in the late 16th century to be "on a par with the developing parts of Western Europe" (p. 3). They also note that India's crude death rate in the 1870s was already higher than that of early modern England, suggesting the baseline is intended as a pre-industrial standard before the period of deterioration they analyze (p. 12). While this reasoning is provided, the validity of applying a baseline from a region with a different age structure, population density, and disease environment remains contestable. It should be noted that the authors provide a lower-bound estimate of 50 million excess deaths using an internal baseline (1881–1890 mortality rates), suggesting the 165 million figure is highly sensitive to the choice of counterfactual (supplementary p. 18).

Representativeness of urban wage data: The article's central claims about historical poverty in the "global population" are based on the real wages of unskilled urban laborers (p. 1). This group likely constituted a small fraction of the overwhelmingly rural and agrarian societies under study, and it is uncertain whether their welfare is representative of the rural majority. The article acknowledges this limitation, noting that the data often comes from large institutions like monasteries or colonial trading companies, which "may be unrepresentative of conditions in the broader economy" (p. 5). The authors attempt to mitigate this by triangulating the wage data with two other indicators (human height and mortality) to establish the robustness of the observed trends (p. 5). However, if urban and rural welfare moved in different

directions, the article's main conclusions would be weakened.

Alternative explanations for welfare trends: The article advances a narrative attributing historical welfare declines primarily to the expansion of capitalism. It acknowledges that many of the scholars whose data it uses attribute the same trends to Malthusian population dynamics (p. 15). The article argues against this alternative explanation, asserting that such dynamics are "structured by the politico-economic system" and citing evidence that famines can be averted by distributional policies even when food is available (p. 15). However, the analysis does not formally test the Malthusian hypothesis against its own, nor does it systematically account for other major confounding variables, such as the impact of climate change (e.g., the Little Ice Age) on agricultural productivity and welfare.

Sensitivity to the assumed number of annual working days: The calculation of annual income, and therefore the conclusion that laborers generally lived above the poverty line in earlier periods, utilizes an assumption that an unskilled laborer worked 250 days per year. The authors acknowledge this figure is "arbitrary" and that if laborers worked less due to unemployment or seasonality, "their incomes would be lower than those reported below" (p. 5). However, the article also notes that in many regions (e.g., Mexico, China), wages were sufficiently high that laborers could work significantly fewer days and still remain above the poverty line (pp. 8, 13). While the "250 days" figure is a standard convention in economic history, the article does not provide a formal sensitivity analysis to show exactly where the "break-even" point for poverty lies across all regions studied.

Methodological tension in the critique of GDP: The article's foundational critique of the standard poverty narrative is that its reliance on historical GDP is flawed because GDP "fails to adequately account for non-commodity forms of provisioning, such as subsistence farming, foraging, and access to commons" (p. 2). However, the article's chosen alternative metric—the real wage of an urban laborer—is by definition a measure of a person's capacity to purchase commodities on the market. The

authors argue that wage data provides a conservative "floor" for welfare, as any non-market access would be additional (p. 7). They contend that unlike GDP, which can rise even as non-market access is lost, a wage falling below the cost of a subsistence basket is a direct signal of distress, indicating that market income is insufficient to replace what may have been lost from the commons (p. 4). This creates a methodological tension: the article critiques GDP for its market-based blind spots but then relies on a market-based wage metric, albeit for a different interpretive purpose.

Inconsistent standardization of the welfare ratio metric: The article makes strong cross-regional comparisons, but its core "welfare ratio" metric is not based on a uniform standard. The subsistence baskets that define the poverty line vary significantly across regions in their composition and caloric content, from approximately 1,940 kcal in some Latin American and Indian baskets to 2,251 kcal in the basket for Ghana (supplementary pp. 8–10). The authors acknowledge this, stating that it is a "notable limitation of the welfare ratios literature" and that "Future research is needed to calculate welfare ratios with a consistent basket across regions" (p. 4). They also argue that in some cases, the variation works against their hypothesis; for instance, the higher-calorie basket used for pre-colonial Ghana makes the subsequent decline in welfare there appear more pronounced (p. 9). Nonetheless, the lack of a consistent standard introduces uncertainty into the article's global comparative claims.

Uncertainty in historical data: The article's analysis relies on historical data sources that have inherent limitations, which the authors are generally transparent about. For mortality data, they acknowledge that observed increases in death rates in some colonial contexts could potentially be an artifact of improving state capacity and an "increase in registration" rather than an actual deterioration in health (p. 9; supplementary pp. 15–17). They attempt to mitigate this by using demographic reconstructions for India that are not affected by registration changes and by using an internal baseline for Chile (p. 12; supplementary p. 15). For human height data, they note the reliance on non-representative samples of soldiers and prisoners (p. 5). While

these acknowledgements enhance the article's transparency, the limitations themselves introduce varying degrees of uncertainty into the analysis.

Minor presentation and calculation errors: The article contains several minor errors in the presentation of its data. In Supplementary Table 11 (supplementary p. 13), which details the calculation of the "welfare-adjusted PPP," the sub-calculation for the price of the family meat basket contains a minor arithmetic discrepancy ($159.05 multiplied by 4.2 equals $668.01, not the $688.02 listed). Additionally, the authors note that an extreme positive outlier (Argentina) was omitted from a graph of Latin American welfare ratios to preserve the scale, though it is discussed in the text (p. 8). While these issues do not appear to be structural, they suggest a need for greater care in data presentation.

Future Research

Sensitivity analysis of labor inputs: Future work should conduct a formal sensitivity analysis regarding the "250 working days" assumption. By modeling welfare ratios across a range of working-year lengths (e.g., 150 to 300 days), researchers could establish a confidence interval for historical poverty rates, determining at what specific level of underemployment the authors' conclusions about pre-capitalist welfare would no longer hold.

Standardization of subsistence baskets: To improve the reliability of cross-regional comparisons, future research should recalculate welfare ratios using a unified, physiologically consistent subsistence basket across all regions. Standardizing the caloric and nutritional content (e.g., fixing all baskets to ~2,100 kcal with comparable protein ratios) would eliminate the uncertainty caused by the current variation between the Latin American, African, and European baskets.

Internal mortality baselines: Future studies estimating excess mortality in colonial contexts should prioritize constructing counterfactuals based on internal, pre-colonial demographic data or contemporaneous non-colonized regions with similar disease environments, rather than relying on European baselines. This would provide a more robust estimate of the mortality burden specifically attributable to colonial policy and capitalist integration.

Rural welfare proxies: Given the limitations of urban wage data, future research could exploit alternative archives to reconstruct rural welfare more directly. This might involve analyzing sharecropping contracts, manorial records of peasant retention, or archaeological data on rural skeletal health to verify whether the trends observed in urban centers were representative of the agrarian majority.

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